Ocean Data Assimilation in the Indian and Pacific Oceans

Changxiang Yan\textsuperscript{a}, Jiang Zhu\textsuperscript{b} and Jiping Xie\textsuperscript{c}

\textsuperscript{a}Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, 100029, China, ycxlassg@mail.iap.ac.cn. \textsuperscript{b}Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, 100029, China. \textsuperscript{c}Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China.

The ocean data assimilation system is developed in the Indian and Pacific oceans. An ensemble-based method is used to assimilate various types of observations including in-situ temperature and salinity profiles (MBT, XBT, ARGO, TAO, CTD and other stations), remotely-sensed sea surface temperature and altimetry sea level anomaly into the HYbrid Coordinate Ocean Model (HYCOM). The assimilation of temperature and salinity profiles is performed by a different method [Xie and Zhu, 2010]. Instead of temperature and salinity profiles, the pseudo-observations of layerthickness calculated from temperature and salinity observations are firstly assimilated to adjust model layerthickness and current fields. Then, the temperature or salinity observations are assimilated separately. The assimilation experiment is performed in the Indian and Pacific oceans. The assimilation results are evaluated by the comparison to climatology observations, independent ARGO observations, independent TAO current, drifters and tide gauge observations. The assimilation experiment shows a good agreement with observations. Additionally some comparisons with reanalysis products such as SODA, ECCO are carried out.

References