



A study of the plankton ecosystem of the Aegean Sea using Seawifs data and a 3D coupled hydrodynamic/biological model

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A 3-D coupled hydrodynamic/biological model exploiting the MEDATLAS database is applied in order to study the seasonal climatology of the 3D structure of the plankton ecosystem of the Aegean Sea in relation with hydrodynamic processes. The Dardanelles nutrient/chlorophyll inflow as well as the main river and anthropogenic nutrient inputs are also included in the simulations based on recent available data. Furthermore a monthly climatology of sea surface chlorophyll in the Aegean Sea is constructed using Seawifs ocean colour data from 1997 to 2004. The climatological surface chlorophyll patterns produced by the model results are fairly close to those obtained by the Seawifs climatology. Results demonstrate that in contrast with the open sea, where most regions are characterised as oligotrophic or mesotrophic, a great number of coastal areas and especially gulfs with high anthropogenic nutrient load are characterised as eutrophic. Another important feature, revealed by both the model and Seawifs climatologies, is the existence of much larger chlorophyll concentrations in the north-eastern basin and a strong chlorophyll frontal axis cutting diagonally the central Aegean. This seems to be associated with the pattern of the wind-stress curl field, which is negative north of this axis and positive in the southern part of the basin. This results to an anticyclonic circulation in the northernmost part of the basin and a cyclonic one in the southern part of the basin. This circulation pattern re-circulates the nutrient/chlorophyll rich Black Sea Waters in the north-eastern part of the basin resulting in high chlorophyll content, while in the same time the exchange between the north and south Aegean at the east-

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