



Ocean Data Assimilation in the Earth System Model of the DWD

The project “Earth System Modelling at the Weather scale” (ESM-W) by DWD in cooperation with GeoInfoDienst BW aims to develop a global coupled ocean-atmosphere forecasting system based on the ocean model ICON-O and the atmospheric model ICON-NWP. It uses a weakly-coupled assimilation approach combining the operational DA system of DWD for the atmosphere with a newly developed 3DVar(-FGAT) system for the ocean. The atmospheric assimilation window is three hours as in the operational set-up whereas in the ocean the assimilation takes place only once per day. In the ocean, we assimilate vertical profiles of temperature and salinity from ARGO floats and satellite products of sea surface temperature (OSTIA) and sea surface salinity (SMOS mission). An assimilation experiment was run and evaluated for a full year. We present verification results of the analysis and the first guess against both in-situ and satellite observations, including non-assimilated datasets such as e.g. non-profiling buoys.

M. Sprengel(1), M. Ghanbarpour(1), N. Schenk(1), R. Williams(1), S. Hollborn(1), J. Keller(1), R. Potthast(1); (1) Deutscher Wetterdienst, Offenbach, Germany