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PNSWSH

Service Change Notice 17-17 Updated
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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 Universal Coordinated 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

1) Model Changes

- A. The following changes are made for RTMA-CONUS and URMA-CONUS
- a) Expand the domain westward by 200 columns (approximately 500 km)
 - b) Change the background field for the cloud ceiling height analysis from downscaled RAP forecast to downscaled HRRR forecast. The downscaled RAP is only retained along the edges of the domain which are not covered by the HRRR.
 - c) Update the accept list for the wind direction-based observation quality control
 - d) 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 WFOs and the National Blend Project. It should be noted that products for the smaller NDFD CONUS grid and Northwest River Forecast Center 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 NAM) forecast to generate the background for visibility for Alaska allows the use of a shorter-term forecast (1 hour with RAP, up to 6 hours with NAM). This also makes the RAP the primary background model used to generate the background field over Alaska for all variables.

B. The following changes are made for the NCEP Stage IV:

a) NCEP is adding Alaska (AK) and Puerto Rico (PR) QPE's to the Stage IV/URMA. The AK Stage IV is 6h/24h, the PR Stage IV is 1h/6h/24h. The 6-hourly AK and PR Stage IV files are made into precipitation URMA by mapping them from the River Forecast Centers' 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 7 days (i.e. 168hr33mn) 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.

b) The CONUS Stage IV 24h (12Z-12Z) will be mosaiced directly from 24h QPEs from Northwest River Forecast Center (NWRFC) and Missouri Basin River Forecast Center (MBRFC, falling back to 6h QPE when an 24h QPE is unavailable), 6h QPE from CB and CN RFCs, and 1h QPE from the other 8 central/eastern RFCs. The 24h mosaic will be made/remade hourly at each run cycle from 12:33 to 23:33Z after the day's validation time (12Z), then re-made at 1/3/5/7-days after validation time (at the 12:33Z run). Currently the 24h Stage IV is a simple sum of the 6h Stage IV made at 15:33/21:33/23:33Z after the ending 12Z, then remade at 12:33Z 1/3/5/7 days later. This is in support of the NWS AHPS - the 24h mosaic will serve as precipitation source for

2) Changes on web services

The following web sites 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/>

a) All precipitation analysis data will be moving from its current location of

hourly/prod/nam_pcpn_anal.YYYYMMDD -->

pcpanl/prod/pcpanl.YYYYMMDD

Where YYYY=4 digit year, MM=2 digit month, DD=2 digit day

b) New precipitation analysis files for Alaska and Puerto Rico will be available under the new location:

pcpanl/prod/pcpanl.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:

- 01h every hour
- 06h when HH=00, 06, 12, and 18
- 24h when HH=12

c) 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.YYYYMMDD 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.YYYYMMDD 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

3) Additional URMA products over NOAA/PORT/SBN
Total precipitation over Alaska and Puerto Rico will be added
where the 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 is LEKA98 KWBR
Puerto Rico is LECA98 KWBR

4) 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

Parallel URMA:

http://www.emc.ncep.noaa.gov/mmb/jcarley/rtma_urma/URMAP

Operational 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

Parallel vs. Ops RTMA:

http://www.emc.ncep.noaa.gov/mmb/jcarley/rtma_urma/RTMAP-RTMA

Parallel vs. Ops 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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NWS National Service Change Notices are online at:

<http://www.nws.noaa.gov/os/notif.htm>

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