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PNSWSH

Service Change Notice 23-46 Updated
National Weather Service Headquarters Silver Spring MD
1250 PM EDT Fri Apr 21 2023

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From: Judy Ghirardelli
 NWS Office of Science and Technology Integration
 Meteorological Development Laboratory

Subject: Updated: Probabilistic Tropical Cyclone Storm Surge (P-Surge)
Model Upgrade: Effective May 2, 2023

Updated to correct discussion about dissemination changes which originally had referred to filenames on NOAAPort rather than the National Centers for Environmental Prediction (NCEP) NOAA Operational Model Archive and Distribution System (NOMADS) and FTPPRD. NOAAPort does not have filenames, but rather World Meteorological Organization (WMO) messages. The original message follows with ...NCEP NOMADS and FTPPRD... replacing the erroneous use of NOAAPort.

Effective on or about May 2, 2023, starting with the 1200 Coordinated Universal Time (UTC) cycle, the National Centers for Environmental Prediction (NCEP) will upgrade the Probabilistic Tropical Cyclone Storm Surge model (P-Surge) to version 3.0.

P-Surge is based on an ensemble of Sea, Lake, and Overland Surges from Hurricanes (SLOSH) model runs which are derived from the National Hurricane Center (NHC) official advisory along with NHC's historical errors in forecasts of the storm's track, size and intensity. P-Surge is run on a case-by-case basis in advance of hurricanes and tropical storms that may impact the Atlantic and Gulf Coasts of the Contiguous United States (CONUS). With v3.0, P-Surge will now be run on a case-by-case basis for storms that may impact Puerto Rico and the U.S. Virgin Islands.

P-Surge version 3.0 includes the following updates:

- A. Creation of P-Surge products for Puerto Rico and the U.S. Virgin Islands that account for surge, tide and waves. P-Surge products for the CONUS only account for surge and tide.
- B. Inclusion of spatially varying slip coefficient calculations in the surge model to more accurately compute the extent of inundation.
- C. Ability to run two simultaneous storms, either two making landfall along the CONUS, or one along the CONUS and one in Puerto Rico and the U.S. Virgin Islands.
- D. Various code optimizations.

Dissemination Changes:

While the CONUS products are not changing, we are introducing Puerto Rico / U.S. Virgin Islands products. On the Satellite Broadcast Network (SBN) these products are differentiated by the World Meteorological Organization's (WMO's) header ID, while on NCEP NOMADS and FTPPRD, the Puerto Rico/U.S. Virgin Islands files will have "puertori_625m" (vs "conus_625m") in their filenames.

Additionally, this upgrade introduces the potential to have two simultaneous P-Surge runs for CONUS storms. Again, on the SBN, the output will be differentiated by WMO header ID (a primary and secondary storm). On NCEP NOMADS and FTPPRD, each run will have a unique al##YYYY name (where YYYY is the year and ## is the storm number). To determine which is the primary storm on NOMADS and FTPPRD, a corresponding YYYYMMDDHH.go file will be provided on NOMADS and FTPPRD. The first line of this file indicates the primary storm and the second indicates the secondary storm.

NOAAPort/SBN:

The products are available over the SBN and NOAAPort in gridded binary version two (GRIB2) format. A complete list of WMO Header IDs for the products can be found online at the top of the Meteorological Development Laboratory's storm surge technical notices here:

<https://vlab.noaa.gov/web/mdl/storm-surge-technical-notice>

or more directly at:

<https://vlab.noaa.gov/documents/6609493/7858383/P-Surge-v3.0-Headers.pdf/6132fe32-6893-9376-d646-cd4908a162c8?t=1675290177581>

Output changes for NCEP NOMADS and FTPPRD web services:

There will be no change to the directory structure on NOMADS and FTPPRD; data will still be present under:

<https://nomads.ncep.noaa.gov/pub/data/nccf/com/psurge/prod/>
<ftp://ftpprd.ncep.noaa.gov/pub/data/nccf/com/psurge/prod/>

Both CONUS and Puerto Rico / U.S. Virgin Islands products will be present in the same directory. Shapefiles will change from "tar.gz" to ".zip" suffixes. Puerto Rico / U.S. Virgin Islands GRIB2 files will have "puertori_625m" (vs "conus_625m") and shapefiles will have suffixes of "PR.zip" (vs ".zip").

Several canned test runs will be available for testing. The data will be hosted on the NCEP HTTPS sites at the following URLs when it is available, although it may not be present for the entire 30-day period:

<https://nomads.ncep.noaa.gov/pub/data/nccf/com/psurge/para/>
<https://para.nomads.ncep.noaa.gov/pub/data/nccf/naaaport/psurge/>

NCEP encourages users to ensure their decoders are flexible and are able to adequately handle changes in content order, changes in the scaling factor component within the product definition section (PDS) of the GRIB files, and any volume changes that may be forthcoming. These elements may change with future NCEP model implementations. NCEP will make every attempt to alert users to these changes prior to any implementations.

Any questions, comments or requests regarding this implementation should be directed to the contacts below. We will review any feedback and decide whether to proceed.

For questions regarding the science changes, please contact:

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For questions about the dataflow aspects, please contact:

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National Service Change Notices are online at:

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

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