Abstract

In June 1999, an oceanographic cruise was carried out on board the O/V Justo Sierra with the aim to identify and characterize the chlorophyll a distribution patterns in the water column, from the continental slope of the northern part of Veracruz, Mexico, to the center of the Gulf of Mexico. Chlorophyll a concentrations were determined in 14 stations by in vivo fluorescence with a Biospherical PNF-300 profiler. Thermocline depth was in agreement with the cyclonic and anticyclonic circulation patterns nearby the continental slope and the open Gulf. Chlorophyll a concentrations ranged between 0.02 and 0.45 mg m^{-3}, and the integrated chlorophyll a values ranged between 1.7 and 12.7 mg m^{-2}. These values were similar to those given for other seasons and regions of the Gulf of Mexico, with a higher contribution by the nanophytoplankton. The higher values were observed close to the continental slope region related to the cyclonic circulation conditions. Four types of vertical profiles were identified as follows: a) one deep maximum (at a depth between 95 to 110 m) associated to the limit of the euphotic layer, b) the chlorophyll a profile was homogeneous, c) two or more maxima were visible, associated to the thermocline or to low irradiances, and d) the presence of a thin layer. Different trophic conditions were observed in the water column. Results are discussed pointing out the great importance of the vertical distribution patterns of chlorophyll a in the food web structure in the euphotic layer.

Keywords

Chlorophyll a, distribution, patterns, Gulf of Mexico.