

April 23, 2012

MEMORANDUM FOR: NCEP Model Implementation Scientific Review Team

FROM: Chris Caruso Magee, Team Lead, Production Control
Production Management Branch, NCEP Central Operations

SUBJECT: Proposed Implementation of Extratropical Surge and Tide Operational Forecast System V1.0.0

The Coastal Survey Development Laboratory (CSDL) of the National Ocean Service (NOS) and the Environmental Modeling Center (EMC) have proposed implementation of the Extratropical Surge and Tide Operational Forecast System (ESTOFS) V1.0.0. ESTOFS will provide forecasts of surges with tides, astronomical tides, and sub-tidal water levels (the isolated surges) throughout the Western North Atlantic, Gulf of Mexico, and Caribbean Sea. The ESTOFS is designed to provide the surges with tides to NCEP WAVEWATCH III® (WW3) for coupling both systems. Therefore, its set-up is designed to mimic WW3: it uses the same Global Forecast System (GFS) forcing and has the same forecast cycle and length (6 hour nowcast followed by a 180 hour forecast 4 times per day), and will run concurrently on the NCEP Central Computer System (CCS). The ESTOFS will also provide the National Weather Service (NWS) with a second extratropical surge system in addition to the Extra-Tropical Storm Surge (ETSS) model that currently is based on the Sea Lake and Overland Surge from Hurricanes (SLOSH) model (Jelesnianski et al. 1992). The ESTOFS models surges with tides by utilizing an unstructured grid. This model serves the needs of NCEP's Ocean Prediction Center (OPC) and the National Hurricane Center's Tropical Analysis and Forecast Branch (NHC/TAFB), who are responsible for providing offshore marine forecasts. It also meets the needs of Weather Forecast Offices for coastal hazard predictions. Forecasters will benefit from the gridded astronomic tide prediction that is also provided by ESTOFS, which can be combined with any gridded surge prediction (generated from model guidance or forecaster). ESTOFS will run a nowcast and forecast 4 times daily. The nowcast will run for the previous 6 hours and forecast will run out to 180 hours.

ESTOFS includes :

- An ADCIRC-based Surge+Tide Operational Forecast System for extratropical conditions in the Atlantic/Gulf of Mexico/Caribbean Sea
- Three sets of guidance: surge+tide, surge only, tide only
- Runs side-by-side with the Global Multi-grid Wave model for future coupling of wave and surge modeling.

Output is being provided in two formats: 2.5 km NDFD-based grib2 files, and NetCDF files that contain the model's native unstructured grid. OPC is providing a web display. The NWS/Office of Science and Technology/ Meteorological Development Laboratory (OST/MDL) is planning to deliver output on the ET-SURGE website at stations that provide ETSS predictions (<http://www.weather.gov/mdl/etsurge/>). NetCDF output files will be disseminated via NCEP's NOMADS server in the near future, and grib2 output will be available on the NCEP FTP server.

Near real time parallel data:

Beginning Tuesday, April 24, 2012 and starting with the 1200Z cycle, a consistent parallel feed of data will be available at:

HTTP:

<http://www.ftp.ncep.noaa.gov/data/nccf/com/estofs/para/estofs.YYYYMMDD>

FTP:

<ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/estofs/para/estofs.YYYYMMDD>

where YYYYMMDD is the year, month, and day.

OPC's website is located at:

http://www.opc.ncep.noaa.gov/estofs/estofs_surge_info.shtml

Request for Evaluation

Please complete the attached "Intent to Participate" form and return to Chris.Caruso.Magee@noaa.gov no later than April 27, 2012. NCO requires an intent form be filed by all NCEP Service Centers. OPC is listed as being the Service Centers primarily responsible for this evaluation. CSDL/MMAP and the WFOs at Taunton, MA, Caribou, ME, Portland, ME, and Wakefield, VA are also recommended participants. NHC/TAFB and MDL are optional, as are all other Service Centers, the NWS Regions, WFOs other than those listed above, government agencies, and private sector companies. For the NCEP Service Centers, if, in your estimation the nature of the proposed change would have little or no impact on the forecast process at your Service Center, simply indicate that you do not intend to participate in the subjective evaluation and return the form.

The 30-day evaluation period will start at 12Z on Tuesday, April 24, 2012 and run through May 24, 2012. Participants need to complete the attached "Model Implementation Subjective Evaluation Report" form and return to Chris.Caruso.Magee@noaa.gov no later than May 30, 2012. Please indicate the overall performance of the product, with any additional comments on specific cases with noteworthy positive or negative performance. Please note that NCO requires evaluators to specifically address the benefits stated in the attached form as to whether those benefits were observed or not. Any feedback you wish to provide during the evaluation period should be emailed to Chris.Caruso.Magee@noaa.gov.

A final coordination teleconference will be scheduled to review the evaluation and address any outstanding issues. Based on the outcome of that teleconference, EMC and NCO will prepare a recommendation for Dr. Uccellini (NCEP Director). This teleconference has not yet been scheduled.

Points of Contact

Chris.Caruso.Magee@noaa.gov (NCO)

Jesse.Feyen@noaa.gov (NOS/CSDL)

**Intent To Participate
Model Implementation Subjective Evaluation**

Scientific Review Team Member: _____

Team Member E-mail: _____

Region, Service Center Company Representing: _____

**(Govt Only) Authorizing Official or
Service Center Director:** _____

Intent to Participate:

____ Will Participate in the Evaluation

____ Will Not Participate in the Evaluation

Scientific Review Team Member: _____

Region, Service Center or Company Representing: _____

Proposed Change: ESTOFS

Model Developer: Jesse Feyen (NOS/CSDL)

Real-Time Parallel Runs:

General comments: _____

Evaluation of expected benefits:

Do you observe the following and are they beneficial to you?

1. Are the extratropical storm surge and tide forecasts beneficial to you? Please describe.

Recommendation:

Implement as proposed ____

Reevaluate after changes ____

Do not implement ____