
Assimilation of satellite total surface current velocities in global ocean forecasting systems

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Abstract

Accurate prediction of ocean surface velocity is important for various applications such as search and rescue, marine plastic tracking and coupled forecasting. Observations of ocean velocities are currently limited and are not routinely assimilated in global operational ocean forecasting systems. This may change with proposed new satellite missions designed to observe ocean surface velocities.

The ESA Assimilation of Total Surface Current Velocities (A-TSCV) project aims to investigate the design, implementation and impact of assimilating synthetic TSCV data in global ocean forecasting systems. The project will use observing system simulation experiments (OSSEs) to test the assimilation methodology and provide feedback on the observation requirements for future satellite missions. Synthetic observations of the standard observing network along with synthetic observations of new satellite total surface current velocities are being generated from a high-resolution nature run. The assimilation of these observations will be tested in the Met Office FOAM and the Mercator Ocean forecasting systems.

The OSSEs are not yet complete, but we will present an overview of the project, the design of the experiments and the data assimilation developments being made to effectively assimilate the surface velocity data into these systems.

Keywords: Ocean Data Assimilation, Total Surface Current Velocities, observing system simulation experiments

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