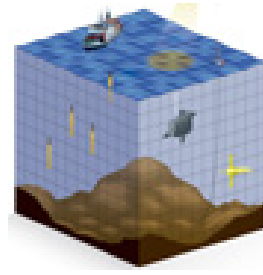


Joint ECMWF/OceanPredict workshop on Advances in Ocean Data Assimilation



Contribution ID: 19

Type: **Poster presentation**

Improving Met Office predictions of Arctic sea ice through assimilation of CryoSat-2 and SMOS thickness data

Arctic sea ice is one of the most rapidly and visibly changing components of the global climate system. Although global analysis and forecasting systems have been used successfully for mid-latitude ocean prediction for some time, their application to Arctic sea ice is less mature, since observations are much less abundant and data assimilation techniques less advanced in the polar regions than at lower latitudes. In this work, we aim at implementing sea-ice thickness data assimilation from satellite measurements within the Met Office Forecast Ocean Assimilation Model (FOAM), specifically: CryoSat-2 and Soil Moisture and Ocean Salinity (SMOS). The FOAM data assimilation scheme is NEMOVAR, a three-dimensional variational data assimilation (3D-Var) with the first guess at appropriate time (FGAT). We derive sea-ice thickness (SIT) from along-track sea-ice freeboard measurements in CryoSat-2, focusing on the assimilation of thicker ice, whereas SMOS assimilation is particularly focused on the thinner ice. Therefore, we will show results of FOAM runs with the assimilation of SIT from CryoSat-2 and SMOS individually, as well as combined.

Which theme does your abstract refer to?

Assimilation of novel observations (i.e. under-utilized observations and upcoming missions)

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