Technical Implementation Notice 12-19 Amended
National Weather Service Headquarters Washington DC
318 PM EDT Fri May 11 2012

To: Subscribers:
          -Family of Services
          -NOAA Weather Wire Service
          -Emergency Managers Weather Information Network
          -NOAAPort
          Other NWS Partners, Users and Employees

From: Timothy McClung
          Chief, Science Plans Branch
          Office of Science and Technology

Subject: Amended: Hurricane Weather and Research Forecast (HWRF) Model
Changes: Effective May 24, 2012

Amended to reschedule implementation for Thursday, May 24, 2012. Also
added clarification about nest product filename.

Effective on or about Thursday, May 24, 2012, beginning with the 1200
Coordinated Universal Time (UTC) run, the National Centers for
Environmental Prediction (NCEP) will upgrade the HWRF - Princeton Ocean
Model (POM) coupled system. The scientific enhancements include the
following:

- Implement triple-nesting capability with a new centroid based nest
movement algorithm.
- Configure the inner-most grid at cloud-resolving 3 km horizontal
resolution with explicit representation of convective processes.
- Implementation of Global Forecast System (GFS) Shallow Convection.
- Modifications to Simplified Arakawa-Schubert (SAS) deep convection, GFS
Planetary Boundary Layer (PBL), Geophysical Fluid Dynamics Laboratory
(GFDL) surface physics and Ferrier microphysics parameterizations suitable
for higher resolution and based on observational findings.
- Redesign of vortex initialization for 3 km resolution with improved
interpolation algorithms and better representation of composite storm.
- Improved POM initialization in the Atlantic domain and new 1-dimensional
(1-D) ocean coupling for Eastern Pacific basin.
- Upgrade the HWRF Gridpoint Statistical Interpolation (GSI) to V3.5 and
use of new Hybrid GSI/GFS for initial and boundary conditions once the
Hybrid GSI/GFS has been implemented operationally.
- Improvements to HWRF Unified Post Processor to generate new Special
Sensor Microwave/Imager (SSM/I) simulated microwave satellite imagery
products.
- Very high-resolution (every 5 seconds) storm tracker output to support
National Hurricane Center (NHC) operations.

Test results from the combination of these upgrades showed significantly
improved track, intensity and structure forecast skills and improved

track, intensity and storm radius forecast biases in both Atlantic and Eastern North Pacific basins.

Product Changes:

The following elements will be added to the HWRF model output gridded binary (GRIB) files:

-Simulated microwave satellite imagery products from SSM/I-S sensors.

Additional products and their contents:

- New intermediate grid output GRIB files (*hwrfprs_i.grb* and *hwrfsat_i.grb*) at a horizontal resolution of 0.1 degrees latitude (lat)/longitude (lon).

- Nest (innermost domain) GRIB files (*hwrfprs_n.grb* and *hwrfsat_n.grb*) will now be at highest resolution of 0.03 degrees lat/lon. (Note: this change will result in a filename change on the NWS FTP server. The current filename is ns.{stormname}.YYYYMMDDHH_fh.00##_tl.press_gr.0p1deg. The filename will change from *press_gr.0p1deg to *press_gr.0p03deg).

- New merged grid (innermost + intermediate) output GRIB files (*hwrfprs_m.grb* and *hwrfsat_m.grb*) for selected variables at a horizontal resolution of 0.03 degrees lat/lon.

- Combined grid output GRIB files (*hwrfprs_c.grb* and *hwrfsat_c.grb*) will now be a combination of all three domains at highest resolution of 0.03 degrees lat/lon.

- Parent grid output GRIB files (*hwrfprs_p.grb* and *hwrfsat_p.grb*) remain unchanged and will be at the same 0.25 degrees lat/lon resolution.

- A new very high temporal frequency (5 seconds) tracker output product (ascii text file) is added at the request of NHC.

There will be an increase of roughly 8GB in product size due to high-resolution output and additional elements.

These changes will result in about a 20-minute delay in product dissemination time. This change was proposed in an NWS Public Information Statement issued February 1, 2012. Based on the responses received, NWS will move forward with this change in dissemination time of the HWRF products.

The HWRF GRIB products are disseminated via the NCEP FTP server and are not available on NOAAPort or on the Advanced Weather Interactive Processing System (AWIPS).

More details about the HWRF-POM are available at:

http://www.emc.ncep.noaa.gov/HWRF/index.html

NCEP encourages 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 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 model changes, please contact:

Dr. Vijay Tallapragada
NCEP/Environmental Modeling Center
Hurricane Forecast Project
Camp Springs, MD
301-763-8000, x 7232
vijay.tallapragada@noaa.gov

National Technical Implementation Notices are online at:

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

$$
NNNN