

Development of a high-resolution ocean data assimilation system and evaluation of ocean observing systems

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Ocean data assimilation, which integrates numerical ocean models and ocean observations, have made progress along with advancements in ocean modeling and enhancement of ocean observing systems such as Argo floats and satellite altimetry. Ocean data assimilation systems are currently in operation in various operational centers and research groups for the purpose of climate prediction and ocean weather forecasting. In Japan Meteorological Agency, a global system for El Nino prediction and a regional system covering seas around Japan were first implemented around 2000. After continuous improvement of both the ocean model and data assimilation scheme, the latest system which consists of a 2-km ocean model and four-dimensional variational assimilation method will be started in operation this year. One of the important targets of data assimilation systems is to evaluate impacts of ocean observing systems. To investigate impacts of ocean observations on assimilation and forecast results is important in terms of designing and maintaining effective observing systems. In this presentation, present status of development of high-resolution assimilation system at Meteorological Research Institute and observing system evaluation experiments using the assimilation systems as well as future perspective will be shown.

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