Geophysical Research Abstracts
Vol. 13, EGU2011-8125, 2011
EGU General Assembly 2011

Variability of the Mediterranean Sea biogeochemistry in the contemporary climate

gelsomina mattia (1), marcello vichi (2,3), byoung an (2), marco zavatarelli (1), and paolo oddo (2)

(1) Università di Bologna, Centro Interdipartimentale di Ricerca per le Scienze Ambientali, Ravenna, Italy, (2) Istituto Nazionale di Geofisica e Vulcanologia, Bologna, Italy , (3) Centro Euro-Mediterraneo per i Cambiamenti Climatici, Bologna, Italy

High resolution simulations of the interannual variability of the Mediterranean sea ecosystem dynamics are presented and discussed.
The modelling system is constituted of the on-line coupling between the BFM (Biogeochemical flux model) and NEMO (Nucleus for European Modelling of the Ocean).
The BFM is a generalized model of marine biogeochemistry that employs a biomass-based, multiple-nutrient description of lower trophic levels in the marine ecosystem.
The ocean model is a primitive equation model based on the Mediterranean Forecasting System (MFS) on a grid of 1/16 degree horizontal resolution and 72 vertical levels, which has been optimized for usage with the biogeochemical model.
Hindcast simulations for the period (1996-2000) were performed using two different sets of forcing functions: the ERA40 and a set of atmospheric forcing for contemporary climate derived from a global coupled climate model.
The presentation focuses on the analysis of the simulated biogeochemical evolution of the Mediterranean basin with emphasis on the primary producers and reality check with satellite data. In this work, we focused on the temporal evolution of the chemical and biological variables. In particular, we compared the monthly averaged numerical results of sea surface Chlorophyll-a concentration derived by simulation forced by ERA40 and satellite data.
From our results, we conclude that the misfit between model results and satellite observations appear systematic. Our results demonstrate the model skills in capturing the interannual variability (determined by the physical forcing) in the basin, but there is an overall tendency to overestimate phytoplankton biomass.