



Assessing the impact of assimilating high-resolution SLA fields (SWOT) into MOVE/MRI.COM-JPN

Integrating satellite altimetry, particularly the Surface Water and Ocean Topography (SWOT) mission, into numerical models presents a promising frontier in oceanographic research. This study aims to assess the impact of assimilating SWOT altimeter sea level anomaly (SLA) data into operational ocean data assimilation/prediction system. The Japan Meteorological Agency (JMA) has a plan to introduce SWOT data to MOVE/MRI.COM-JPN (MOVE-JPN), which covers the seas around Japan with a horizontal resolution of 2 km, as a system capable of monitoring and forecasting such coastal phenomena. MOVE-JPN is now using Jason-3, SARAL, Cryosat-2, Sentinel-3A/B and HY-2B. along-track SLA data from CMEMS. SLA is assimilated after exclusion of two nonsteric components, namely the global ocean mass change and the sea level variations due to the barotropic response to atmospheric forcing. Through comparative analysis against conventional systems and observational datasets, we quantify the benefits of assimilating SWOT data, highlighting enhanced predictive capabilities and improved representation of complex oceanic phenomena.

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