

## **GIS Compatible NDFD Data on the WFO Internet Page Product Description Document**

### **Part I – Mission Connection**

A. Product Description. NOAA's National Weather Service (NWS) Weather Forecast Offices (WFOs) produce graphical forecasts for the National Digital Forecast Database (NDFD). The NDFD forecasts are available to the public in GRIB2 format, a World Meteorological Organization standard. Unfortunately, this format is not widely used outside of the meteorological community. GRIB2 files from Weather Forecast Office (WFO) county warning and forecast areas are converted to shapefile format and posted to the WFO internet webpage. A sample domain is shown in Figure 1.

B. Product Type. Regional (optional)

C. Purpose. Many customer groups use GIS technology, especially land management agencies, emergency responders and the public. Providing NDFD forecasts in GIS format allow customers to ingest NDFD forecast data into GIS applications providing them the capability to display forecasts graphically and use the inactive features.

D. Audience. Customers using GIS applications can include NDFD forecast data as a feature. An example of a potential use is for a search and rescue unit to display the forecast temperatures for a search area which supports the mission of the NWS to protect life and property; also, a land management agency can supplement text forecasts in a fire weather event by displaying the minimum relative humidity and wind (both speed and direction) along with the topography for an area of concern to enhance fire fighter safety.

E. Presentation Format. The shapefiles will be available from the WFO internet website. Standard names will be given to files to allow customers to use automated downloads.

F. Feedback Methods. Feedback will be obtained by providing for general comments to be submitted from the website. People who use the comment section of the website will automatically send an email to the WFO, which will be received by the appropriate staff members.

POC: WFO MIC (Meteorologist-in-charge)

G. Prototype Period. June 1 to December 20, 2007

H. Future Considerations. If feasible, additional weather elements can be added. ESRI's ArcGIS 9.2 will be capable of ingesting NetCDF files directly. Upon its release, NetCDF files direct from the WFO graphical forecast editor (GFE) may be posted to the webpage. This will allow display of the data in its native 2.5 km resolution.

I. Example Product URL.

An example of a URL for this experimental data is:  
<http://www.wrh.noaa.gov/gis/shape.php?area=mfr>

J. Approval.

PDD approved by Vickie Nadolski, WR Regional Director.

**Part II – Technical Description**

A. File Description. The data will be presented in GIS shapefile format. Shapefiles consist of shp, dbf, txt and shx files. All four are necessary to display the data and will be presented in a zipped file. The forecast parameters available could consist of the following forecast elements: maximum temperature, minimum temperature, wind direction, wind speed, 12-hour probability of precipitation, sky cover, temperature, dew point, weather, precipitation amount, snow amount, wave height, apparent temperature, wind gust and relative humidity. The files have a constant naming convention so new data overwrites old.

B. Software. Scripts to automatically prepare and post the data will be run at specified times. For example, the scripts could be set up to run four times daily at 00Z, 06Z, 12Z and 18Z.

C. File Specifications.

File Types: Download of GRIB2 binary files – \*. bin

Posting of zipped GIS files (\*.shp, \*.shx, \*.dbf, \*.txt) – \*.zip

General file sizes would be similar to the following:

File Size: GRIB2 – ~200 kb

Unzipped GIS – ~1675 kb

shx – ~84 kb

shp – ~1414 kb

dbf – ~177 kb

Zipped GIS – ~375 kb

Number of files (would vary based upon how many forecast weather elements were provided). The following sample is for 5 weather elements that were updated 4 times per day:

Download: 5 files 4 times per day

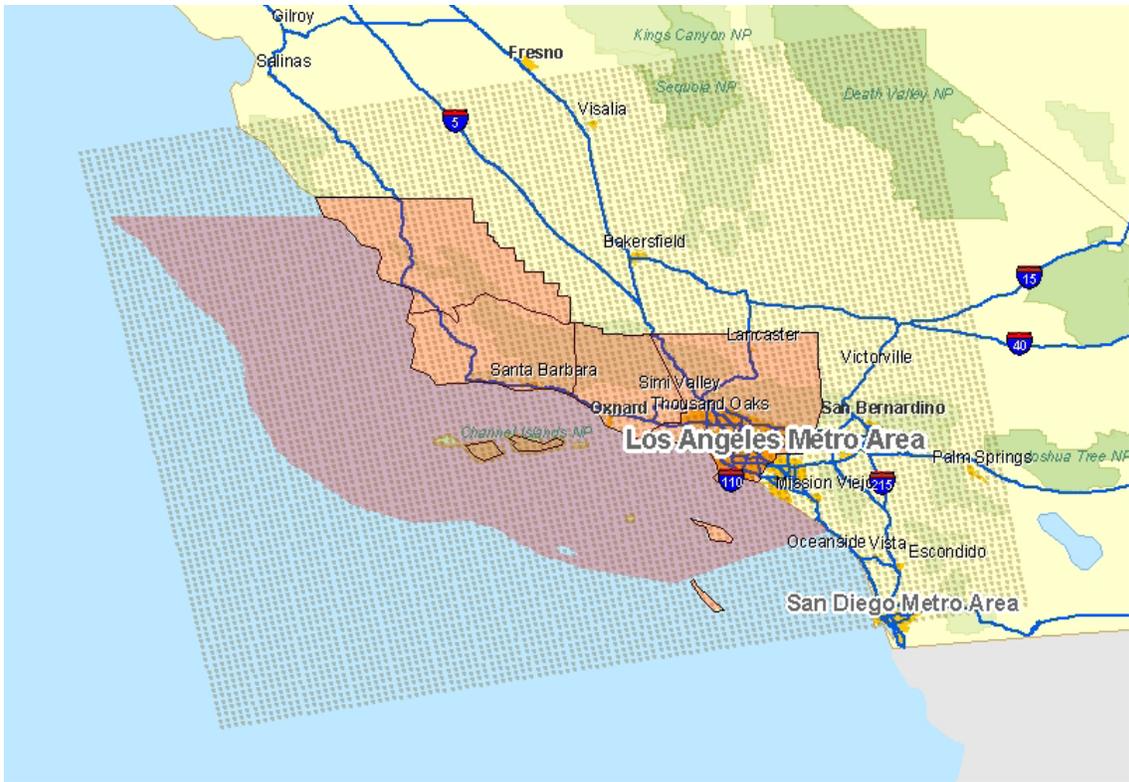
Upload: 176 total per day

MaxT – 7 files four times per day

MinT – 7 files four times per day

WindSpeed/Direction– 15 files four times per day

Relative Humidity – 15 files four times per day



**Figure 1 Sample Data Domain (gridded area) for the WFO Los Angeles/Oxnard County Warning Area**