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PNSWSH

Technical Implementation Notice 11-09
National Weather Service Headquarters Washington DC
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From: Timothy McClung
Science Plans Branch Chief
Office of Science and Technology

Subject: Hurricane Weather and Research Forecast (HWRF) Model
Changes: Effective May 17, 2011

Effective Tuesday, May 17, 2011, 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:

- Upgrade WRF NMM dynamic core from v2.0 to v3.2
- Modify vortex size corrections based on radius of outermost closed isobar (ROCI) and radius of 34kt winds
- Upgrade HWRF Grid point Statistical Interpolation (gsi) analysis scheme to community version 2.5
- Upgrade Simplified Arakawa-Schubert (SAS) deep convection parameterization to new version implemented in the NCEP Global Forecast System (GFS)
- Modify surface enthalpy exchange coefficient at high wind speeds
- Expand coupled region in the Eastern Atlantic domain to prevent storms from losing coupling effect with the ocean due to insufficient overlap with the Western Atlantic region
- Upgrade HWRF post-processing to new NCEP Unified Post Processor (UPP)

Test results from the combination of these upgrades showed improved track and intensity forecast skill, reduced initial growth of errors (spin-up and spin-down) and reduced intensity bias for the Atlantic and a majority of the eastern North Pacific basins.

Product Changes:

The following elements will be added to the HWRF model output GRIB files:

- Angle corrected simulated goes satellite imagery products /infrared and water vapor channels/
- Simulated microwave satellite imagery products
- Additional vertical pressure levels for three-dimensional variables

The frequency of model output will be increased from 6 hourly to 3 hourly for all variables

The HWRF GRIB products are disseminated via the NCEP and NWS FTP servers and are not available on NOAAPORT or AWIPS. These changes will result in no change in product dissemination time. There will be an increase of roughly 2GB in product size due to the additional elements.

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:

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NWS National Technical Implementation Notices are online at:

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

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