National Digital Forecast Database (NDFD)
Fine Resolution NDFD
NWS Product Description
Document (PDD)
June 24, 2013

Part 1 - Mission Connection

a. Product Description **–** The National Digital Forecast Database (NDFD) contains a seamless mosaic of digital weather forecasts from National Weather Service (NWS) field offices and the National Centers for Environmental Prediction (NCEP).

On August 28, 2012, the spatial resolution was increased in the National Digital Forecast Database to 2.5km resolution for all forecast times. In addition, the temporal resolution was made accessible at one hour resolution for the first 36 hours from NDFD issuance time in experimental status. These are the finest spatial and temporal resolutions at which NWS Weather Forecast Offices (WFOs) in the Conterminous United States (CONUS) provide forecasts. Forecasts from WFOs and NWS National Centers that employ coarser resolutions will be mapped onto the finer resolution NDFD grid.

The increased spatial and temporal resolution applied to files containing data for the entire CONUS, but not Alaska, Hawaii, Guam, Puerto Rico, the Virgin Islands, or the 16 CONUS subsectors. These subsectors remain at their current operational resolutions.

Specifications for operational and experimental NDFD grids can be viewed at the following URL:

http://graphical.weather.gov/docs/ndfdSRS.htm

The NDFD will continue in parallel in operational phase at current spatial and temporal resolutions while in experimental status.

NDFD graphics and Simple Object Access Protocol/REST/XML services will continue to be provided from operational NDFD grids during the experimental status.

b. Purpose – In support of the mission described in the *National Weather Service Strategic Plan for FY2005 - FY 2020*, "expanded digital services allow communication of forecast information with greater resolution in time and space and facilitates the integration of data in all service program areas." The NDFD is the primary means by which digital information is available to customers and partners. As part of this digital database, an increase in both spatial and temporal resolution is necessary to support NOAA's National Weather Service Strategic Plan: *"Building a Weather-Ready Nation"*. Timely, fine resolution data provides critical Decision Support Services to our users during high impact events. Future digital datasets will continue to be developed in accordance with growing user needs.

c. Audience – The audience for fine resolution includes large volume users of forecast information, emergency managers, the media, numerous local, state, and federal government agencies (including NWS field offices), academia, and many other users. They are also for anyone who wishes to decode and explore various potential applications of the data.

d. Presentation Format – As with all NDFD elements, these elements are available in Gridded Binary Data Edition 2 (GRIB2) via file transfer protocol (ftp) or hypertext transfer protocol (http). The fine resolution elements are only available for the CONUS. They will be routinely updated approximately 15 minutes after the operational NDFD grids.

To access experimental fine resolution grids use the following URLs:

ftp://tgftp.nws.noaa.gov/sl.us008001/st.expr/df.gr2/dc.ndfd/ar.conus/

or

http://weather.noaa.gov/pub/sl.us008001/st.expr/df.gr2/dc.ndfd/ar.conus

Experimental grids for forecast days 1 through 3 are provided in individual files for each day in order to limit file sizes. Experimental grids for selected elements are be more tightly packed in GRIB format with both decimal and binary scaling applied. GRIB encoding characteristics for each NDFD element can be viewed at the following URL:

http://graphical.weather.gov/docs/grib_design.html#element_encoding_lo

File structures and GRIB packing for operational NDFD files are unchanged during the experimental period. WMO headers and file structures for current operational and experimental NDFD files can be viewed at:

http://www.nws.noaa.gov/ndfd/resources/NDFDelem_current.xls

WMO headers and files structure for the new experimental fine resolution files can be viewed at:

http://www.nws.noaa.gov/ndfd/resources/NDFDelem_fullres.xls

e. Feedback Method – The NWS will accept comments and feedback on the increase in resolution during the experimental period through December 31, 2013. Links to surveys are online at:

http://www.weather.gov/survey/NWS-survey.php?code=ndfd-grids25

Pending analysis of comments, we will announce a scheduled implementation to transition the experimental fine resolution to operational status for the entire CONUS on or about February 4, 2014. Current operational resolutions will continue for Alaska, Hawaii, Guam, Puerto Rico, the Virgin Islands, and the 16 CONUS subsectors.

General information on accessing and using NDFD elements is online at:

http://ndfd.weather.gov/technical.htm

For general questions regarding NDFD data, please email:

nws.ndfd@noaa.gov

At that time, the NWS will determine whether to transition these experimental elements to operational status, discontinue them, or revise and retain them as experimental elements.

Part II – Technical Description

a. Format and Science:

See the following link for a complete description for each forecast element available at fine resolution.

http://www.nws.noaa.gov/ndfd/resources/NDFDelem_fullres.xls .

b. Product Availability – See Part 2, Section A for details.

c. Additional Information – Detailed information about the NDFD is also available online.