Geophysical Research Abstracts
Vol. 13, EGU2011-5664, 2011
EGU General Assembly 2011

Absorption properties of suspended particulate matter in the Baltic Sea and Pomeranian lakes

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Absorption properties of particulate matter suspended in surface waters of the Southern Baltic Sea and Pomeranian lakes have been analyzed. The database of empirical measurements were carried out on samples collected in different seasons from Southern Baltic region (400 station during 16 cruises on board r/v Oceania conducted between August 2006 and March 2010 and series experiments in the Gulf of Gdansk at Sopot Pier between December 2006 and September 2009) and inland waters represented by three Pomeranian lakes (70 measurements between January 2007 and October 2009). Absorption coefficients of phytoplankton, aph, and nonalagal particles, ad, were determined by spectrophotometric method (according to Tassan-Ferrari method, 1995). Biogeochemical properties of particles were measured in laboratory and characterized in terms of concentration of chlorophyll a - Chla, (spectrophotometric method) and accessory chlorophylls and carotenoids (HPLC method), concentration of suspended particulate matter - SPM, and its inorganic fraction - SPMinorg, (gravimetric and combust method). Based on the gathered database the variability and relationships between light absorption properties of particles suspended in sea and lakes waters and biogeochemical parameters characterized these particles were analyzed and approximated by empirical functions and verified.

This new parameterization, obtained on the basis of the presented investigations, better fitted for absorption properties in coastal waters and inland waters than Bricaud et.al (1995, 1998) parameterization, and can be used to correction remote sensing algorithms of Baltic Sea region and Pomeranian lakes.