**Release Notes**

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| **Model** | Extra-tropical Storm Surge (ETSS)  |
| **Version** | V2.0 |
| **Implementation date/time** | TBD |
| **Purpose**  | The Extra Tropical Storm Surge model is a modification of the SLOSH model that uses GFS winds to predict storm surge up to the coastline (and not overland) based on large extra-tropical storms. Surge predictions combined with tide calculations create total water level guidance at many coastal locations. River forecast centers that use the Advanced Hydrologic Prediction Service (AHPS) find water level guidance at river mouths useful, so ETSS output data is post-processed into SHEF-encoded messages for the system to ingest. |
| **Changes being made for this release** | 1. Re-introducing the inundation algorithm based on surge
2. Nesting the tropical and extra-tropical computational grids to leverage the finer overland details contained within tropical grids.

Although non-operational ETSS post processing exists, this is the first operational release. Changes from the experimental version are:1. Observations were scraped from the internet using TCL/TK code, but they are now provided through NCEP’s BUFR tanks for more robust and reliable retrieval.
2. Code is now separated into several Fortran libraries and executables and run using NCEP’s parallel processing system for greater speed of processing.

Most importantly, ETSS output data is now used to create SHEF-encoded water level guidance for river forecast centers in coastal areas. |
| **Developed by**  | NOAA/NWS/Meteorological Development Laboratory (MDL) |
| **Runs on**  | The National Weather Service (NWS) Weather and Climate Operational Supercomputing System (WCOSS) |
| **Community software**  | None |
| **Input**  | Using GRIB2 0.5 degree GFS data, ETSS output surge predictions, COOPS water level obs and tide constituents |
| **Output and where to find it**  | Produce coastal and on land flooding guidance 4 times a day on NDFD CONUS (2.5km) and Alaska (3kM) grid (grib2 files) and water level forecast 4 times a day on COOPS and USGS stations (ASCII text files). Outputs are placed in /com and /pcom. NWS FTP: <http://weather.noaa.gov/pub/SL.us008001/DF.anf/DC.etss/>Post processing is kicked off after ETSS2.0 model runs. Output ASCII SHEF-encoded water level guidance is placed in /com and /pcom once post-processing completes ten minutes after kickoff. From these folders, the output is ingested into AWIPS and undergoes an arduous journey through several databases and file formats to NIDS, where it is finally placed in the AHPS system.MDL also provides a station based total water level guidance website: (<http://www.nws.weather.gov/mdlsurge/etsurge>2.0e/) based on ETSS output, NOS-COOPS tide gauge calculations, and NOS-COOPS observations (where available). If observations are available, the total water level guidance is corrected based on the 5 day bias.OPC also 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**  | ETSS2.1 1. Incorporating a tide algorithm to allow inundation based on surge and tide
2. Support development of ETSS 2.1 (Bering Sea / Arctic basin replacement)

Add more stations; Upgrades to post-processing TBD |

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