**Release Notes**

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| **Model** | Extra-Tropical Storm Surge (ETSS)  |
| **Version** | V2.2 |
| **Implementation date/time** | 6/6/2017 |
| **Purpose**  | The Extra-Tropical Storm Surge model is a modification of the SLOSH model that uses GFS wind and pressure input to predict storm surge from large extra-tropical storms. With version 2.1, it produced storm tide overland (based on storm surge + tide) for the continental U.S. and Alaska coastlines. Additionally, the post processing stage combined ETSS surge guidance with station based tidal predictions and observations (where available) to create bias corrected total water level guidance which was SHEF encoded and sent over the SBN. |
| **Changes being made for this release** | This upgrade will 1. Replace the west coast basin with a new basin (NEP) with updated topography/bathymetry that allows surge to propagate southward along the Canadian coast.
2. Create a new Tide version to resolve tide phase shift in Cedar Key FL (CD2), Tampa Bay FL (ETP3) and Apalachicola FL (AP3).
3. Incorporated 13 tidal constituents from Notre Dame's ADCIRC model in the Bering-Beaufort-Chukchi Sea (**eBBC**) basin.
4. Experimentally generate max surge + tide above NAVD-88 for 0–102 hours
5. Extend forecast from 96 to 102 hours
6. Removed the reported storm surge 'wiggle' for the East Coast and Gulf of Mexico in version 2.1
7. Run on National Centers for Environmental Prediction's (NCEP) Cray system
8. Discontinue 5.0 km CONUS and 6.0 km AK grids
9. General Enhancements / Bug fixes (-check bounds IT test, improve merge mask, make the CSV files self-describing and remove a linear interpolation bug in the post-processing codes)
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| **Developed by**  | NOAA/NWS/OST/Meteorological Development Laboratory (MDL) |
| **Runs on**  | The National Weather Service (NWS) Weather and Climate Operational Supercomputing System (WCOSS) |
| **Community software**  | None |
| **Input**  | Model: GRIB2 0.5 degree GFS wind and pressure dataPost-Processing: COOPS’ 6-minute water level observations (from NCEP’s BUFR tanks) |
| **Output and where to find it**  | **Gridded Products** **Satellite Broadcast Network*** Storm Surge – CONUS 2.5 km, Alaska 3.0 km GRIB2 files
* Storm Tide – CONUS 2.5 km, Alaska 3.0 km GRIB2 files
* Storm Tide – CONUS 625 m (missing for West coast) GRIB2 files
* Tide Only – CONUS 625 m (missing for West coast) GRIB2 files

**NCEP NOMADS** <http://nomads.ncep.noaa.gov/pub/data/nccf/com/etss/prod/etss.YYYYMMDD>* Storm Surge – CONUS 2.5 km, Alaska 3.0 km GRIB2 files
* Storm Tide– CONUS 2.5 km, Alaska 3.0 km GRIB2 files
* Storm Tide – CONUS 625 m (missing for West coast) GRIB2 files
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**NWS NDGD**<http://weather.noaa.gov/pub/SL.us008001/ST.expr/DF.gr2/DC.ndgd/GT.slosh/>* Storm Surge – CONUS 2.5 km, Alaska 3.0 km GRIB2 files
* Storm Tide– CONUS 2.5 km, Alaska 3.0 km GRIB2 files
* Storm Tide – CONUS 625 m (missing for West coast) GRIB2 files
* Tide only – CONUS 625 m (missing for West coast) GRIB2 files

**Text Products** **Satellite Broadcast Network*** SHEF encoded water level guidance for stations with NWSLI (typically COOPS or USGS). The type of water level guidance is either surge-only, surge + station tide, or observation based bias corrected surge + station tide
* Model specific text formatted surge only guidance for historic set of stations

**NCEP NOMADS** <http://nomads.ncep.noaa.gov/pub/data/nccf/com/etss/prod/etss.YYYYMMDD>* SHEF encoded water level guidance for station **with** NWSLI (typically COOPS or USGS). The type of water level guidance is either surge-only, surge + station tide, or observation based bias corrected surge + station tide
* CSV encoded water level guidance for stations **with or without** NWSLI. The type of water level guidance is either surge-only, surge + station tide, or observation based bias corrected surge + station tide.
* Surge only - model specific text formatted for historic set of stations
* Surge only and surge + modeled tide - updated model specific text formatted for a larger set of stations

**Websites**MDL provides an index to all NWS extra-tropical guidance product websites here:* <http://slosh.nws.noaa.gov/etss/>

MDL provides station based total water level guidance websites as follows:* Original site: <http://slosh.nws.noaa.gov/etss/station/etsurge/> based on ETSS output, NOS-COOPs tide gauge data and NOS observations (where available). If observations are available, the total water level guidance is corrected based on the five-day bias.
* Updated site: <http://slosh.nws.noaa.gov/etss/station/etsurge2.0esri/> based on the ETSS - CSV output.

OPC provides a map based depiction of surge guidance and pressure fields here: <http://www.opc.ncep.noaa.gov/et_surge/et_surge_info.shtml> |
| **Primary users**  | NCEP's Ocean Prediction Center (OPC), NCEP’s National Hurricane Center (NHC), NWS’s Eastern, Alaska, Southern, and Western Regions (HQ, coastal RFCs and WFOs) |
| **In the future**  |  |

For more information on this model, please contact ncep.pmb.dataflow@noaa.gov .