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PNSWSH

Technical Implementation Notice 11-47 Amended
National Weather Service Headquarters Washington DC
1045 AM EST Wed Jan 18 2012

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From: Timothy McClung
          Chief, Science Plans Branch
          Office of Science and Technology

Subject: Amended: Global Ensemble Forecast System (GEFS) Changes:
Effective February 14, 2012

Amended to reschedule the implementation for Tuesday, February 14, 2012
and to add specific mention that the increased run time of the Global
Ensemble will result in a delay of the associated Global Wave Ensemble
products.

On or about Tuesday, February 14, 2012, beginning with the 1200
Coordinated Universal Time (UTC) run, the National Centers for
Environmental Prediction (NCEP) Global Ensemble Forecast System (GEFS)
will be updated.

The upgrade in the GEFS production suite includes:

- Running the latest Global Forecast System (GFS) model with improved
physics scheme GFS v9.1.0 to replace the currently used GFS v8.0.

- Increasing the horizontal resolution from T190 (about 70km) to T254
(about 50-55km) for the first 192 hours (8 days) of model integration.

- Increasing vertical resolution from 28 levels to 42 levels for 0-384
hours (0-16 days) forecasts.

- Improving the ensemble initialization method by inflating the initial
perturbations between Earth's surface and 500mb.

- Optimizing the stochastic Total Tendency Perturbation (STTP) scheme,
implemented in February 2010, to represent model-related uncertainty by
adjusting its parameters to match the increased model resolution.

Due to the increase in model resolution and limitations in computational
resources, the delivery of some GEFS products will be delayed. Files for
the early hours (06-hour forecast) will experience virtually no delay.
Files for the longer forecast hours may be subject to a delay of up to 20
minutes depending on the lead time. This change was announced earlier

this year in a Public Information Statement. The delivery times of the GFS and North American Ensemble Forecast System (NAEFS) products will not be affected. The delivery times of the associated Global Wave Ensemble will be affected by this change in the GEFS. The Global Wave Ensemble products will be available roughly 20 minutes later after this implementation.

There will be several changes in the GEFS product data files affecting files with names pgrba/pgrbb. The GEFS products disseminated over NOAAPort will not change in format or content.

The GEFS products disseminated via the NWS and NCEP servers will have some changes in content. A small increase in the gridded binary (GRIB) product data volumes is expected due to these changes. These products are available at the following locations:

NCEP server:
http://www.ftp.ncep.noaa.gov/data/nccf/com/gens/prod/gefs.YYYYMMDD/xx

or
ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/gens/prod/gefs.YYYYMMDD/xx
where YYYYMMDD is the date and xx is the model cycle.

NWS server:
ftp://tgftp.nws.noaa.gov/SL.us008001/ST.opnl/MT.ensg_CY.xx/RD.YYYYMMDD

Specific sub-directories and filenames on these servers will be given for each product change below.

Product Additions:
Sunshine Duration (SUNSD) will be added to the following GEFS output files for all forecast hours.

NCEP server:
pgrb2b/ge???.tHHz.pgrb2bf* pgrb2blr/ge???.tHHz.pgrb2bf*.2

NWS server:
PT.grid_DF.gr2_RE.low/fh.xxxx_pa.membr*_tl.press_gr.onedeg
PT.grid_DF.gr2_RE.low/fh.xxxx_pa.membr*_tl.press_gr.2p5deg

Model surface (terrain) height will be added to the 204-hour forecast file to reflect its change after the model truncation at 192 hours. Note that the surface height in the 00-hour forecast files (such as ge???.tHHz.pgrbaf00) is the terrain height used in the model integration before the truncation at 192 hours.

NCEP server:
pgrb2a/ge???.tHHz.pgrb2af204 pgrb2alr/ge???.tHHz.pgrb2af204.2

NWS server:
PT.grid_DF.gr2_RE.high/fh.0204_pa.membr*_tl.press_gr.onedeg
PT.grid_DF.gr2_RE.high/fh.0204_pa.membr*_tl.press_gr.2p5deg

Product Removals:
Several parameters were mistakenly added to the 192-hour GEFS products
during a recent GFS upgrade. They will be removed with this
implementation.   The parameters include:

1. 12-hour Total Precipitation accumulation for the 180-192 hour period.

2. 12-hour Precipitation category fields, which include categorical snow,
ice pellets, freezing rain and rain, for the 180-192 hour period.

Changes 1 and 2 will affect the following files:

NCEP server:
pgrb2a/ge???.tHHz.pgrb2af192 pgrb2alr/ge???.tHHz.pgrb2af192.2

NWS server:
PT.grid_DF.gr2_RE.high/fh.0192_pa.membr*_tl.press_gr.onedeg
PT.grid_DF.gr2_RE.high/fh.0192_pa.membr*_tl.press_gr.2p5deg

3. 12-hour convective precipitation fields for the 180-192 hour period.

4. 12-hour averaged pressure fields at low/mid/high cloud bottom over the
180-192 hour period.
Changes 3 and 4 affect the following files:

NCEP server:
pgrb2b/ge???.tHHz.pgrb2bf192 pgrb2blr/ge???.tHHz.pgrb2bf192.2

NWS server:
PT.grid_DF.gr2_RE.low/fh.0192_pa.membr*_tl.press_gr.2p5deg

Fixes affecting inclusion of certain parameters:

Some diagnostic and anomaly fields have occasionally been missing due to
timing issues between post processing jobs. The missing fields include
500 MB 5-wave geopotential height and its anomaly, and 500 and 1000mb
geopotential height anomaly. These fields will now consistently be
available in the following files:

NCEP server:
pgrb2b/ge???.tHHz.pgrb2bf* pgrb2blr/ge???.tHHz.pgrb2bf*.2

NWS server:
PT.grid_DF.gr2_RE.low/fh.xxxx_pa.membr*_tl.press_gr.onedeg
PT.grid_DF.gr2_RE.low/fh.xxxx_pa.membr*_tl.press_gr.2p5deg

A consistent parallel feed of data will become available on the NCEP
server once the model is running in parallel on the NCEP Central Computing
System by early December. The parallel data will be available via the
following URLs:

http://www.ftp.ncep.noaa.gov/data/nccf/com/gens/para
or ftp://ftpprd.ncep.noaa.gov/pub/data/nccf/com/gens/para

Test data are also available at:

ftp://ftp.emc.ncep.noaa.gov/gc_wmb/

Specific information regarding the scientific implementation can be found at:

http://www.emc.ncep.noaa.gov/gmb/yzhu/html/imp/201109_imp.html

http://www.emc.ncep.noaa.gov/gmb/yzhu/imp/i201109/Q4_FY11_GEFS_Science_v4.pdf

NCEP encourages all users to ensure their decoders are flexible and are able to adequately handle changes in content order, parameter fields changing 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 implementation.

For questions regarding these changes, please contact:

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For questions regarding the dataflow aspects of this dataset, please contact:

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National Technical Implementation Notices are online at:

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

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