

NOUS41 KWBC 251401 AAA
PNSWSH

Technical Implementation Notice 10-61 Amended
National Weather Service Headquarters Washington DC
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 -NOAA Weather Wire Service
 -Emergency Managers Weather Information Network
 -NOAAPort
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From: Timothy McClung
 Chief, Science Plans Branch
 Office of Science and Technology

Subject: Amended: Upgrade to HIRES Window: Effective March 29, 2011

Amended to postpone the effective date of changes to the HIRES Window from March 1 to March 29, 2011, and to correct the updraft helicity surface label.

Effective March 29, 2011, beginning with the 1200 Coordinated Universal Time (UTC) run, the National Centers for Environmental Prediction (NCEP) will upgrade the High-Resolution Window Forecast System (HIRESW). The upgrade includes:

- Changes to the model components.
- Addition of a Guam domain run.
- Changes to the Puerto Rico grid domain.
- Addition of new products and a new output grid for Guam.
- Change to the directory location on the NCEP server.

These changes will not be implemented on NOAAPort or the Advanced Weather Interactive Processing System (AWIPS) at this time. A separate Technical Implementation Notice (TIN) will be issued for the future activation of the HIRESW changes on AWIPS and NOAAPort.

Model Changes:

The HIRESW model will be updated from Weather Research and Forecasting (WRF) version 2.2 code to WRF version 3.2 code for both the Advanced Research WRF (ARW) and the Nonhydrostatic Mesoscale Model (NMM) members of the system. Both the ARW and NMM models will use better conserving moisture advection after this upgrade.

Domain Changes:

The Puerto Rico domain will be expanded by approximately 50% to provide full coverage to Hispaniola. A new domain will be added to run over Guam twice daily at 00 and 12 UTC. The model grid spacing will remain unchanged at 5.15 km for ARW and 4.0 km for NMM for all domains. With the addition of Guam, the revised run schedule will be:

00 UTC: East, Hawaii, Guam
06 UTC: West, Puerto Rico
12 UTC: East, Hawaii, Guam
18 UTC: Alaska, Puerto Rico

These runs may be cancelled by hurricane model runs during the tropical season.

New Products:

Binary Universal Form for the Representation of meteorological data (BUFR)-formatted point forecasts for select locations will become available with this implementation.

The new gridded output fields that will become available for all domains are:

- Echo top height from simulated radar reflectivity.
- Planetary Boundary Layer (PBL) height (Richardson number based).
- Hourly maximum updraft helicity.
- Hourly maximum updraft speed.
- Hourly maximum downdraft speed.
- Hourly maximum 10 m above ground level (AGL) wind speed.
- Hourly max 1,000 m AGL simulated radar reflectivity.
- Hourly max/min 2 m AGL temperature.
- Hourly max/min 2 m AGL relative humidity.
- Ventilation rate.
- Transport wind.
- 80 m AGL wind, temperature, moisture, and pressure.

In addition, NCEP will generate a set of new high-resolution, hybrid ensemble output that combines uncertainty information from the Short-Range Ensemble Forecast (SREF) with deterministic forecasts from the HIRES. Output products from this HIRES ensemble will include mean, spread, and probabilistic guidance.

With this implementation, NCEP will also correctly identify the updraft helicity field as being computed over the 5,000 m to 2,000 m AGL layer. The current gridded binary (GRIB) encoding for this field labels it as a surface field.

Data Availability:

The HIRESW data is currently available on the NWS file transfer protocol (FTP) server, the NCEP server, and in the NOAA Operational Model Archive and Distribution System (NOMADS). The directory name of the location of the HIRESW output on the NCEP server and in NOMADS will change from:

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.../com/nam/prod/hiresw  
to:  
.../com/hiresw/prod/hiresw
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The location of the data on the NWS FTP server will not change.

Product delivery timing of the HIRESW products is not expected to change as a result of this implementation. More information regarding the HIRESW and associated products can be found at:

http://www.emc.ncep.noaa.gov/mmb/mmbp11/nestpage_4km

A consistent parallel feed of data will become available on the NCEP server once the model is running in parallel on the NCEP Central Computing System by mid-January. The parallel data will be available via the following URLs:

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

NCEP encourages all users to ensure their decoders are flexible and are able to adequately handle changes in content order, changes in the scaling factor component within the product definition section (PDS) of the GRIB files, and also any volume changes which may be forthcoming. These elements may change with future NCEP model implementations. NCEP will make every attempt to alert users to these changes prior to any implementations.

For questions regarding these changes, please contact:

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National Technical Implementation Notices are online at:

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

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