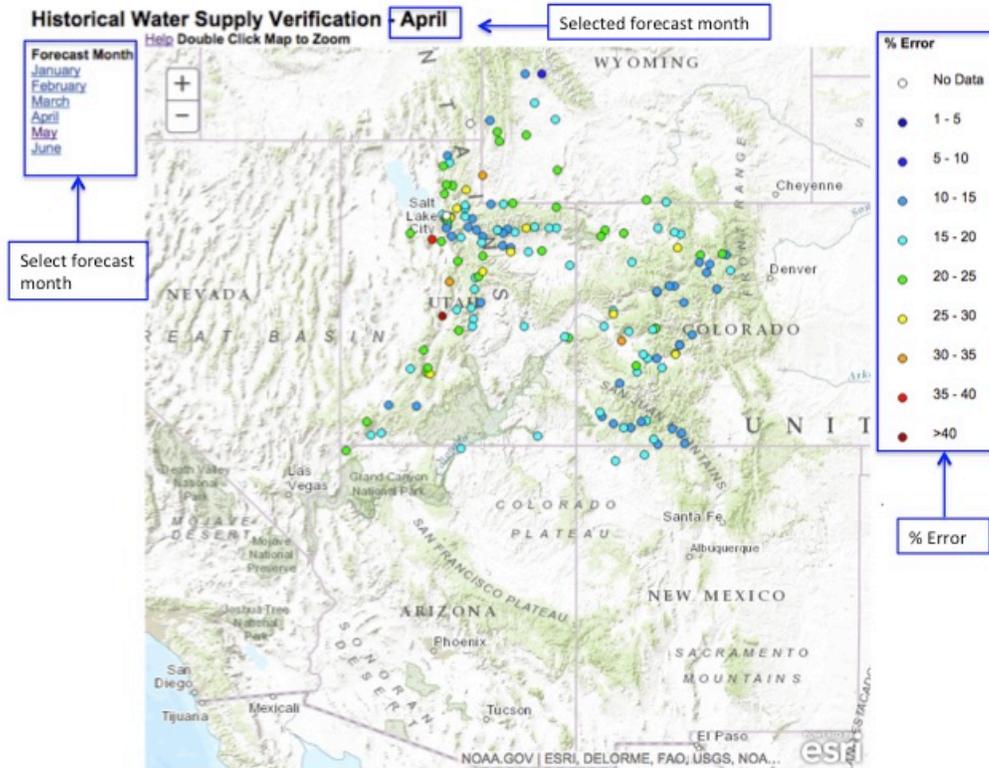


PRODUCT DESCRIPTION:

The Graphic



Displayed is a map of the mean absolute percent error of the April 1st forecast of the April-July volume from the Ensemble Streamflow Prediction (ESP) model. The points displayed on the map are the current water supply forecast points in the Eastern Great Basin, Colorado River above Lake Powell, and the Virgin River.

In the water supply context, large data sets of forecast-observation pairs are not common due to the lack of archived “raw” forecast data. Reforecasts were generated for each year of the thirty year period of 1981-2010 from the ESP model to create a sufficiently sized dataset needed to draw conclusions about the errors of the ESP model.

The legend on the right side of the map labeled % Error represents the mean absolute percent error normalized by the 30 year April-July average. This statistic was calculated for each point on the map as follows:

1. For each year of ESP reforecasts from 1981-2010 the error is calculated:

$$ESP\ Error = ESP\ reforecast - Observation\ (Apr-Jul)$$

2. The mean absolute error (MAE) over the 30 years is calculated:

$$ESP\ MAE = \frac{Sum\ (|ESP\ reforecast - Observations|)}{30}$$

30 (number of years)

3. The MAE is normalized by the 30 year April-July average and converted to a percentage:

$$\text{Mean absolute percent error (\% Error)} = \frac{\text{ESP MAE}}{\text{30 year Average}} * 100$$

PRODUCT INTERPRETATION:

Model Error:

The map displays a spatial representation of the mean absolute error of the ESP model. Low % Error values are ideal and indicate low model error while high % Error values are not ideal and indicate high model error. Cool colors (blues) designate locations with low % Error values (low error) while warm colors (reds) designate locations with high % Error values (high error).

The map shows that the error of ESP is typically lower at the following:

- Locations at higher elevations (i.e headwater basins)
- Locations where snow melt is the primary source of runoff
- Locations where there are few diversions or diversions are well documented

PRODUCT MENU OPTIONS:

Default plot and menu:

The Historical Water Supply Verification map defaults to forecasts from April 1st. Similar maps are also available for the first of month forecasts from January-June by selecting the desired month on the left hand side of the graphic.

A pop-up box is available by clicking on an individual point. The pop-up box includes id and location name, a summary of the % Error for each forecast month, an option to select additional verification plots and statistics, and location information (latitude and longitude).

Example of pop-up box:

ID = GBRW4

ID = GBRW4
NAME = GREEN - FONTENELLE RES-
FONTENELLE NR
JAN = 29
FEB = 25
MAR = 22
APR = 21
MAY = 17
JUN = 16
PLOTS = [VIEW GBRW4](#)
LATITUDE = 42.06111111111111
LONGITUDE = -110.1
__OBJECTID = 36

[ZOOM TO](#)