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Technical Implementation Notice 10-55 Amended
National Weather Service Headquarters Washington DC
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From: Tim McClung
Chief, Science Plans Branch
Office of Science and Technology

Subject: Amended: Climate Forecast System (CFS) Changes: Effective Date Scheduled for March 30, 2011

Amended to modify the termination date of the old CFS Version 1. The new and improved CFS version 2 described below was successfully implemented on March 30, 2011. The original Technical Implementation Notice (TIN) 10-55 stated the CFS Version 1, running operationally prior to the CFS v2 implementation, would be discontinued on June 28, 2011. NCEP will continue to run this original version operationally through June 2012 to allow users to transition to CFS Version 2. Another TIN will be issued in spring 2012 announcing the final termination of CFS version 1.

Effective Wednesday, March 30, 2011, beginning with the 1200 Coordinated Universal Time (UTC), the National Centers for Environmental Prediction (NCEP) upgraded the CFS. All components of the CFS--the atmospheric model, ocean model, land-surface model, and data assimilation--were upgraded as part of this change.

Users must upgrade their process of obtaining CFS data as there will be major changes in content, format, volume of data and data dissemination source with this upgrade.

NCEP will continue to run the current version of the CFS until June 2012 to allow users sufficient time to transition to the new CFS output.

A 3-layer interactive global sea ice model, as well as a global land data assimilation will be introduced to the CFS. The resolution of the atmospheric forecast model will be increased from T62 (210 km) to T126 (100 km). The ocean forecast model will be upgraded from the limited area Geophysical Fluid Dynamics Laboratory (GFDL) MOM3 to the global MOM4. The horizontal resolution will increase from 0.33 degree to 0.25 degree from 10 North to 10 South latitudes. Northwards and southwards to the poles, the resolution will increase from 1 degree to 0.5 degree globally. The land surface model will be upgraded from the 2-level Ohio State University (OSU) Model to the 4-level NOAH land model. For more details on the upgrades to the forecast model and products, please check the CFS website

at:

http://cfs.ncep.noaa.gov/cfsv2.info

The data assimilation for the Climate Forecast Model will also be upgraded. The resolution of the Atmospheric Climate Data Assimilation Version 2 (CDAS2) will be upgraded from T62 (210 km) with 28 sigma levels to T574 (27km) with 64 hybrid sigma-pressure levels. The Spectral Statistical Interpolation Scheme (SSI) will change to a Gridpoint Statistical Interpolation Scheme (GSI). Satellite radiances will be directly assimilated instead of retrievals. The Global Ocean Data Assimilation (GODAS) will also be upgraded from MOM3 to MOM4. In addition, there will be a new Global Land Data Assimilation (GLDAS) which will use observed Climate Prediction Center (CPC) precipitation as forcing for the NOAH land model. For more details on the upgrades to the data assimilation and products, please check the CFS website at the link below:

http://cfs.ncep.noaa.gov/cfsv2.info

There will be significant additions to parameters in the pressure grib (PGRB), flux files (FLX) and ocean (OCN) files. In addition, there will be a new file that contains parameters on isentropic surfaces (IPV).

Due to the increases in resolution, there will be significant changes to the format, content and sizes of all these files. The horizontal resolution of PGRB files will increase from 2.5 x 2.5 degree to 1 x 1 degree and the number of pressure levels will increase from 17 to 37. The size of the flux file will increase from the Gaussian grid for T62 (192X94) to that for T126 (384X190). The ocean file will increase from 2.5 x 2.5 degree to 0.5 x 0.5 degree. The new isentropic file will have a resolution of 1 x 1 degree. There will also be an increase in the temporal resolution of the output forecast data, from 12-hourly to 6-hourly. For more detailed information about changes/additions to these files, please check the CFS website at:

http://cfs.ncep.noaa.gov/cfsv2.info

Another significant change will be the discontinuance of all seasonal products, both for the real time forecasts and climatologies. Only monthly mean products will be disseminated.

A set of test data is available at the CFS website at:

http://cfs.ncep.noaa.gov/cfsv2.info

The current CFS output is disseminated via both the NWS FTP server and the NCEP server. With this upgrade, there will no longer be CFS output disseminated from the NWS FTP server at:

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

in the MT.cfs_MR.clim or MT.cfs_MR.fcst directories. All CFS output, along with the climatologies, will be made available only on the NCEP server and the NOAA Operational Model Archive and Distribution System

(NOMADS). Beginning on March 30, 2011, CFS output from the current day will be available via http and ftp at:

http://www.ftp.ncep.noaa.gov/data/nccf/com/cfs/prod and
ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/cfs/prod.

CFS output from the previous seven days will be available on NOAA Operational Model Archive and Distribution System (NOMADS) at:

http://nomads.ncep.noaa.gov/pub/data/nccf/com/cfs

Data delivery timing of the CFS will be changed by this implementation. The new CFS will run longer than the current CFS, and therefore, disseminate the products at a later time.

A consistent parallel feed of data has been available on the NCEP server since late December 2010, at the following URL:

http://www.ftp.ncep.noaa.gov/data/nccf/com/cfs/para/ and
ftp://ftp.ncep.noaa.gov/pub/data/nccf/com/cfs/para/

NCEP encourages all users to ensure their decoders are flexible and are able to adequately handling changes in content, changes in the scaling factor component within the product definition section (PDS) of the gridded binary (GRIB) files, and any volume changes which may occur.

If you have any questions concerning these changes, please contact:

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

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