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PNSWSH

Technical Implementation Notice 15-08 Amended
National Weather Service Headquarters Washington DC
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From: Tim McClung
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Subject: Amended: RTMA and URMA Upgrade: Effective April 14, 2015

Notice amended to change the implementation date from April 7, 2015 to April 14, 2015. In addition, there are updated links for additional information about the Real-Time Mesoscale Analysis (RTMA) and the Unrestricted Mesoscale Analysis (URMA).

Effective on or about Tuesday, April 14, 2015, beginning with the 1300 Coordinated Universal Time (UTC) cycle, the National Centers for Environmental Prediction (NCEP) will upgrade the RTMA and URMA as follows:

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

Model Changes:

- For the RTMA and URMA 2.5 km contiguous U.S. (CONUS) grids, replace the 13km Rapid Refresh (RAP) downscaled 1 hour-forecast with a blend of the downscaled three km High-Resolution Rapid Refresh (HRRR) 1-hour forecast and a four km North American Model (NAM)-nest (variable-length) forecast for the first guess.
- Enhance the Gridpoint Statistical Interpolation (GSI) code to include a terrain-aware gross error check for all observations and a buddy-check for temperature observations.
- Extend the look-back period for the 6-hourly URMA precipitation from 1-7 days:

Currently, the 6-hourly Stage IV is a mosaic of the 6-hourly Quantitative Precipitation Estimates (QPEs) from the 12 CONUS River Forecast Centers (RFCs). For this release, NCEP first produces 6-hourly totals from the 8 Eastern/Central RFCs' hourly QPEs, then combine these 6-hourly totals with the four Western RFCs' (Northwest (NW) RFC, California-Nevada (CN) RFC, Colorado Basin (CB) RFC, Missouri Basin (MB) RFC) 6-hourly QPEs to arrive

at a 6-hourly CONUS mosaic.

Hourly Stage IV will be re-made hourly if there is new input after valid time for the next 23 hours, then again at one, three, five and seven days after valid time.

The 6-hourly Stage IV/URMA will be re-made hourly if there is new input for 24 hours after valid time, then the four 6-hourly mosaics covering a 12Z-12Z 24-hour period will be re-made at one, three, five and seven days after the ending 12Z (the 6-hourly Stage IV precipitation is remapped to the 2.5km NDFD-CONUS and NWRFC grids at each update as precipitation URMA).

Each remake of the 6-hourly mosaic is followed by its remapping to the 2.5km CONUS and NWRFC grids as precipitation URMA.

The use of the higher resolution models to build the first guess and the enhanced observation quality control results in an overall improved analysis for the 2DVar variables of the RTMA/URMA, especially 2-meter temperature and 10-meter winds. Using the primary hourly QPEs from the above eight Eastern/Central RFCs and the overall extension of the look-back period to seven days results in a more accurate final URMA precipitation.

Addition of Variables:

NCEP is adding fields of Total Cloud Amount (TCDC) analysis and Total Cloud Amount analysis uncertainty to the RTMA and URMA gridded binary version 2 (GRIB2) files available on the NCEP ftp, http and NOAA National Operational Model Archive and Distribution System (NOMADS) servers via the following URLs (YYYYMMDD is the year, month day):

<ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/rtma/prod/rtma2p5.YYYYMMDD>

<ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/urma/prod/urma2p5.YYYYMMDD>

<http://www.ftp.ncep.noaa.gov/data/nccf/com/rtma/prod/rtma2p5.YYYYMMDD>

<http://www.ftp.ncep.noaa.gov/data/nccf/com/urma/prod/urma2p5.YYYYMMDD>

<www.nomads.ncep.noaa.gov/pub/data/nccf/com/rtma/prod/rtma2p5.YYYYMMDD>

Total Cloud Amount (TCDC) analysis will be added to:

rtma2p5.tCCz.2dvaranl_ndfd.grb2
rtma2p5.tCCz.2dvaranl_nwrfc.grb2
urma2p5.tCCz.2dvaranl_ndfd.grb2
urma2p5.tCCz.2dvaranl_nwrfc.grb2

Total Cloud Amount (TCDC) analysis uncertainty will be added to:

rtma2p5.tCCz.2dvarerr_ndfd.grb2
rtma2p5.tCCz.2dvarerr_nwrfc.grb2
urma2p5.tCCz.2dvarerr_ndfd.grb2

urma2p5.tCCz.2dvarerr_nwrfc.grb2

These additional RTMA and URMA variables will also be added to the ftp server for National Digital Guidance Database (NDGD) downloads and to NOAAPort:

<ftp://tgftp.nws.noaa.gov/SL.us008001/ST.opnl/DF.gr2/DC.ndgd/GT.rtma/AR.conus>

<ftp://tgftp.nws.noaa.gov/SL.us008001/ST.opnl/DF.gr2/DC.ndgd/GT.urma/AR.conus>

file name - ds.tcdc.bin

World Meteorological Organization (WMO) header information will be as follows:

T1T2A1A2ii cccc, where:

T1 = L

T2 = A - Total cloud cover

A1 specifies the grid id as follows

I - RTMA CONUS 2.5 km grid 184

Q - URMA CONUS 2.5 km grid 184

A2 specifies the forecast hour as follows:

A = 00 (Analysis)

ii = 98 - Surface or 2m above ground

cccc = KWBR

LAIA98 KWBR RTMA TCDC Analysis

LAIA98 KWBR RTMA TCDC Analysis Uncertainty

LAQA98 KWBR URMA TCDC Analysis

LAQA98 KWBR URMA TCDC Analysis Uncertainty

Output Changes:

All filenames and paths given are on the NCEP ftp server, the NCEP http server, or NCEP NOMADS server, respectively, via the following URLs (YYYYMMDD is the year, month, day):

RTMA 2.5 km precipitation data will be relocated from:

data/nccf/com/rtma2p5/prod/rtma2p5.YYYYMMDD to ->

data/nccf/com/rtma2p5/prod/rtma2p5.YYYYMMDD

URMA 2.5 km precipitation file names will change from:

pcpurma_g184.YYYYMMDDCC.06h

to -> urma2p5.YYYYMMDDCC.pcp_06h.184.grb2

pcpurma_g188.YYYYMMDDCC.06h

to -> urma2p5.YYYYMMDDCC.pcp_06h.188.grb2

RTMA 2.5 km precipitation file names will change from:

rtma2p5.tCCz.pcpn_ndfd.grb2

to -> rtma2p5.YYYYMMDDCC.pcp.184.grb2

Sample Parallel Data:

A parallel feed of data will be available on the NCEP HTTP server in mid-February. The parallel data will be 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/>
<http://para.nomads.ncep.noaa.gov/pub/data/nccf/com/hourly/para/>

More information about the RTMA and URMA 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

Parallel URMA:

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

Parallel versus Operational RTMA:

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

Parallel versus Operational URMA:

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

Information about the precipitation URMA, with links to parallel run data directories:

http://www.emc.ncep.noaa.gov/mmb/ylin/pcpanl/urma/precip_urma.html

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 Technical Implementation Notices are online at:

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

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