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Technical Implementation Notice 10-55  
National Weather Service Headquarters Washington DC  
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From:    Timothy McClung  
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          Office of Science and Technology

Subject: Climate Forecast System Changes:  
          Effective January 18, 2011

Effective Tuesday January 18, 2011, beginning with the 1200 Coordinated Universal Time (UTC) run, the National Centers for Environmental Prediction (NCEP) will upgrade the Climate Forecast System (CFS). All components of the CFS-- the atmospheric model, ocean model, land-surface model, and data assimilation--will be upgraded as part of this change. Please note that the current operational CFS version will be discontinued on January 18, 2011, and **THERE WILL BE NO OVERLAP PERIOD** after the upgrade is implemented on this date. 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.

A 3-layer interactive global sea ice model, as well as 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 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 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) also will 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 NOAA land model. For more details on the upgrades to the data assimilation and products, please check the CFS website at:

<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 and additions to these files, please check the CFS website at:

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

All seasonal products will be discontinued, 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:

<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 available only on the NCEP server and NOMADS. Beginning on January 18, 2011, CFS output from the current day will be available via http and ftp:

<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 7 days will be available on NOMADS:

<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 will be available on the NCEP server by early December 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>

Users should ensure their decoders are flexible and able to adequately handle changes in content, changes in the scaling factor component within the product definition section (PDS) of the GRIB files and any volume changes which may occur.

For questions concerning these changes, contact:

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NWS National Technical Implementation Notices are online at:

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

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