

Sea surface temperature assimilation in a high resolution model of the North Sea

S. Ponsar, I. Andreu-Burillo and P. Luyten

This work is realised in the framework of the European project ODON (Optimum Design of Observational Networks). The aim of this project is to provide an estimation of the efficiency of the observational networks in providing information for previsions of the North Sea and Baltic Sea. To reach this goal, one of the steps in the project is the implementation of data assimilation schemes in community models of the North Sea and Baltic Sea.

The study presented here is based on the three-dimensional hydrodynamic component of the model COHERENS which has recently been parallelised to allow high resolution simulations of the North Sea. We study the effect of assimilating satellite sea surface temperature data through an Ensemble Kalman Filter on previsions of the temperature field of the North Sea for the year 2001 (spatial resolution of 4 nautical miles) . Results are compared to in-situ temperature profiles for the same year. A series of numerical simulations show an improvement in the predictive ability of the model when SST data are assimilated.