Geophysical Research Abstracts
Vol. 13, EGU2011-1863, 2011
EGU General Assembly 2011

Influence of North Atlantic variability on the North Sea

Michaela Markovic (1), Sabine Hüttl-Kabus (1), Birgit Klein (1), Uwe Mikolajewicz (2), Holger Klein (1), and Dimitry Sein (2)

(1) Bundesamt für Seeschifffahrt und Hydrographie, Germany (michaela.markovic@bsh.de), (2) Max-Planck-Institute (MPI-M), Hamburg, Germany

Temperature increases in the North Atlantic have been reported for the last twenty years and similar changes are observed in the North Sea. This study using the ocean model MPI-OM of the Max-Planck-Institute (MPI-M), Hamburg will focus on the transfer of variability signals between the North Atlantic and the North Sea. The grid structure of the MPI-OM allows for the combination of a global ocean model with a regional high resolution area and resolves scales of 5-15 km in the North Sea. Furthermore, the MPI-OM can be run in a regionally coupled mode using the REMO atmosphere model and includes an tide model.
The characteristics of the salty inflow between the Orkney and Shetland Islands and the Norwegian Coast are discussed in several observational and modeling studies in-situ data will be compared with different model set-ups in order to validate the MPI-OM used for the in this region first. Next, the effects of tidal mixing and regional coupling on the watermass properties of the North Sea inflow will be studied by using a set of different model experiments. A further intention of this model study is to analyse the variability at the northern boundary at $\sim$60°N. Independent of the used model experiment the model's inflow time series shows warm-saline periods and cold -fresh periods. Correlations with the North Atlantic Current will be calculated to investigate a possible connection to variations in the atmospheric forcing.