

**Product Description Document:  
NCEP Model Analysis and Forecast  
1/1/2006**

**Part I - Mission Connection**

- 1 Product Description - Provides meteorological model output graphics on a website maintained by the National Centers for Environmental Prediction (NCEP). The link to this site is:

[Http://www.nco.ncep.noaa.gov/pmb/nwprod/analysis](http://www.nco.ncep.noaa.gov/pmb/nwprod/analysis)

Currently, graphics from six forecast models are available on the web site. These forecast models are:

1. The North American Mesoscale (NAM)
2. The Global Forecast System (GFS)
3. The Wave Watch III (WW3)
4. The Nested Grid model (NGM)
5. The Rapid Update Cycle (RUC)
6. The Weather Research and Forecast (WRF)

Graphics are available on four domains covering (1) North America, (2) the North Pacific, (3) a new Eastern North Pacific (80W – 180, 40N – 25S) and (4) the Western North Atlantic. A basic set of graphics are created for each model on each domain for each model forecast time period.

In addition to the basic set of graphics, graphics of total accumulated precipitation are added to the North American domain. These graphics display total accumulated precipitation for 12 hours, 24 hours, 36 hours, 48 hours, and 60 hours at each model forecast period.

A set of Short Range Ensemble Forecast (SREF) graphics are available at 3 hourly increments out to 87 hours for the North American domain. The parameters plotted on these graphics include mean and spread plots of:

- 250mb heights and 250mb winds
- 500mb heights
- 700mb relative humidity and 700mb temperature
- 850mb relative humidity, 850mb temperature and 850mb heights
- 1000-500 thickness, 1000-850 thickness and 850-500 thickness
- 10-meter wind and 2-meter temperature
- Mean sea level pressure
- Cape/cin
- Lifted index
- 6-hr precipitation, 12-hr precipitation and 24-hr precipitation
- New: Probability of precipitation being rain, snow or ice

New: Probability of 850mb temperature less than 0 degrees  
New: Probability of winds greater than 35 knots.  
New: Predominant precipitation type.

- 2 Purpose - The forecast graphics are available on the Internet at the same time products from these models are available to National Weather Service and private users. The website is updated as each model forecast hour is completed.
- 3 Audience - The major users of the website are the general public as well as governmental organizations, universities, and businesses.
- 4 Presentation Format - The data is presented in several web standard formats including static images and looping images.

The processing that creates these forecast graphics uses the NAWIPS software to convert forecast model output into images to be transferred to the Internet website. The forecast graphics are available on the Internet at the same time products from the models are available to National Weather Service and private users. The website is updated as each model forecast hour is completed. The graphics available are similar to those used commonly throughout NCEP.

- 5 Feedback Method - We are always seeking to improve our products based on user feedback. A comment form is provided on the meteorological forecast graphics HTML web pages. Comments regarding the products can also be sent to:

National Centers for Environmental Prediction  
ATTN: Lauren Morone Rm. 101  
5200 Auth Road  
Camp Springs, MD 20746

or via e-mail to: [Lauren.Morone@noaa.gov](mailto:Lauren.Morone@noaa.gov)

## **Part II Technical Section**

- A. Format & Science Basis - Currently, graphics from six forecast models are available. These forecast models are:

1. The North American Mesoscale (NAM)

The NAM model is a regional mesoscale model using enhanced terrain and improved parameterization of surface and precipitation processes. It produces forecasts out to 84 hours at 00, 06, 12 and 18UTC

Link to the latest information about the NAM model:

[Http://www.emc.ncep.noaa.gov/modelinfo](http://www.emc.ncep.noaa.gov/modelinfo)

2. The Global Forecast System (GFS)

The GFS is a global spectral model used primarily for aviation weather forecasts. The GFS provides guidance out to 384 hours at 00, 06, 12 and 18UTC.

Link to the latest information about the GFS

[Http://www.emc.ncep.noaa.gov/modelinfo](http://www.emc.ncep.noaa.gov/modelinfo)

3. The Wave Watch III (WW3)

Link to the latest information about the WW3:

[Http://www.emc.ncep.noaa.gov/modelinfo](http://www.emc.ncep.noaa.gov/modelinfo)

4. The Nested Grid model (NGM)

The NGM produces regional forecasts out to 48 hours at 00 and 12Z only. Its name comes from the technique of using a finer grid over North America and coarser grid over the oceans.

Link to the latest information about the NGM:

[Http://www.emc.ncep.noaa.gov/modelinfo](http://www.emc.ncep.noaa.gov/modelinfo)

5. The Rapid Update Cycle (RUC)

Link to the latest information about the RUC

[Http://maps.fsl.noaa.gov/](http://maps.fsl.noaa.gov/)

6. The Weather Research and Forecast (WRF)

Link to the latest information about the WRF

<http://wrf-model.org/index.php>

The Basic Set of Graphics

At least seven graphics are available for each model forecast hour. The basic graphics include: 1) 250mb heights and winds 2) 300mb heights and winds 3) 500mb heights,

vorticity and winds 4) 700mb heights, relative humidity and omega 5) 850mb heights, temperatures and winds 6) 6-hour total precipitation, mean sea level pressure and 850mb heights and 7) 1000-500 thickness, 6-hour precipitation and mean sea level pressure.

The graphics are depicted indifferent resolutions to accommodate various display and download capabilities.

1. Coarse 640x480 image size, approximately 37 kilobytes per image
2. Medium 1024x768 image size, approximately 70 kilobytes per image
3. Fine 1280x1024 image size, approximately 100 kilobytes per image

In addition, two series of four panel charts are available. The first of these display a chart at four consecutive forecast time steps. These time steps are either the 00 through 18 hour forecasts or the 24 hours through 42 hours forecasts. The second series of four panel displays are four related graphics at the same forecast hour.

The basic set of graphics for the WRF model are augmented to include new graphics of 12-hour, 24-hour and 36-hour total precipitation.

B. Product Availability -

This service is provided over the Internet. The NCEP has no control over the reliability of the Internet. Users need to factor this uncertainty into their decision to use this service.

NCEP does not guarantee the service will be continuously available. However, every effort will be made to assure reliable provision of this service.