NOUS41 KWBC 291303 AAA
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Technical Implementation Notice 13-41, Amended
NOAA's National Ocean Service Headquarters Washington DC
Related by National Weather Service Washington DC
805 AM EST Wed Jan 29 2013

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

Subject: Amended: Implementation of National Ocean Service's new Oceanographic Forecast Modeling System for the San Francisco Bay Delayed until March 11, 2014

Amended to delay effective date until March 11, 2014

Effective March 11, 2014 beginning at 15z Coordinated Universal Time (UTC), 1000 AM EST, the NOAA/National Ocean Service San Francisco Bay Operational Forecast System (SFBOFS) will be implemented on NOAA's Weather Climate Operational Supercomputing System (WCOSS) operated by NCEP Central Operations (NCO). SFBOFS will provide users with nowcasts (analyses of near present) and forecast guidance of the 3-dimensional physical conditions of the San Francisco Bay, including surface water levels and 3-D water currents, water temperature, and salinity out to 48 hours.

As its core ocean prediction model, SFBOFS uses the Finite Volume Coastal Ocean Model (FVCOM) developed jointly by the University of Massachusetts, Dartmouth and the Woods Hole Oceanographic Institution. FVCOM is a prognostic, unstructured-grid, finite-volume, free-surface, 3-D primitive equation coastal ocean model with a horizontal grid comprised of unstructured triangular cells and where the irregular bottom is presented using generalized terrain-following coordinates.

The SFBOFS grid consists of 54,120 nodes and 102,264 elements and includes the near shelf from Point Reyes (north) to Point San Pedro (south), the entrance of San Francisco Bay, and the complete bay system (Suisin Bay, San Pablo Bay and Central and South Bays). Grid resolution ranges from 39 km near the offshore open ocean boundary to approximately 100 m near the coast, indicating the flexibility of the grid size based on bathymetry from the deep ocean to the coast. Additionally, the higher

resolution along the navigational channels within the bays, from approximately 100 m to 10 m, provides detailed current features.

SFBOFS operates within the NOS Coastal Ocean Modeling Framework (COMF) and has four daily nowcast and forecast cycles at 03, 09, 15 and 21 UTC.

For the SFBOFS nowcast cycle, the meteorological forcing is provided by the nested, high resolution (4 km) NCEP North American Mesoscale (NAM) weather prediction model. River discharge and stage are estimated using near-real-time observations from U.S. Geological Survey river gauges. Oceanographic conditions of subtidal water levels, water temperature and salinity on SFBOFS' lateral open boundary on the shelf are estimated based on forecast guidance from the Global Real-Time Ocean Forecast System (G-RTOFS) and adjusted by real-time observations at NOS water level gauges. Tides are derived from a regional tidal model of the northeast Pacific Ocean developed by Dr. Mike Foreman. The Navy's Hybrid Coordinate Ocean Model (HYCOM) and the NWS Extra-Tropical Storm Surge (ETSS) Model are used as a backup if G-RTOFS is not available.

For the SFBOFS forecast cycle, the meteorological forcing is provided by the nested, high resolution (4 km) NCEP North American Mesoscale (NAM) weather prediction model. River discharge and stage are estimated by persistence of the most recent near-real-time observations from U.S. Geological Survey river gauges. Oceanographic conditions of subtidal water levels, water temperature and salinity on SFBOFS' lateral open boundary on the shelf are estimated based on forecast guidance from G-RTOFS. Tides are derived from Dr. Mike Foreman's northeast Pacific Ocean tidal model. The Navy's HYCOM and the NWS Extra-Tropical Storm Surge (ETSS) Model are used as a backup if G-RTOFS is not available.

Gridded and point forecast guidance from SFBOFS will be available in netCDF files on the NCEP server at NOAA's Web Operations Centers (WOC) (ftpprd.ncep.noaa.gov) in the directory

/pub/data/nccfs/com/nos/prod/sfbofs.yyyymmdd

at NOS/CO-OPS OPeNDAP server

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

and at CO-OPS THREDDS server

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

SFBOFS output is displayed on the CO-OPS web page at http://tidesandcurrents.noaa.gov

Additional information about SFBOFS can be found at

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

SFBOFS 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 SFBOFS was a joint project of the NOS/Office of Coast Survey (OCS), the NOS/Center for Operational Oceanographic Products and Services (CO-OPS), NWS/NCEP/NCO and the University of Massachusetts, Dartmouth, and the Woods Hole Oceanographic Institution. SFBOFS is monitored 24x7 by both NCO/NCEP and CO-OPS Continuous Real-Time Monitoring System (CORMS) personnel.

If you have any questions concerning these changes, please contact:

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For questions regarding the dataflow aspects with respect to the NCEP server at the WOC, please contact:
Rebecca Cosgrove
NCEP/NCO Dataflow Team
College Park, MD
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For questions on how to access SFBOFS digital products from CO-OPS servers please contact:
NOS/CO-OPS/User Services Team
Silver Spring, MD
Email: tide.prediction@noaa.gov

NWS National Technical Implementation Notices are online at:

http://www.weather.gov/os/notif.htm

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