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PNSWSH

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

Subject: GFDL Hurricane Prediction System 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 Geophysical Fluid Dynamics Laboratory (GFDL) Hurricane Prediction System. The scientific changes to the model include the following:

- Upgrade Simplified Arakawa-Schubert (SAS) deep convection parameterization to new version implemented in the NCEP Global Forecast System (GFS)
- Modify the surface enthalpy exchange coefficient and dissipative heating effect
- 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. The new overlap will be 25 degrees.
- Correct several bugs in the model.

In testing, these improvements resulted in an average reduction of forecast error of about 20 percent in the Atlantic basin for the 3 to 5 day forecast period for tests of storms from the 2010 Atlantic hurricane season.

Product Changes:

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

Model-predicted 10 meter winds will be outputted in addition to the lowest model level 35 meter winds.

The GFDL hurricane model 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 only a minor increase in product size.

Once implemented, the GFDL data will be available on the NWS ftp server at:

ftp://tgftp.nws.noaa.gov/SL.us008001/ST.opnl/MT.ghm_CY.xx

where xx is the model cycle

and at the NCEP servers at:

www.ftp.ncep.noaa.gov/data/nccf/com/hur/prod/hur.YYYYMMDDHH

and
ftp.ncep.noaa.gov/pub/data/nccf/com/hur/prod/hur.YYYYMMDDHH

where YYYY is year, MM is month, DD is day, and HH is model cycle.

More details about the GFDL hurricane prediction system are available at:

<http://www.gfdl.noaa.gov/operational-hurricane-forecasting>

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 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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