**Phytoplankton biodiversity in the Adriatic deep chlorophyll maxima**

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A well developed deep chlorophyll *a* maximum (DCM) is a prominent feature in the oligotrophic Adriatic Sea. We present three case studies of DCM formations in Southern (May 2009, Albanian Shelf), Middle (May 2003, Jabuka pit) and Northern (July 2007, Velebit and Pag channel) Adriatic Sea, in relation to physico-chemical parameters. The development of the DCM appeared to be closely associated with nutricline, appearing at the lowest depth where light availability makes it possible for phototrophic organisms to exploit nutrients advected from subeuphotic depths. Depending on the depth of nutricline, depth of DCM was mostly found between 50 – 75 m, with the deepest one located at 125 m depth. On all investigated stations DCM showed high patchiness, reflecting the variability in surrounding physical and chemical setting.

In the southern Adriatic, DCM layer was mainly composed of coccolithophores cocolithophorids (up to 4.9 x 10^4 cells/L), dinoflagellates (up to 2.9 x 10^4 cells/L), cryptophytes (up to 1.1 x 10^4 cells/L), diatoms (up to 3.7 x 10^3 cells/L) and sillicoflagelates. Dominant species were *Oxytoxum* *variabile*, *Rhabdosphaera clavigera var. stylifera*, *Syracosphaera pulchra* HOL oblonga type, *Nitzschia longissima* and *N. sicula.*

Middle Adriatic DCM was dominated by diatoms (up to 1.5 x 10^5 cells/L) and cocolithophorids coccolithophores (up to 1.3 x 10^5 cells/L), followed by dinoflagellates and cryptophytes. Dominant species were *Syracosphaera pulchra* HOL oblonga type*, Emiliania huxleyii, Helladosphaera cornifera, Cerataulina pelagica, Chaetoceros socialis, Chaetoceros* sp., *Leptocylindrus danicus*, *Nitzschia longissima, Pseudo-nitzschia* spp., *Rhizosolenia imbricata,* and *Thalassionema nitzschioides.*

The northern Adriatic DCM was dominated by diatoms (up to 1.8 x 105 cells L-1), followed by coccolithophores (up to 5.2 x 104 cells L-1), phytoflagellates and cryptophytes. The phytoplankton assemblage was dominated by *Thalassionema nitzschioides, Pseudo-nitzschia spp., Proboscia alata, Nitzschia longissima, Leptocylindrus danicus, Chaetoceros vixvisibilis, Cerataulina pelagica* and *Emiliania huxleyii.*