Geophysical Research Abstracts, Vol. 9, 07734, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-07734

Organic carbon export in the NW African high productivity zone

G. Karakas (1), G. Fischer (2), P. Marchesiello (3) and R. Schlitzer (1)

(1) Alfred-Wegener-Institute for Polar and Marine Research, Bremerhaven, (2) University of Bremen, Department of Geosciences, Bremen, (3) Institut de Recherche pour le Developpement, Noumea (Gokay.Karakas@awi.de)

The region off NW Africa is characterised by high primary productivity and high downward flux of particles, making it a potentially significant sink for organic carbon. It is one of the major upwelling zones of the world ocean with intensive mesoscale dynamics. This dynamics affects the regional nutrient and carbon budgets and modifies the high productivity in the coastal transition zone through turbulent mixing processes between nutrient rich coastal and poor offshore waters. We employed Regional Ocean Modeling System (ROMS) with its coupled ecosystem model to investigate the variation of organic carbon fluxes in the water column. Several model experiments were conducted with different sinking velocities and remineralisation rates for the biologically produced particles. The model parameters were adjusted in such a way that surface chlorophyll fields are in agreement with satellite data. The comparison of model results with sediment trap recordings indicates that particle sinking velocities increase with depth. Besides, particle remineralisation appears to have both seasonal and depth dependency. These characteristics need to be incorporated into biogeochemical models for a realistic estimation of fluxes in meso- and bathypelagic layers.