Development of a data assimilation system for BSH operational model of the North and Baltic Seas

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Different formulations of SEIK filter have been implemented and validated for NOAA sea surface temperature (SST) data assimilation into BSH operational 5 km resolution circulation model for the North and Baltic Seas. Initial model variance/covariance matrix has been computed with given one year (10.2007 — 09.2008) of model integration. The SST data are assimilated every 12(24) hours in order to improve model forecast for the sea surface temperature. Salinity, sea surface high and velocity fields are also included in the model state vector. As some independent information we have used temperature and salinity profiles from a number of Marnet stations and sea level observations at tide gauges.