Geophysical Research Abstracts
Vol. 13, EGU2011-4263, 2011
EGU General Assembly 2011

Comparison of regional estimates of particulate organic carbon export in the North Atlantic estimated from SeaWiFS ocean color

Malgorzata Stramska (1,2)

(1) San Diego State University, United States (mstramska@ucsd.edu), (2) Institute of Oceanology Polish Academy of Sciences, Poland

The diffusive component of the particulate organic carbon (POC) export from the ocean's surface layer has been estimated using a combination of the mixed layer model and SeaWiFS ocean color data. Satellite estimates of surface POC derived from ocean color were applied as an input to the model driven by local surface heat and momentum fluxes. The calculations were carried out for several example sites located in the North Atlantic over a 10-year time period (1998-2007). For each year of the examined period, the diffusive POC flux was estimated at a 200-m depth. The highest flux is generally observed in the spring and fall seasons, when surface waters are weakly stratified. In addition, the model results demonstrate significant interannual and geographical variability of the flux. The highest diffusive POC flux occurs in the northern North Atlantic and the lowest in the subtropical region. The interannual variability of the diffusive POC flux is associated with mixed layer dynamics and underscores the importance of atmospheric forcing for POC export from the surface layer to the ocean's interior.