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Technical Implementation Notice XX-XX
NOAA's National Ocean Service Headquarters Washington DC
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From: Peter Stone
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NOS Center for Operational Oceanographic Products and
Services (CO-OPS)

Subject: Implementation of National Ocean Service's new
Oceanographic Forecast Modeling System for the
Delaware Bay, Effective March 29, 2011

Effective March 29, 2011 beginning at 1500 Coordinated Universal Time (UTC) (10AM EST), the NOAA/National Ocean Service Delaware Bay Operational Forecast System (DBOFS) will be implemented operationally on NOAA's Central Computer System (CCS) operated by NCEP Central Operations (NCO). DBOFS provides users with nowcasts (analyses of near present) and forecast guidance of the three-dimensional physical condition of the Delaware Bay, including 3-D water currents, water temperature, and salinity as well as surface water levels out to 48 hours.

DBOFS uses as its core numerical ocean prediction model the Rutgers University's Regional Ocean Modeling System (ROMS), a community-based, free-surface, hydrostatic, primitive equation ocean model which uses stretched, terrain-following sigma coordinates in the vertical and curvilinear coordinates in the horizontal. The DBOFS grid has 119 x 732 points in the horizontal. The grid resolution in the x- and y- directions

ranges from 100m (328 feet) to 3km (1.86 miles). The vertical coordinate system of ROMS follows the bathymetry and consists of 10 model sigma levels. The bathymetry used by DBOFS is based on NOS bathymetric data from the NOS/Office of Coast Survey's hydrographic surveys. The DBOFS grid domain was designed to include the entire Delaware Bay and a piece of the continental shelf to allow a realistic interaction between the shelf and the entrance to the Bay.

DBOFS includes four daily nowcast and forecast cycles at 0, 6, 12, and 18 UTC and operates within NOS' Coastal Ocean Modeling Framework (COMF). The DBOFS nowcast cycles use the previous 3-D nowcast as its initial conditions along with meteorological forcing provided by hourly surface wind analyses from NCEP's Real-Time Mesoscale Analysis (RTMA) and surface heat flux from NCEP's North American Mesoscale (NAM) weather prediction model. River discharge is estimated using near-real-time observations from U.S. Geological Survey river gauges. Oceanographic conditions on DBOFS' lateral boundary on the shelf are estimated based on subtidal water level forecast guidance from NWS' Extra-Tropical Storm Surge (ETSS) Model and adjusted by observed subtidal water levels at NOS water level gauges at Ocean City Inlet, MD and Atlantic City, NJ, tides from the Advanced CIRCulation Model (ADCIRC) EC2001 tide database, and the U.S. Navy's Coastal Ocean Model (NCOM) water temperature and salinity nowcasts.

The DBOFS forecast cycles use its latest 3-D nowcast as initial conditions, meteorological forcing provided by NCEP's NAM model forecast guidance, and river discharge estimated by persisting the most recent observations for the entire forecast period. On the lateral ocean boundary, forecast water levels are estimated based on subtidal water level forecast guidance from the NWS ETSS Model and tides from the ADCIRC, while water temperature and salinity conditions are based on NCOM forecast guidance.

Gridded and point forecast guidance from DBOFS will be available in Network Common Data Form (netCDF) files on the NCEP server at NOAA's Web Operations Center(<ftp.prd.ncep.noaa.gov>) in the directory

`/pub/data/nccfs/com/nos/prod/dbofs.yyyymmdd`

At the NOS/CO-OPS OPeNDAP server

<http://opendap.co-ops.nos.noaa.gov/netcdf/>

and at the CO-OPS THREDDS server

<http://opendap.co-ops.nos.noaa.gov/thredds/catalog.html>.

DBOFS output is displayed on the CO-OPS web page

<http://tidesandcurrents.noaa.gov/models.html>

and the NOS nowCOAST web mapping portal at

<http://nowcoast.noaa.gov>.

Additional information about DBOFS can be found at

<http://www.tidesandcurrents.noaa.gov/models.html>.

DBOFS predictions are used by commercial and recreational mariners and fishermen, emergency managers, search and rescue operations, and NWS marine weather forecasters. The development and implementation of DBOFS was a joint project of the NOS/Office of Coast Survey/Coast Survey Development Laboratory, the NOS/Center for Operational Oceanographic Products and Services (CO-OPS), NWS/NCEP/NCO, and the ROMS development group at Rutgers University. DBOFS is monitored 24 x 7 by both NCO and CO-OPS' Continuous Operational Real-Time Monitoring System (CORMS) personnel.

If you have any questions concerning DBOFS, please contact:

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For questions regarding the dataflow aspects with respect to NCEP server at the WOC, please contact:

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For questions on how to access DBOFS digital products from CO-OPS servers please contact:

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