A new operational ocean data assimilation and forecasting system of the Japan Meteorological Agency



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1. Introduction

Japan Meteorological Agency (JMA) and Meteorological Research Institute (MRI) have newly developed a new ocean data assimilation and forecasting system: 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 coastal phenomena, and started its actual operation in October 2020. The new system is expected to contribute to ocean state information put on the JMA web site, and to be used to support maritime traffic, fisheries, oil spills, and other activities such as searching for ships and aircraft in distress. JMA plans to assimilate Sentinel-3A/B and HY-2B altimeter sea level anomaly (SLA) data in the MOVE–JPN, on top of assimilating Jason-3, SARAL and Cryosat-2 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



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(a) RMSE difference of daily 100m-depth temperatures against in-situ observations between CNTL and TEST. Warmer (cooler) color indicates RMSE of TEST is lower (larger) than that of CNTL.

(b) Time series of RMSE for Japan (117-160°E, 20-50°N; indicated by greed dot square in (a)). (c) Vertical profile of RMSE for Japan in Jun. 2021.