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Public Information Statement 23-45
National Weather Service Headquarters Silver Spring MD
1030 AM EDT Fri Jul 28 2023

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

Subject: Soliciting Comments on an Upgrade of the National Blend of
Models through August 31, 2023

The Statistical Modeling Division (SMD) of the Meteorological Development Laboratory (MDL) is proposing to update the National Blend of Models (NBM) this December. The NWS is seeking comments on this proposed upgrade through August 31, 2023. If approved, a Service Change Notice (SCN) will be issued at least 30 days prior to the implementation of these upgraded products with more detailed information.

NBM Version 4.2, which is tentatively scheduled to be implemented in December of 2023, will continue to fill existing product gaps requested by the Fire Weather, Winter, Water Resources, Aviation, Public and Tropical NWS Service Programs.

Several highlights associated with this upcoming release include the following:

(1) New probabilistic Quantile Mapping-based (QM) 10m instantaneous wind speed and wind gust percentiles and exceedance values for the contiguous U.S. (CONUS).

(2) Corrected Mixing Height calculation now dependent upon UnRestricted Mesoscale Analysis (URMA) surface terrain height rather than the RAP model surface height (CONUS).

(3) Elimination of "lattice-like" features in the NBM blended snow amount guidance by introducing smoothing to the European Centre for Medium-Range Weather Forecasts, Ensemble (ECMWF), Global Ensemble Forecasting System (GEFS) and Short-Range Ensemble Forecasting System (SREF) QM precipitation amount Cumulative Distribution Functions (CDFs) (CONUS, Alaska).

(4) Modified the Snow Liquid Ratio (SLR) calculation by taking into account the melting of snow where temperatures are at or above freezing at the surface and removed the 25% reduction factor to each model input SLR value (CONUS, Alaska).

(5) Downscaled wet bulb temperature for ECMWFE, GEFS, and SREF models for improvement in ice accumulations (CONUS, Alaska).

(6) Introduced smoothing to the ECMWFE, GEFS, and SREF QM precipitation amount CDFs. This modification was made to support the winter weather product note above which uses these model inputs (CONUS, Alaska, Hawaii, Puerto Rico, Oceanic domains).

(7) Removed the consistency check between sky cover and ceiling height for CONUS and Alaska - Sky Cover percentage values can now be less than 57% when a ceiling height is present.

(8) Optimized runtime of the tropical cyclone feature matching technique to preserve the National Hurricane Center's Gridded Tropical Cyclone forecast advisory Message (wTCM) wind field while also ensuring a meteorologically consistent wind field along the periphery and outside edges of the wTCM (CONUS, Hawaii, Puerto Rico, Guam, Oceanic domains).

It is anticipated that these upgrades will benefit the NWS in its mission towards better Impact-based Decision Support Services (IDSS).

Publicly accessible NBM Gridded Binary version two (GRIB2) files will be available for download in the NOAA Operational Model Archive and Distribution System (NOMADS) approximately 30 days prior to implementation. Further details concerning the location of the data will be provided closer to the implementation date with an updated SCN.

A slide deck detailing the NBM v4.2 updates and improvements can be found under the Version 4.2 section of the NBM Versions webpage:

<https://vlab.noaa.gov/web/mdl/nbm-versions>

All or a portion of the NBM text bulletins can be obtained by visiting an interactive Graphical User Interface (GUI):

<https://blend.mdl.nws.noaa.gov/nbm-text>

Many of the NBM v4.2 products can be viewed on our Quick Viewer located at:

<https://blend.mdl.nws.noaa.gov/nbm-images>

The NWS will evaluate all comments on this NBM upgrade, including the new NBM text bulletins, to determine whether or not to proceed with this upgrade.

For providing comments on the above changes, please use the feedback form which can be accessed via this link:

<https://forms.gle/hX36rpSXnjsGU3zi9>

Alternatively, any questions, comments or requests regarding this implementation should be directed to the contacts below. We will review any feedback and decide whether or not to proceed.

For questions regarding the implementation of NBM guidance, please contact:

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or

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National Public Information Statements are online at:

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

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