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Technical Implementation Notice XX-XX  
NOAA's National Ocean Service Headquarters Washington DC  
Related by National Weather Service Washington DC

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**From:**       Peter Stone  
                  Chief, Oceanographic Division  
                  NOS Center for Operational Oceanographic Products and  
                  Services (CO-OPS)

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

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

TBOFS 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 TBOFS grid has 176 x 290 points in the  
horizontal. The grid resolution in the x- and y- directions

ranges from 100m (328 feet) to 1.2km (0.75 miles). The vertical coordinate system of ROMS follows the bathymetry and consists of 11 model sigma levels. The bathymetry used by TBOFS is based on NOS bathymetric data from the NOS/Office of Coast Survey's hydrographic surveys. The TBOFS grid domain was designed to include the entire Tampa Bay and a piece of the Florida shelf to allow a realistic interaction between the shelf and the entrance to the Bay.

TBOFS includes four daily nowcast and forecast cycles at 0, 6, 12, and 18 UTC and operates within NOS' Coastal Ocean Modeling Framework (COMF). The TBOFS 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 TBOFS' 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 gauge at Clearwater Beach, FL, tides from the Advanced CIRCulation Model (ADCIRC) EC2001 tide database adjusted using verified tide constituents at CO-OPS water level gauges of Clearwater Beach and Venice Pier, and the U.S. Navy's Coastal Ocean Model (NCOM) water temperature and salinity nowcasts.

The TBOFS 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 TBOFS will be available in Network Common Data Form (netCDF) files on the NCEP server at NOAA's Web Operations Center ([ftp.prdd.ncep.noaa.gov](http://ftp.prdd.ncep.noaa.gov)) in the directory

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

and the NOS/CO-OPS OPeNDAP server at

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

and the CO-OPS THREDDS server at

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

TBOFS output is displayed on the CO-OPS web page at

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

and the NOS nowCOAST web mapping portal at

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

Additional information about TBOFS can be found at

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

TBOFS 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 TBOFS 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. TBOFS 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 TBOFS, 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 TBOFS digital products from CO-OPS servers please contact:

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