

March 18, 2014 Water Supply Forecast Discussion

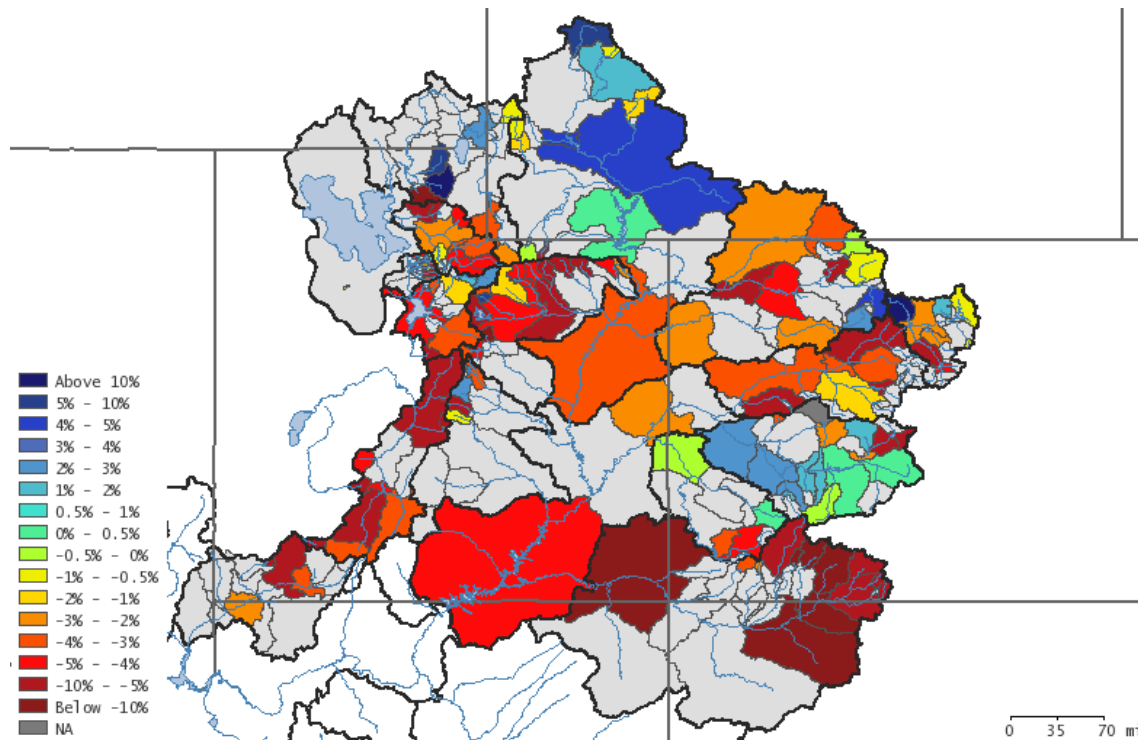
The [Colorado Basin River Forecast Center \(CBRFC\)](#) geographic forecast area includes the Upper Colorado River Basin, Lower Colorado River Basin, and Eastern Great Basin.

Seasonal Water Supply Forecasts:

Quick Summary:

CBRFC raw model guidance has trended water supply forecasts slightly downward across much of the area since March 1st. However, guidance indicated either little change or increases in the Green River Basin above Flaming Gorge, Gunnison River Basin above Blue Mesa, some Colorado River headwaters basins above Kremmling, and in the Bear River Basin of northern Utah and southern Idaho. The largest forecast changes for major reservoirs since March 1st occurred in the San Juan River Basin. Navajo Reservoir April-July inflow decreased from 86 to 80 percent of average and Vallecito Reservoir from 106 to 98 percent of average. Elsewhere, Fontenelle Reservoir April-July inflow forecast increased from 167 to 171 percent of average, McPhee Reservoir inflow decreased from 95 to 90 percent of average, while the Gunnison River Basin Aspinal Unit and Flaming Gorge inflow forecasts did not change. The Lake Powell inflow forecast decreased from 8.3 to 8.0 million acre-feet and is at 112 percent of average.

Forecasts still vary significantly over the CBRFC area. Much above average April-July runoff volumes are expected in the Yampa River Basin, Green River Basin above Flaming Gorge, Colorado River Basin above Cameo, and Gunnison River Basin above Blue Mesa. Near or slightly below average runoff volumes are anticipated in the remainder of the Gunnison River Basin as well as the Dolores River Basin, with below average forecasts in most of the San Juan River Basin and Duchesne River Basin. Below average runoff is expected in the Great Basin, and very low runoff volume in the Sevier, Virgin, Gila, Verde and Salt River Basins.



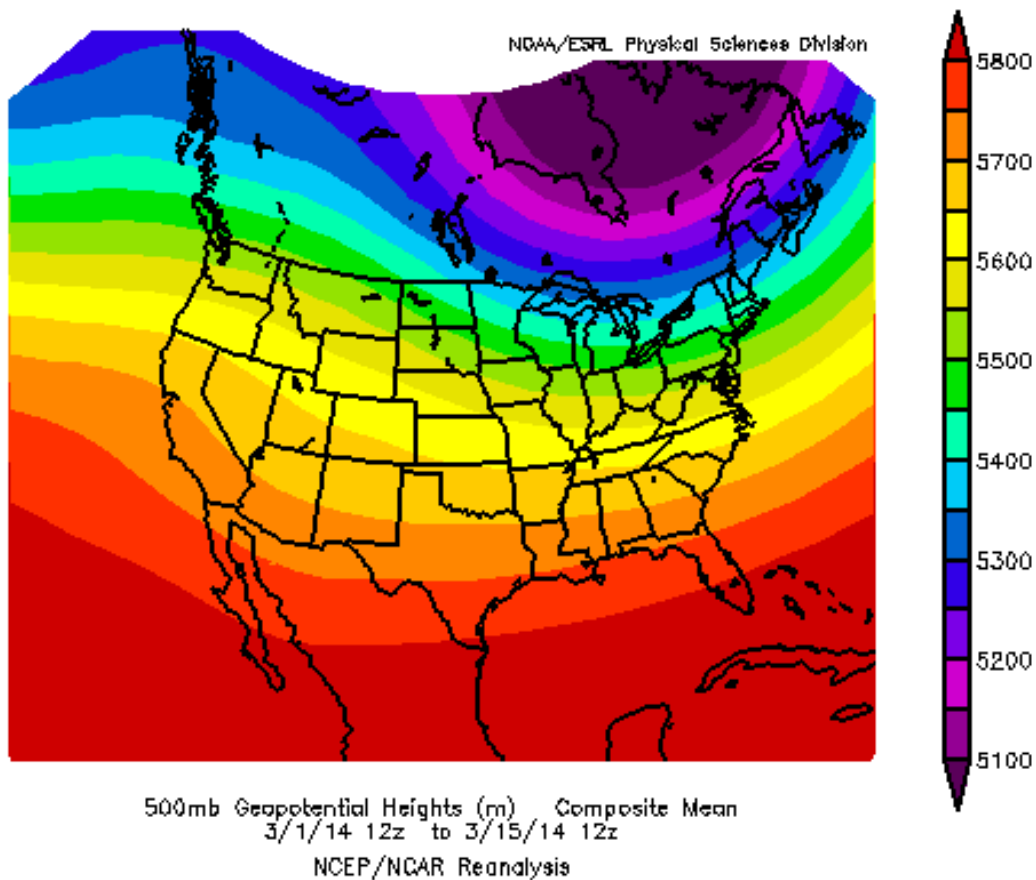
CBRFC Raw Model Guidance - Trend in the April-July runoff volume forecasts since March 1st. (Change in Apr-Jul percent of average)

[Click here for the latest water supply model guidance](#)

Water Supply Discussion

Weather Synopsis:

Although the weather pattern has remained in a progressive mostly zonal flow, storm systems have been relatively quick moving and have lacked significant moisture. A weak low pressure system meandered through Arizona in early March bringing just enough precipitation to result in wetter than average conditions there, however seasonal precipitation is much below average. Storms have impacted primarily the north and northeast part of the CBRFC area with the southwest areas including the Sevier River and Virgin River basins missing out on much impact.

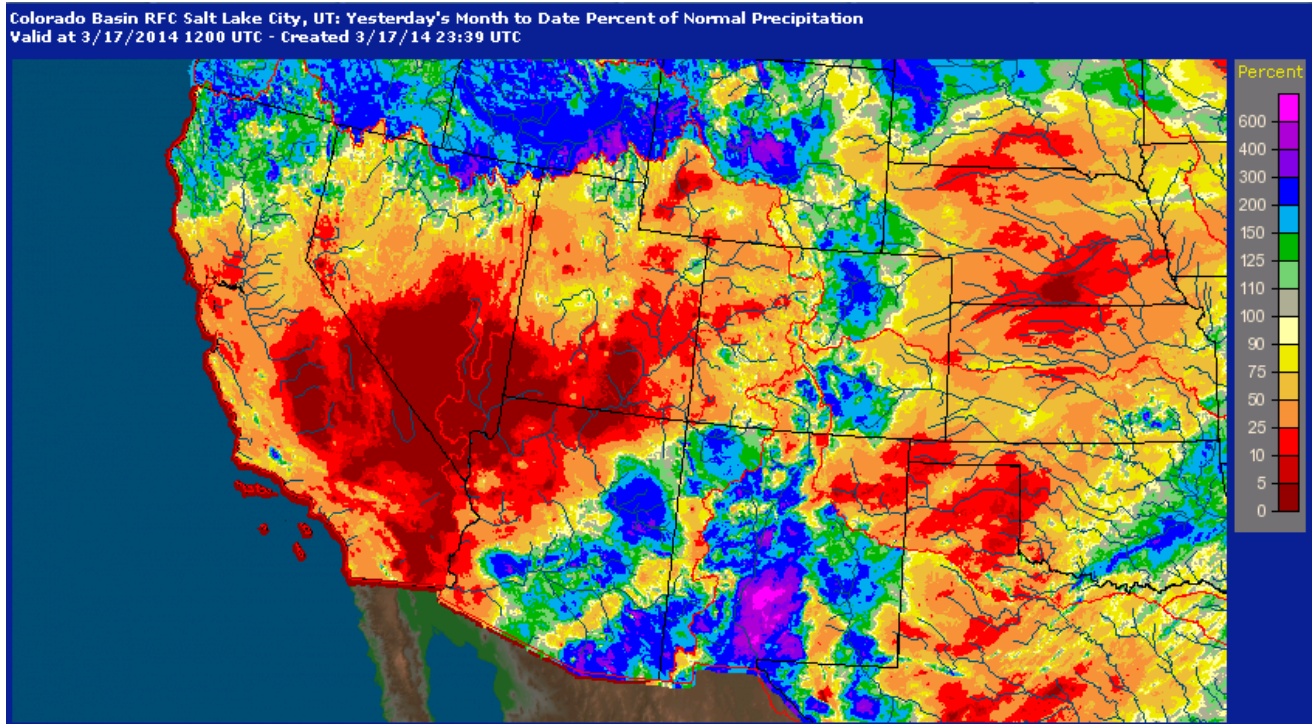


Mean upper air pattern for the first 15 days of March. The wind flow is roughly parallel to the horizontal lines indicating quick moving storm systems moving into the CBRFC region from the Pacific.

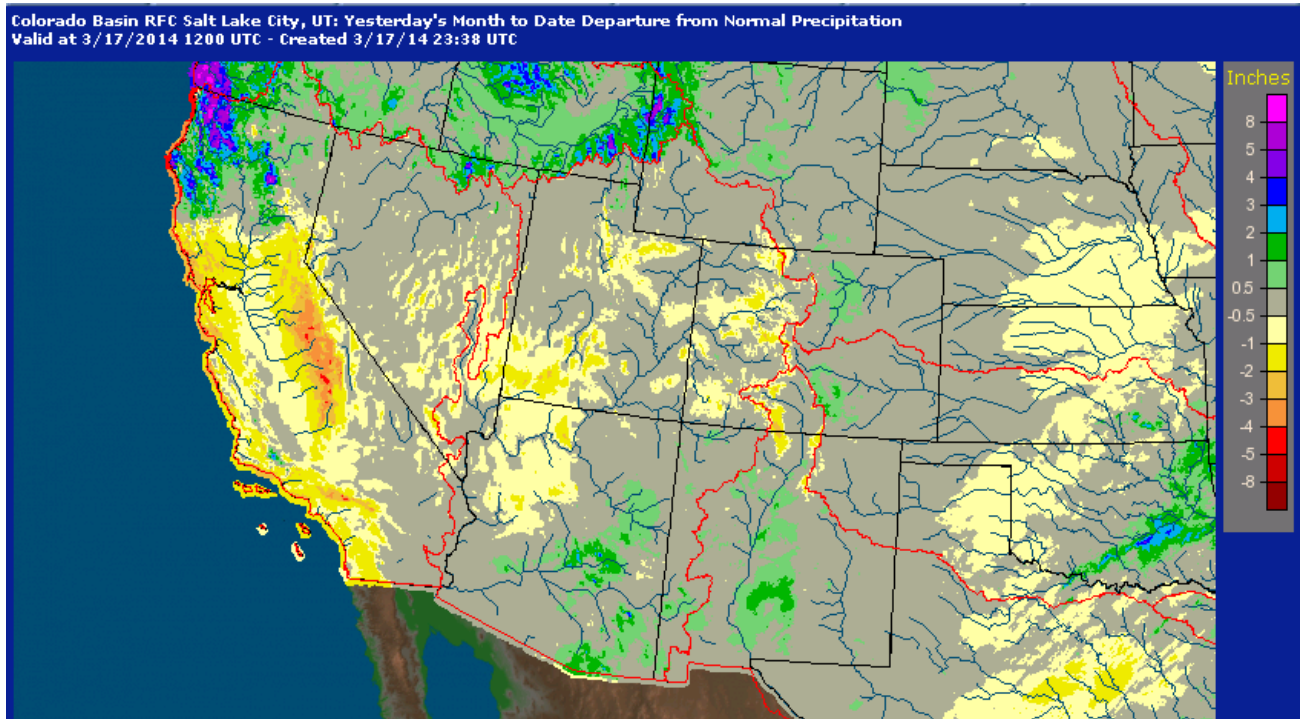
Precipitation and Temperatures:

Most areas of the CBRFC received precipitation over the past two weeks, but amounts were relatively light for this time of year outside of higher elevations. Areas with above average precipitation so far in March include the extreme northern Green River Basin in Wyoming and the southeastern half of Arizona. Near to above average precipitation has occurred so far in higher elevations of the Upper Colorado River headwaters above Cameo, and over parts of the northern Bear River and Weber River basins in northern Utah and southern Idaho. Elsewhere precipitation was generally below average.

For the water year to date, the Colorado River above Kremmling, Green River Basin above Fontenelle Reservoir, and eastern headwaters of the Yampa and Gunnison River Basins have received above average amounts of precipitation. Below average precipitation occurred elsewhere.



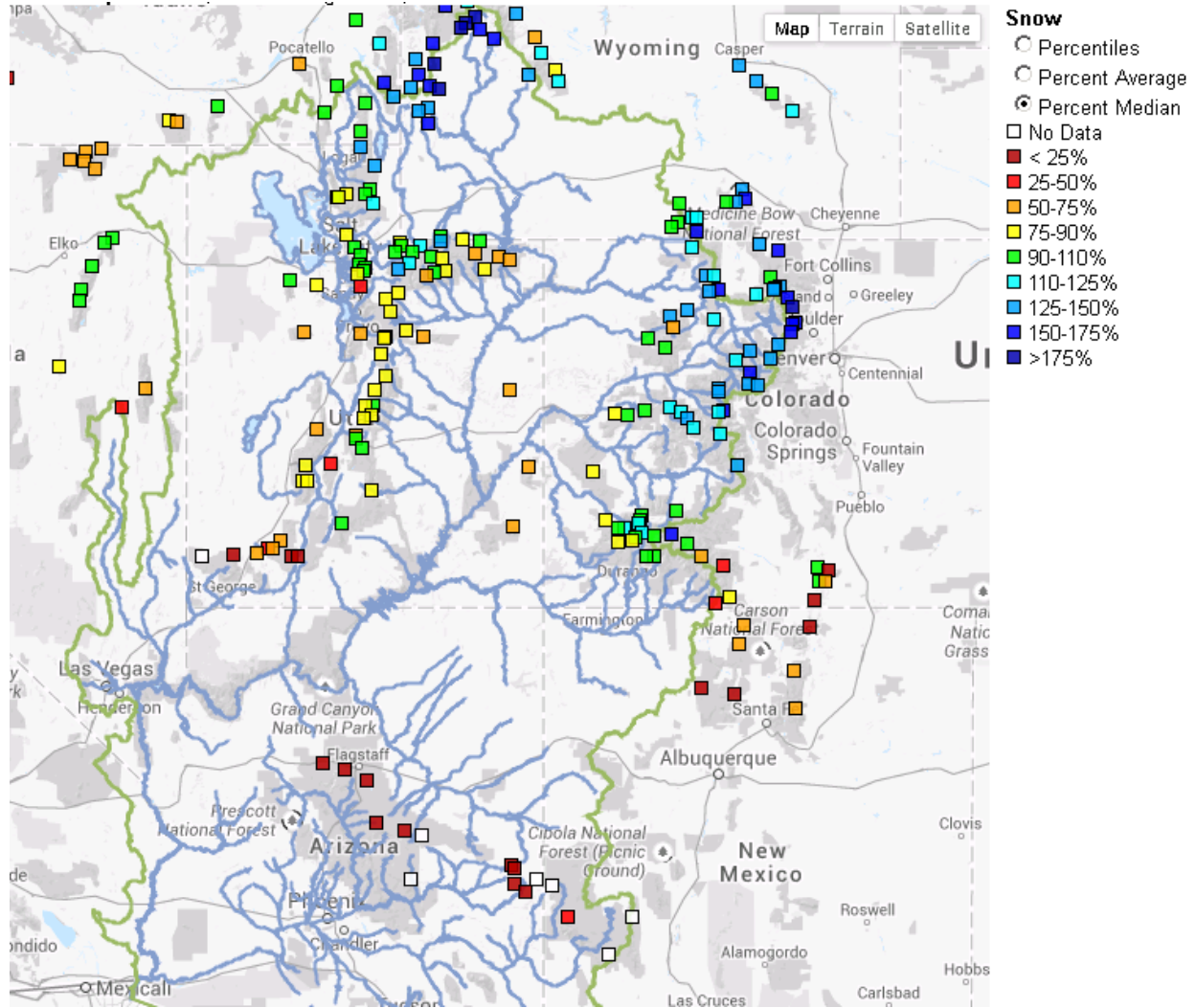
March 1-17 percent of average precipitation for the Colorado River Basin.



March 1-17 departure from average precipitation for the Colorado River Basin.

Snowpack:

Snowpack conditions have not changed significantly since the beginning of the month in many areas from the Gunnison River Basin north to the Green River Basin of Wyoming and Bear River Basin of northern Utah. This is particularly true for higher elevation areas where much above average snowpack exists. In the San Juan Basin the snowpack, as a percent of average, has decreased above Navajo Reservoir yet remained near or slightly above average in the higher elevations of the Animas River Basin. Some melt has occurred in the San Juan River Basin while further west snow accumulation ceased with significant melt occurring in the Virgin River Basin.



Percent Median Snow condition as of March 18, 2014

For the latest snow conditions click [here](#)

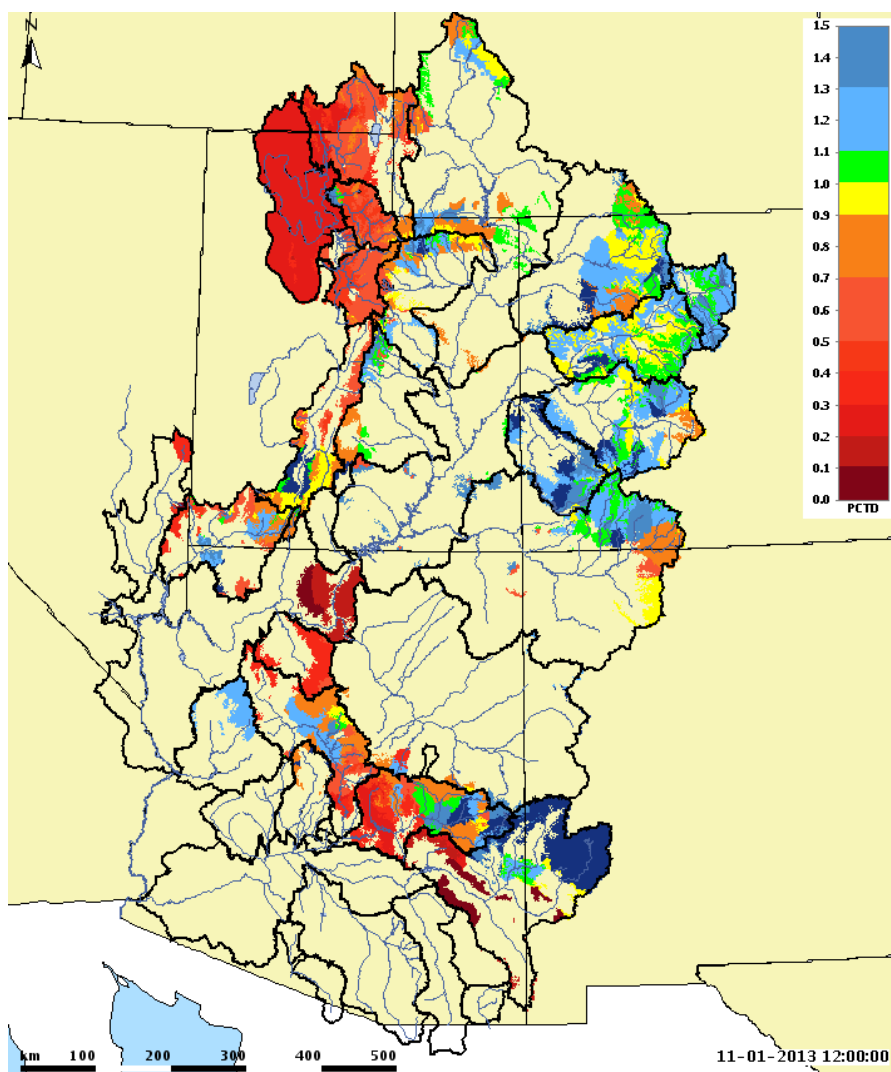
Soil Moisture:

Soil moisture conditions in the higher elevation headwater areas are important entering the winter, prior to snowfall, as it influences the efficiency of the snowmelt runoff the following spring. Modeled soil moisture conditions as of November 1st were above average over much of the Upper Colorado Basin, and parts of the headwaters of

the Salt and Gila Basins. Elsewhere conditions were below average.

The soil moisture conditions are having an impact on forecasts, particularly in areas where the modeled soil moisture is well above average yet the snow conditions are near or below average. The above average soil moisture is acting to keep the forecasts at a higher level than they would be if soil moisture conditions were closer to average. This is most pronounced in the San Juan and parts of the Gunnison Basin. In addition, the combination of above average soil moisture and above average snow conditions in the Colorado above Cameo and the Yampa Basin has resulted in much above average runoff forecasts. The opposite is occurring in the Great Basin where dry soils and near to below average snowpack have combined to create low runoff volume forecasts.

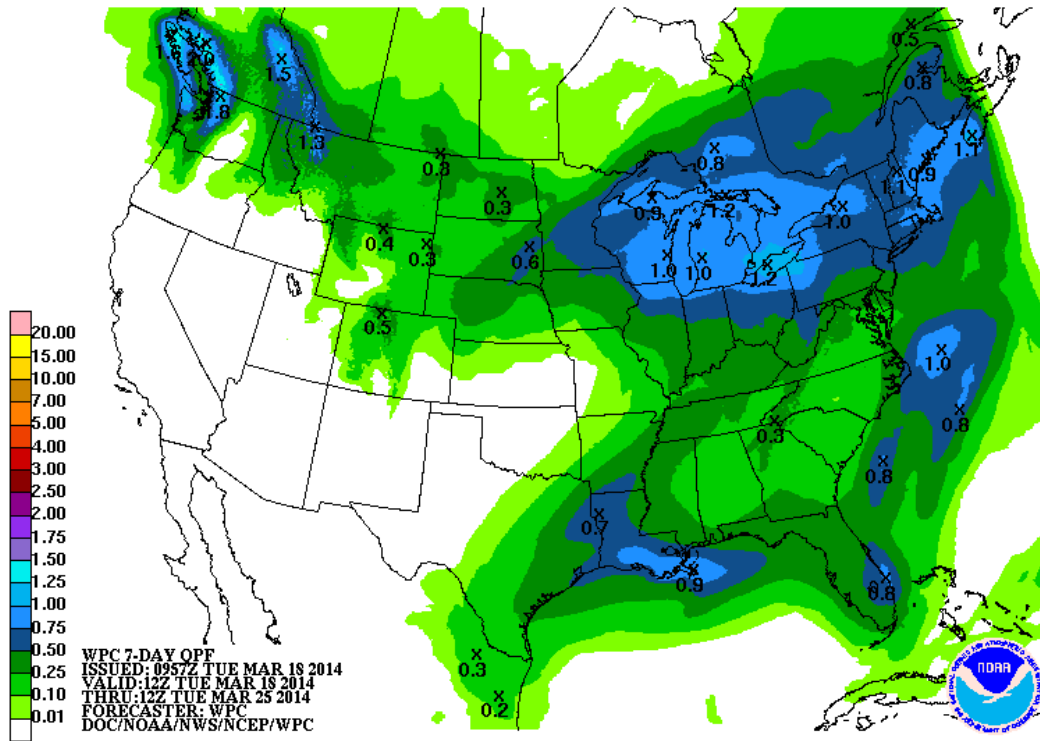
In the map below areas in blue are above the historical model soil moisture average while those in the red and orange are below average



Modeled soil moisture as of November 1st 2013

Short Term Weather Outlook:

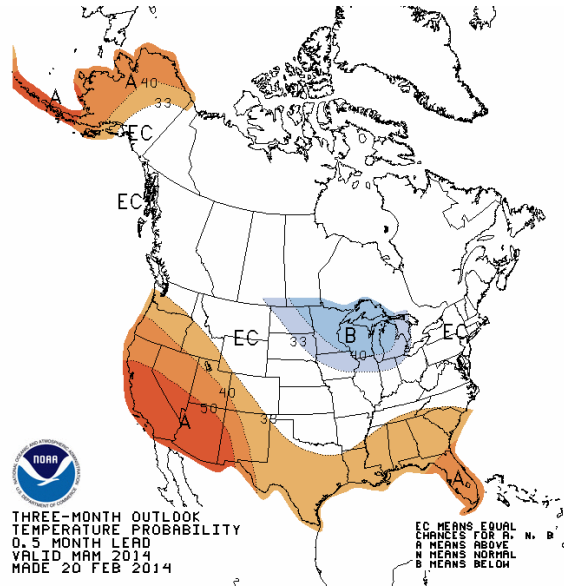
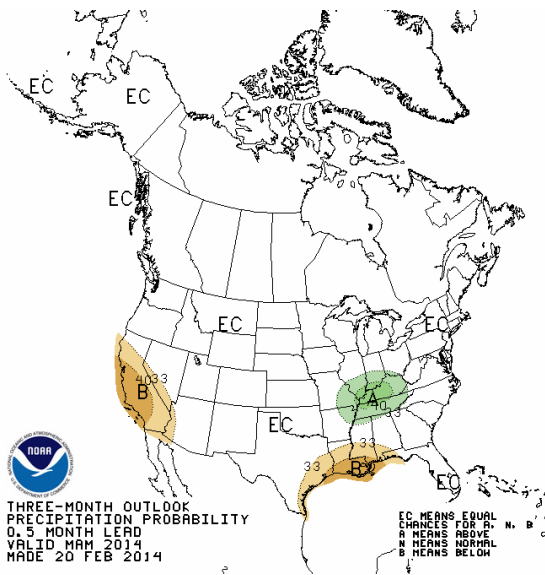
Weather models suggest weakening storm systems will remain mostly north of the CBRFC area for the next several days before a possible increase in precipitation during the last week of the month. Below average temperatures should rebound to near or above average by later in the week. Cooler temperatures may return to the northern half of the CBRFC area during the last week of the month.



Precipitation outlook for March 18 - March 25th from the Weather Prediction Center.

Climate Outlook:

The El Niño Southern Oscillation (ENSO) condition continues to be neutral and is expected to remain neutral through the spring. Climate models are forecasting a slight tendency toward an El Niño event in the late summer and fall months. The Climate Prediction Center indicates equal chances of above or below average precipitation in the the Colorado and Eastern Great Basins for March through May. There is a higher chance of above normal temperatures throughout the basin for the same time period, mostly over Arizona.



Conclusion:

Dryer than average conditions continue to reduce the April-July runoff expectations the greatest in the San Juan and Virgin River Basins. Model guidance indicated decreases in many areas due to a drier than average March so far, however many changes were minimal compared to the first of the month. The Green River Basin above Fontenelle continues to benefit the greatest from the storm pattern and the forecast guidance has increased for those areas above Fontenelle Reservoir.

Despite a slightly wetter than average March thus far in the Lower Colorado River Basin, the seasonal precipitation is much below average and snowpack depleted. Very low runoff volumes have occurred and are expected for the remainder of the Spring.