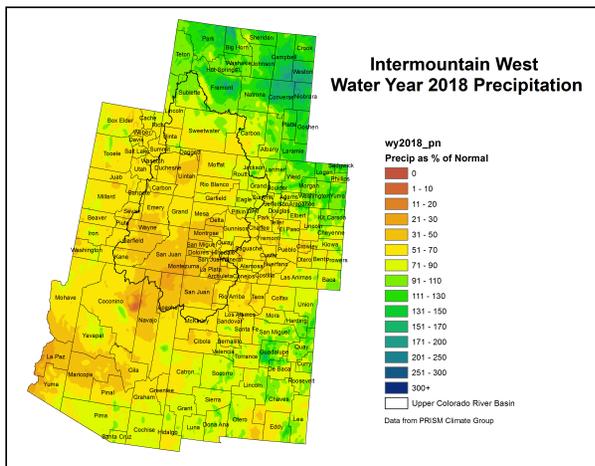
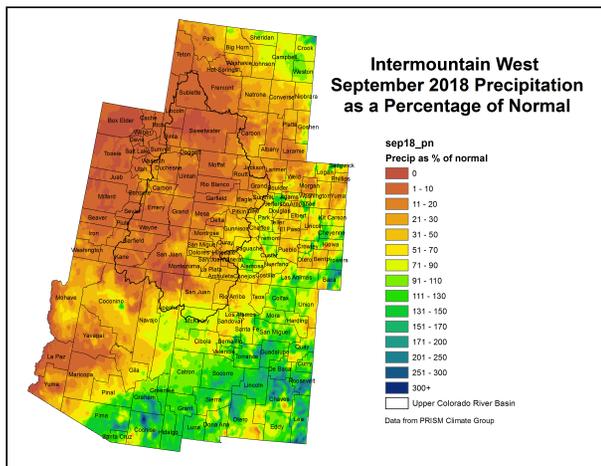
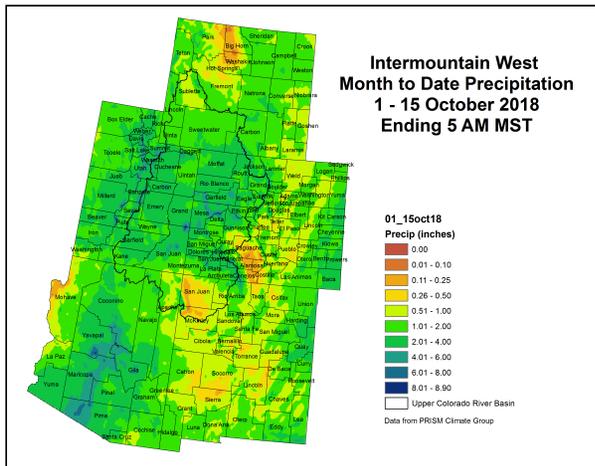
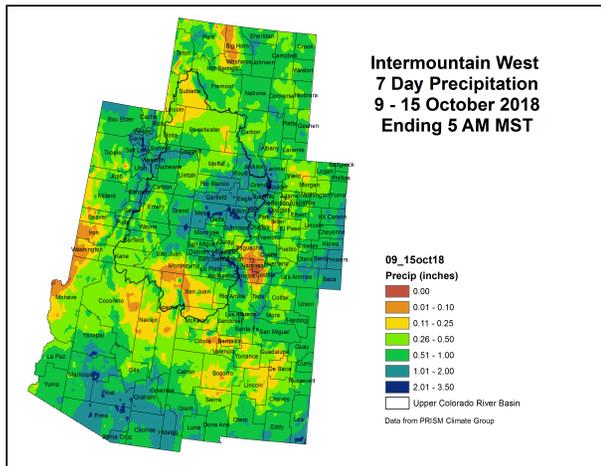


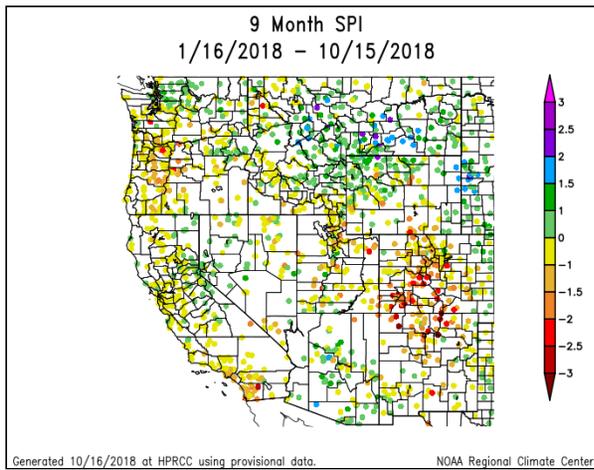
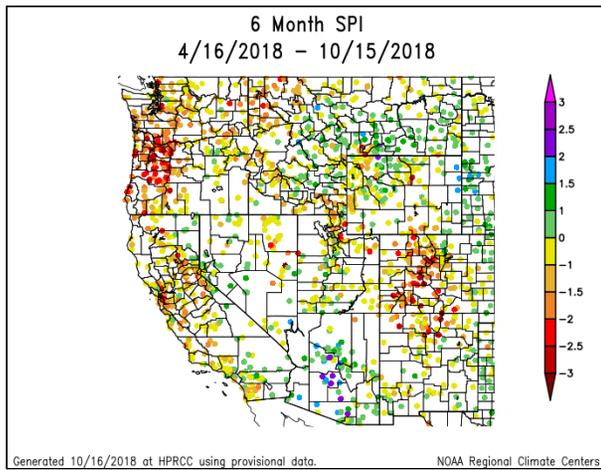
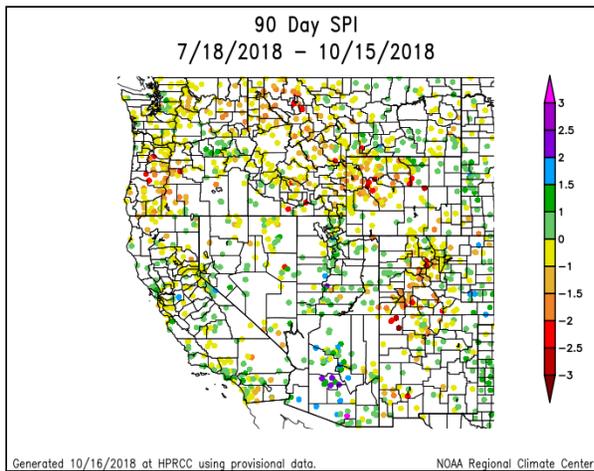
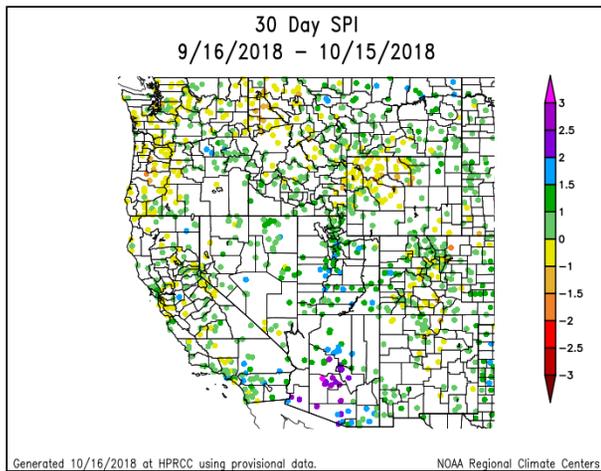
NIDIS Intermountain West Drought Early Warning System October 16, 2018

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.

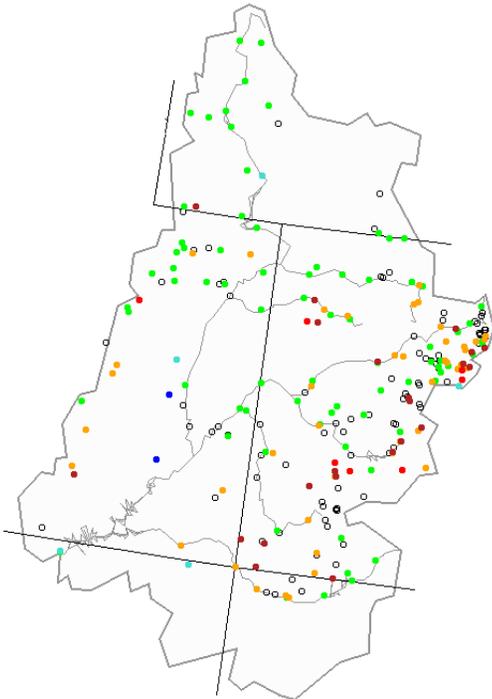
Standardized Precipitation Index



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.

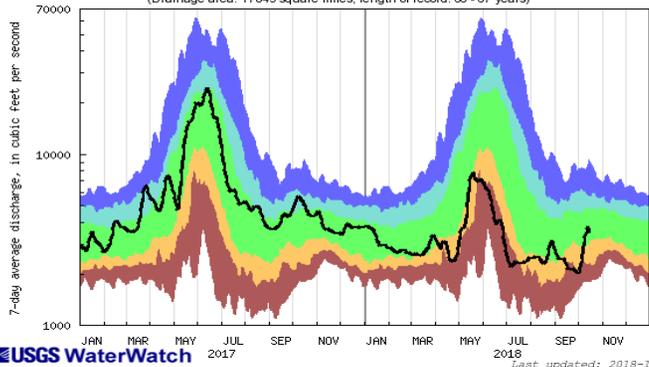
Streamflow

Monday, October 15, 2018

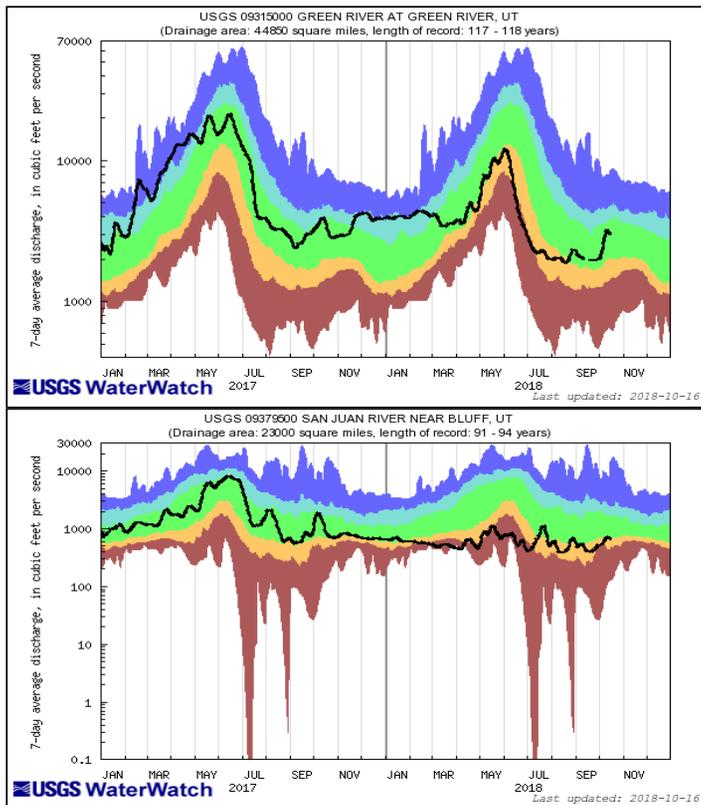


Explanation - Percentile classes							
●	●	●	●	●	●	○	
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

USGS 09163500 COLORADO RIVER NEAR COLORADO-UTAH STATE LINE
(Drainage area: 17849 square miles, length of record: 66 - 67 years)

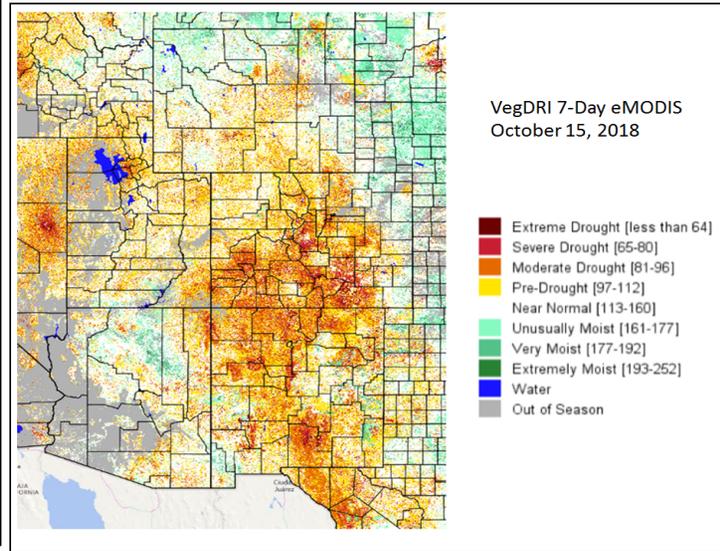
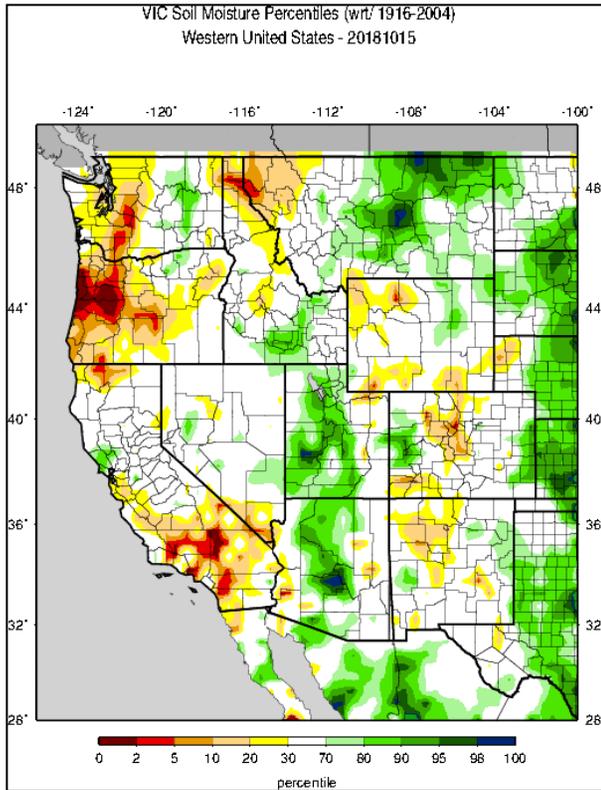


Last updated: 2018-10-16



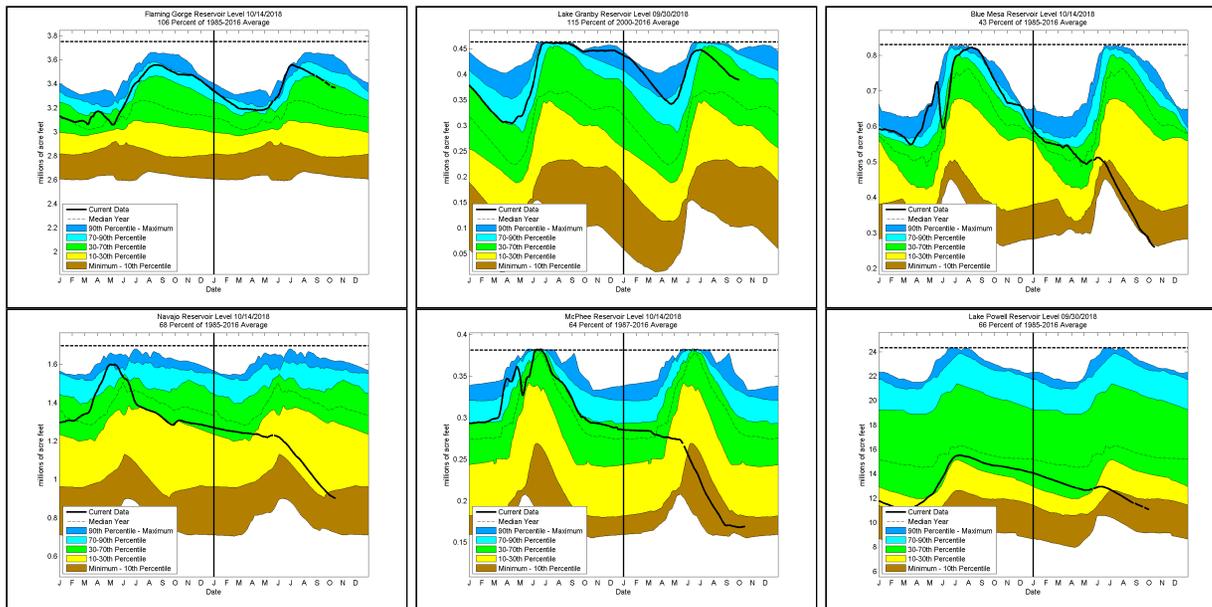
The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff,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

Surface Water

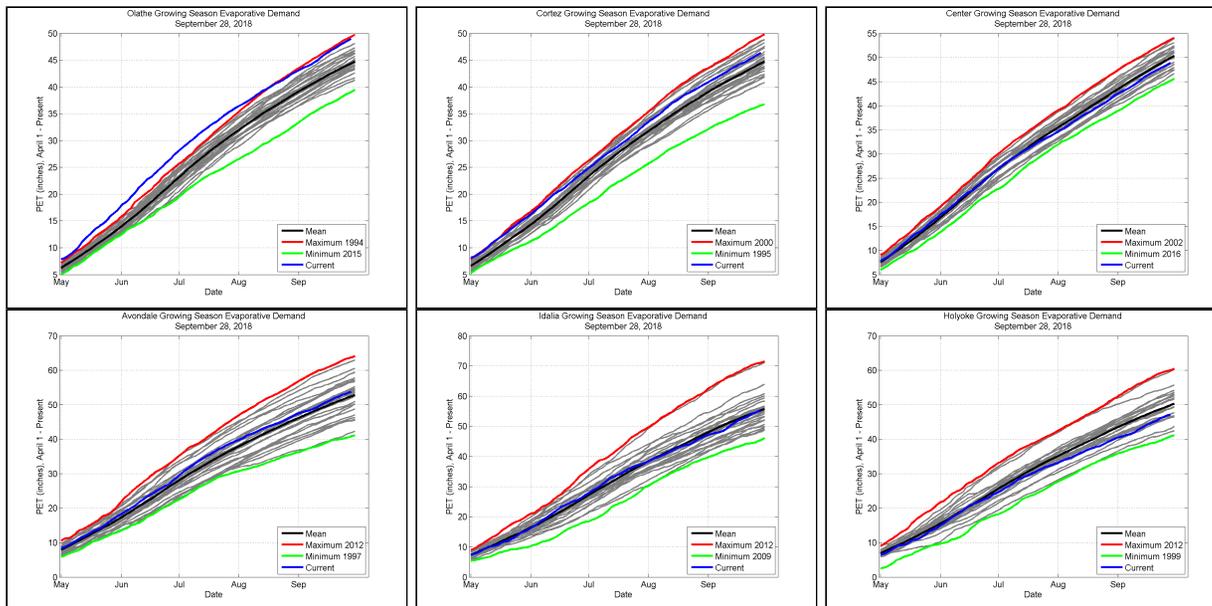


The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

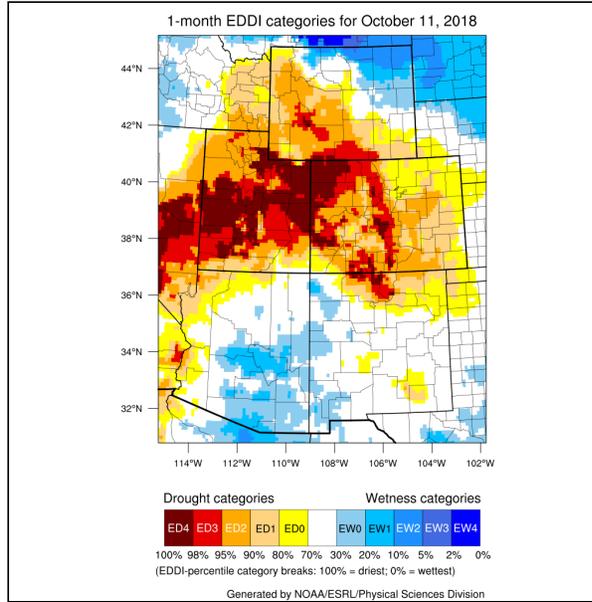
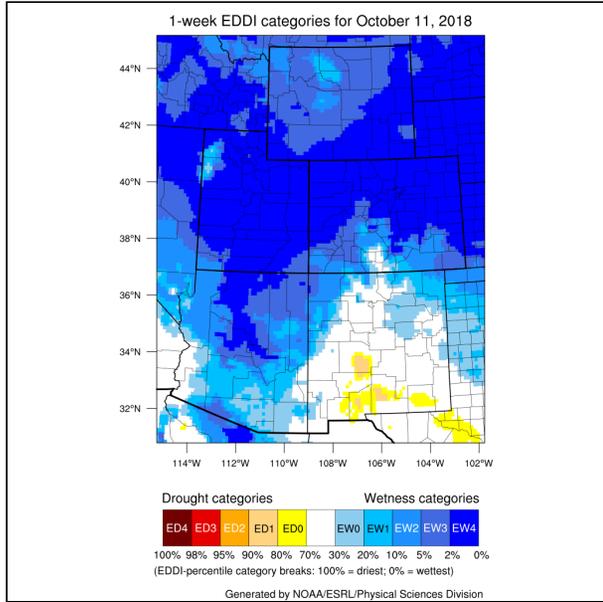
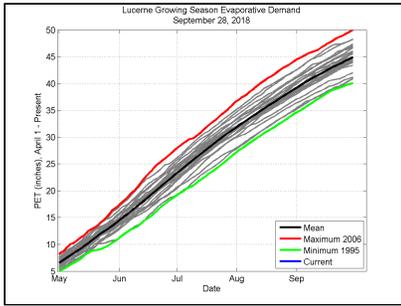
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir levels observed over the past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

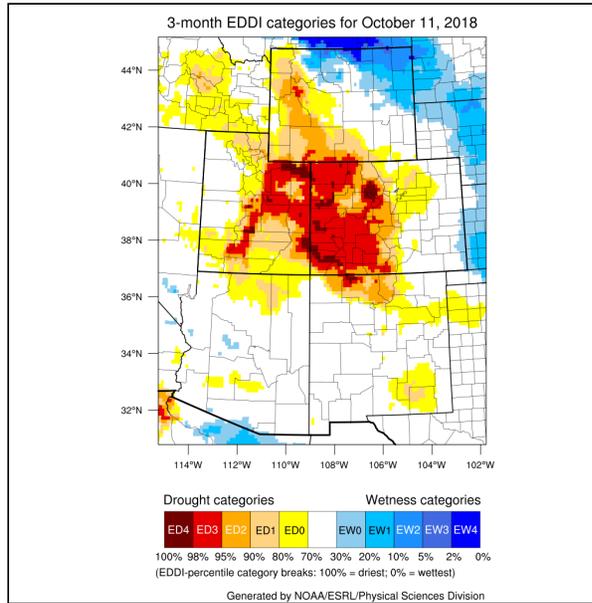
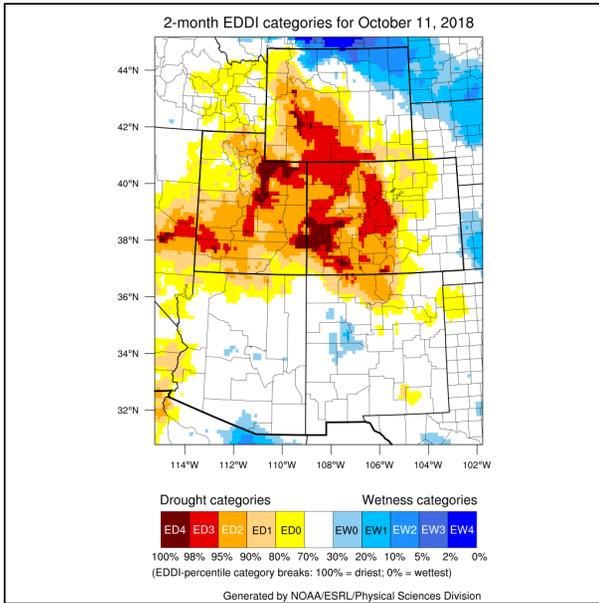


Evaporative Demand



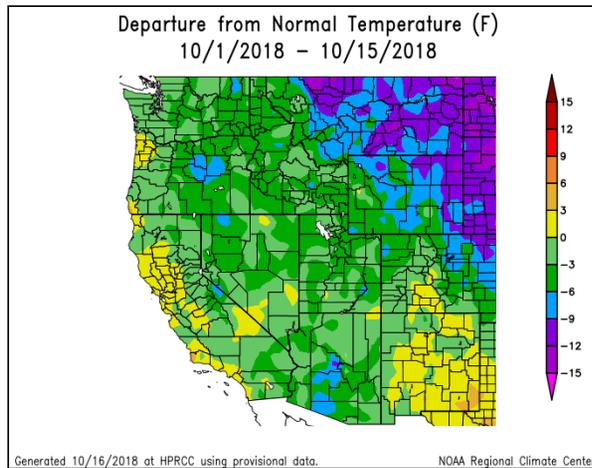
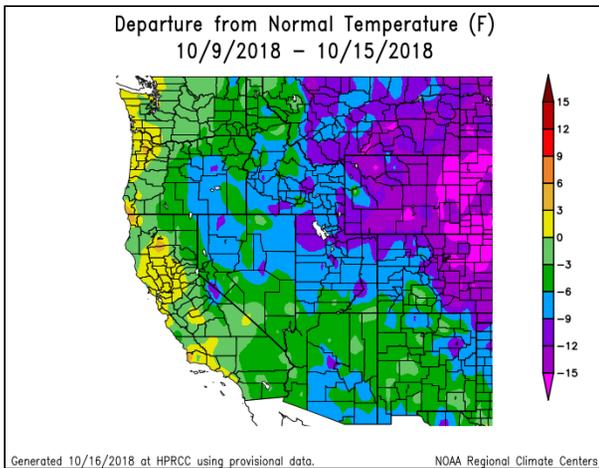
The above images are of reference evapotranspiration (ET) from CoAgMET sites across Colorado. Reference ET assumes the amount of water that will evaporate from a well-irrigated crop. Higher ET rates occur during hot, dry, and windy conditions. Lower ET rates are more desirable for crops. See a [map of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





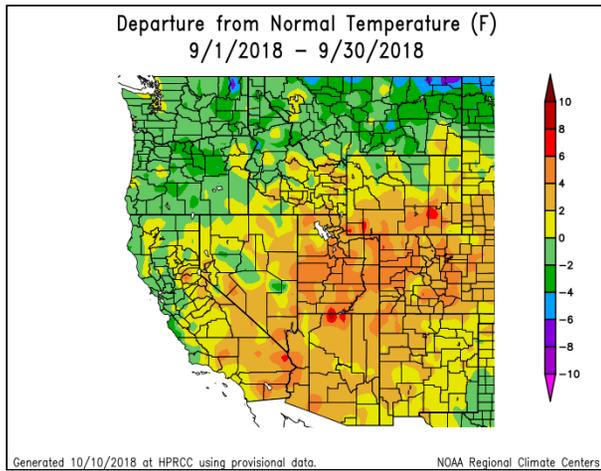
The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

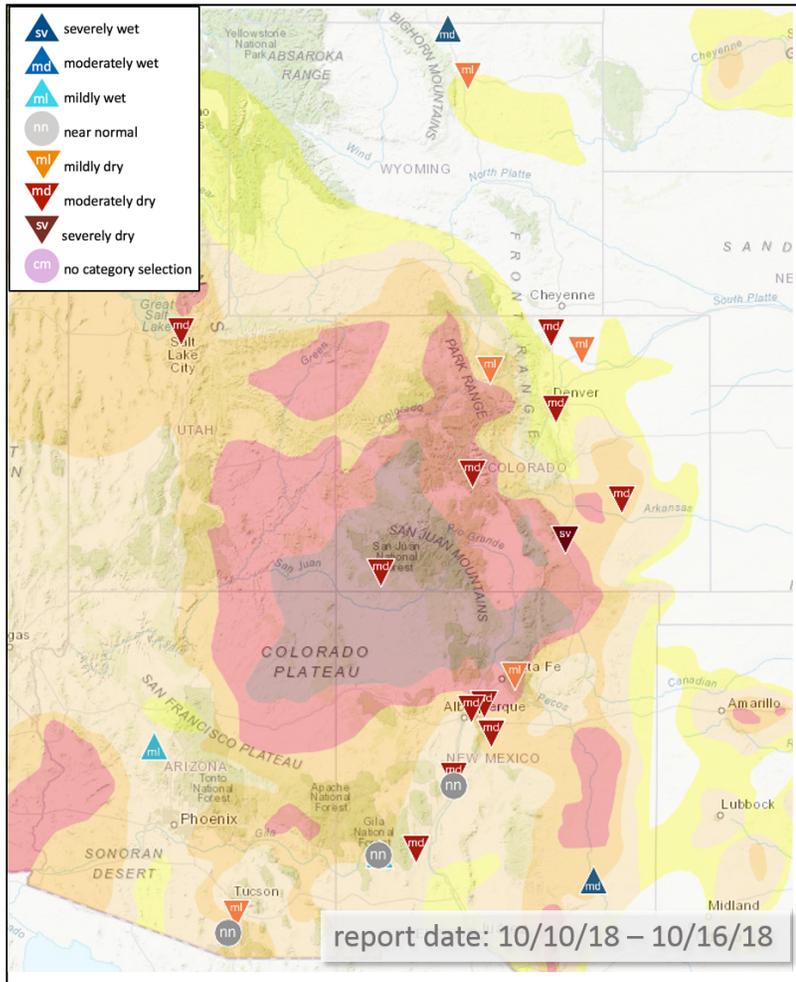


All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top

right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.



Condition Monitoring and Impacts



Map of current condition monitoring reports submitted to CoCoRaHS in the last week overlaid on the current U.S. Drought Monitor depiction. Specific impacts reports from local experts listed below.

Emery County, UT

The last week's rain totals will alleviate some of the fears of water shortages. Snow is sticking around above 9,000 feet. Still very dry.

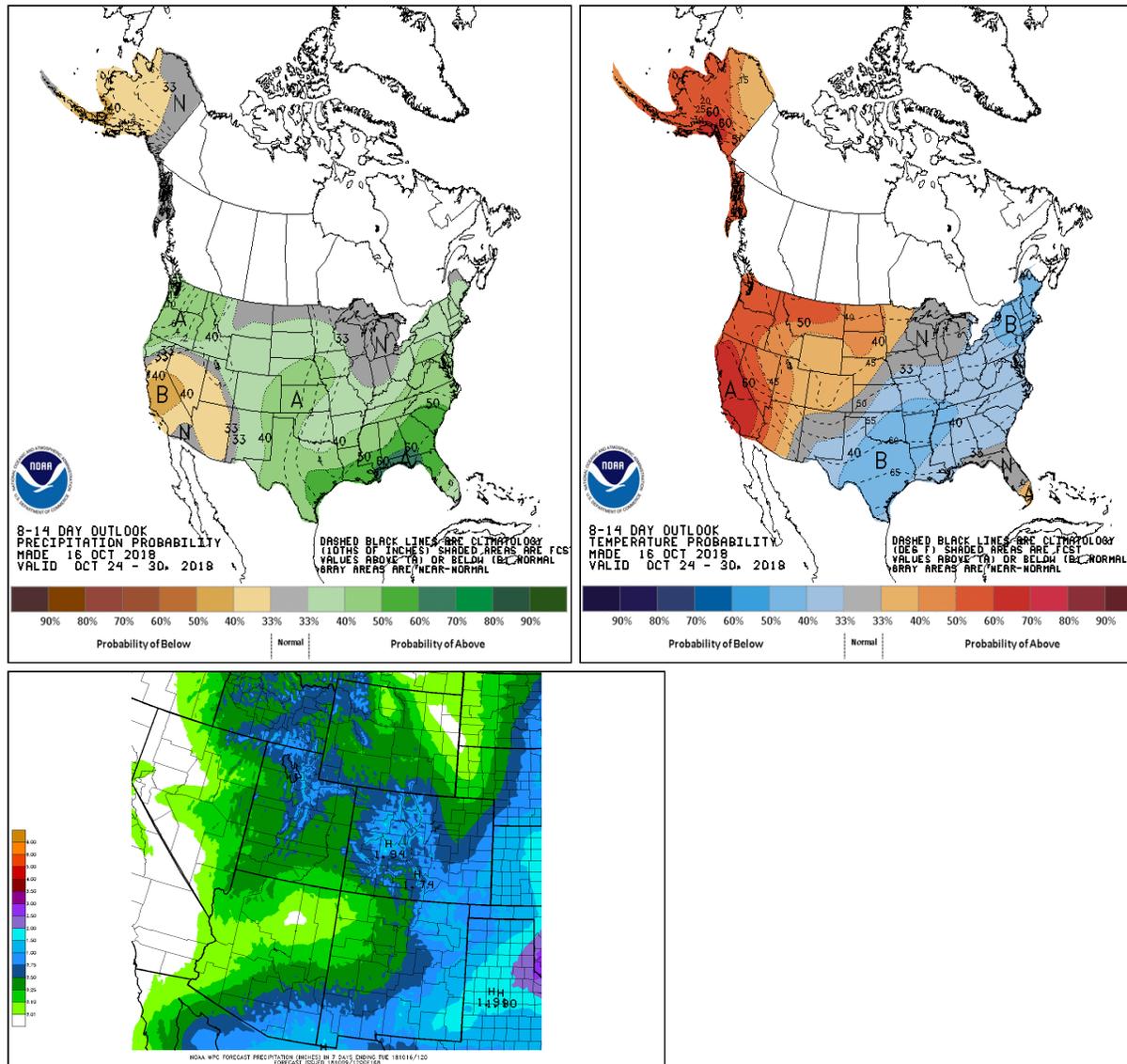
Sanpete County, UT

Most precipitation since September 2017. Soaked right into soil. A local farmer dug into soil and only the top 3 inches were wet.

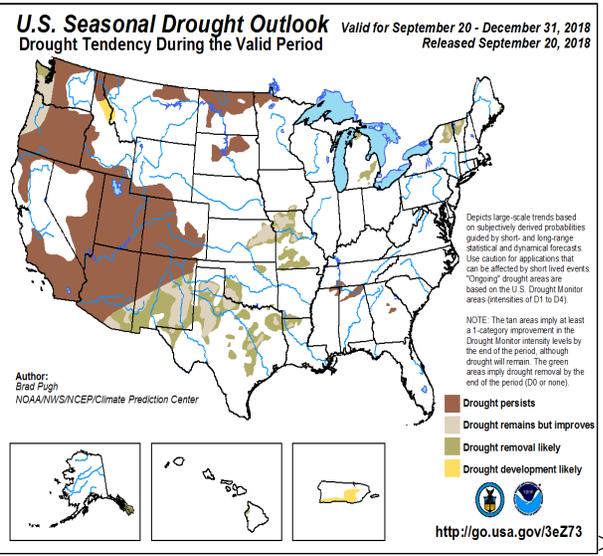
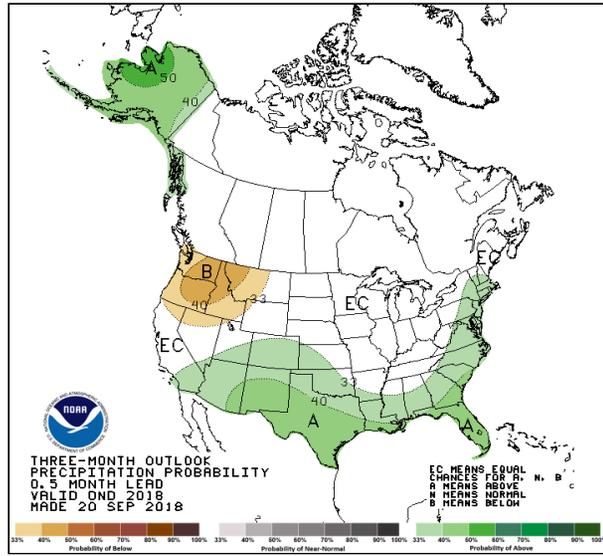
Eastern CO:

Precipitation hit at the right time for winter wheat. Allowed germination and should be in good shape going into winter.

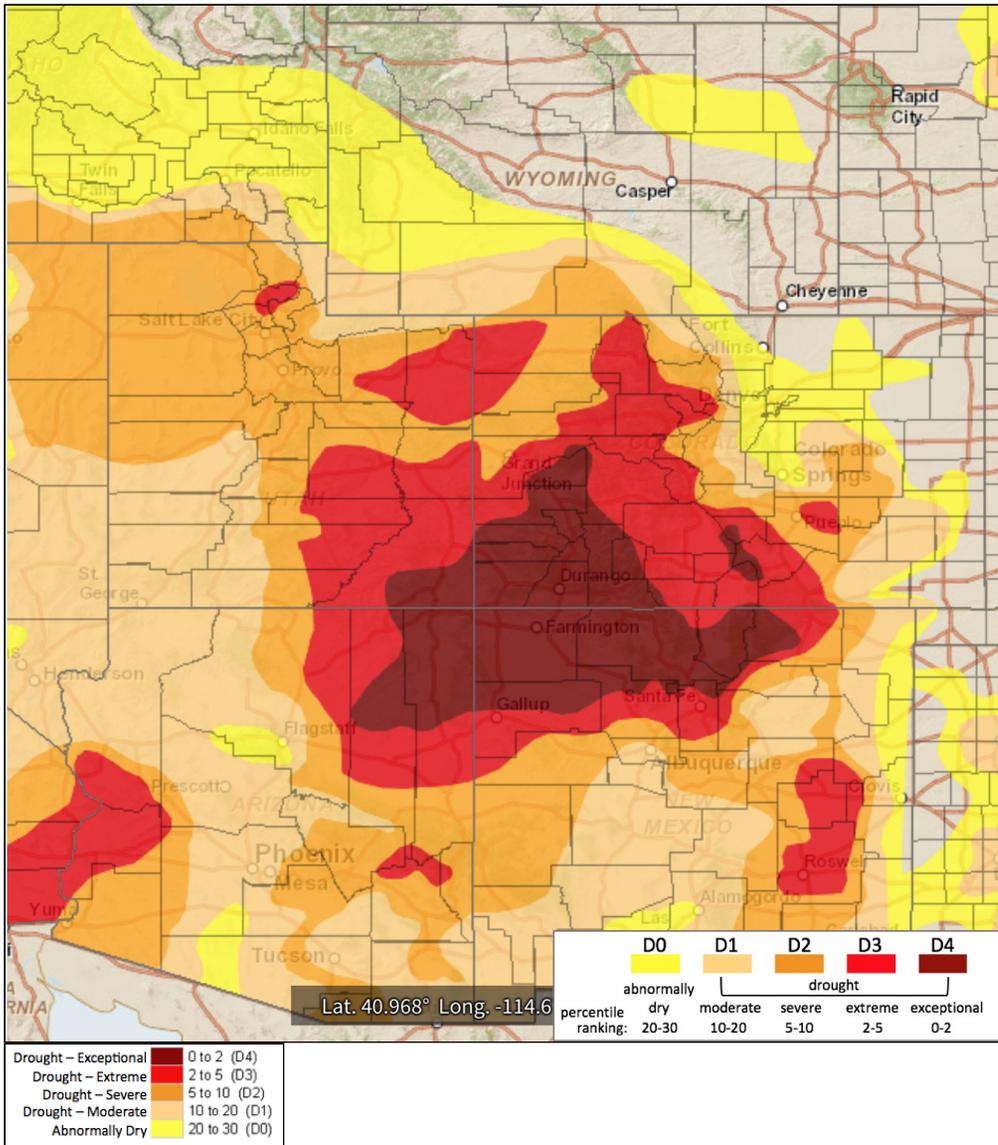
Outlook



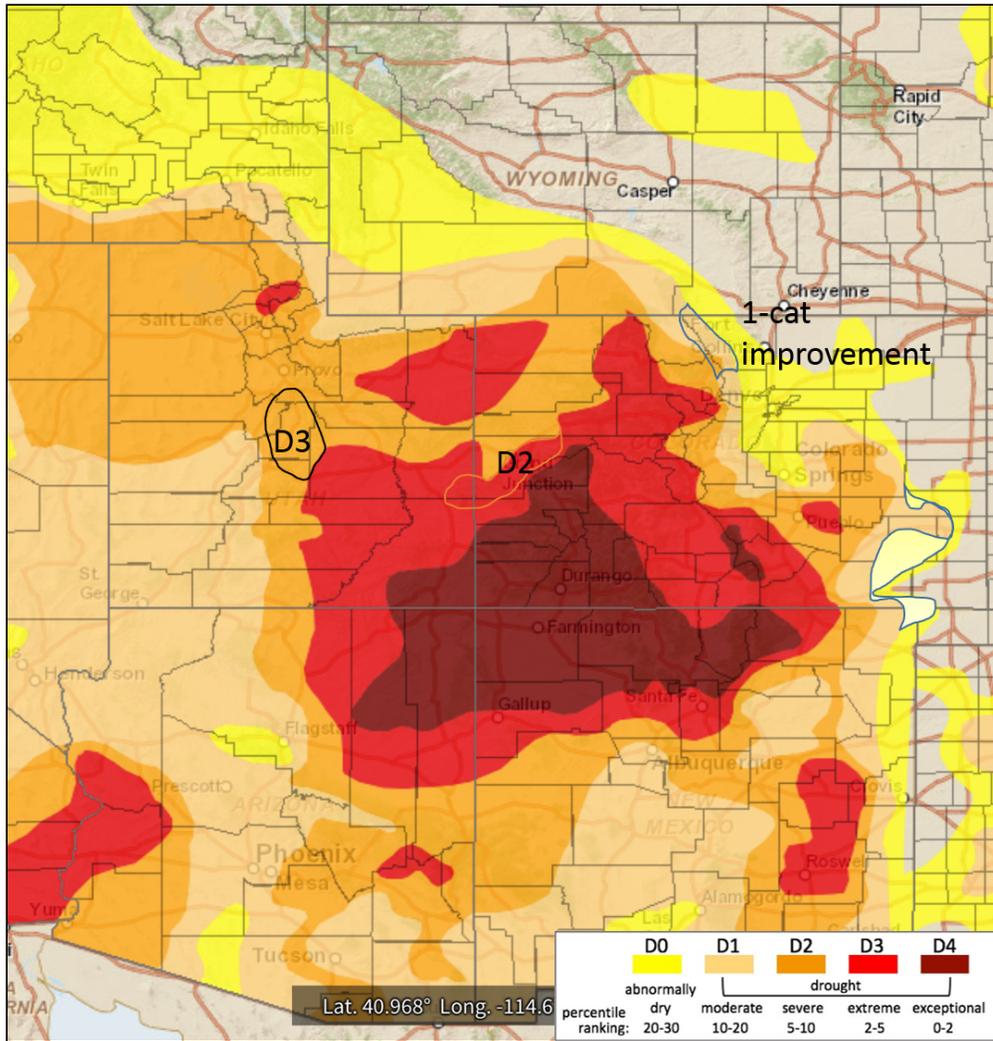
The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate 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: October 16, 2018

Water Year 2019 has started off very nicely for the Intermountain West with much of the area receiving at least 0.50" of new precipitation this last week. Much of western Colorado and southern Arizona saw widespread amounts of 1.00-2.00" of precipitation, bringing monthly totals for the Upper Colorado River Basin in the 2.00-4.00" range.

Thanks to the precipitation, streamflow has continued to increase. The majority of streamgages are now in the normal category and the number of record low flows has decreased even more. There are still a significant number of gages in the below normal and much below normal flows. These will probably hold on for quite a while.

The eastern plains of Colorado also received another good bit of precipitation. Last week saw the first widespread snowfall along the Front Range, out to the border. This continues to help the recently planted winter wheat, which is in good shape going into winter.

The outlook for the next week starts to dry out a bit. Much of Colorado is forecast to see little to no new precipitation. The San Juan Mountains might see 0.20", but quickly decreasing in the lower elevations, with no precipitation forecast for eastern Colorado. Southeastern Utah and Arizona could see between 0.50 to 1.00" over the next week.

Recommendations:

Upper Colorado River Basin: Last week, the D4 in central Utah was improved to D2. This should have only been a 1-cat improvement. So we are recommending D3 be added back into central Utah, connecting to the existing D3 in southwestern Utah.

Improvement of D3 to D2 in Mesa County, CO, Grand County, UT and just touching northern San Juan County, UT is recommended. This area received more precipitation, in the 1-2" range. This brings totals to 2-4" for October, which is already 2-4" above normal. SPIs have improved to near normal or positive out to 6-months. The gradient between D2 and D4 is now very tight, but with the Grand Mesa, the elevation changes quickly and there are still very dry SPIs on the Mesa.

Eastern Colorado: Recommending a 1-category improvement along the Larimer County/Jackson County line, extending into Grand County. Last week's snowfall was welcomed and short-term SPIs have improved significantly. Boulder County also received precipitation, however it wasn't as heavy and SPIs are still showing dryness, and the current situation is justified.

The Drought Monitor Author has suggested improvements in southeastern CO and northeastern NM. We agree with the Colorado improvements. A rough sketch is shown on our map.