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Service Change Notification 20-07
National Weather Service Headquarters Silver Spring MD
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From: Jeffrey Craven
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 Meteorological Development Laboratory

Subject: Correct Issue with NBM v3.1 GFS QPF Input on January 21, 2020

On or about Tuesday, January 21, 2020, beginning with the 1200 Coordinated Universal Time UTC) model run, the NWS Meteorological Development Laboratory (MDL) will implement a bug fix for deterministic quantitative precipitation forecasts (QPF) to the National Blend of Models (NBM) guidance over the contiguous U.S. (CONUS).

In the event that the implementation date is declared a Critical Weather Day (CWD) or significant weather is occurring or is anticipated to occur, implementation of this change will occur at 1200 UTC on the next weekday not declared a CWD and when no significant weather is occurring.

There is a bug in the reading of the Global Forecast System (GFS) deterministic QPF inputs that impacts the deterministic QPF06 forecasts that results in artificially higher values, especially beyond 72 hours. The bug involves assumptions about emptying versus non-emptying QPF buckets in the GFS v15 code that was introduced when the Finite-Volume Cubed-Sphere Dynamical Core (FV3) was implemented.

The current NBM v3.1 code is reading the non-emptying QPF buckets as if they were actually emptying every 6 hours. Therefore, especially with very heavy rainfall events like hurricanes, this reading can result in overforecasting of these events by several inches. The behavior is occasionally seen in non-tropical events as well.

For more complete details on NBM v3.1, please see:

<https://www.weather.gov/media/notification/pdfs/scn18-78nbmaac.pdf>

This fix has also been included in the NBM v3.2 upgrade now scheduled for February 18, 2020.

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 implementation of NBM guidance, contact:

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For questions regarding the data flow, please contact:

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A web page describing the NBM can be found at:

http://www.weather.gov/mdl/nbm_home

National Service Change Notices are online at:

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

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