Geophysical Research Abstracts
Vol. 12, EGU2010-4152, 2010
EGU General Assembly 2010

Atmospheric dust particles in the deep Atlantic Ocean

Juliane Brust (1), Joanna J. Waniek (1), Detlef E. Schulz-Bull (1), Thomas Leipe (1), Valerie Chavagnac (2), and Thomas Ohde (1)

(1) Leibniz Institute for Baltic Sea Research Warnemünde, Seestrasse 15, 18119 Rostock, Germany, (2) Laboratoire Mécanismes et Transferts en Géologie, Université Paul Sabatier, CNRS, Route de Narbonne 118, 31062 Toulouse, France

The tropical and subtropical Atlantic regions are affected by North African dust outbreaks, transporting considerable amounts of lithogenic detritus over the northern Atlantic. Lithogenic particles delivered to remote oceanic areas via air transport play a major role in marine biogeochemical cycling and particle downward flux with mechanisms behind still under debate. Here we present our observations of lithogenic particle fluxes detected in a sediment trap at 2000 m depth in the subtropical Northeast Atlantic (33°N, 22°W) in conjunction with satellite derived dust Aerosol Optical Depth (AOD) over a three year observation period (2002-2005). Lithogenic flux at depth and dust AOD show a significant correlation with a time delay ranging between one and two months. This fact indicates a direct coupling between atmospheric dust input to ocean surface waters and its downward flux, whereas a decoupling of both processes was often observed in other oceanic areas of the North Atlantic. These results will be discussed together with atmospheric and oceanic residence times and transport velocities, with mineralogical variations throughout the sampling years and with satellite chlorophyll a data.