

**National Digital Forecast Database (NDFD)
Experimental Maximum/Minimum Relative Humidity Elements
NWS Product Description
Document (PDD)
November 4, 2011**

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).

As of December 1, 2011, daily Maximum Relative Humidity and Minimum Relative Humidity grids will be available in the NDFD on an experimental basis. These elements will be available for the entire U.S. including Alaska and Hawaii.

The elements will be automatically derived from existing NDFD hourly temperature and hourly dew point grids. Maximum Relative Humidity will be calculated from 06Z to 18Z, and Minimum Relative Humidity will be calculated from 18Z to 06Z.

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, Maximum and Minimum Relative Humidity elements are being made available in response to user needs being voiced from the wildland fire community. Future fire weather elements will continue to be developed and made available in response to growing user needs.

c. Audience - The audience for the Maximum and Minimum Relative Humidity elements includes a large volume users of weather decision support information including fire managers, emergency managers, the media, numerous local, state, and federal government agencies (including NWS field offices), academia, and many other groups.

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), eXtensible Markup Language (XML), Geographical Markup Language (GML) via the experimental NWS Web Feature Service, and as graphics via web browser.

1. GRIB2 format at 5 km horizontal grid spacing, via file transfer protocol (ftp) or hypertext transfer protocol (http): The GRIB2 files can be decoded and converted to other formats, such as shapefiles, netCDF files, etc. A tutorial to download NDFD elements, decode them and generate images is [available online](#).

A user-defined GRIB2 access method is also available. That service allows the user to input latitude/longitude points for two corners and select a single weather element. The resulting GRIB2 message is built “on-the-fly” and downloaded by the user. For more information about User Defined GRIB2 access, please refer to the [Service Description Document](#).

2. Extensible Markup language (XML): Users can request NDFD elements over the Internet using the NDFD XML Simple Object Access Protocol (SOAP) server. The response to the user request is returned in XML format. For more information, please refer to the [NDFD XML Service Description Document](#).

3. Online NDFD graphics: Maximum and Minimum Relative Humidity images may be accessed from the [NWS homepage](#) by clicking on the [Graphical Forecasts](#) tab. To access these and other NDFD elements, or for further availability and technical information (e.g., temporal and spatial resolutions, forecast projections, and geographic coverage), please refer to the [NDFD technical details page](#).

e. Feedback Method – The comment period for these experimental NDFD elements will extend from 1 December 2011 through 30 August 2012. These new elements will remain experimental until all feedback is assessed and a technical analysis is completed. 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. Links to online surveys for NDFD customers are broken down by type of retrieval service:

1. GRIB2 via ftp or http: <http://www.weather.gov/survey/nwssurvey.php?code=ndfd-grids>
2. XML via SOAP service: <http://www.weather.gov/survey/nwssurvey.php?code=xmlsoap>
3. NDFD graphics: <http://www.weather.gov/survey/nws-survey.php?code=gfp>

Part II – Technical Description

a. Format and Science – The technical information about the NDFD and the forecast elements is available on the web. Descriptions of the temporal and spatial resolutions of the data, geographic coverage, and other details are available at: <http://www.nws.noaa.gov/ndfd/technical.htm>

b. Product Availability – The NDFD GRIB2 data are available via anonymous file transfer protocol (ftp) from an NWS ftp sever; see: <ftp://tgftp.nws.noaa.gov/SL.us008001/ST.expr/DF.gr2/DC.ndfd/>
Alternately, html files are available via http over the internet; see: <http://weather.noaa.gov/pub/SL.us008001/ST.expr/DF.gr2/DC.ndfd/>

Forecast grids are generated at the local WFOs and National Centers and revised on an event-driven basis. Revised grids are uploaded to the NDFD server and new mosaics and sectors are generated at the top of each hour. At a minimum, revised mosaics are refreshed

daily no later than 2200 Coordinated Universal Time (UTC); forecast grids for the next Day 7 are introduced daily at that same time.

c. Additional Information –

(1) National Weather Service Instruction (NWSI) 10-506, *Digital Data Products/Services Specification* provides detailed information on both experimental and operational elements in NDFD. See:
<http://www.nws.noaa.gov/directives/sym/pd01005006curr.pdf>

(2) Experimental gridded NDFD elements are differentiated from operational gridded NDFD elements by the subdirectory file structure on the ftp server; see:
http://www.weather.gov/ndfd/anonymous_ftp.htm.

(3) Experimental gridded elements are evaluated on both objective (e.g., statistical data) and subjective (e.g., internal and external feedback) criteria. If individual elements described in this PDD are declared “operational”, they are removed from this PDD describing experimental elements.