

J6.4 NCEP Meteorological Model Graphics on the Internet

Brent A. Gordon*, Larry Sager, Ricardo Romero
(DOC/NOAA/NWS/NCEP Central Operations)

and Zsolt Szabo
(QSS Group, Inc.)

1. INTRODUCTION

In July 2001 the National Centers for Environmental Prediction (NCEP) launched a new internet website devoted to meteorological forecast graphics from output of the NCEP's forecast models. This website, located at <http://www.ncep.noaa.gov/NCO/PMB/analysis/>, is updated in real time as the forecast models are running on the NCEP's supercomputer. 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. This website has garnered over 10,000 visits per day since being publicly announced.

2. CURRENT CONFIGURATION

Forecast graphics are generated by standard NAWIPS operational software run on a single processor of the NCEP supercomputer. This software is used to convert forecast model output into GIF images to be transferred to the internet website. This processing occurs in parallel to the operational runs of the NCEP's forecast models. This configuration allows for graphics from early forecast hours to be available on the internet before a model has finished its forecast cycle.

Currently, graphics from four of the NCEP's forecast models are available on this web site. These forecast models are:

1. The Eta

The Eta model is a regional mesoscale model that employs enhanced terrain and improved parameterization of surface and precipitation processes. It produces forecasts out to 84

hours at 00 and 12 UTC and out to 48 hours at 06 and 18 UTC.

2. The Aviation AVN

The AVN model is a global spectral model used primarily for aviation weather forecasts. The AVN provides guidance out to 126 hours at 00 and 12 UTC and out to 84 hours at 06 and 18 UTC.

3. The Medium Range Forecast (MRF)

The MRF is a medium range global forecast model that uses the same global spectral model forecast code as the AVN. The MRF differs from the AVN in that it produces forecasts out to 16 days (384 hours) once a day at 00 UTC.

4. The Nested Grid model (NGM)

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

For the initial release of this internet site, a basic set of seven graphics are produced for each model at each forecast hour. These seven graphics are:

1. 200 or 250 mb heights and winds
2. 300 mb heights and winds
3. 500 mb heights, vorticity and winds

*Corresponding author address: Brent A Gordon, NOAA Science Center, Camp Springs, MD 20745

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

The graphics are produced in three different resolutions to accommodate various display and download capabilities. These resolutions are

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 graphic at four consecutive forecast time steps. These time steps are either the 00 through 18 hour forecasts or the 24

through 42 hour forecasts.

The second series of four panel displays are four related graphics at the same forecast hour. These are:

1. 500 mb, mean sea level, 700 mb, and 850 mb
2. 300 mb, 850 mb, 700 mb, and mean sea level pressure

These graphics are produced in only the coarse resolution.

As is done on NCEP service center workstations, the HTML documents are updated on the NCEP web server in real time as new images are transferred from the NCEP supercomputer. This configuration allows for the most recent forecast graphics to be displayed for a model cycle. As new images become available the HTML documents are updated to present the new forecast graphics.

3. FUTURE ENHANCEMENTS

In future versions of this website zooming and panning capabilities of individual images are planned. Forecast graphics from additional models run at the NCEP will also soon be added.