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Technical Implementation Notice 12-18 Amended
National Weather Service Headquarters Washington DC
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From: Timothy McClung
Chief, Science Plans Branch
Office of Science and Technology

Subject: Amended: GFDL Hurricane Prediction System Changes: Effective May 29, 2012

Amended to reschedule the implementation for Tuesday, May 29, 2012.

Effective on or about Tuesday, May 29, 2012, 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:

- Bug fix in Planetary Boundary Layer (PBL) scheme from 2003 implementation.
- Bug fix in Simplified Arakawa-Schubert (SAS) deep convection from 2010 implementation.
- Implementation of Global Forecast System (GFS) Shallow Convection.
- Modification of the surface exchange coefficient (ch, cd).
- Modifications to GFS PBL scheme and momentum mixing term in SAS deep convection.
- Detrained micro-physics generated in SAS and passed to Ferrier micro-physics scheme.
- Reduced specification of storm size for larger storms.

In tests of storms from the 2011 Atlantic hurricane season, these improvements resulted in an average reduction of track forecast error of about 12 percent in the 2- to 5-day forecast time periods. The average reduction in intensity errors averaged nearly 20 percent in the Atlantic basin during the same forecast time periods for the 2011 Atlantic hurricane season, primarily through elimination of the large positive intensity bias.

Product Changes:
The GFDL hurricane model gridded binary (GRIB) products are disseminated via the NCEP and NWS FTP servers and are not available on NOAAPort or on the Advanced Weather Interactive Processing System (AWIPS). These changes will result in no change in product content or dissemination time.

The GFDL data is 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 online 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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National Technical Implementation Notices are online at:

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

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