

NOUS41 KWBC 181744
PNSWSH

Technical Implementation Notice 15-08
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From: Tim McClung
Chief, Science Plans Branch
Office of Science and Technology

Subject: RTMA and URMA Upgrade: Effective April 7, 2015

Effective on or about Tuesday, April 7, 2015, beginning with the 1300 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

- For the RTMA and URMA 2.5 km CONUS grids, replace the 13km RAP downscaled 1h-forecast with a blend of the downscaled 3km HRRR 1h-forecast and a 4 km NAM-nest (variable-length) forecast for the first guess
- Enhance the 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 1, 3, 5 and 7 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 1, 3, 5 and 7 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 7 days results in a more accurate final URMA precipitation.

2) Addition of Variables

NCEP is adding fields of Total Cloud Amount (TCDC) analysis and Total Cloud Amount analysis uncertainty to the RTMA and URMA GRIB2 files available on the NCEP ftp, http and NOMADS servers via the following URLs (YYYYMMDD is the year, month day):

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

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

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

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

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 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

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

3) 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/rtma/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

4) 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:

<http://www.emc.ncep.noaa.gov/mmb/rtma/para/>

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:

Geoff DiMego
NCEP/EMC Mesoscale Modeling Branch
College Park, Maryland
301-683-3764
geoff.dimego@noaa.gov

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

Carissa Klemmer
NCEP/NCO Dataflow Team
College Park, Maryland
301-683-0567
ncep.list.pmb-dataflow@noaa.gov

NWS National Technical Implementation Notices are online at:

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

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