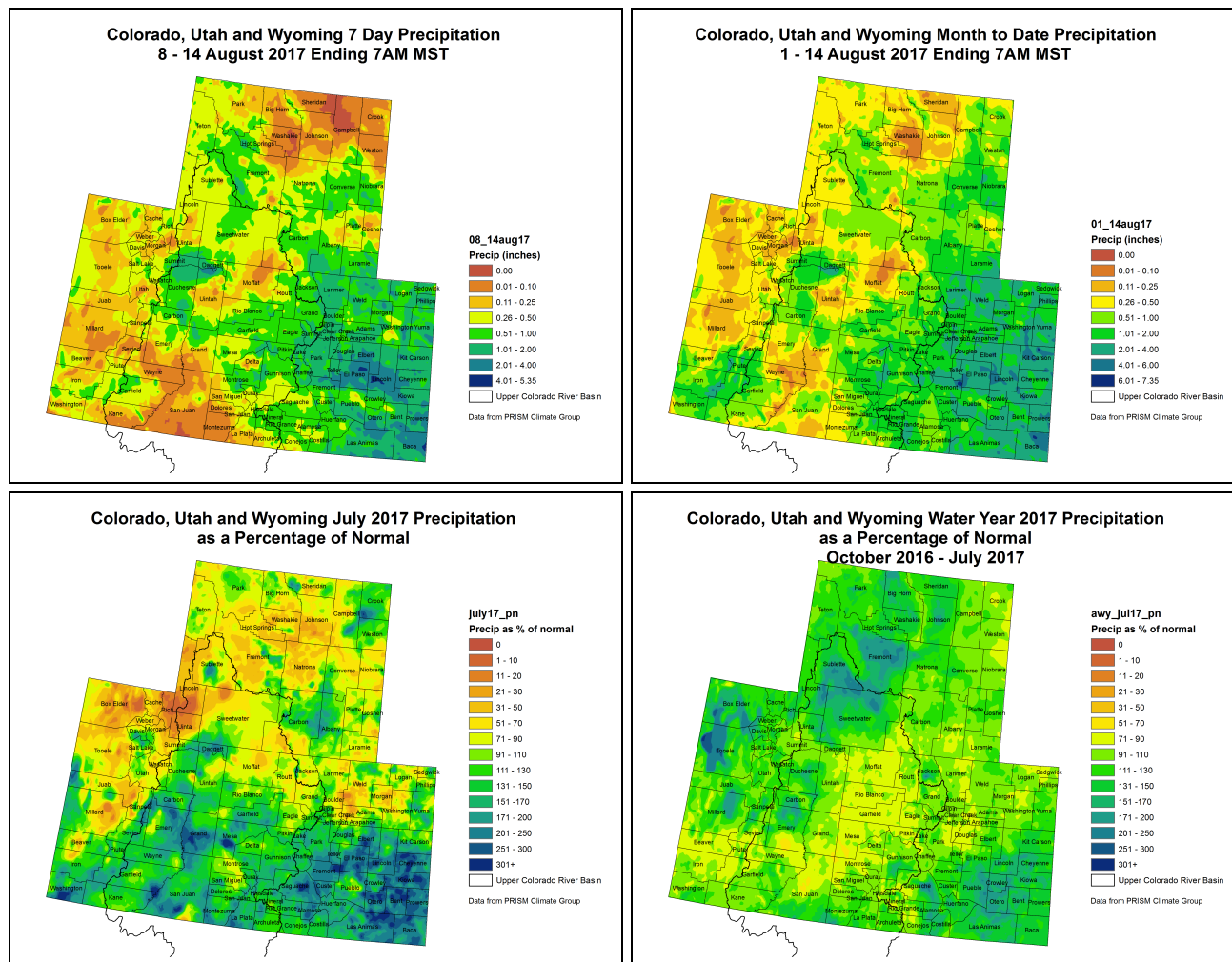


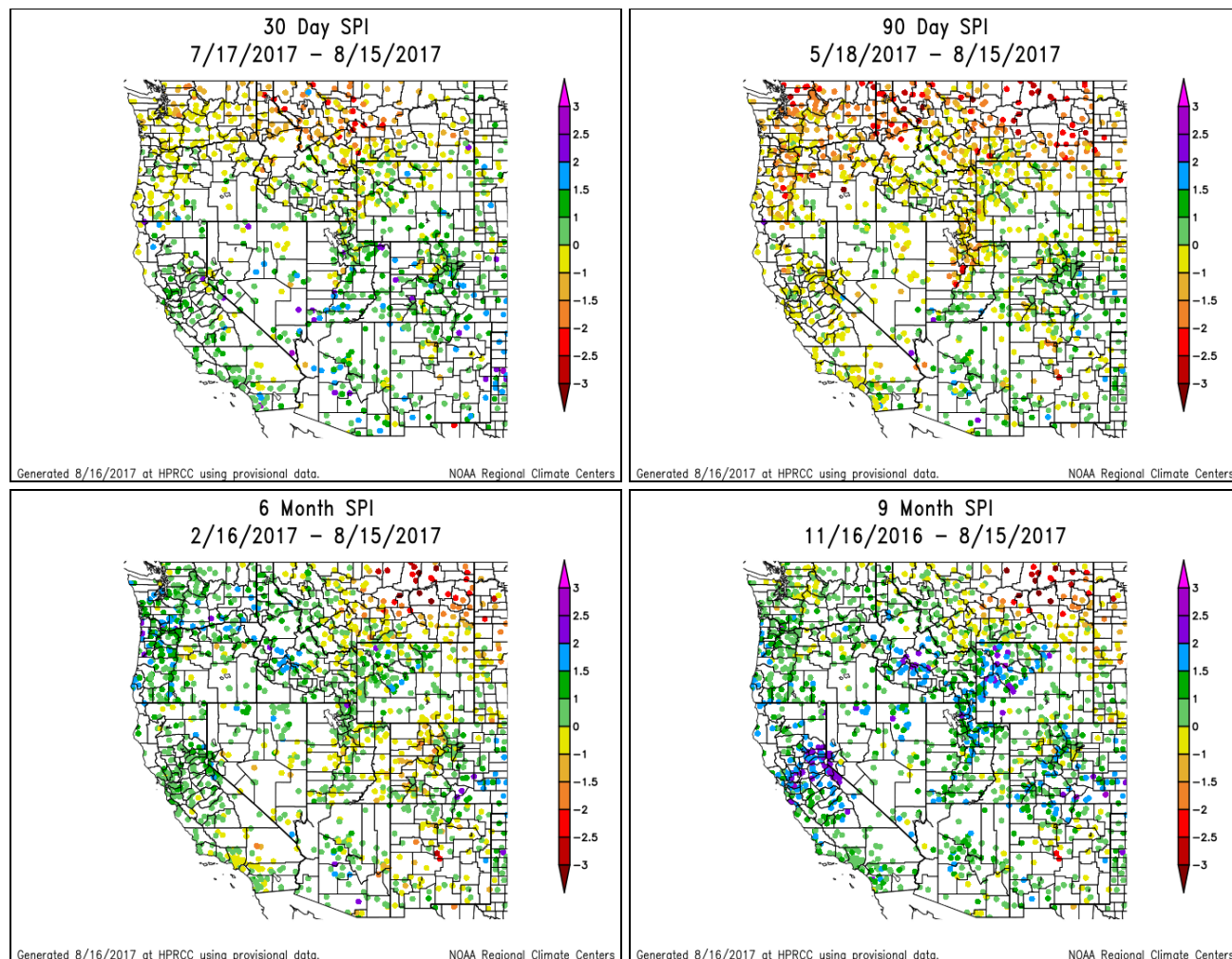
# NIDIS Intermountain West Drought Early Warning System August 15, 2017

## Precipitation



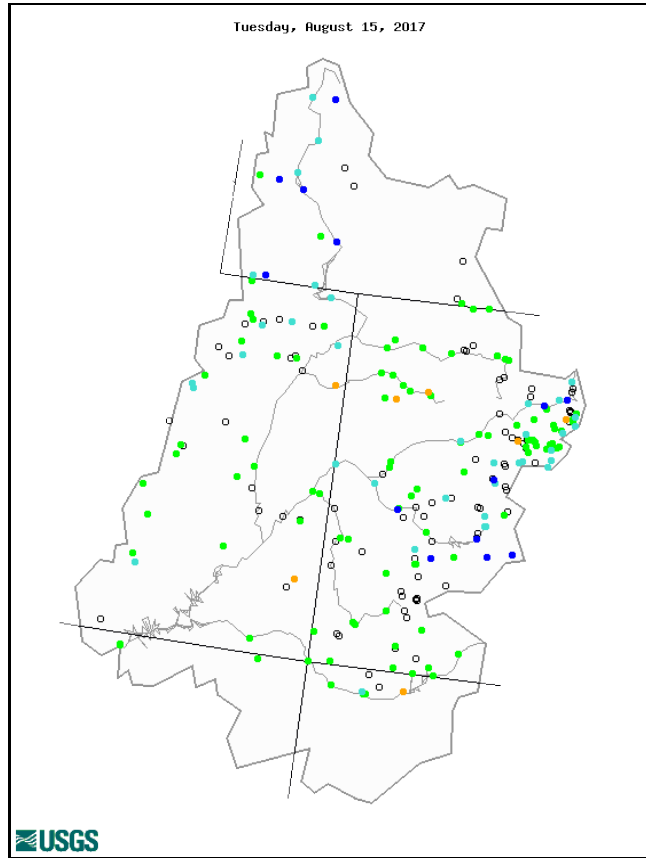
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

## Standardized Precipitation Index

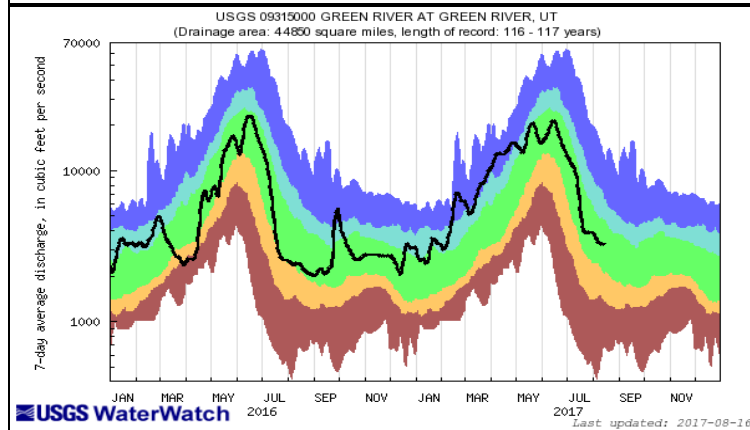
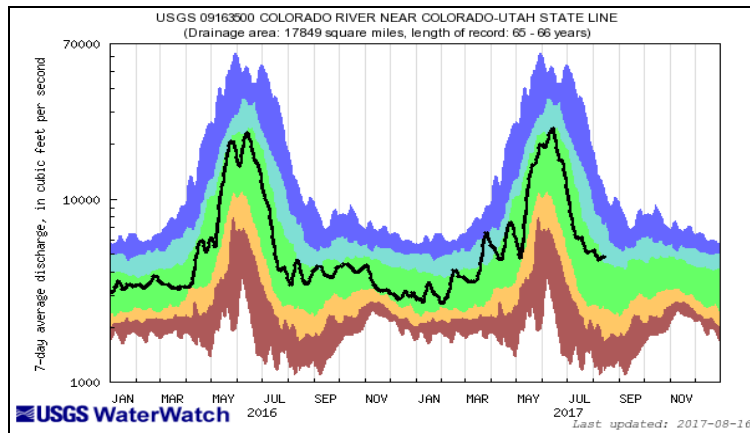


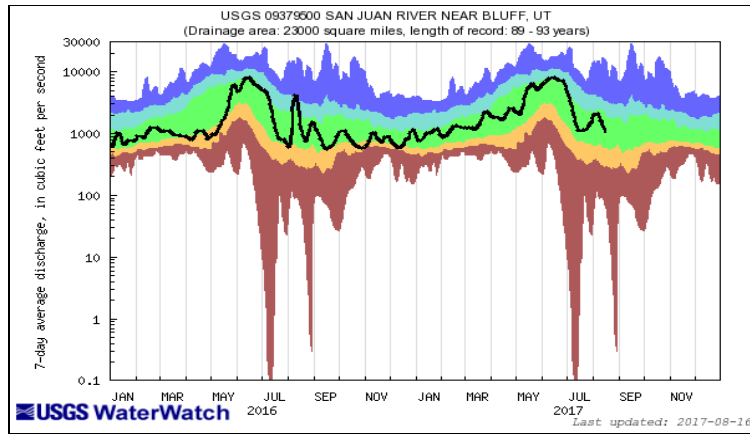
Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions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

## Streamflow



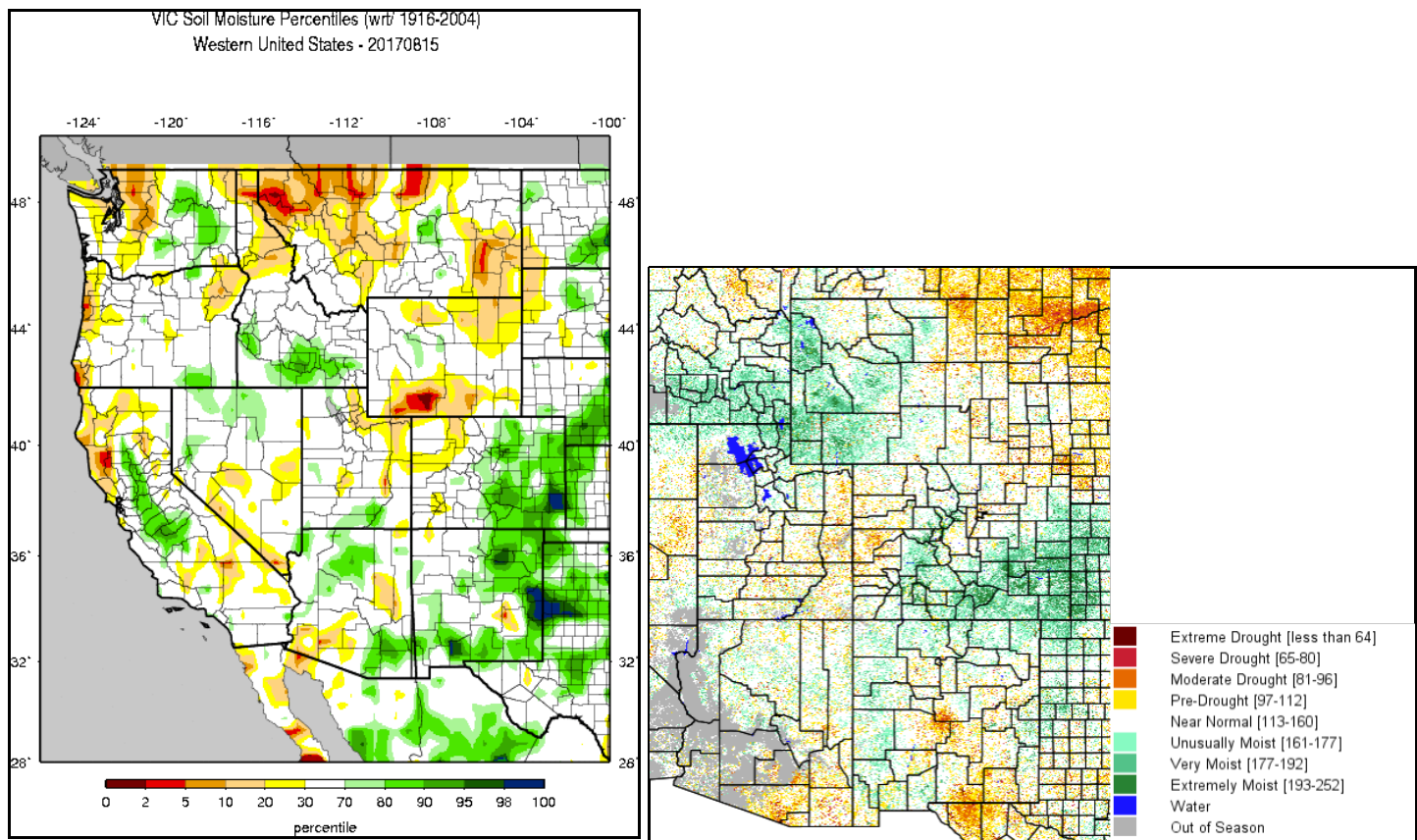
Explanation - Percentile classes							
<span style="color: red;">●</span>	<span style="color: red;">●</span>	<span style="color: orange;">●</span>	<span style="color: green;">●</span>	<span style="color: cyan;">●</span>	<span style="color: blue;">●</span>	<span style="color: black;">●</span>	<span style="color: black;">○</span>
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

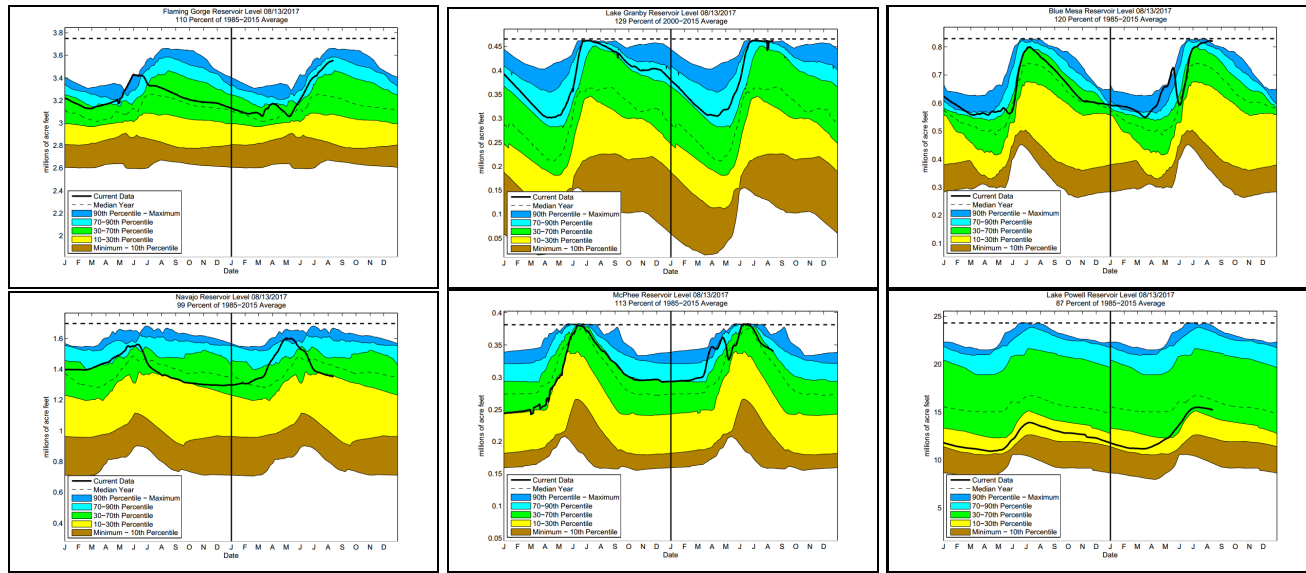


The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

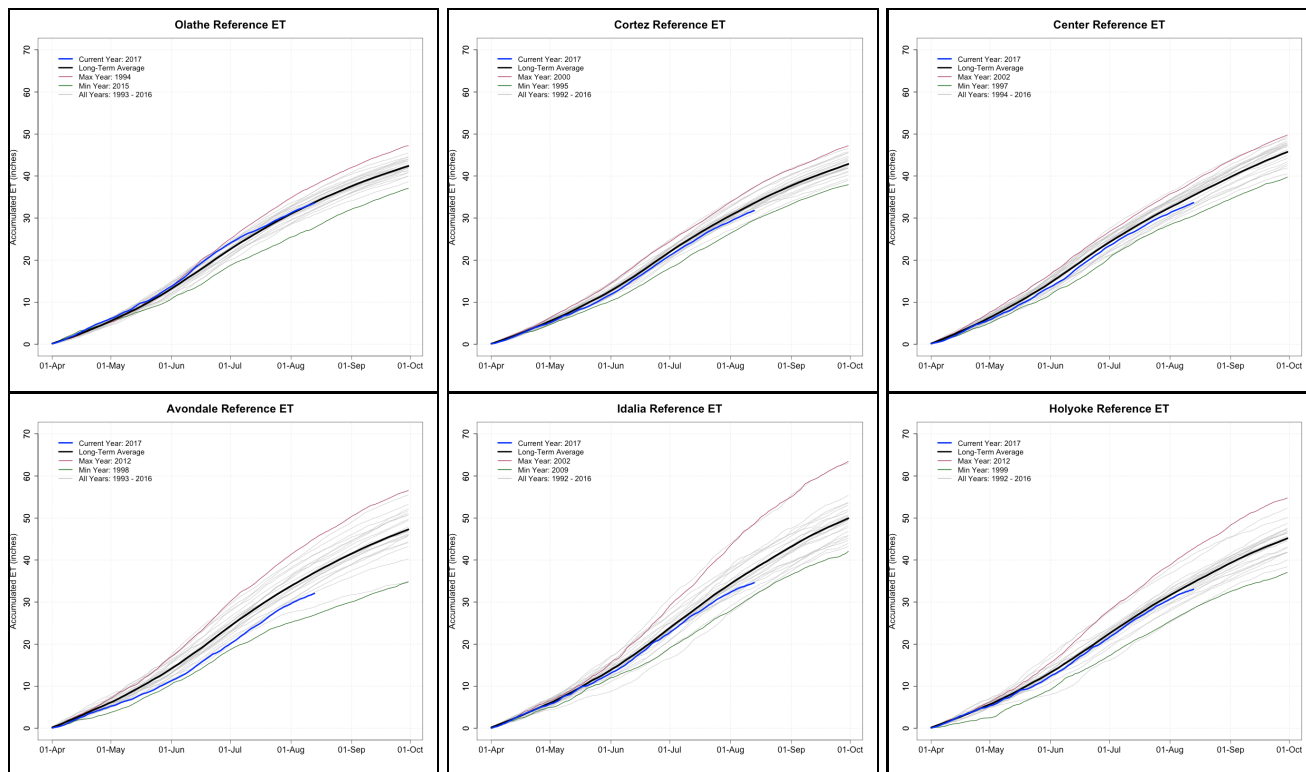
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir

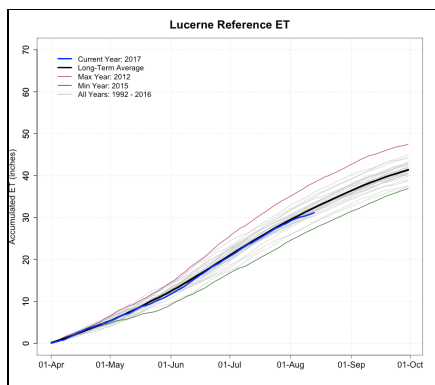


levels observed over the past 30 years. The data are obtained from the Bureau of Reclamation. Some of the reservoir percentiles don't line up at the new year due to differences in reservoir levels at the beginning of 1985 and the end of 2014. Dead storage has been subtracted. Note: Lake Granby data are obtained from the Colorado Division of Water Resources, and only goes back to the year 2000.

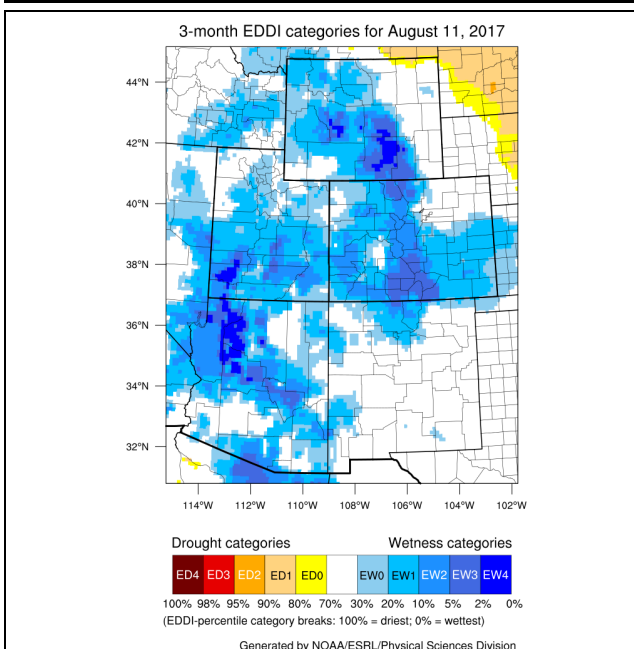
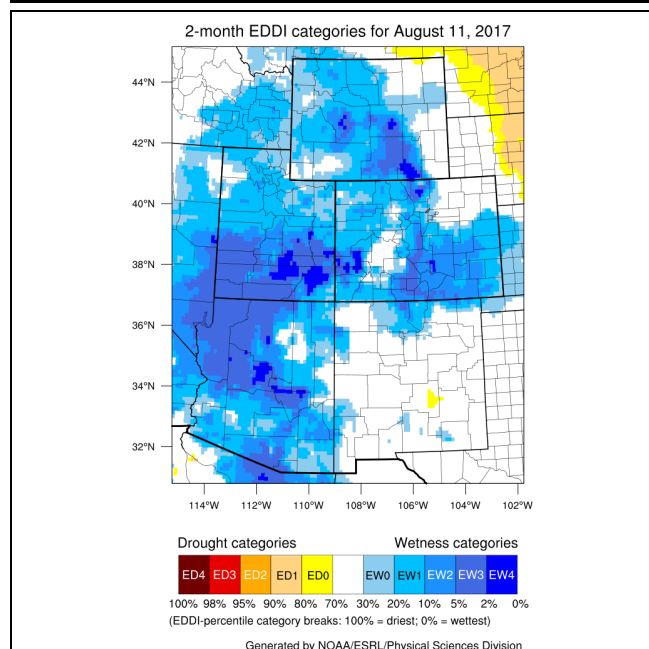
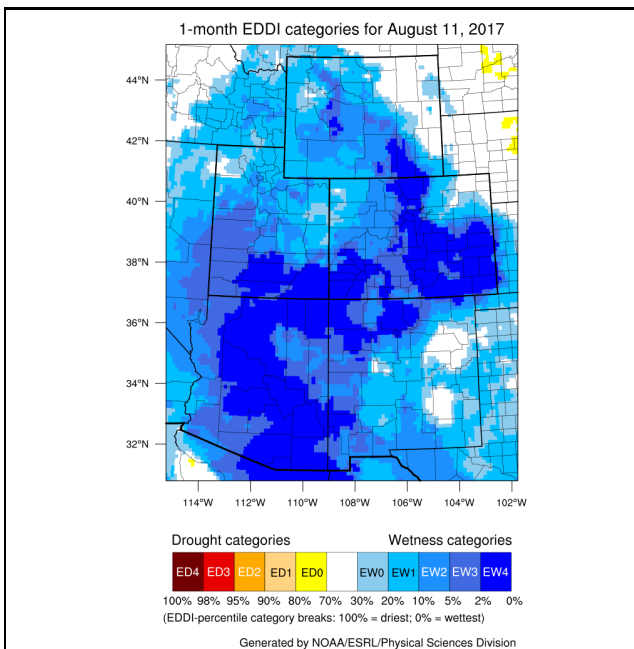
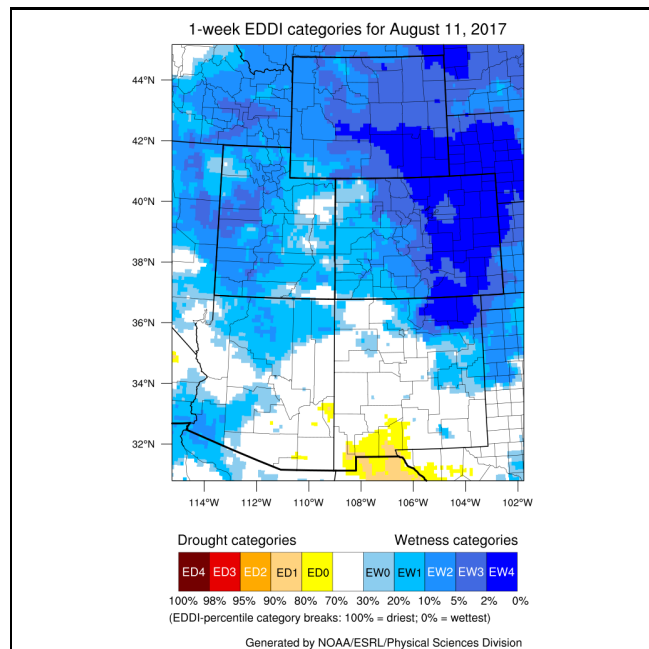


## Evaporative Demand





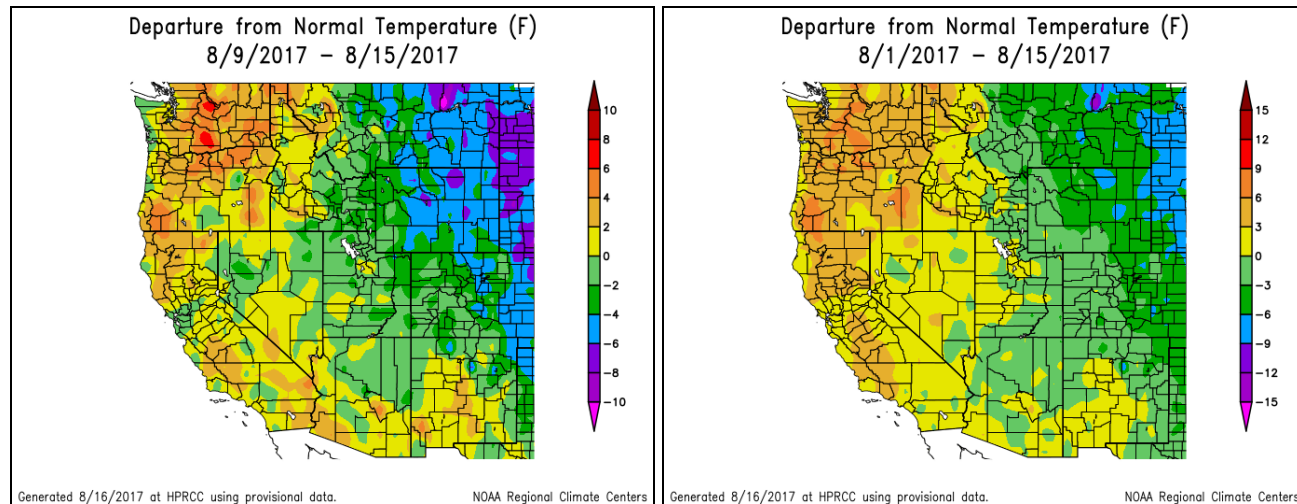
The above images are of reference evapotranspiration (ET) from CoAgMET sites across Colorado. Reference ET assumes the amount of water that will evaporate from a well-irrigated crop. Higher ET rates occur during hot, dry, and windy conditions. Lower ET rates are more desirable for crops. See a [map of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



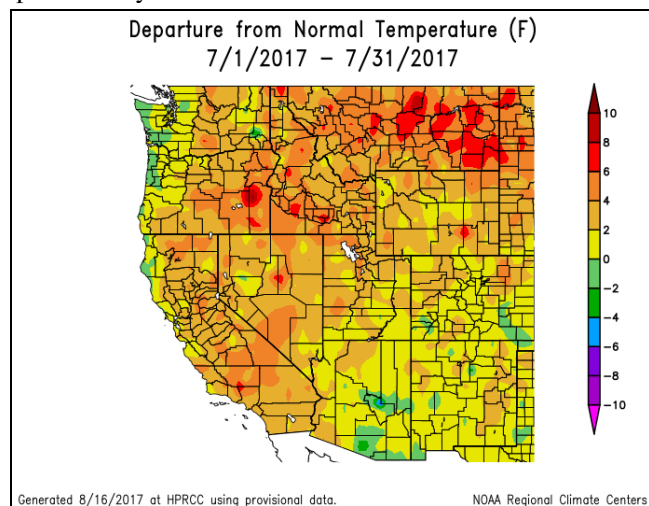
The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration

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](#). 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.

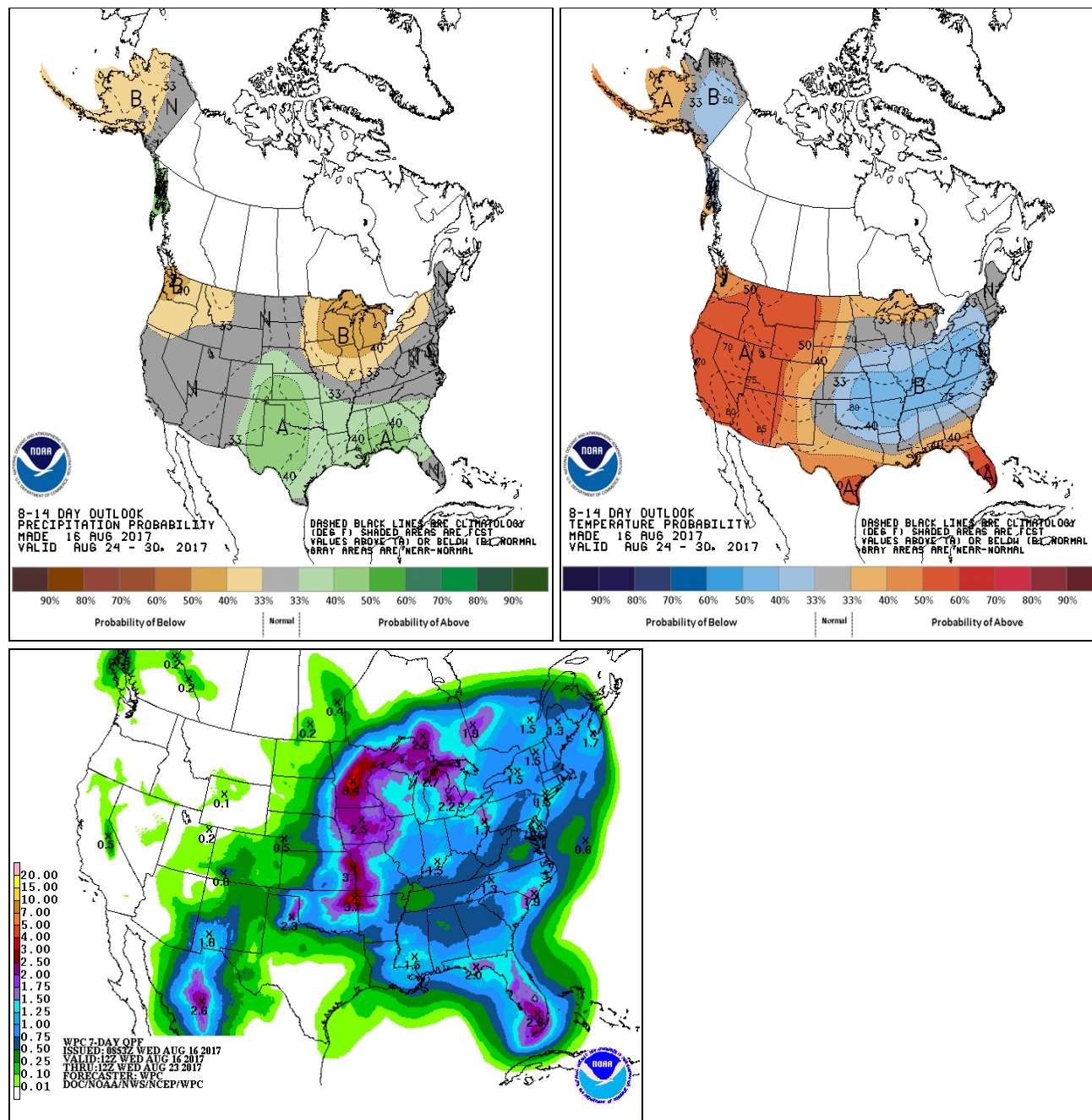
## Temperature



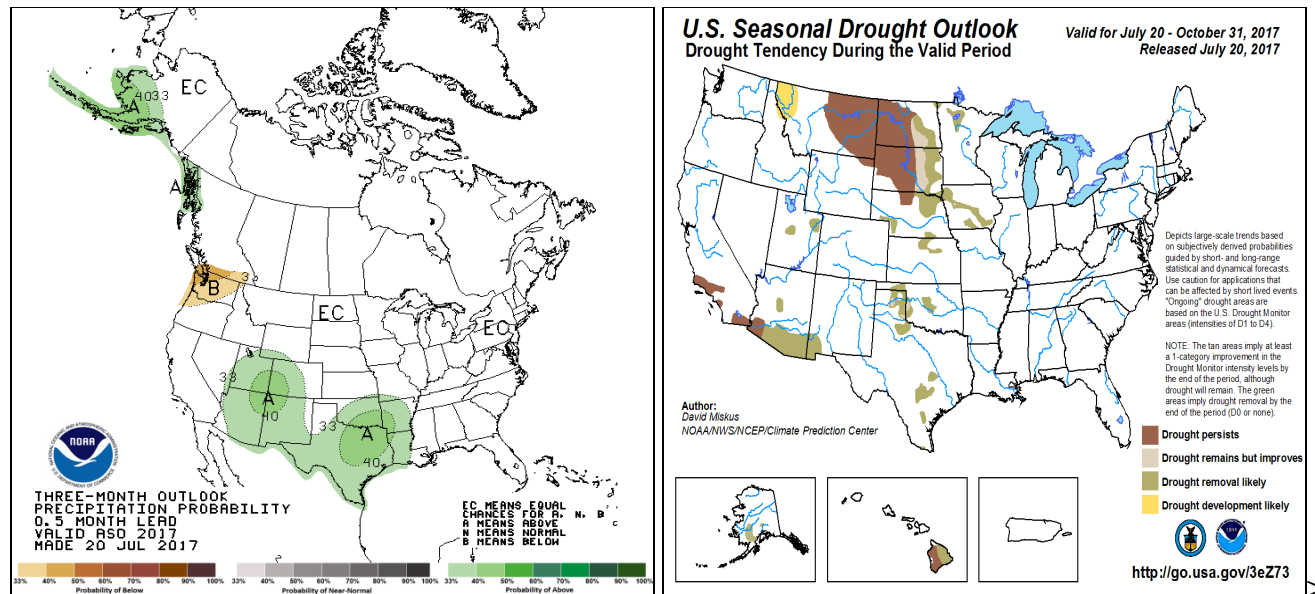
All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.



## Outlook

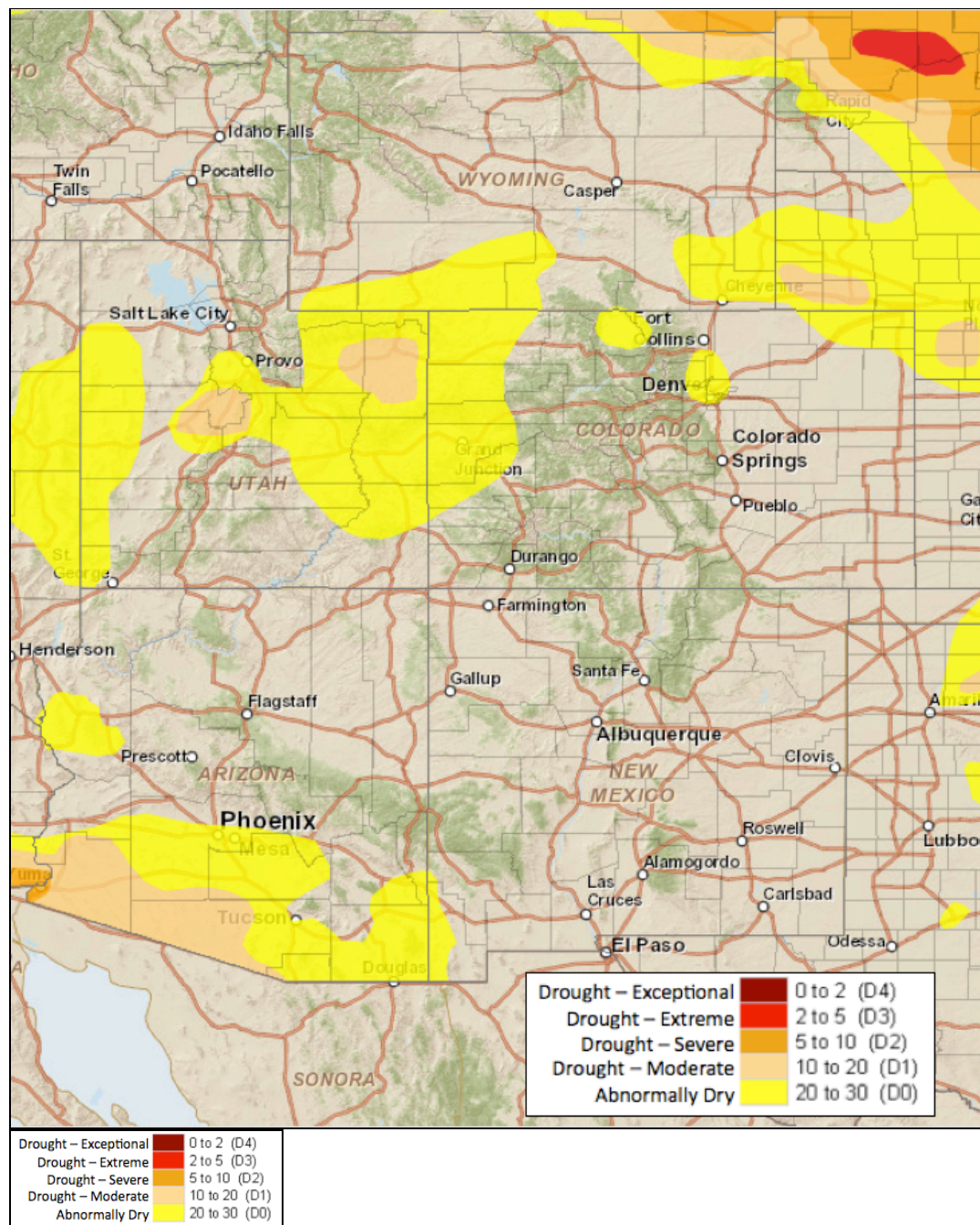


The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate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

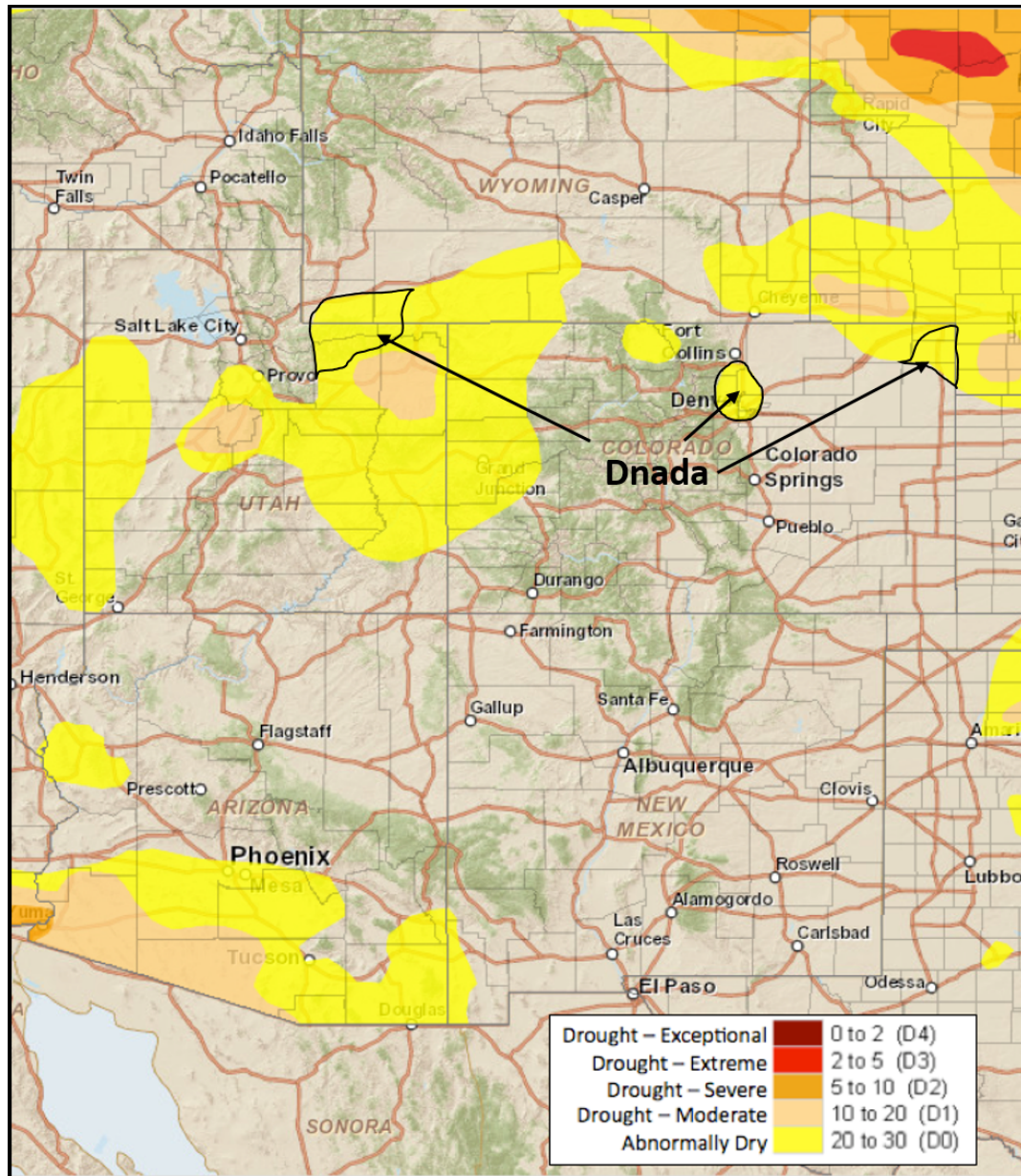


## Summary and Recommendations





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 15, 2017

Last week, much of the Upper Colorado River Basin received less than 0.50 inches of new precipitation. The exceptions were the Uintah Mountains and south into the Duchesne Basin in northeastern Utah, where at 0.50 inches to 2.00 inches of precipitation fell, the higher amounts in the higher elevations. Western Colorado saw areas of mainly 0.50 inches to 1.00 inches of new precipitation in Montrose, northern Gunnison, Garfield, southern Rio Blanco counties and along the Divide. SPIs in the Basin are near normal for the past 30-days between -1 and +1. More dry SPIs show up on the 90 day SPI in the basin and most of Utah and Colorado are dry for the past 6 months, with a few near normal SPIs. The northern Uintah Mountains are showing wet SPIs on all time scales, this could bring some reduction of D0.

Western Colorado has seen beneficial precipitation, however this near normal precipitation hasn't been enough to erase the dryness from the past 6-months.

East of the Divide saw at least 0.50 inches in eastern Colorado. Higher amounts of 1.00 - 2.00 inches fell along the Front Range from Larimer to Fremont counties. El Paso, southern Elbert, southern Lincoln, parts of Otero, Las Animas, Baca and Prowers counties all received greater than 2.00 inches of new precipitation. Southeastern Colorado, mainly Otero County saw severe storms with crop damaging hail last week.

Weld, Adams and eastern Boulder counties, where D0 still shows up was drier than surrounding areas last week, only seeing between 0.50 - 1.00 inches last week and 1.00 - 2.00 inches for the month. This area seems to be on the edge of improvement. With SPIs in the area showing above normal precipitation, soil moisture showing wet conditions and vegetation health in good shape, there seems to be justification to remove D0. There is a similar argument for the D0 in Jackson County, however some longer term dryness still shows up, so the D0 is justified.

Temperatures for the entire region were below normal with the most below normal were seen in eastern Colorado.

## Recommendations

**UCRB:** A slight reduction of D0 in the Uintah Mountains in northeastern Utah and southwestern Wyoming is being recommended. This area has seen above normal precipitation in July and 1.00 to 2.00 inches so far this month. This will leave a fairly tight gradient between D nada and D1. With the differences in precipitation amounts in the area, due to topography, this gradient is justified. The rest of the UCRB should remain status quo. With the recent precipitation in Western Colorado, so D0 trimming could be justified, however recent near to slightly above normal precipitation has not offset the dryness of the past 6 months.

**Eastern Colorado:** Removal of the D0 northeast of the Denver Metro area is recommended. This area is on the edge of improvement. Given SPIs and soil moisture are showing up wet should give justification for the improvement.

Some slight improvement of the D0 in northeastern Colorado in Phillips County is also recommended. This area saw above normal precipitation in July and has received at least 2.00 inches of precipitation this month.