

# Digital Products

The NWS produces forecasts in gridded and digital form in addition to standard text products. These datasets comprise the National Weather Service's National Digital Forecast Database (NDFD). The NDFD contains a seamless mosaic of NWS digital forecasts from NWS field offices working in collaboration with NWS National Centers for Environmental Prediction (NCEP). The database is available to all customers and partners, so that they may use the information to create a wide range of text, graphic, and gridded products.

Technological advances and scientific breakthroughs have allowed NWS weather forecasts and warnings to become more accurate. However, the production and dissemination of routine NWS forecasts must keep pace with the need for detailed information in this digital age.

The Interactive Forecast Preparation System (IFPS) allows forecasters to create digital products and supports the preparation of text and voice products. The digital forecasts are delivered to the NDFD. In essence, the forecaster creates the forecast variables in digital form instead of redundantly typing several products containing largely the same information. But the real power of a digital database is that it opens the door for providing more forecast information, at higher resolutions, and in more useful forms. The NDFD contains much more data than the NWS was previously able to provide, with temporal scales as small as hourly, and spatial scales as small as a few kilometers.

The benefits of a digital database are extensive. Partners in the production and dissemination of weather forecast products will find that the NDFD is a goldmine of information. The NDFD database contains all the basic information from which National Weather Service forecasts are produced. Weather warnings are the exception to information that is stored in the database, because warnings are time-critical, and are disseminated within seconds of production. Warnings are national, regional, statewide, or sections of a state in scope, and do not lend themselves to being stored in digital format with forecast information.

Customers of the NDFD can produce many products and applications from digital information, such as general weather forecasts for radio and television broadcast, or tailored products for customers with specific needs. Examples include:

- Decision support systems that require a forecast for a specific need.
- Weather information along a path, such as forecasts for a cross-country drive. This forecast may include projections matched to user itinerary.
- Text generation of forecasts in more than one language.
- Site-specific forecasts for vehicles and hand-held devices that use Global Positioning Systems (GPS).
- Controls for smart appliances (e.g., heating, cooling, irrigation).
- Graphics for mass media.

Teaming the NDFD with GIS systems will provide powerful capabilities. The NDFD will give the customers specific information when they need it.

Commercial products available today that provide point forecasts or large scale graphics sometimes rely on direct model output or the algorithmic interpretation of model output. The NDFD will be the source of more accurate official NWS forecasts produced by forecasters at WFOs and NCEP.

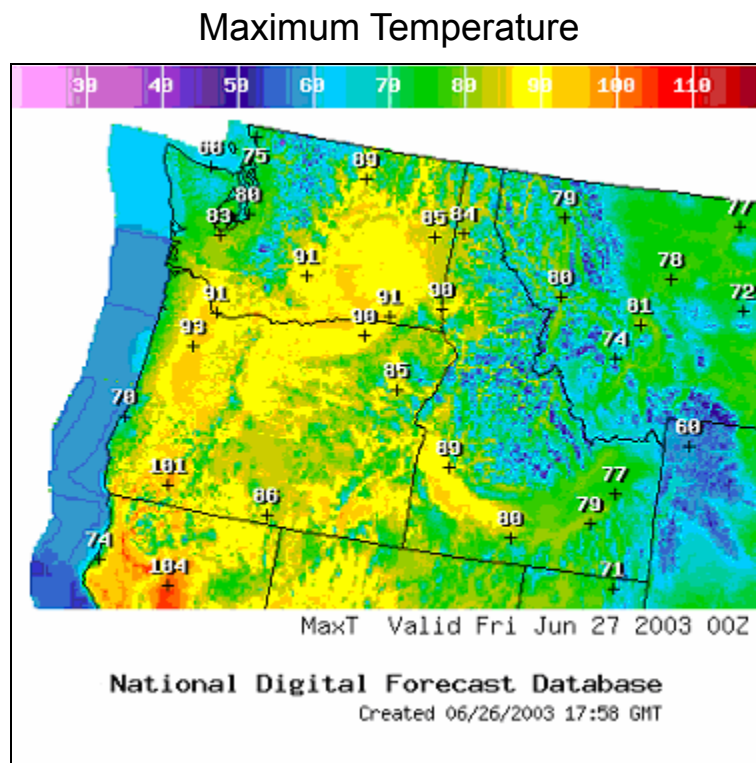
Previously, such digital forecasts were not available.

Any individual user with a computer and access to the Internet can download information from the NDFD to suit his or her needs. No longer will this customer have to wait for a timed broadcast of weather information. An individual can time the receipt of the specific information needed to fit into his or her schedule.

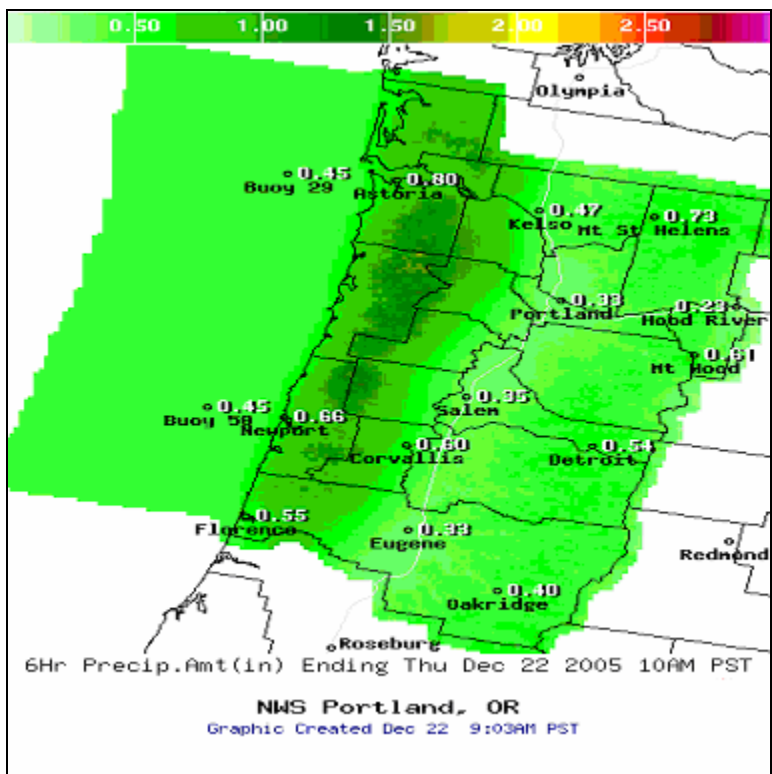
The creation of NDFD starts with the formulation of digital forecasts at each Weather Forecast Office (WFO). What exactly are digital forecasts? Each weather element, such as temperature, relative humidity and wind, is represented by a group of grids covering a specified length of time, such as 7 days. The grids within the 7 days are broken into smaller time “chunks” of anywhere from one hour to 12 hours. Each grid covers a WFO County Warning Area, and is broken up into 2.5 km to 5 km squares. Within each square, the weather element expected for that time period is represented. A grid square may show a temperature of 48 degrees Fahrenheit, and on the next grid, an hour later it will show 51 degrees. Grids may appear similar to topographical maps, at times, or they may show definite boundaries as weather systems move into the area. It is no small task to enter the large number of values needed to represent forecast conditions at the needed space and time scales for even a relatively small area such as a county-sized zone. The grids begin at the present and continue out to 7 days.

The Weather Forecast Offices (WFOs) frequently sends grids to the NDFD to create a national mosaic of high resolution data. Time and spatial resolution vary by weather element and projection as appropriate for user needs and forecast skill. The national grids are mosaics of these individual grids. The NDFD also contains watch and warning information and weather elements from NCEP centers, such as marine and climate products.

The following images are examples of some weather grids produced by the WFO's:



## Precipitation



## Wind

