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Service Change Notice 13-25
National Weather Service Headquarters Washington DC
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From: Cynthia Abelman
Chief, Aviation Services Branch

Subject: Format Change for World Area Forecast System (WAFS)
Upper Air Forecasts Effective November 13, 2013.

Effective Wednesday, November 13, 2013, at 1800 Coordinated Universal Time (UTC), the NWS will cease providing WAFS Global Gridded Forecasts in the World Meteorological Organization (WMO) GRIdded Binary 1 (GRIB1) code format. At that time, WAFS Global Forecasts will only be available in WMO GRIB2 format.

This change is being implemented in accordance with the International Civil Aviation Organization (ICAO) WAFS Operations Group seventh meeting. This meeting made GRIB2 WAFS Global Gridded Forecasts operationally available and conforms to ICAO Annex 3. All users of WAFS Upper Air Forecasts in GRIB1 format are urged to migrate to WAFS Upper Air Forecasts in GRIB2 format at the earliest opportunity.

GRIB2 is a binary format developed by the WMO containing gridded data. GRIB2 was approved for experimental use by the WMO/CBS in 1998 and for operational use in 2000. GRIB2 addressed the GRIB1 problem of tables being full and the format inability to expand or extend the tables. GRIB2 introduced a more comprehensive parameter identification system and expanded use of templates.

There are differences in technical encoding between GRIB1 and GRIB2. There are five major differences, from the meteorological and operational perspective, between the two formats are:

- 1 GRIB2 is a regular grid with 1.25 X 1.25 degree (~140KM X 140 KM at the equator) resolution. GRIB1 has the longitudinal points on the grid "thinned" as the polar regions are approached.
- 2 GRIB2 bulletins contain data covering the entire globe for each level and each parameter in every bulletin. GRIB1 has separate bulletins for each "octant" of every level/parameter combination.

3 GRIB2 data is compressed using the JPEG2000 standard.

Appropriate JPEG2000 decompression libraries will be necessary.

4 GRIB2 has a temporal resolution of 3 hours, from T+06 to T+36 inclusive. GRIB1 has a temporal resolution of 6 hours (T+06 to T+36 inclusive).

5 GRIB2 has additional levels close to the normal cruise of level of airliners.

Guidance on the WAFS Global Gridded Forecasts in WMO GRIB2 Format is available on the WAFS Operations Group Website:

<http://www.icao.int/safety/meteorology/WAFSOPSG/Pages/GuidanceMaterial.aspx>

In support of the WAFS, NWS's World Area Forecast Center Washington provides global gridded forecasts of upper wind and temperature data covering Flight Levels FL050-530, tropopause heights and temperature, and maximum wind (height, speed, direction). This data is based on output from the Global Forecast System Numerical Weather Model. The 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 GRIB2 format on the WAFS Internet File System (WIFS). WIFS is available to registered users at:

<http://www.aviationweather.gov/wifs/>

For technical questions and support in registering a user account at the WIFS Website or downloading and accessing the GRIB2 data, contact:

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If you have any questions about this change, or the WAFS Global Grids data set, please contact:

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National Technical Implementation Notices are online at:

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

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