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Developing a data assimilative forecasting system of the biogeochemistry of the North and Baltic Seas

Svetlana Losa (1), Lars Nerger (1), Ina Lorkowski (2), Thorger Bruening (2), Frank Janssen (2), Carole Lebreton (3), and Carsten Brockmann (3)

(1) Alfred Wegener Institute Helmholtz Center for Polar and Marine Research, Climate System, Bremerhaven, Germany (Svetlana.Losa@awi.de), (2) Federal Maritime and Hydrographic Agency, Hamburg, Germany, (3) Brockmann Consult, Geesthacht, Germany

A biogeochemical forecasting system of the North and Baltic Seas is developed based on the HIROMB-BOOS circulation Model (HBM) coupled with the ERGOM ecosystem model and augmented by observational data assimilation (DA). The DA system is built within the Parallel Data Assimilation Framework (http://pdaf.awi.de). In the frame of ensemble based DA techniques, we consider various aspects and strategies of the biogeochemical state and parameter estimation when assimilating MODIS satellite chlorophyll “a” and NOAA’s sea surface temperature observations. In particular, we discuss identification of crucial ecosystem parameters, assumed stoichiometry and scaling biogeochemical variables in the presence of non-Gaussianity.