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PNSWSH

Service Change Notice 19-41
National Weather Service Headquarters Silver Spring MD
1110 AM EDT Thu May 9 2019

To: Subscribers:
           -NOAA Weather Wire Service
           -Emergency Managers Weather Information Network
           -NOAAPort
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From: Bob Maxson
           Acting Director
           National Centers for Environmental Prediction

Subject: Additions and Changes to the NAM Nest and HiResW: Effective June
12, 2019

Effective on or about Wednesday, June 12, 2019, beginning with the 1200
Coordinated Universal Time (UTC) model distribution, the National Centers
for Environmental Prediction (NCEP) will be making modifications to
severe weather fields in the North American Mesoscale (NAM) nests and the
High-Resolution Window (HiResW) output files. These changes will be
coincident with the implementation of Global Forecast System (GFS) v15.1
so any changes in that implementation's schedule will impact these
NAM/HIResW changes.

As part of the proposed High Resolution Ensemble Forecast (HREF)
implementation in the 3rd quarter of fiscal year (FY) 2019, the Storm
Prediction Center (SPC) has requested that the convectively relevant
output fields for the constituent models used in HREF be unified. To
achieve this, some fields have to be added and/or modified in the NAM
nest and HiResW output files.

The following changes will be applied to the NCEP Web services, including
NOAA Operational Model Archive and Distribution System (NOMADS) "grib
filter" and OpenDAP:

https://nomads.ncep.noaa.gov/pub/data/nccf/com/nam/prod/
ftp://ftpprd.ncep.noaa.gov/pub/data/nccf/com/nam/prod
https://nomads.ncep.noaa.gov/pub/data/nccf/com/hiresw/prod/
ftp://ftpprd.ncep.noaa.gov/pub/data/nccf/com/hiresw/prod

1) The following variables will be added to the NAM contiguous U.S.
(CONUS) nest output "hiresf" files:

nam.tCCz.conusnest.hiresfFF.tm00.grib2, where CC is cycle and FF is
forecast hour

- Instantaneous simulated reflectivity at the -10C level (REFD:263 K
level)

- Hourly maximum simulated reflectivity at the -10C level (REFD:263 K level 11-12 hour max forecast)
- Hourly minimum updraft helicity for the 0-3 km above ground level (AGL) and 2-5 km AGL (MNUPHL:3000-0 m above ground: and MNUPHL:5000-2000 m above ground:)
- Hourly maximum updraft helicity for the 0-3 km AGL (MXUPHL:3000-0 m above ground)

2) Modifications to all NAM nests "hiresf" files (CONUS, Alaska, Hawaii, Puerto Rico, and Fire Weather) to change:

- The vertical integration range for the hourly maximum updraft speed (MAXUVV) and downdraft speed (MAXDVV) is changed from 400-1000 hPa to 100-1000 hPa
- In the NAM post-processing code, the thunder parameter (LTNG) is currently set to 1 if convective precipitation is non-zero at a model grid point. Since 2014, when convective parameterization was turned off in the NAM nests, this field has been zero. To populate this field with non-zero values from the NAM nests for HREF, it will now be set to 1 in the NAM nests if the total precipitation is non-zero at a grid point. In the 12 km NAM parent domain output grids, this parameter will still be set to 1 if convective precipitation is non-zero.

3) Additions and changes to the HiResW output files:

- Add hourly maximum simulated reflectivity at the -10C level for the 5 km HiResW output files, for the 3 km subset grid for CONUS, and for the 5 km subset grid for Alaska:

hiresw.tCCz.nmmb_5km.fFF.DOMAIN.grib2
hiresw.tCCz.arw_5km.fFF.DOMAIN.grib2
hiresw.tCCz.nmmb_?km.fFF.DOMAIN.subset.grib2
hiresw.tCCz.arw_?km.fFF.DOMAIN.subset.grib2

Where CC is cycle, FF is forecast hour, ? is the domain resolution and DOMAIN is the region.

- Adds a yes/no thunder parameter for all full domain 5 km HiResW output grids (but not for the *conuseast* and *conuswest* legacy grids).
- Fix the minimum updraft helicity field in the Non-hydrostatic, hybrid vertical coordinate mesoscale model on B-grid (NMMB) HiResW output files:

hiresw.tCCz.nmmb_5km.fFF.DOMAIN.grib2
hiresw.tCCz.nmmb_?km.fFF.DOMAIN.subset.grib2

- Specify the earth's radius properly for National Center for Atmospheric Research (NCAR) Advanced Research WRF (ARW) model output, correcting some slight interpolation errors.

NCEP urges all users to ensure their decoders can handle changes in content order, changes in the scaling factor component within the product definition section (PDS) of the gridded binary (GRIB) files, and volume changes. These elements may change with future NCEP model

implementations. NCEP will make every attempt to alert users to these
changes before implementation.

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 concerning the NAM, please contact:

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National Service Change Notices are online at:

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

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