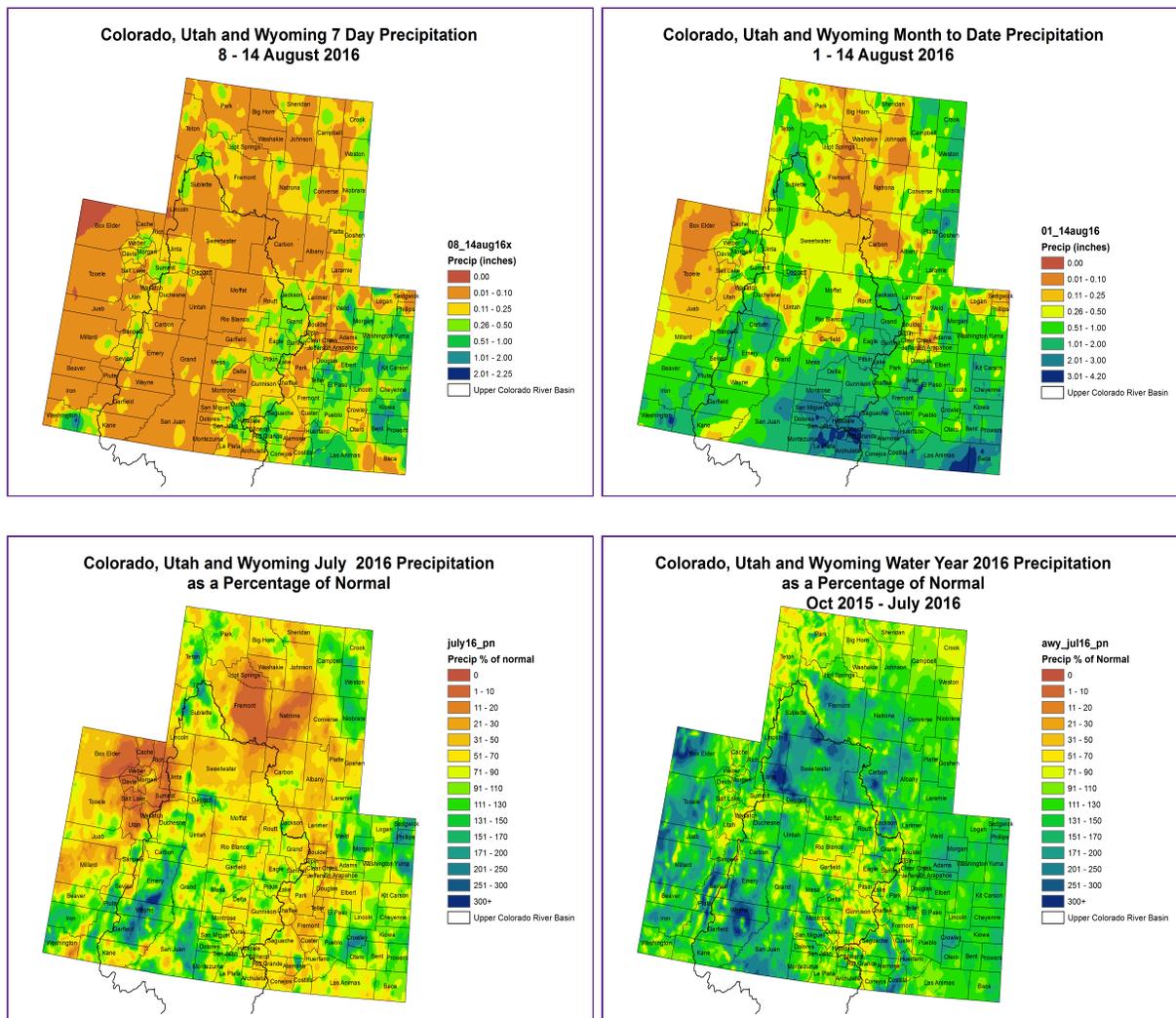
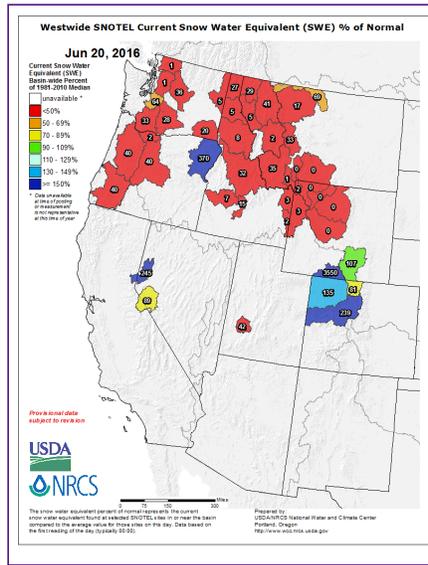
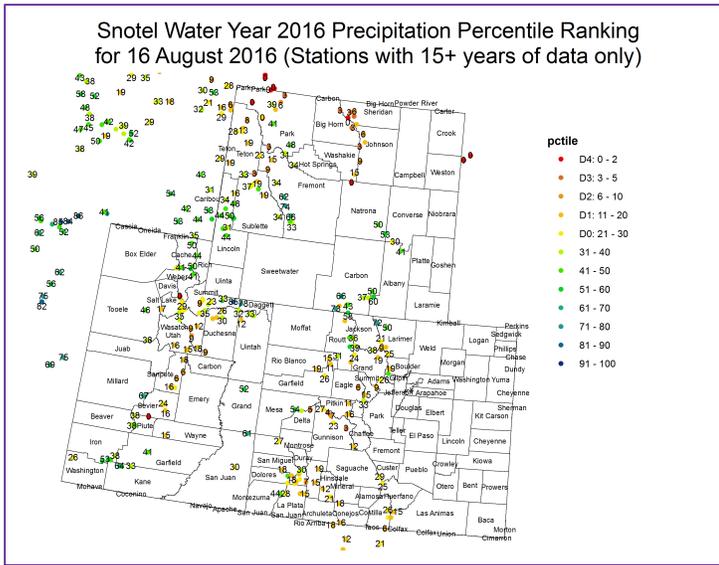


# PRECIPITATION

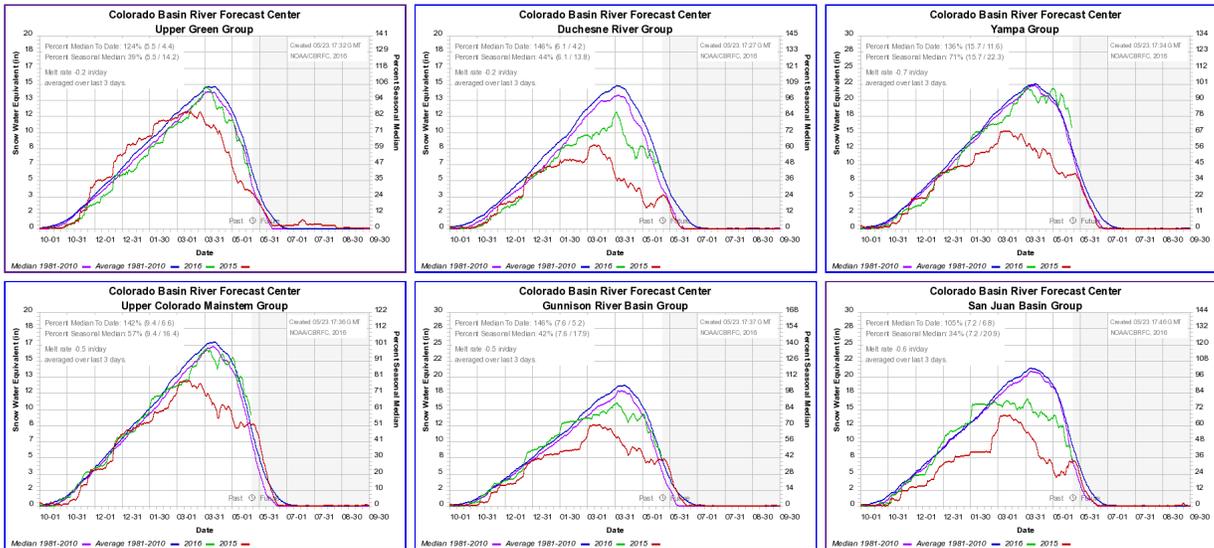


The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average; water-year-to-date precipitation as a percent of average.

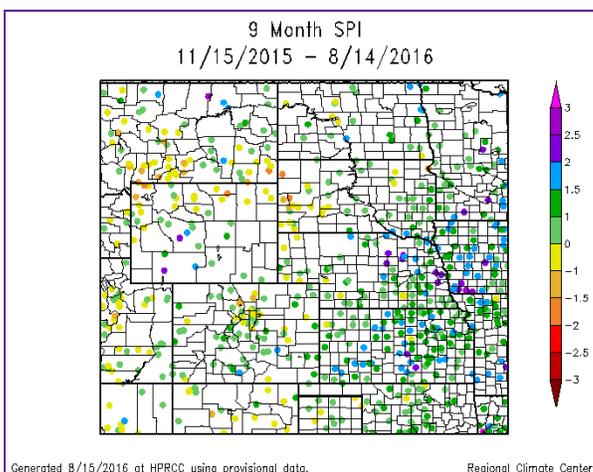
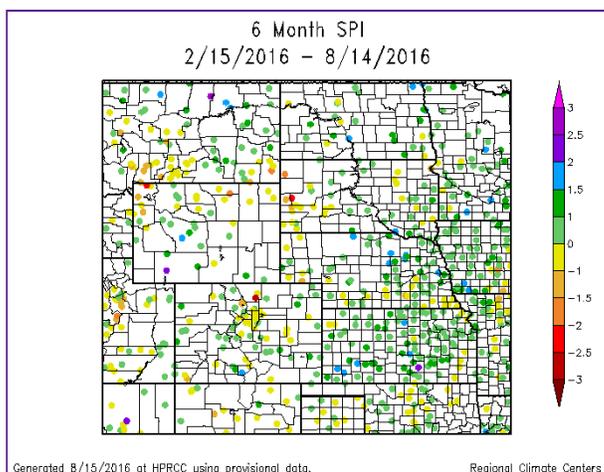
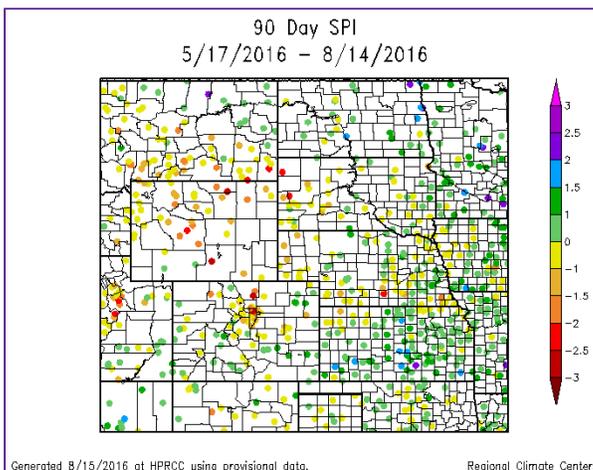
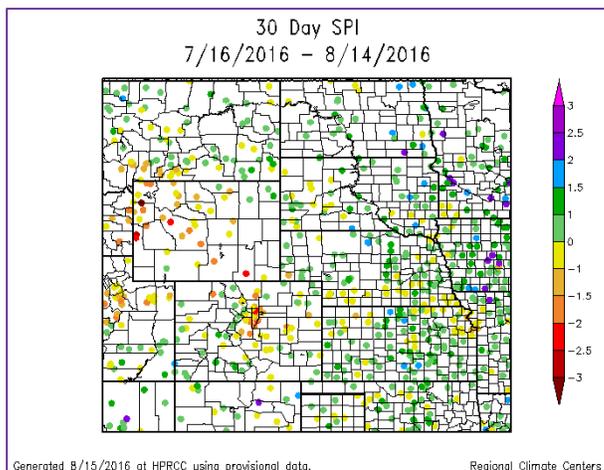
# SNOTEL AND SNOWPACK



The top left image shows the Natural Resources Conservation Service's SNOTEL water-year-to-date precipitation percentile rankings. The top right image shows sub-basin averaged snow water equivalent accumulations as a percent of average. The images below show accumulated snow water equivalent in inches (green) compared to average (blue) and last year (red) for several different sub-basins across the UCRB (and were created by the Colorado Basin River Forecast Center).

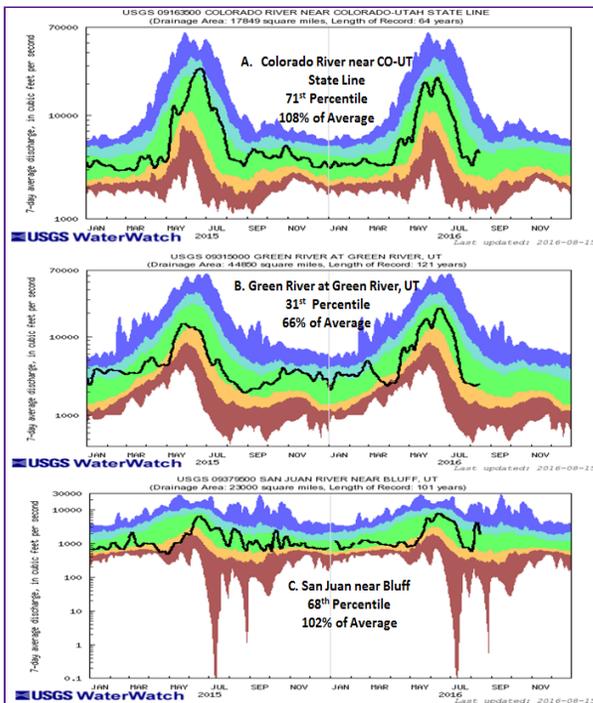
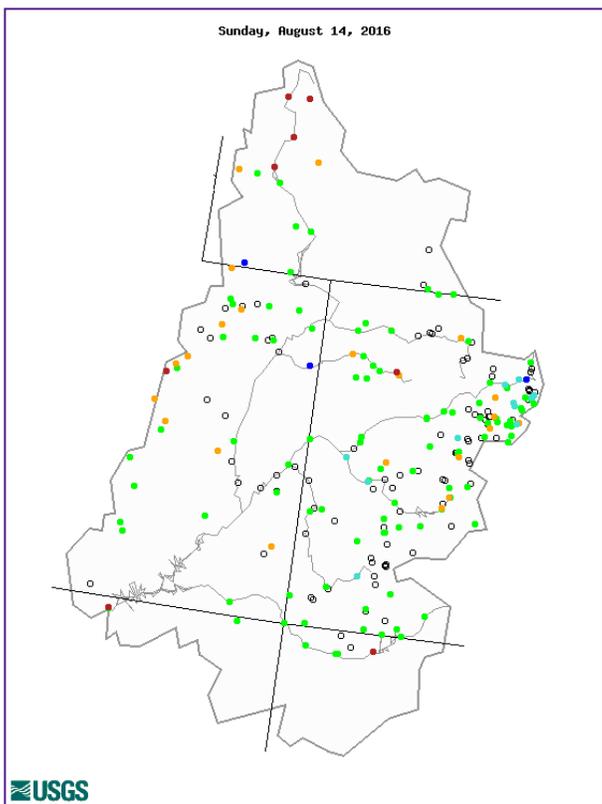


# STANDARDIZED PRECIPITATION INDEX



Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions while 6- and 9-month SPIs focus on long-term conditions. SPI data provided by High Plains Regional Climate Center.

## STREAMFLOW

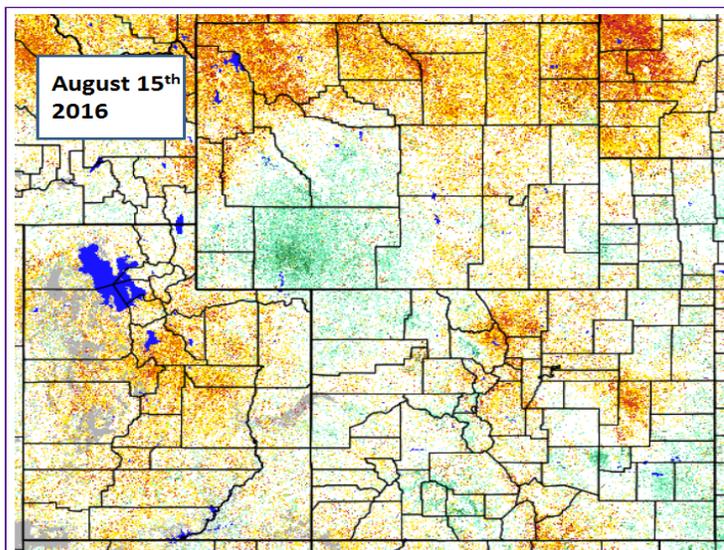
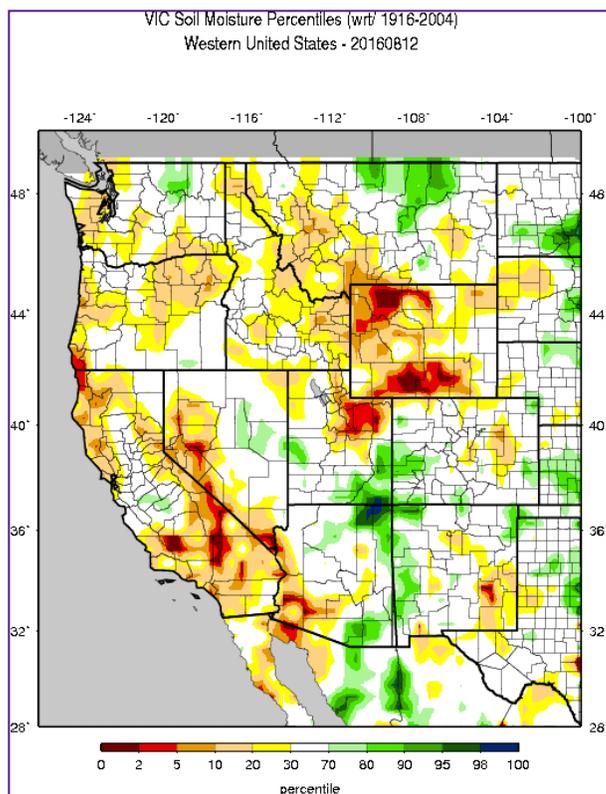


**Explanation - Percentile classes**

Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

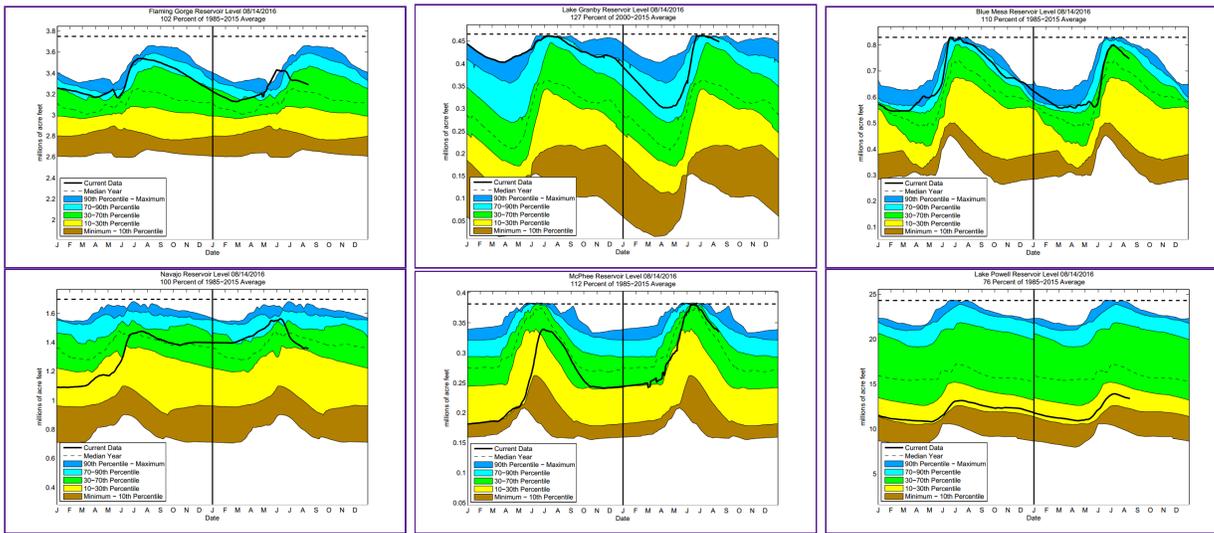
The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff, UT. All streamflow data provided by United States Geological Survey.

## SURFACE WATER

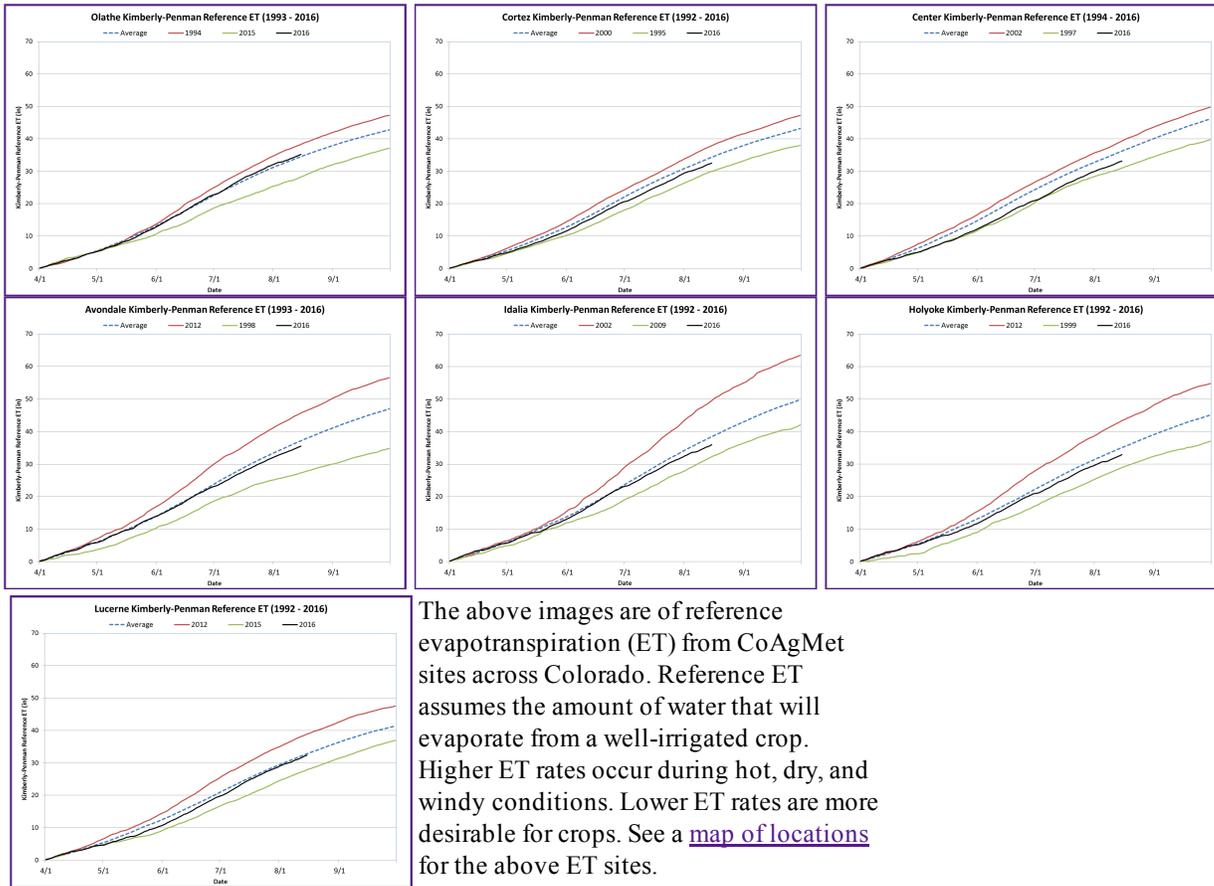


The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

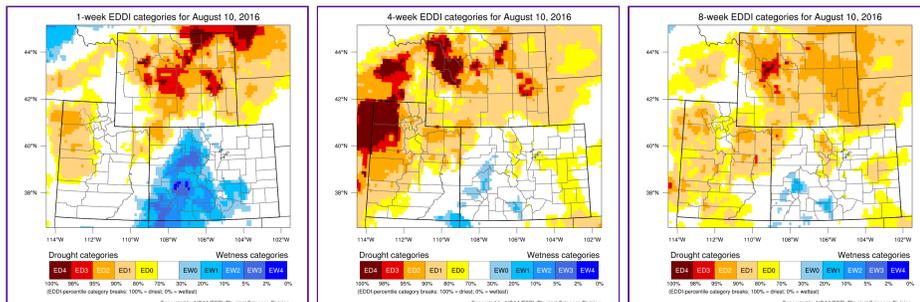
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir levels observed over the past 30 years. The data are obtained from the Bureau of Reclamation. Some of the reservoir percentiles don't line up at the new year due to differences in reservoir levels at the beginning of 1985 and the end of 2014. Dead storage has been subtracted. Note: Lake Granby data are obtained from the Colorado Division of Water Resources, and only goes back to the year 2000.

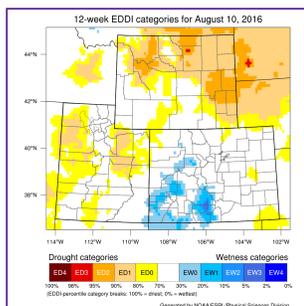


# EVAPOTRANSPIRATION



The above images are of reference evapotranspiration (ET) from CoAgMet sites across Colorado. Reference ET assumes the amount of water that will evaporate from a well-irrigated crop. Higher ET rates occur during hot, dry, and windy conditions. Lower ET rates are more desirable for crops. See a [map of locations](#) for the above ET sites.

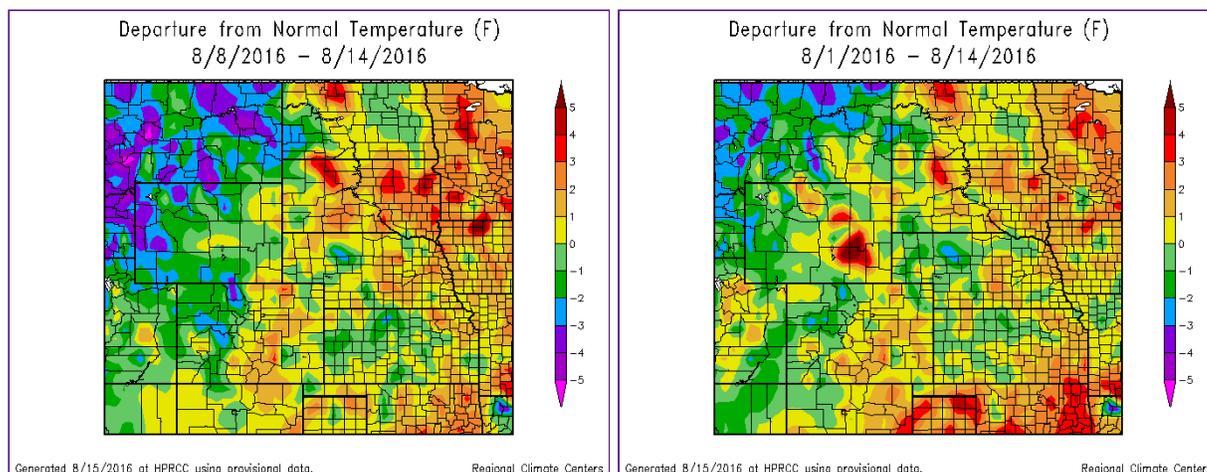




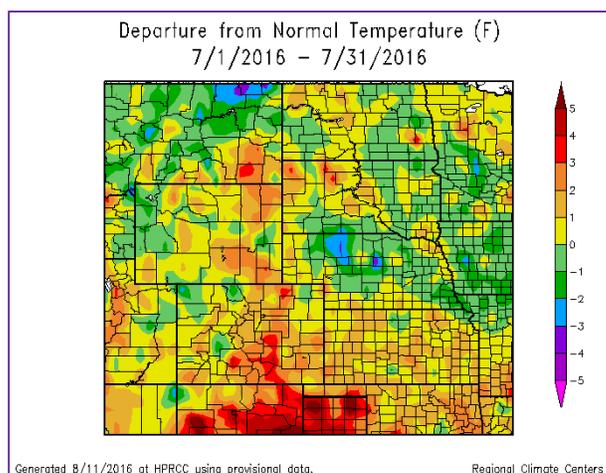
The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are in line with the US Drought Monitor's Percentile Ranking Scheme

<http://droughtmonitor.unl.edu/AboutUs/ClassificationScheme.aspx>. Data used to generate these maps come from the North American Land Data Assimilation System Phase-2 (NLDAS-2) project, which assimilates observations of temperature, wind speed, radiation, and vapor pressure deficit. The date indicates the last day of the period of record, and the week number indicates the window size for the period of record..

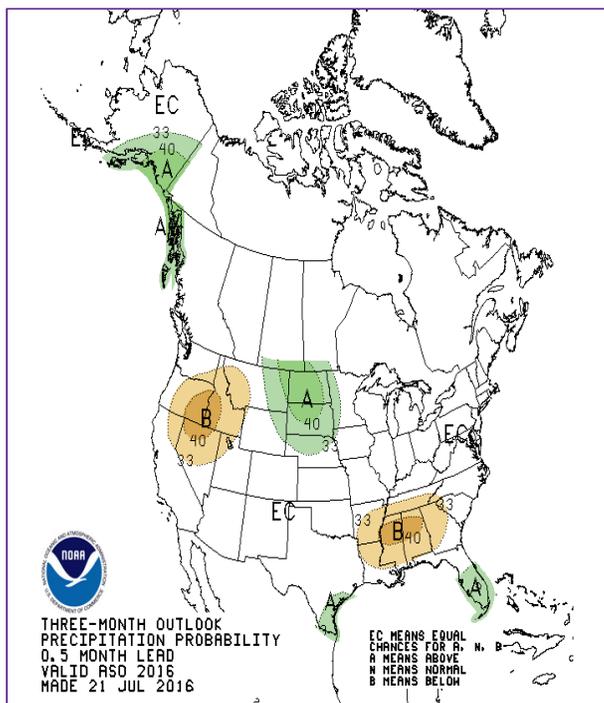
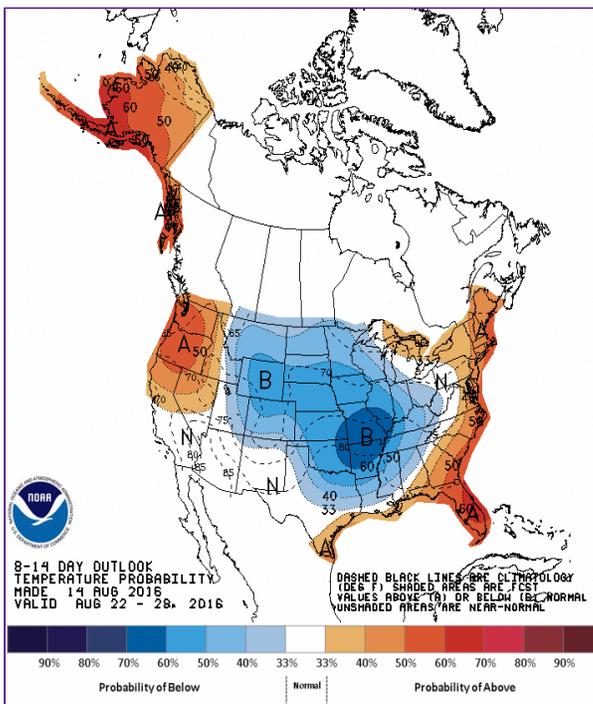
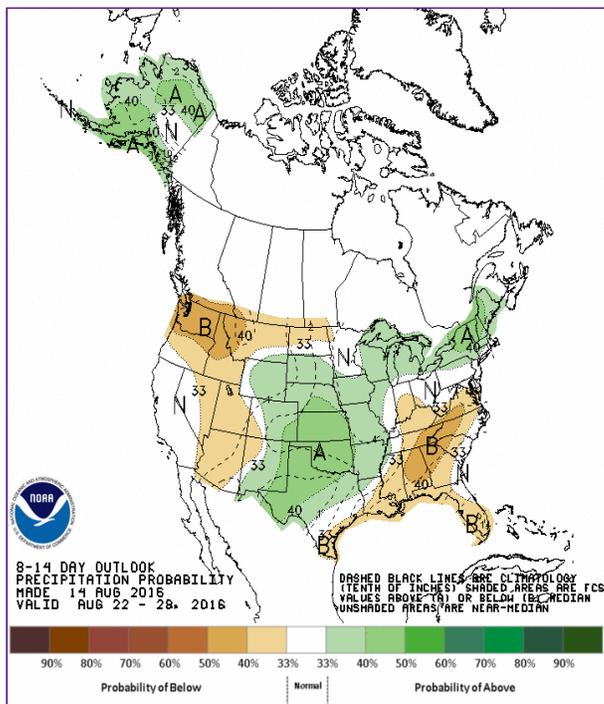
## TEMPERATURE



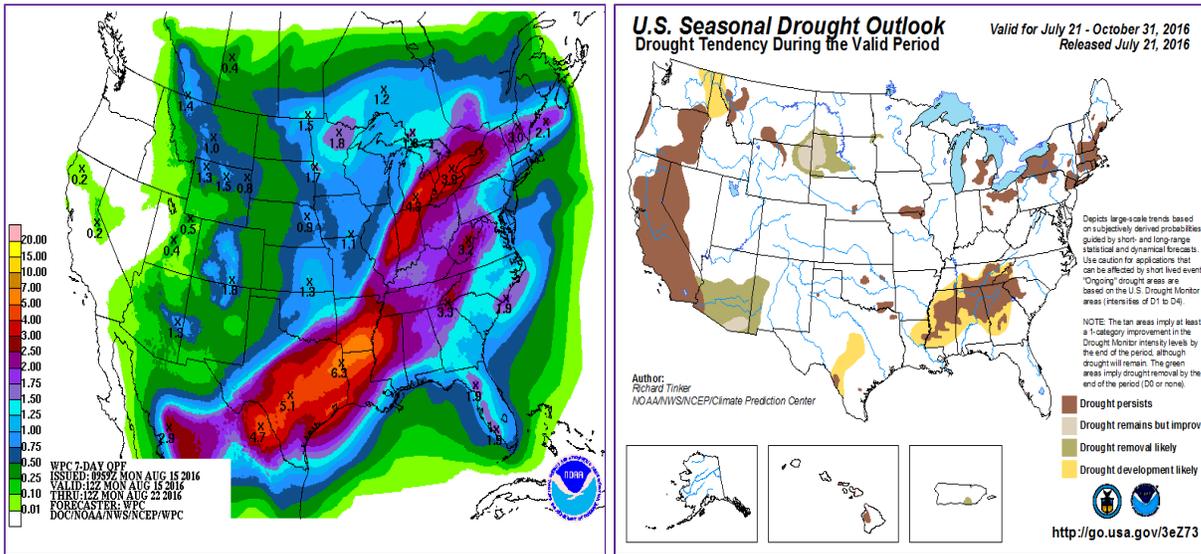
All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.



# FORECAST AND OUTLOOK



The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the 3 months Precipitation outlook. The bottom left image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for the seven days between Tuesday 12Z and ending Tuesday 12Z. The bottom right image shows the Climate Prediction Center's most recent release of the U.S. Seasonal Drought Outlook.



8/16

**Next Week:**

**Wednesday-Friday:** The large-scale weather pattern is expected to be relatively calm and seasonal between now and Friday afternoon. There will be enough heat and moisture in the region for afternoon thunderstorms to develop over the mountains. The Central Rockies, Sangre de Cristos, and San Juans are expected to receive over half an inch of precipitation. Totals farther west in the UCRB and on the eastern plains will likely be lower. The low elevations of the basin and extreme eastern Colorado may not receive any precipitation at all.

**The Weekend and Beyond:** As a cold front dives into the region Friday evening the precipitation will shift to the east side of the Continental Divide while the basin dries out. Weekend accumulations are expected to average over 0.50" for eastern Colorado with the heaviest totals over the northern Front Range and Sangre de Cristos. Some areas are likely to be missed, but this activity will be less convective than the precipitation we have been seeing over the past several months. Rainfall totals should be closer to, but still not anywhere near, uniform. The drier, clearer air will keep the UCRB and eastern Colorado dry Monday through Wednesday of next week. Some small accumulations may still be possible for south and southeast Colorado.

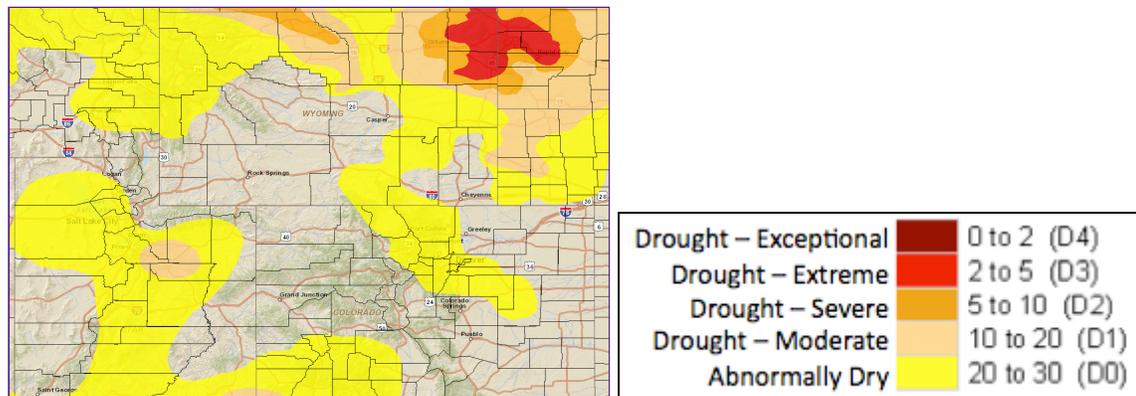
**Longer Term:**

**Precipitation:** The UCRB is predicted to be drier than average over the 8-14 day time period as drier air from the north shuts off monsoonal flow. Eastern Colorado, however, will see an increased chance of above average precipitation over this time frame due to increased frontal activity. Beyond two weeks the Climate Prediction Center is forecasting equal chances of above and below average precipitation for the Upper Colorado River Basin and eastern Colorado.

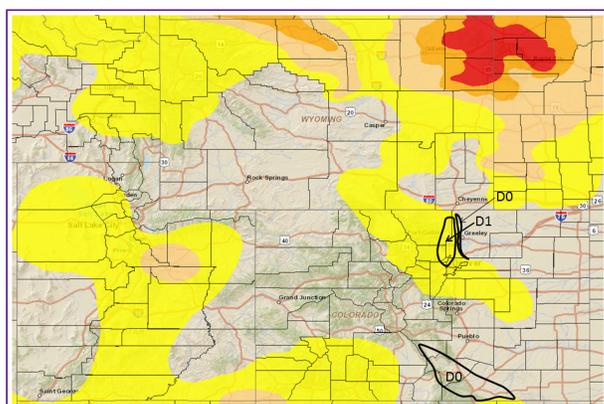
**Temperature:** Over the 8-14 day time frame there is an increased likelihood of below average temperatures for the UCRB and eastern Colorado as some cooler air is anticipated to plunge southward this weekend. The fall season is forecasted increased chances of above average temperatures.

Drought: Development of new drought is predicted as being unlikely for any given location in the Upper Colorado River Basin and eastern Colorado over the August through October time frame. Pockets of additional D0 and D1 in places that are trending drier, however, would not be surprising.

## U.S. DROUGHT MONITOR



Above is the most recent release of the U.S. Drought Monitor map for the UCRB region. Below shows the proposed changes for this week, with supporting text.



### Summary: August 16th, 2016

Last week was drier and cooler than average in the Upper Colorado River Basin. It was warmer than average with a seasonal amount of thunderstorm activity for eastern Colorado. Most of the UCRB recorded less than one tenth of an inch of precipitation. Higher terrain received more, especially the San Juans. The San Juans received 0.50-1.00" on the north side of the range. Looking east of the divide there were some dry spots despite the thunderstorm activity. Most of the eastern plains and the lee of the Sangre de Cristos received at least 0.25" of rainfall. The northern Front Range was left high and dry again.

The summer season is nearing its close, and seasonal precipitation totals in the Upper Colorado River Basin are coming in mostly in the normal to slightly below normal range. There are some exceptions. The Wasatch Mountain Range and northern Colorado Rockies have had a drier than average summer. Just west of the Wasatch Range 90-day SPIs are in the -1.5 to -2.5 range, or much below normal. Much of eastern Colorado has received normal summer precipitation as well, but once again, there are some dry spots. The northern Front Range has been much drier than normal with 90-day SPIs now in the -1.5

to -3 range. The eastern plains along and just north of the Palmer divide and the area in the lee of the Sangre de Cristos have been drier than average, but closer to normal.

Evaporative demand over the summer season for the Upper Colorado River Basin has also been primarily in the normal range. The Evaporative Demand Drought Index (EDDI), which measures the drying power of the atmosphere, does show above average summer demand in the Duchesne Basin and southern Uintah Mountain Range. Demand has been on the low side in the Dolores and San Juan River Basins. Evaporative demand in the San Luis Valley has been lower than average. East of the divide this demand has been in the normal range.

Streamflows are mostly in the normal range following a boost in the first week of August. Most remaining below normal and much below normal stations are at river headwater locations. The headwaters of the Upper Green River Basin are showing streamflows below the 10th percentile. Major reservoirs across the basin are showing seasonal declines for the most part. Flaming Gorge and Navajo Reservoir levels are falling more quickly than is expected this time of year, but are still in the normal range.

Short term dryness is causing vegetation and soils to suffer in northeast Utah. Areas farther north and east in the basin are seeing vegetation conditions closer to normal. In eastern Colorado the areas experiencing seasonal precipitation deficits are showing increases in the amount of pre-drought and moderate drought vegetation conditions as measured by the MODIS satellite. The northern Front Range, northern Rockies, Park County, east-central plains, Wet Mountains, and Raton Mesa are all on a drying trend.

## Recommendations

**UCRB:** Status Quo. D1 appears to be located in the correct spot in the part of Utah that lies within the Upper Colorado River Basin. It appears that D1 could be extended to the northwest of the Wasatch Range, but we do not monitor this area routinely.

**Eastern Colorado:** It is recommended D0 be added in central Las Animas, central Huerfano, and southern Custer counties. These areas have fared not kept up with seasonal precipitation expectations. Trinidad, Walsenburg, and Westcliffe have all now received well below normal precipitation for the year to date.

It is recommended that D1 be added to eastern Larimer County, extreme west and southwest Weld County, eastern Boulder County, Broomfield County, and extreme northeastern Jefferson County. Long-term water supplies are still in good shape here, but the severity of short-term dryness is putting a large strain on unirrigated vegetation. Some tree leaves are starting to get crispy.

It is recommended that D0 be moved slightly eastward in Weld County up to the west edge of Greeley. There has been a very tight gradient in precipitation in this area this season.