Landslide and flood hazard assessment

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ABSTRACT PROCEEDINGS
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LANDSLIDE AND FLOOD HAZARD ASSESSMENT
Zagreb, Croatia, 6-9 March 2013

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University of Zagreb
University of Rijeka, Faculty of Civil Engineering
Niigata University, Research Institute for Natural Hazards and Disaster Recovery
Kyoto University, Disaster Prevention Research Institute (DPRI)
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"Risk Identification and Land-Use Planning for Disaster Mitigation of Landslides and Floods in Croatia", a physical model of debris flow propagation will be created at the Faculty of Civil Engineering, University of Kyoto (Japan). Such physical model will provide some of the most significant quantitative values of input model parameters used to create numerical models of debris flow.

The paper will also define and describe the impact of rainfall on incoherent coarse and fine grain rock mass movement triggering. The paper gives a description of the seismic activity which can drastically affect the formation of debris flows.

**WG2-06 – Development of Hydro-Debris 2D and 3D applicable for stony debris flow**

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**ABSTRACT:** The aim of this survey is to develop numerical prediction method “Hydro-Debris 2D” and “Hydro-Debris 3D” applicable for Croatian catchment. They are Euler-Lagrangian Coupling method for stony debris flow with particle sizes, applicable both for experimental field and estimation of real rock movement.

We investigate velocity of each sediment movement through steep-slope channel experimental study, and then compared with numerical simulation results using Hydro-Debris 2D. We employed three different slope angles (15, 20, and 25 degrees) both for experimental and numerical studies. The average velocity values are well simulated in numerical study within 10% difference, in most cases, while some specific case differs much, especially at the last part of debris flow.

Based on these results, Hydro-Debris 3D model has also developed and applied for Grohovo Landslide zone. Although there is no “experimental” study for the landslide zone, our model may predict movement of individual particles, as we assumed that the grain sizes are uniform.