OceanNOMADS – An update: Real-time and retrospective access to operational U.S. ocean prediction products

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In 2011, the National Oceanic and Atmospheric Administration (NOAA) National Ocean Data Center (NODC), the National Centers for Environmental Prediction (NCEP) and the Naval Oceanographic Office (NAVOCEANO) developed a capability to allow real-time and retrospective access to operational ocean predictions. The OceanNOMADS serves as an analogue to NOAA's National Operational Model Archive and Distribution System (NOMADS) that provides both real-time and archived atmospheric model output from servers at NCEP and the National Climatic Data Center (NCDC) respectively (http://nomads.ncep.noaa.gov/txt_descriptions/marRutledge-1.pdf). This paper provides an update on the current status and future plans regarding OceanNOMADS.

With OceanNOMADS, an NCEP ftp server presently provides real-time NOAA and Navy ocean forecast output (http://www.opc.ncep.noaa.gov/newNCOM/NCOM_currents.shtml) with retrospective access through NODC servers. The National Coastal Data Development Center (NCDDC; a division of NODC) provides the retrospective access to ocean prediction fields through the OceanNOMADS production server (http://www.ncddc.noaa.gov/ocean-nomads/). Established in summer 2011, this production version evolved from a developmental OceanNOMADS (http://www.northerngulfinstitute.org/edac/ocean_nomads.php), a joint project of NCDDC and the Northern Gulf Institute (NGI; a NOAA Cooperative Institute) funded under the NGI Ecosystem Data Assembly Center (EDAC) project (http://www.northerngulfinstitute.org/edac/). Complementary funding from the U.S. Integrated Ocean Observing System (IOOS) via the Southeastern University Research Association (SURA) Model Testbed (http://testbed.sura.org/) supported this transition. This development to production pathway allows access tool development as well as web service visualization and storage of initial archival data sets on the NGI/NCDDC developmental server. Transition to the NODC/NCCDC production server occurs as the model archives mature and operational space and distribution capability grow.

The NCDDC OceanNOMADS production server catalog currently includes: (1) regional subsets from the Navy's Global NCOM, (2) NOAA's Real-Time Ocean Forecasting System (RTOFS) for the Atlantic and Gulf of Mexico, and (3) the ocean component of NOAA's Climate Forecast System Reanalysis. The NGI/NCDDC developmental server currently includes the Naval Research Laboratory Inter-America Seas nowcast/forecast System for the Gulf of Mexico from 2004-Mar 2011. It also contains the operational NAVOCEANO regional nowcast/forecast domains for: the U.S east coast from early 2011 to present, the

Gulf of Mexico/Caribbean from 25 June 2010 to present, and Southern California from August 2011 to present.

Future OceanNOMADS plans include expanding the catalog of available datasets, transitioning retrospective fields from the developmental to production server, and developing enhanced data services targeted for specific user groups. In October 2011, NCEP implemented the first operational Global Real Time Ocean Forecast System (G-RTOFS) based on the Navy implementation of the Global HYCOM model. Real-time operational G-RTOFS output is currently available through the NCEP operational NOMADS at http://nomads.ncep.noaa.gov with planned future inclusion of the retrospective global fields on OceanNOMADS. Time aggregations of the NAVOCEANO high-resolution coastal model coverage around the continental U.S., already available through the developmental server as noted earlier, will also be added to NCDDC's production servers. Finally, we are developing software tools that enable the reuse of these model fields as input for ecosystem models applicable to larval transport, food web and other studies.