



The distribution of primary production in the Sardinian Sea during MedGOOS4 and MedGOOS5 cruises

M. Marcelli (1), A. Di Maio (1), L. Lazzara (2), I. Nardello (1), A. Perilli (3), V. Piermattei (1)

(1) DECOS (Department of Ecology and Economic Sustainable Development), University of Tuscia (VT, Italy); (2) DBAG University of Florence (FI, Italy); (3) CNR IAMC, Sez Oristano (OR, Italy); (Contact marcomarcell@tin.it, tel +39.348.7824722)

Two oceanographic campaigns, MedGOOS4 and MedGOOS5, were performed in the Sardinian Sea (Eastern Part of the Algerian Basin), respectively in May and November 2002, to study the extent and distribution of primary production (PP) in relation to mesoscale phenomena. In situ measurements of surface and underwater light, biomass (chlorophyll-a) and photosynthetic efficiency (from fluorescence) allowed estimates of PP based on the Phyto-VFP model. We used the Brunt-Vaisala profile to calculate the mixed layer depth in the whole study area. The Spring cruise was performed on a large part of the Sardinian Sea, and we identified the presence of two large anticyclonic eddies in the open ocean and a smaller one near the Sardinia coast. The larger eddies, 30-40 miles in diameter, reach about 150 m. MedGOOS5 focused on a single anticyclonic eddy, detected from real time SST images, which was located in the Southern part of the study area, 30 miles in diameter and 55m deep. These structures largely affect the distribution and extent of biomass and primary production in the area. Integrated PP, in spring, show minimum values in the centre and maxima on the border of the eddies. The situation appears almost reversed during the November cruise. The mixed layer depth is well defined by the Brunt Vaisala profile, larger in the center than on the edges. We hypothesize that a recorded storm event has determined the homogeneous distribution of biomass and enhanced integrated PP in the center of the eddie.