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Public Information Statement 22-37 Updated
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From: Edward Myers
 Chief, Coastal Marine Modeling Branch
 NOS/Office of Coast Survey/Coast Survey Development
 Laboratory

Subject: Updated: Soliciting Comments on the Upgrade of the Surge and Tide Operational Forecast System (STOFS, formerly ESTOFS) to Version 1.0.1 through September 1, 2022

Updated to correct a formatting error. In the previous version of this Public Information Statement, the model upgrades were all listed separately. The 4th through the 8th upgrades are actually part of the upgrade marked 3. in the list below. Also included a hyperlink to nowcoast.noaa.gov.

The Coast Survey Development Laboratory (CSDL) in NOAA/National Ocean Service (NOS)/Office of Coast Survey is proposing to upgrade the Surge and Tide Operational Forecast System (STOFS, formerly ESTOFS) to Version 1.0.1 in late fall of 2022. CSDL is seeking comments on this proposed upgrade through September 1, 2022. If approved, a Service Change Notice (SCN) will be issued at least 30 days before implementation of STOFS V1.0.1 with more detailed information.

STOFS V1.0.1 represents a major upgrade of the ESTOFS modeling system, last upgraded in July 2021. STOFS V1.0.1 contains several enhancements improving model performance, resolution, and coverage, including a name change to STOFS, an addition of a three-dimensional (3D) component for the Atlantic basin, and upgrades to the global modeling system. Model upgrades include:

1. Renaming Extratropical Surge and Tide Operational Forecast System (ESTOFS) to STOFS, as global forecast guidance is provided by the system. Please be prepared to rename scripts, URLs, etc. with this name change from ESTOFS to STOFS.

2. Addition of a 3D modeling component, called STOFS-3D-Atlantic, to support 3D coastal flooding for the Atlantic basin (i.e., U.S. East Coast, Gulf of Mexico, and Puerto Rico). STOFS-3D-Atlantic will use input from the National Water Model to include inland hydrology and extreme precipitation effects on coastal flooding, and will also provide

surface currents for marine navigation use. This modeling component will use the Semi-implicit Cross-scale Hydroscience Integrated System Model (SCHISM) model core.

3. Upgrades to the global modeling component, now called STOfS-2D-Global, which uses the ADvanced CIRculation (ADCIRC) model core:

- Improved spatial resolution for the U.S. East Coast, U.S. West Coast, Alaska, and Iceland. For the U.S. West Coast, the improved resolution especially in small inlets and near jetties will provide better resolved depth-integrated currents for the Nearshore Wave Prediction System (NWPS), which hopes to resolve wave-current interactions, e.g., steepening waves, important for weather/wave forecasters in small/large inlets.

- Additional station output for NWS Eastern and Alaska Regions, and for satellite altimetry use.

- Upgrade of bottom friction representation by the use of spatially-varying Manning's N, for improved tide and surge prediction.

- Removal of the water level bias correction "offset" script to remediate high water spots observed to occur in some coastal areas partly as a result of this script. The bias correction will be revisited for a possible future model upgrade.

- Possible inclusion of 3D baroclinic effects from the Global Real-Time Ocean Forecast System (Global RTOFS), to include 3D physical effects in global water level forecast guidance and to improve accuracy.

CSDL will evaluate all comments to determine whether to proceed with all portions of this upgrade.

Send comments on this proposal for the upgrade of STOfS to Version 1.0.1 by September 1, 2022, to:

Gregory Seroka
gregory.seroka@noaa.gov

Saeed Moghimi
saeed.moghimi@noaa.gov

Edward Myers
edward.myers@noaa.gov

A webpage describing Global ESTOfS and providing real-time verification statistics can be found at:

<https://polar.ncep.noaa.gov/estofs/>

Global ESTOfS model forecast guidance can also be viewed at:

nowcoast.noaa.gov

Global ESTOFS output can also be accessed via the Amazon Web Services (AWS) cloud courtesy of NOAA Open Data Dissemination (NODD) at:

<https://registry.opendata.aws/noaa-gestofs/>

National Public Information Statements are online at:

<https://www.weather.gov/notification/>

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