DISTRIBUTION OF BIOLOGICALLY RELATED PARAMETERS IN THE NORTHEASTERN MEDITERRANEAN

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The vertical distribution of chlorophyll-*a* was recorded throughout the northern part of the Levantine Basin of the eastern Mediterranean and was related to patterns of the physical dynamics for October 1991-March 1994 period. A well developed deep chlorophyll maximum (DCM) was observed in the northern Levantine Basin, with concentrations greater than 1 μ/L at depths ranging from 45-100m on average. Chlorophyll-*a* concentrations ranged between 0.01 (in surface waters, Oct.1991) and 3.07 μ/L (in subsurface waters, March 1992). In general high concentrations of chlorophyll-*a* were observed in late winter. In cyclonic regions the depths of the DCM and the nutricline coincided and relatively high concentrations were observed at shallower depths at relatively high percentages of surface light. Anticyclonic regions the DCM (at low level of concentration) were located at the base of the euphotic zone and much above the nutricline. Well defined DCM feature was not prominent since at most of the stations, uniform distributions of chlorophyll-*a* were observed in the euphotic zone during the cooler winter conditions in 1992. The chlorophyll concentrations were significantly high in this winter when compared with those of ordinary mild winters. Because of the relatively low chlorophyll-a concentration resulting most probably low phytoplankton biomass in the basin and low input of material from the land, a thick euphotic zone forms with an average value of ~80 m.

The average POM (particulate organic carbon, nitrogen and phosphorus) concentrations in the euphotic zone varied regionally and seasonally between 1.44 and 3.7 M for POC, 0.12 and 0.41 M for PON and 0.011 and 0.037 M for PP. Atomic ratios of C/N, C/P and N/P derived from the regressions of POM data, ranged between 5.9 and 107 and 11 and 9.9 and 158 and 21.7 respectively.

Euphotic zone is nutrient depleted and the concentrations are close to detection limits (e.g. 0.02 μM for phosphate and >0.5 μM for nitrate) and in general they do not show significant seasonal variations. Nutricline takes place in the euphotic zone in cyclonic regions. In anticyclonic regions, the main nutricline is deep (as deep as 600m). In cooler winter conditions in 1992, very high concentrations of both nitrate and phosphate (almost equal to deep values) were observed in the euphotic zone in the cyclonic Rhodes region. In deep waters phosphate and nitrate concentrations stay almost constant at the levels of nearly 0.2 and 5.5 μM respectively.

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