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Technical Implementation Notice 12-20  
National Weather Service Headquarters Washington DC  
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From:         Cynthia Abelman  
              Chief, Aviation Services Branch

Subject: Reprioritization of GRIB2 and GRIB1 WAFS Upper Air Forecasts  
Transmission Times: Effective July 5, 2012

Effective Thursday July 5, 2012, at 1200 Coordinated Universal Time (UTC), the NWS World Area Forecast Center (WAFC) will reprioritize the transmission times of the World Area Forecast System (WAFS) Upper Air Forecasts.

WAFS Upper Air Forecasts are digital forecasts issued in gridded binary version 1 (GRIB1) and gridded binary version 2 (GRIB2) formats. Currently, the GRIB1 formatted forecasts are issued first, followed by the GRIB2 format of the same digit forecasts. This results in a 45-minute delay in the transmission of the GRIB2 version of these forecasts. Starting July 5, 2012, the order of transmission will be switched: GRIB2 format will be issued first and GRIB1 format issued second.

NWS plans to stop transmitting the GRIB1 format of WAFS Upper Air Forecasts in November 2013. This change is intended to encourage users of WAFS Forecast information to use the GRIB2 format. After this change, GRIB1 users will encounter the 45-minute delay.

In support of the WAFS, the NWS WAFC Washington provides global gridded forecasts of upper wind and temperature data covering Flight Levels (FL) 050-530, tropopause heights and temperature, and maximum wind (height, speed, direction) based on output from the Global Forecast System Numerical Weather Model. This data can be used in flight planning systems to optimize flights routes or to generate a range of charts, such and wind and temperature charts, cross sections, etc.

The aforementioned gridded products are produced four times daily, for T+06 to T+36 hour time steps, and are available in both GRIB1 and GRIB2 formats on the International Satellite Communications System (ISCS) and the WAFS Internet File System (WIFS). This change affects the order and times that these gridded products will be available on both ISCS and WIFS.

There are some differences at the technical encoding level between GRIB1 and GRIB2. The major differences from the meteorological and operational

perspective between the two formats are:

- GRIB2 is a regular grid with 1.25 X 1.25 degree (~140KM X 140KM at the equator) resolution. GRIB1 has the longitudinal points on the grid thinned as the polar regions are approached.
- GRIB2 bulletins contain data covering the entire globe for each level and each parameter in each bulletin. GRIB1 has separate bulletins for each octant of every level/parameter combination.
- GRIB2 data is compressed using the JPEG2000 standard. Appropriate JPEG2000 decompression libraries will be necessary.
- GRIB2 has a temporal resolution of three hours, from T+06 to T+36 inclusive. GRIB1 has a temporal resolution of six hours (T+06 to T+36 inclusive).
- GRIB2 has additional levels close to the normal cruise of level of Airliners.

If you have any questions about this change, please contact:

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