



## **Modelling the ecohydrodynamics of the Aegean Sea**

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A 3-D coupled hydrodynamic/biological model is applied in the Aegean Sea, in order to study the seasonal variability of the plankton ecosystem. The MEDATLAS climatological hydrological/biochemical database is used to determine the initial/boundary conditions and calibrate the coupled model with typical values for the Aegean Sea. Main river nutrient inputs and Dardanelles nutrient/chlorophyll inflow are also included in the simulations based on available data. A sea surface chlorophyll seasonal climatology of the Aegean Sea is constructed based on Seawifs daily averaged data from 1997 to 2004 and compared with the model results. The model reproduces fairly well the seasonal variations of the surface and vertical structure of the primary production. Results demonstrate that in such an oligotrophic area, the main factor controlling the time of appearance and magnitude of the local maximum of spring primary production is the upper-water column nitrate content which in turn is related to the intensity of the winter turbulent mixing. Results also show a north-south and west-east chlorophyll concentration decreasing gradient in agreement with observations, which is mainly induced by the Dardanelles input and cyclonic circulation of high chlorophyll Black Sea waters in the Aegean Sea. This project is co-funded by the European Social Fund and National Resources (EPEAEK II) PYTHAGORAS II.