

Experimental Water Information Interface Webpage Product Description Document

Part I – Mission Connection

a. Product Description –

Effective on or after Tuesday, August 16, 2016, the Office of Water Prediction (OWP) National Water Center (NWC) will be hosting water information from the National Water Model (NWM), which is an hourly, uncoupled hydrologic analysis and forecast system that provides streamflow for 2.7 million river reaches and other hydrologic information on 1 km and 250 m grids, on its Experimental Water Information Interface Webpage. The webpage can be found at <http://water.noaa.gov/map>.

b. Purpose –

The Experimental Water Information Interface Webpage is a mapping interface which allows users to display a range of water information, including snow depth; snow water equivalent; and experimental output from the NWM, including streamflow, streamflow anomaly, and soil saturation images and forecast hydrographs for 2.7 million river reaches for short-, medium-, and long-forecast ranges. A topographic map with NWM flowlines appears when the Experimental Water Information Interface webpage is first displayed (Figure 1).



Figure 1. Water Information Interface Webpage

Interactive Forecast Chart

Click anywhere on the map to display an Interactive Forecast Chart showing a forecast hydrograph for a particular river reach (Figure 2). A hydrograph is a graph showing the rate of flow versus time past a specific point in a river. A user can use the “+” zoom-in button in the upper left-hand portion of the webpage to zoom into his or her area of interest to more precisely identify a particular river reach.

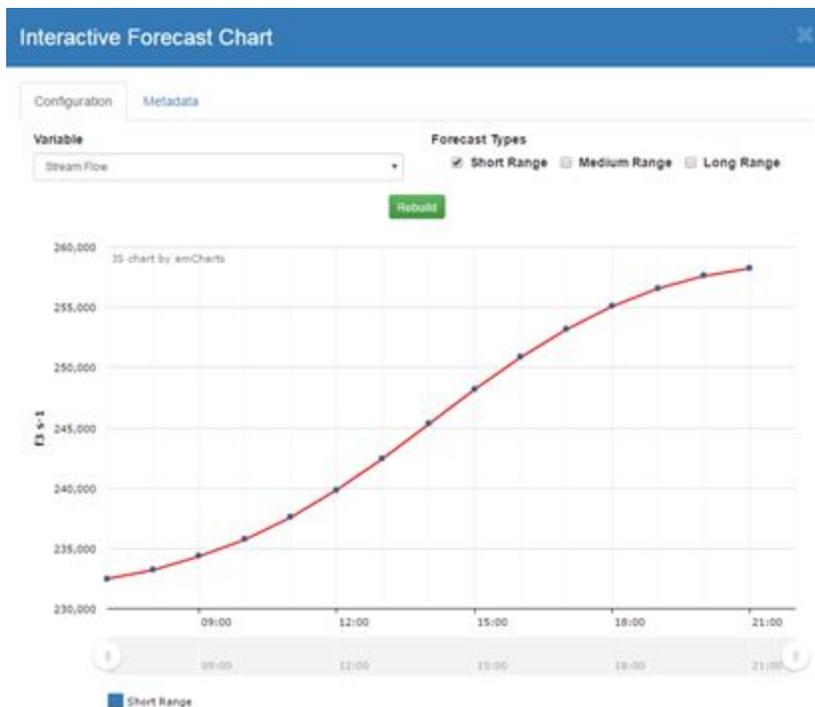


Figure 2. Interactive Forecast Chart depicting a short-range, forecast hydrograph for a user-selected river reach.

On the Interactive Forecast Chart (Configuration tab), users have the option of displaying short-range (18-hour), medium-range (10-day), and long-range (30-day) forecast hydrographs. Users can display fewer forecasts on the hydrograph by adjusting the time control buttons below the time axis. Metadata pertaining to the selected river reach and the streamflow forecast at that location is available via the Metadata tab.

NWM Imagery Viewer

Images from the NWM for various time periods are available by clicking on the About drop-down menu at the top of the Water Information Interface Webpage and selecting the Experimental Imagery Viewer.

From the Dataset drop-down menu, users can choose to view:

- Streamflow (Figure 3)
- Streamflow Anomaly (Figure 4)
- Soil Saturation (Figure 5)

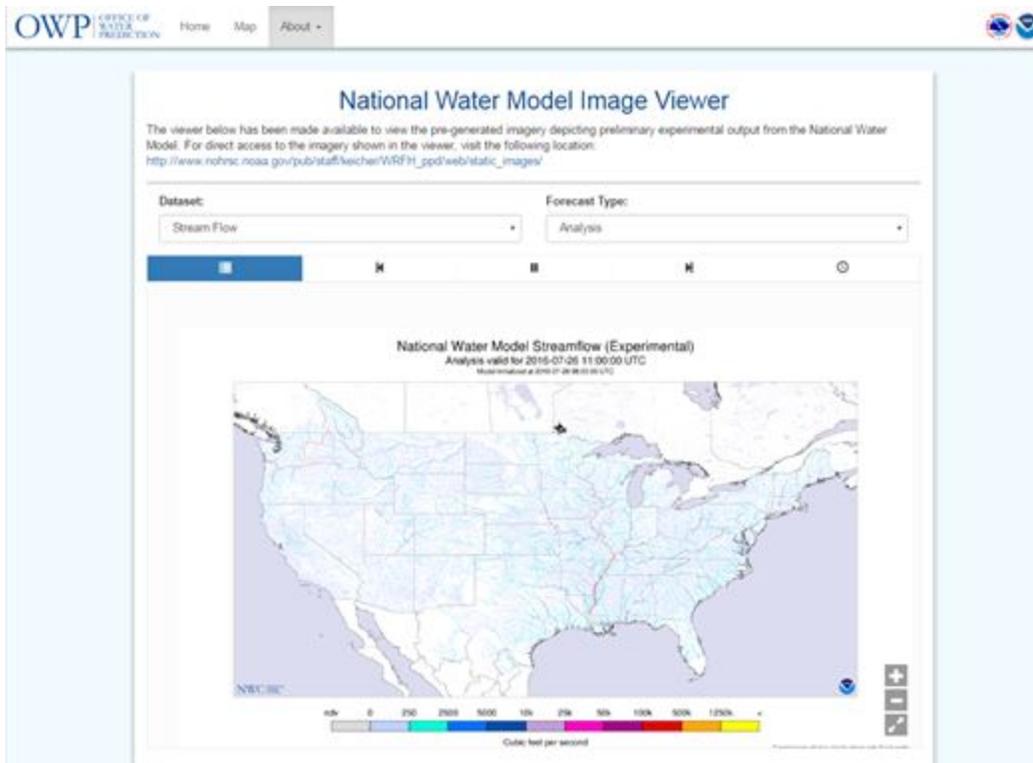


Figure 3. NWM Image Viewer – Streamflow Analysis

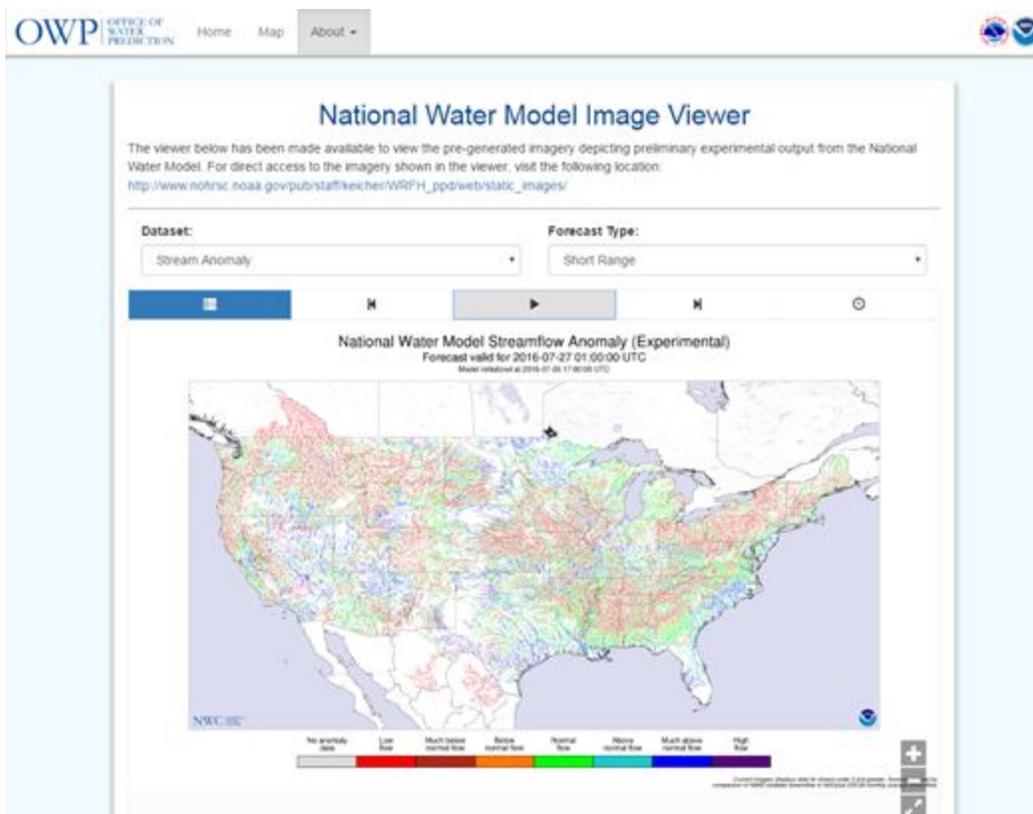


Figure 4. NWM Image Viewer – Short-Range, Streamflow Anomaly Forecast

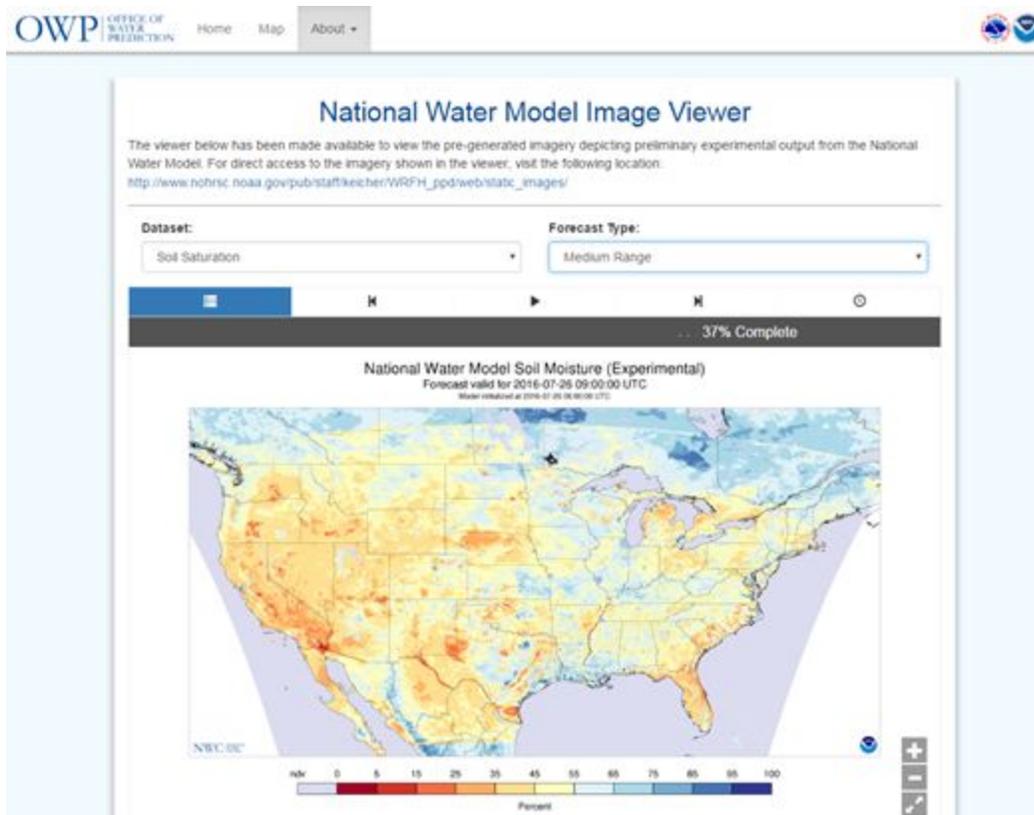


Figure 5. NWM Image Viewer – Medium-Range, Streamflow Saturation Forecast

From the Forecast Type drop-down menu, users can choose:

- Analysis to display a real-time snapshot of the selected dataset
- Short-Range to display an 18-hour deterministic (single value) forecast
- Medium-Range to display a 10-day deterministic (single value) forecast
- Long-Range to display a 30-day ensemble forecast

Users can use the buttons and slider control above the map to:

- Display an image at a particular time
- Stop/start the looping of images
- Loop images forward/backward in time
- Control the looping speed

Use the zoom control “+” and “-” buttons for changing the zoom level of the map.

Experimental Water Information Interface Mapping Controls

The upper left-hand portion of the webpage includes zoom, default extent, toggle interface opacity, and toggle time controls. The zoom control consists of “+” and “-” buttons for changing the zoom level of the map. Clicking the default extent button sets the map extent to what was initially shown when the webpage was first displayed. The toggle interface opacity control adjusts the transparency of the navigation and map layers controls. The toggle time control allows the addition of a layer with a temporal dimension.

The upper right-hand portion of the webpage includes a base maps dropdown menu as well as information and downloads buttons, and the lower right portion of the webpage includes a toggle legend display button. Users can display water information with 5 types of base maps, including Topographic, United States Geological Survey (USGS) topographic, Delorme, Streets, or Dark Grey maps. Clicking the information button allows users to display statistics for various data layers across 18 geographic regions. Users can download data in Keyhole Markup language Zipped (KMZ) format or display a Product Description Document (PDD) for the NWM after clicking the downloads button. The map legend can be toggled on and off by clicking on the toggle legend display button.

The lower left-hand portion of the webpage includes Navigation and Map Layers buttons. Under Navigation, users can search for a particular location by station name or address or navigate to a specific geographic region. Under Map Layers, users can add data layers to the map. Users can change the transparency of the map layers or toggle them on and off.

c. Audience –

Users include National Weather Service (NWS) River Forecast Centers (RFCs) and Weather Forecast Offices (WFOs), NWS regions, National Centers for Environmental Prediction (NCEP) centers, USGS, Environmental Protection Agency (EPA), Federal Emergency Management Agency (FEMA), U.S. Army Corps of Engineers (USACE), National Aeronautics and Space Administration (NASA), United States Bureau of Reclamation (USBR), state agencies, local and regional emergency responders, the National Ocean Service (NOS), National Integrated Drought Information System (NIDIS), academia and private industry.

d. Presentation Format –

Users will be able to view water information on the Experimental Water Information Interface Webpage at <http://water.noaa.gov/map>.

All NWM output will be stored in Network Common Data Form (NetCDF) format in one of three file types:

- 1) 1 km gridded (land surface variables and forcing);
- 2) 250 m gridded (runoff variables);
- 3) Point-type (stream routing variables).

The two gridded files cover a rectangular domain stretching beyond the CONUS roughly from 19N to 58N, while the point NetCDF files contain model output from the CONUS and hydrologically contributing areas.

The full set of NWM output and forcing files will be available on the National Model Archive and Distribution System (NOMADS) and the NCEP FTP server at:

<http://nomads.ncep.noaa.gov/pub/data/nccf/com/nwm>
<ftp://ftpprd.ncep.noaa.gov/pub/data/nccf/com/nwm>.

e. Feedback Method –

The OWP NWC is always seeking to improve the availability and quality of its products and services based on user feedback. Comments regarding the Experimental Water Information Interface Webpage should be provided through the electronic survey via the link provided below:

www.nws.noaa.gov/survey/nws-survey.php?code=NWMV1OUTPUT.

Comments may also be submitted to the NWM Implementation Project Manager at Brian.Cosgrove@noaa.gov.

Part II – Technical Description

a. Format and Science Basis –

Detailed technical information about the NWM, including NWM operational configuration, model details, general framework, analysis and assimilation, forecast ranges, and output is available at <http://water.noaa.gov/about/nwm>.

b. Product Availability –

End users will be able to view water information via the Experimental Water Information Interface Webpage at <http://water.noaa.gov/map>.

c. Additional Information - None

