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PNSWSH

Service Change Notice 17-17 Updated  
National Weather Service Headquarters Silver Spring MD  
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To:           Subscribers:  
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From:         Dave Myrick  
              NWS Office of Science and Technology Integration

Subject: Updated: RTMA and URMA Upgrade: Effective May 2, 2017

Updated to change implementation date to Tuesday, May 2, 2017.

Effective on or about Tuesday, May 2, 2017, beginning with the 1500 Coordinated Universal Time (UTC) cycle, the National Centers for Environmental Prediction (NCEP) will upgrade the Real-Time Mesoscale Analysis (RTMA) and the Unrestricted Mesoscale Analysis (URMA) as follows:

- Changes to model components
- Addition of new product fields, including onto NOAAPort
- Product output changes
- Model Changes

The following changes are made for RTMA-contiguous U.S. (CONUS) and URMA-CONUS:

- Expand the domain westward by 200 columns (approximately 500 km).
- Change the background field for the cloud ceiling height analysis from downscaled Rapid Refresh (RAP) forecast to downscaled High Resolution Rapid Refresh (HRRR) forecast. The downscaled RAP is only retained along the edges of the domain which are not covered by the HRRR.
- Update the accept list for the wind direction-based observation quality control.
- Change the background field for visibility in Alaska from a downscaled NAM forecast to a downscaled 1-hour RAP forecast.

The expansion of the CONUS domain is in response to a request from the Ocean Prediction Center. It also benefits the western Weather Forecast Offices (WFOs) and the National Blend of Models (NBM) project. It should be noted that products for the smaller National Digital Forecast Database (NDFD) CONUS grid and Northwest River Forecast Center (NWRFC) grid will continue to be disseminated as before. The use of the 3-km HRRR model to provide the background for cloud ceiling represents an upgrade over the use of the coarser 13-km RAP model. The updated wind direction-based observation accept list reflects the most recent wind statistics from the HRRR model used to provide the background for the wind analysis.

Using the RAP (rather than North American Mesoscale (NAM)) forecast to generate the background for visibility for Alaska allows the use of a shorter-term forecast (one hour with RAP, up to six hours with NAM). This also makes the RAP the primary background model used to generate the background field over Alaska for all variables.

The following changes are made for the NCEP Stage IV:

NCEP is adding Alaska (AK) and Puerto Rico (PR) quantitative precipitations estimates (QPEs) to the Stage IV/URMA. The AK Stage IV is 6-hours/24-hours; the PR Stage IV is 1-hour/6-hours/24-hours. The 6-hourly AK and PR Stage IV files are made into precipitation URMA by mapping them from the River Forecast Centers' (RFCs') local 4.7km polarstereographic grids to the AK NDFD grid (3km polarstereographic) and the PR NDFD grid (2.5km Mercator). The AK/PR Stage IV/URMAs are made/remade within an hour (at xxhr:33mn hourly run time) of QPE transmission from RFCs to NCEP, and a final re-run is made seven days (i.e. 168-hours 33 minutes) after validation time.

Note on AK Stage IV/URMA: due to the severe lack of reliable precipitation observations in Alaska, especially in winter, this QPE is considered "qualitative" and should be used with caution.

The CONUS Stage IV 24-hour (12 UTC-12 UTC) will be mosaiced directly from 24-hour QPEs from NWRFC and Missouri Basin River Forecast Center (MBRFC, falling back to 6-hour QPE when a 24-hour QPE is unavailable), 6-hour QPE from Colorado Basin (CB) and California-Nevada (CN) RFCs, and 1-hour QPE from the other eight central/eastern RFCs. The 24-hour mosaic will be made/remade hourly at each run cycle from 12:33 to 23:33 UTC after the day's validation time (12 UTC), then re-made at 1/3/5/7-days after validation time (at the 12:33 UTC run). Currently, the 24-hour Stage IV is a simple sum of the 6-hour Stage IV made at 15:33/21:33/23:33 UTC after the ending 12 UTC, then remade at 12:33 UTC 1/3/5/7 days later. This is in support of the NWS Advanced Hydrologic Prediction System (AHPS) - the 24-hour mosaic will serve as precipitation source for AHPS.

Changes on web services:

The following websites host data:

<http://nomads.ncep.noaa.gov/pub/data/nccf/com/>  
<http://www.ftp.ncep.noaa.gov/data/nccf/com/>  
<ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/>

All precipitation analysis data will be moving from its current location of hourly/prod/nam\_pcpn\_anal.YYYYMMDD --> pcpn1/prod/pcpn1.YYYYMMDD Where YYYY=4-digit year, MM=2-digit month, DD=2-digit day.

New precipitation analysis files for Alaska and Puerto Rico will be available under the new location:  
pcpn1/prod/pcpn1.YYYYMMDD

Stage IV precipitation analysis output:  
st4\_[ak|pr].YYYYMMDDHH.XXh.gz

Gif images of the Stage IV precipitation analysis output:  
st4\_[ak|pr].YYYYMMDDHH.XXh.gif

Precipitation URMA files, mapped from Stage IV to NDFD grids:  
pcpurma\_[ak|pr].YYYYMMDDHH.06h

Where XX=[01|06|24] for PR, [06|24] for AK, and HH=2-digit hour.

These files will be available as follows:

01-hour: every hour  
06-hours when HH=00, 06, 12 and 18  
24-hours when HH=12.

The following cloud ceiling files will be removed, and their contents combined into existing files as noted:

From pub/data/nccf/com/rtma/prod/rtma2p5.YYYYYMMDD remove:  
rtma2p5.tHHz.[2dvaranl|2dvarerr]\_ceil\_[ndfd|nwrfc].grb2  
and its contents, cloud ceiling (CEIL), will move into:  
rtma2p5.tHHz.[2dvaranl|2dvarerr]\_[ndfd|nwrfc].grb2

From pub/data/nccf/com/urma/prod/urma.YYYYYMMDD remove:  
urma2p5.tHHz.[2dvaranl|2dvarerr]\_ceil\_[ndfd|nwrfc].grb2  
and its contents, cloud ceiling (CEIL), will move into:  
urma2p5.tHHz.[2dvaranl|2dvarerr]\_[ndfd|nwrfc].grb2

Additional URMA products over NOAA Port/Satellite Broadcast Network (SBN):  
Total precipitation over Alaska and Puerto Rico will be added where the  
World Meteorological Organization (WMO) header information will be as  
follows:

T1T2A1A2ii cccc

cccc is KWBR  
where R is Real Time Mesoscale Analysis / Analysis of Error  
T1 = L for forecast hours: A=00  
T2 specifies parameter as follows: E - Total Precipitation  
A1 specifies the grid ID as follows:  
C - grid 195 URMA 2.5 km (Puerto Rico)  
K - grid 91 URMA 3.0 km (Alaska)  
A2 specifies the forecast hour as follows:  
A=00 (Analysis)  
ii specifies level as follows:  
98 = Surface

The WMO headers for Alaska and Puerto Rico are:

Alaska: LEKA98 KWBR  
Puerto Rico: LECA98 KWBR

Product output changes:

a) As noted above, cloud ceiling (CEIL) will be added to the following files:

rtma2p5.tHHz.[2dvaranl|2dvarerr]\_[ndfd|nwrfc].grb2

urma2p5.tHHz.[2dvaranl|2dvarerr]\_[ndfd|nwrfc].grb2

Real-time sample parallel data for the RTMA/URMA is available via the following URLs:

<http://para.nomads.ncep.noaa.gov/pub/data/nccf/com/rtma/para/>

<http://para.nomads.ncep.noaa.gov/pub/data/nccf/com/urma/para/>

Real-time sample parallel data for the precipitation analysis is available here:

<http://para.nomads.ncep.noaa.gov/pub/data/nccf/com/pcpanl/para/>

More information about the RTMA and URMA update is available at:

Parallel RTMA:

[http://www.emc.ncep.noaa.gov/mmb/jcarley/rtma\\_urma/RTMAP](http://www.emc.ncep.noaa.gov/mmb/jcarley/rtma_urma/RTMAP)

Parallel URMA:

[http://www.emc.ncep.noaa.gov/mmb/jcarley/rtma\\_urma/URMAP](http://www.emc.ncep.noaa.gov/mmb/jcarley/rtma_urma/URMAP)

Operational RTMA:

[http://www.emc.ncep.noaa.gov/mmb/jcarley/rtma\\_urma/RTMA](http://www.emc.ncep.noaa.gov/mmb/jcarley/rtma_urma/RTMA)

Operational URMA:

[http://www.emc.ncep.noaa.gov/mmb/jcarley/rtma\\_urma/URMA](http://www.emc.ncep.noaa.gov/mmb/jcarley/rtma_urma/URMA)

Parallel vs. Operational RTMA:

[http://www.emc.ncep.noaa.gov/mmb/jcarley/rtma\\_urma/RTMAP-RTMA](http://www.emc.ncep.noaa.gov/mmb/jcarley/rtma_urma/RTMAP-RTMA)

Parallel vs. Operational URMA:

[http://www.emc.ncep.noaa.gov/mmb/jcarley/rtma\\_urma/URMAP-URMA](http://www.emc.ncep.noaa.gov/mmb/jcarley/rtma_urma/URMAP-URMA)

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 these changes, please contact:

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For questions regarding the data flow aspects of these data sets, please contact:

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National Service Change Notices are online at:

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

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