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The 1/12 degree Global HYCOM Nowcast/Forecast System

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The 1/12 degree global HYbrid Coordinate Ocean Model (HYCOM) has been running daily since 22 December 2006. With ∼7 km mid-latitude resolution (3-4 km near the poles), the system depicts the location of mesoscale features such as oceanic eddies and fronts and provides the three dimensional ocean temperature, salinity and current structure. An efficient assimilation scheme is necessary in order to run within the time constraints of an operational center. The Navy Coupled Ocean Data Assimilation (NCODA) system is used to assimilate available observations. An important component of the NCODA system is the quality control of the observations. NCODA uses a multivariate optimal interpolation scheme (MVOI) that assimilates surface observations from satellite altimeter tracks and available SST data. A 3 dimensional variational analysis scheme is in the process of being implemented as a replacement for MVOI. NCODA also assimilates in situ observations, including profile data from BT's and Argo floats. The daily run consists of a 5-day hindcast with an NCODA analysis each day and then a 5-day forecast. Over the last couple of years a series of validation tasks have been performed to evaluate the HYCOM/NCODA system. Independent observations are used whenever possible in the evaluation of assimilation system performance. A subset of these evaluations will be presented. The prediction system provides boundary conditions for higher resolution nested models. An accurate representation of the oceanographic fields at the open boundaries of a model is important for a successful ocean prediction system. Results from the global system can be viewed on the HYCOM web page http://www.hycom.org. The hindcast and the real time model output can also be accessed through this web page.