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Service Change Notice 26-24 Updated
National Weather Service Headquarters Silver Spring MD
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To: Subscribers
-NOAA Weather Wire Service
-Emergency Managers Weather Information Network
-NOAAPORT
Other NWS Partners, Users and Employees

From: David Michaud, Director
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National Centers for Environmental Prediction

Subject: Updated: Upgrade of National Blend of Models Guidance effective April 30, 2026

Updated to reflect the new implementation date of April 30, 2026.

On or about Thursday, April 30, 2026, beginning with the 1300 Universal Time Coordinated (UTC) model run, the NWS Meteorological Development Laboratory (MDL) will implement an update to the National Blend of Models (NBM) Guidance over the Contiguous United States (CO), Alaska (AK), Hawaii (HI), Puerto Rico (PR), Guam (GU), and Oceanic (OC) National Digital Forecast Database (NDFD) domains.

In the event that the implementation date is declared a Critical Weather Day (CWD), an Enhanced Caution Event (ECE), or other significant weather is occurring or is anticipated to occur, implementation of this change will take place at 1300 UTC on Monday, May 4, 2026 or the first weekday after Monday when no CWD or ECE is declared, and no significant weather is occurring,

1. Product Additions/Removals

A. Additions

NBM Version 5.0 will continue to fill existing product gaps requested by the Aviation, Water Resources, Marine, Winter, and Tropical NWS Service Programs. Anything listed as "new" indicates a brand-new parameter in the NBM.

(1) A new 24h probability matched mean (PMM) quantitative precipitation product (consisting of High-Resolution models only) for the CO and AK domains.

(2) A new 24h probability matched mean deterministic snow and ice product (consisting of High-Resolution models only) for the CO and AK domains).

(3) New joint fire weather probabilities for the occurrence of various combinations of wind speeds and RH thresholds (CO, AK, HI, PR, GU domains).

(4) Quantile-Mapped (QM, referred to in products as "QMD") 10-meter wind speed and wind Gust Guidance for the AK, HI, PR, GU, and OC domains.

(5) Decaying average bias corrected probabilistic dew point temperature, 6-hour maximum and minimum 2-meter temperature, and sky cover for the OC domain.

(6) A new deterministic and probabilistic decaying average bias-corrected precipitable water Guidance for the CO, AK, HI, PR, GU, and OC domains.

(7) A new 24h, 48h, and 72h calibrated snow exceedance product (CO).

(8) A new deterministic snow depth product and corresponding exceedance probabilities to assist fire weather forecasting efforts over the CO and AK domains.

(9) Probabilistic apparent temperature for the CO, AK, HI, PR, and GU domains and deterministic apparent temperature for the OC domain.

(10) Probabilistic surface-based convective available potential energy (CAPE: 10th, 50th, and 90th weighted percentiles (CO).

These additions will benefit the NWS in its goal toward providing better Impact-Based Decision Support Services (IDSS). An exhaustive list of probabilistic enhancements in NBMv5.0 can be viewed here: NBMv5.0 Percentiles and Exceedances.

B. Removals

(1) Per the request of the NWS's Fire Weather Program, NBMv5.0 will no longer generate the Haines Index product (CO, AK, HI, and PR domains).

2. Product Enhancements

Several highlights associated with this upcoming release include the following:

- Achievement of greater consistency between most deterministic and probabilistic outputs. For QPF and winter fields, this is achieved in NBMv5.0 by applying the same weighting of inputs to the generation of deterministic and probabilistic computations. For fields like temperatures, the deterministic values in this package are no longer computed independently from the probabilistic values.

- The generation of Quantile-Mapped (QM) quantitative precipitation forecasts (QPF) and probability of precipitation Guidance (PoP) replaces the current equal weighting of all inputs with an approach that gives more (pre-defined) weight to higher-resolution inputs (CO, AK, HI, PR, and OC domains). The Multi-Model Ensemble Bias Correction (MMEBC) QPF

product from the Weather Prediction Center (WPC) is added as an input (CO). Please see the QPF QM product description document for a complete discussion of the changes to the precipitation products.

- Significant changes to the winter suite include unequal weighting of models used in deriving probabilistic snow/ice outputs, usage of information from inputs that do not cover an entire accumulation period, refinements to downscaled temperature computation for handling inversions, changes to inputs, and revised criteria for converting snow and ice to rain in the downscaling code. For specific details concerning all the modifications made to the NBMv5.0 snow and ice products, please refer to the Snow/Ice product description document (CO and AK domains).

- Replacement of decaying average computations of instantaneous temperature, dew point temperature, apparent temperature, relative humidity, and 12-hour maximum and minimum relative humidity (RH) with QM. This allows for the computation of associated percentile and exceedance values (CO, AK, HI, PR, and GU domains).

- Introduction of a new "percentile picking" approach to generate instantaneous deterministic wind speed and wind Gust forecasts rather than using the mean QM value. This methodology modulates the QM deterministic 10-meter wind speed and wind gust forecasts away from the mean value as a function of where the mean forecast lies relative to the model distribution and past climatology (CO, AK, HI, PR, GU, and OC domains).

- An update to the approach used to bias correct significant wave heights (SWH) by leveraging QM to replace the operational decaying average algorithm. The number of model inputs for SWH is increased from 13 to approximately 120, invoking the individual members from the relevant ensemble systems, instead of just the ensemble mean (CO, AK, HI, PR, GU, and OC domains).

- Replacement of the deterministic ceiling height and visibility (C&V) guidance for the Hawaiian domain with a new C&V product that mirrors the gridded "Meld" Localized Aviation MOS Program (LAMP) approach used over CO and AK. The new C&V guidance for HI incorporates a gridded observational analysis, Rapid Refresh (RAP), Global Forecast System (GFS), and European Centre for Medium-Rage Weather Forecasts (ECMWF) models as inputs. The product leverages a random forest technique to derive "pseudo" observations over the Hawaiian islands to help inform the gridded observational analysis (an important component in the first six hours).

- Extension of hourly Guidance from 36 hours to 48 hours (excluding ceiling, visibility, cloud base, cloud layers, low-level wind shear, turbulence, Ellrod Index, solar radiation, thunderstorm coverage, thunderstorm probability, and Craven-Wiedenfeld Aggregate Severe Parameter).

- Extension of usage of Gridded Localized Aviation MOS Program (GLMP) visibility at water points from 24 hours to 36. Visibility from the RAP

will be used at water points beyond 36 hours (currently 24 hours in operations).

3. Changes to Inputs

- Replacement of the low-resolution deterministic ECMWF (0.25 degree) and ECMWF Ensemble Guidance (0.50 degree) with 0.10 degree and 0.20 degree data, respectively.

- Replacement of the lower resolution GDPS (25km) and REPS (15km) Canadian model data with higher horizontal resolution data of 15km and 10km, respectively.

- Elimination of usage of the Short-Range Ensemble Forecast system.

- Usage of the European Centre for Medium-Range Weather Forecasts Artificial Intelligence/Integrated Forecasting System (ECAIFS) and the Artificial Intelligence Global Forecast System (AIGFS) at a 0.25 degree spatial resolution as NBM inputs for temperature, wind speed, and QPF products (all domains, except no QPF over GU).

- Usage of higher-resolution data from the Global Ensemble Forecast System (GEFS) for surface parameters.

- There are changes to the inputs used for the winter and QPF products. Those are detailed in the winter and QPF documents linked at the beginning of Section 2.

4. NBM Text Product Changes

A comprehensive list of stations for which deterministic-based Hourly (NBH), Short-term (NBS), Extended (NBE), Super Extended (NBX), and probabilistic Extended (NBP) station text bulletin Guidance can be found at: https://vlab.noaa.gov/web/mdl/nbm-stations-v5.0

A description of all NBM text file products can be found here: https://vlab.noaa.gov/web/mdl/nbm-textcard-v5.0

Please note that in NBMv5.0, the Daily Maximum and Minimum temperature values, dewpoint temperature values, and significant wave height forecasts now represent the mean of the QM distribution. The instantaneous wind speed and gust are derived using the percentile-picked values discussed in Section 2. The associated standard deviation values are also derived from the QM solution space.

For additions and removals to text products, the wet bulb globe temperature (identified in the products as WBG) is added to the NBH, NBS, NBE, and NBX text products for all applicable stations. Significant wave height (SWH) is now available for all cycles in the NBX text products. SWH is currently available only for the 00, 01, 02, 06, 07, 08, 12, 13, 14, 18, 19, and 20 UTC cycles in the operational NBX products. Finally, since the NBM is no longer generating a Haines Index, that parameter (HID) no longer exists in any NBM text products.

As a reminder, the file names of the five types of NBM text messages are:

a. blend_nbhtx.t[hh]z [where hh=00,01,02,...,23]
b. blend_nbstx.t[hh]z [where hh=00,01,02,...,23]
c. blend_nbetx.t[hh]z [where hh=00,01,02,...,23]
d. blend_nbxtx.t[hh]z [where hh=00,01,02,...,23]
e. blend_nbptx.t[hh]z [where hh=00,01,07,12,13,19]

For a comprehensive document fully describing changes to the text products, please refer to Section 7 - "NCEP Web Services NOMADS Dissemination".

5. NBM Runtime Changes

With the implementation of NBMv5.0, dissemination delays can be expected for some of the NBM quantile mapped and core products. In some instances, however, users can expect earlier arrival times of the data. Specific timing differences can be viewed here: NBMv5.0 Timing Differences.

6. Changes to SBN/NOAAPORT Dissemination

While the NBM runs hourly and produces output to 264 hours for each cycle, as with NBMv4.3, only a subset will be disseminated across the Satellite Broadcast Network (SBN) and NOAAPORT due to bandwidth limitations. NBMv5.0 data will be disseminated in GRIB2 format and will contain grouped WMO headers, as is done in NBMv4.3.

Changes to SBN data as requested by various regions:

-Removed the binary scaling factor for the following elements: air temperature, apparent temperature, dew point temperature, transport wind speed, tropical wind speed, wind speed, and wind Gust.
-Added different cycles and projections of pre-existing various weather elements.
-Added new elements based on requests and priority due to bandwidth constraints.
-Removed the dissemination of the NBM global product.
-A detailed listing of dissemination changes to NBMv5.0 weather elements on the SBN/NOAAPORT as a function of cycle time and domains can be found in subsections A and B below.

Unique originating center IDs have been assigned to each geographic region.

List of originating center IDs (CCCC) for NBM products:

Geographic Region	Originating Center (CCCC)
CO and OC	KWEA, KWEB, KWEI, KWEO
AK	KWEC, KWED, KWEJ, KWEP
HI	KWEE, KWEF, KWEK
PR	KWEG, KWEH, KWEL
GU	KWEM, KWEN, KWEQ
Global	KWER

The NBM text bulletin WMO header information for each of the five bulletins to be disseminated every hour on the SBN is listed below.

WMO header information for NBM text products:

WMO Header	NBM Text Bulletin Description
FOUS15 KWNO	Hourly bulletin (1-24 hours)
FOUS16 KWNO	Short-range bulletin (6-66 hours)
FEUS16 KWNO	Extended bulletin (12-192 hours)
FEUS17 KWNO	Extra-extended bulletin (204-264 hours)
FEUS18 KWNO	Probabilistic extended bulletin (12-192 hours)

NBMv5.0 SBN/NOAAPORT Header Additions and Removals:

A detailed listing of NBM WMO headers (by NBM domain) to be added over the SBN/NOAAPORT can be found below:

CO Domain

AK Domain

HI Domain

PR Domain

GU Domain

OC Domain

A detailed listing of NBM WMO headers (by NBM domain) to be removed from the SBN/NOAAPORT can be found below:

CO Domain

AK Domain

HI Domain

PR Domain

GU Domain

OC Domain

Global Domain

A. GRIB2 SBN/NOAAPORT output additions and removals:

SBN Product Additions and Removals: CO

SBN Product Additions and Removals: AK

SBN Product Additions and Removals: HI

SBN Product Additions and Removals: PR

SBN Product Additions and Removals: GU

SBN Product Additions and Removals: OC

SBN Product Additions and Removals: Global

SBN Product Additions and Removals: Text Bulletins

NBMv5.0 GRIB2 header identifiers delineated by weather element and domain can be found here:

NBMv5.0 GRIB2 Header Schemes

B. Text Bulletins on SBN/NOAAPORT:

NBH, NBS, NBE, NBX, and NBP will continue to be hosted on the SBN/NOAAPORT as in NBMv4.3. This station-based guidance covers 2-hour periods for projections 24-192 hours and has an identical format to the NBMv4.3 deterministic NBM extended ASCII text bulletins. Note that wind speed percentile information found for all stations in the text bulletins are from the forecasts made in the OC Domain, and not the Quantile Mapping system. This is unchanged from the previous version.

Header information for the probabilistic and deterministic text bulletin files can be found here:

NBMv5.0 Text Bulletin Header Schemes

7. NCEP Web Services NOMADS Dissemination

On implementation day, all GRIB2 master (Core and QMD) files, index files, and NBM text messages will continue to be hosted on CEP web services. Please follow the subsequent hyperlink to access this data:

https://nomads.ncep.noaa.gov/pub/data/nccf/com/blend/prod/

Please note that the naming convention and directory structure for the Master GRIB2 files remain unchanged and delineate between the core NBM products and those derived from the QMD process.

File Naming Convention:
core/blend.tCCz.core.fHHH.rg.grib2 and
qmd/blend.tCCz.qmd.fHHH.rg.grib2,
where CC=NBM cycle time, HHH=forecast projection, and rg=NBM domain that includes: co, ak, hi, pr, oc, gu, global (core only)

Changes to existing files on NOMADS:

These links detail the elements added to or removed from output that is hosted on NOMADS:

NOMADS Changes: Core Blend

NOMADS Changes: QMD Blend

NOMADS Changes: Text Bulletins

NOMADS Additions: Fire Weather

Prior to implementation, users may find parallel NBM data for download here:
https://nomads.ncep.noaa.gov/pub/data/nccf/com/blend/para/
https://vlab.noaa.gov/web/mdl/nbm-text-products

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 GRIB2 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 implementation of NBM Guidance or data available on Amazon Web Services, please contact:

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For questions regarding the data flow for NWS/NCEP services, please contact:

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A web page describing the NBM can be found at:

https://vlab.noaa.gov/web/mdl/nbm

National Service Change Notices are online at:

https://www.weather.gov/notification

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