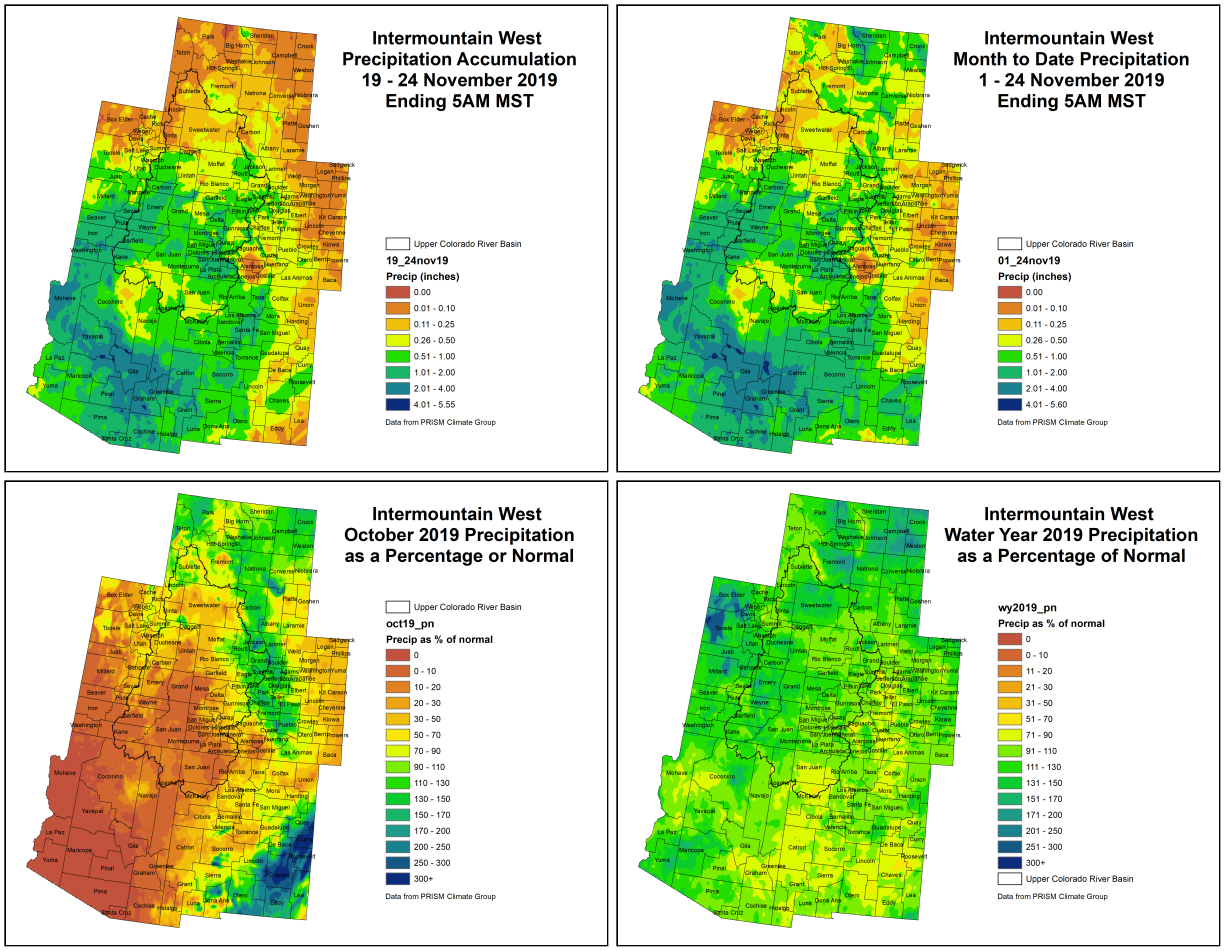
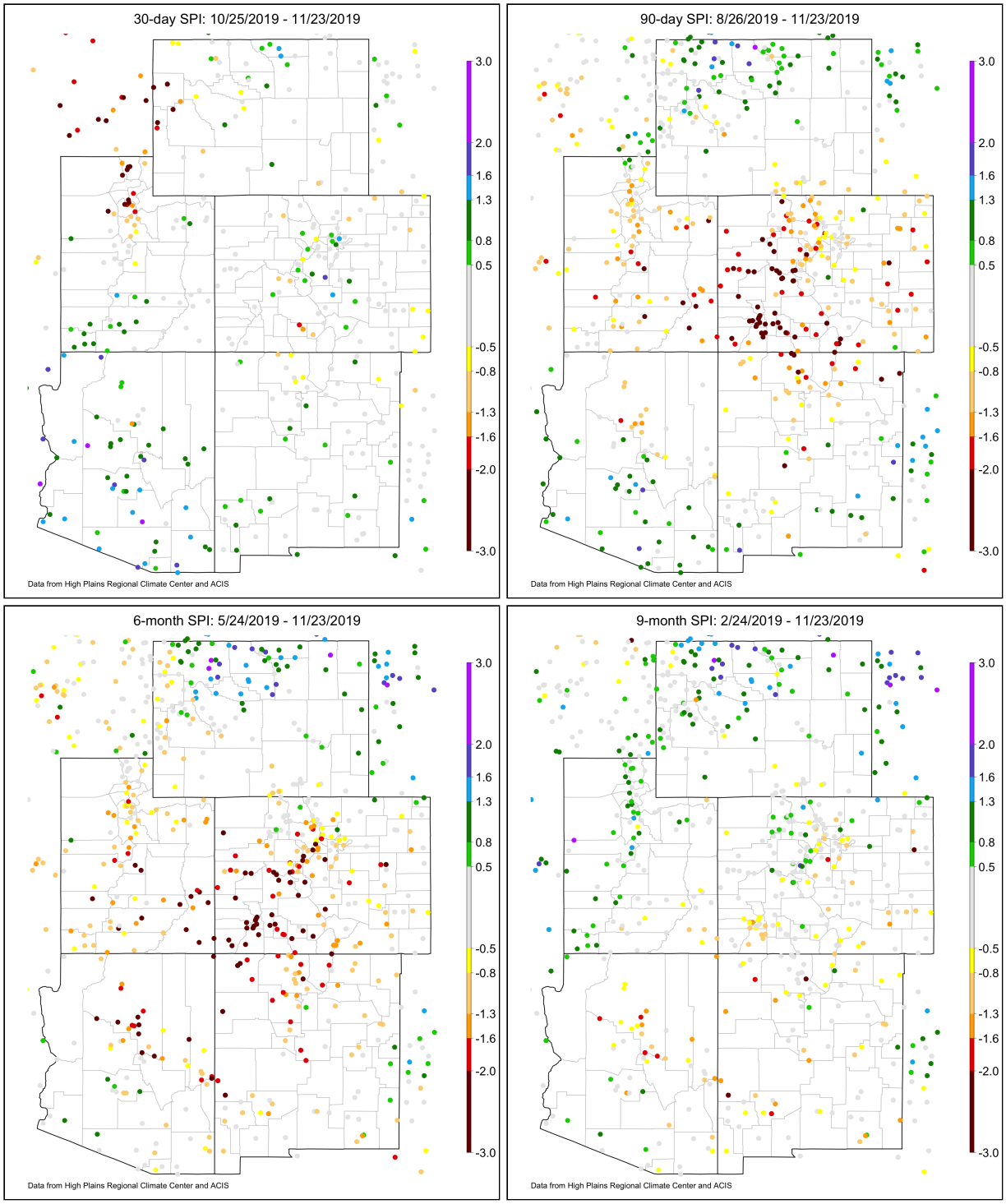
NIDIS Intermountain West
Drought Early Warning System
November 26, 2019

Precipitation



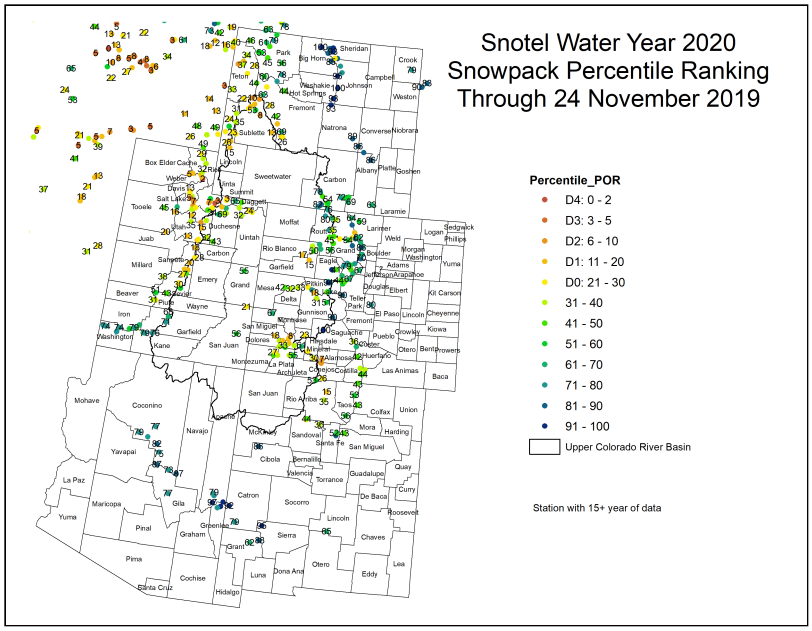
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index

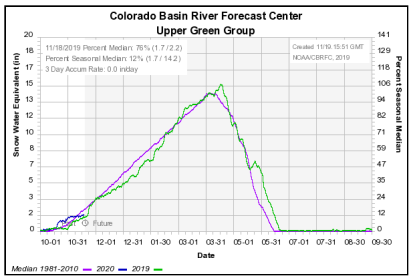


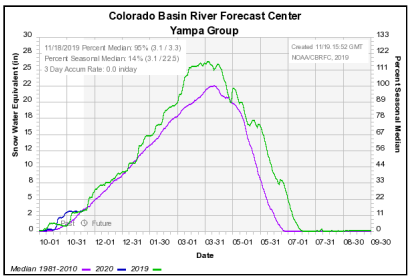
Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. Colors match the different drought categories with the U.S. Drought Monitor. 30- and 60-day SPIs focus on short-term conditions while 6- and 9-month SPIs focus on long-term conditions. SPI data provided by High Plains Regional Climate Center.

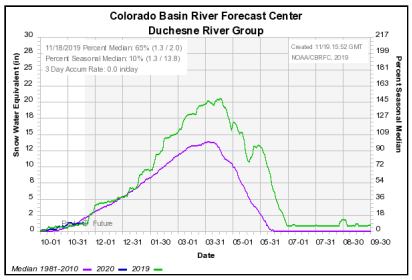
Snotel and Snowpack

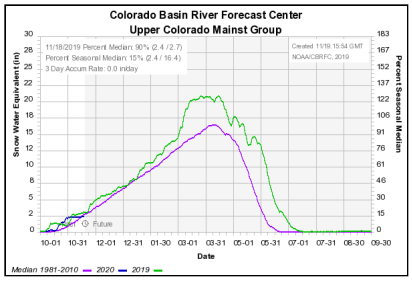


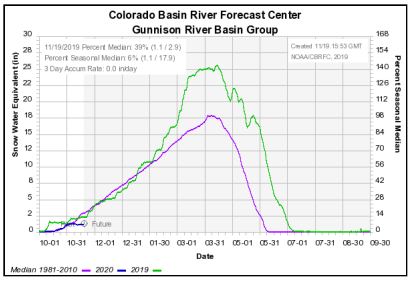
The above image shows SNOTEL snowpack percentiles for each SNOTEL site in the Intermountain West. The images below show accumulated snow water equivalent in inches (green) compared to average (blue) and last year (red) for several different sub-basins across the UCRB (and were created by the Colorado Basin River Forecast Center).

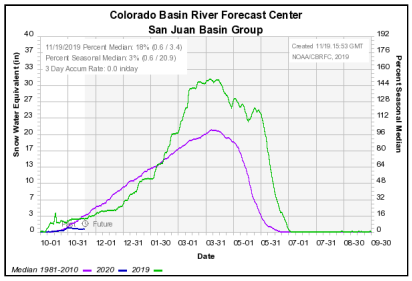




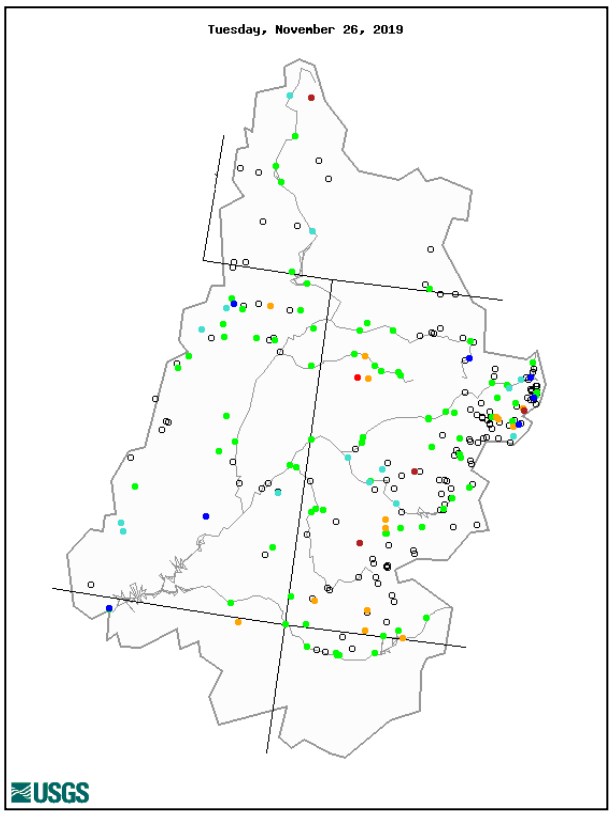




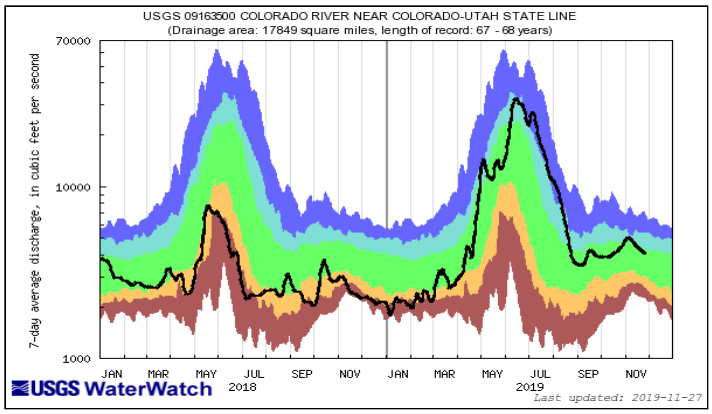


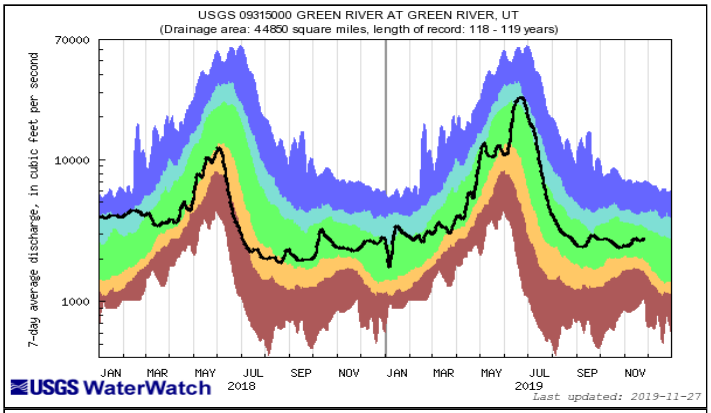


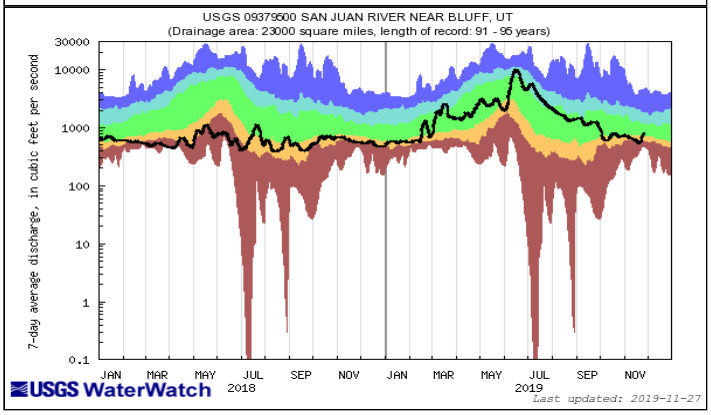
Streamflow



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		

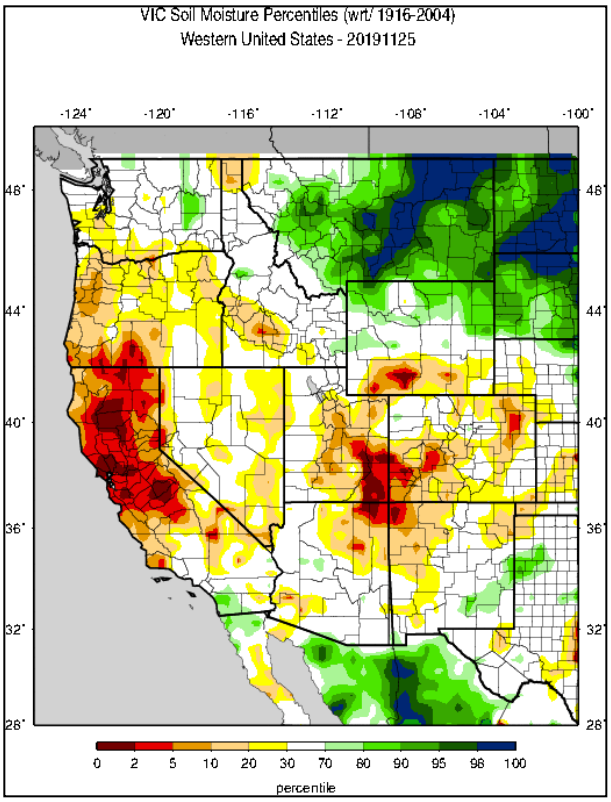


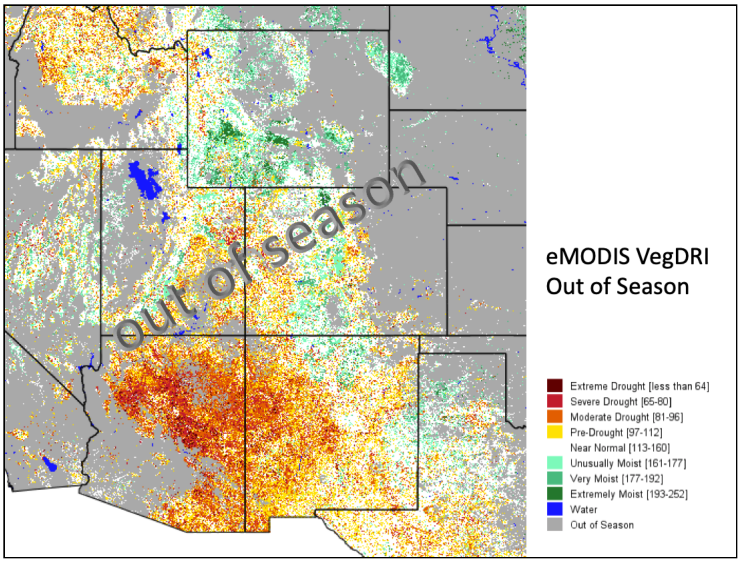




The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff,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

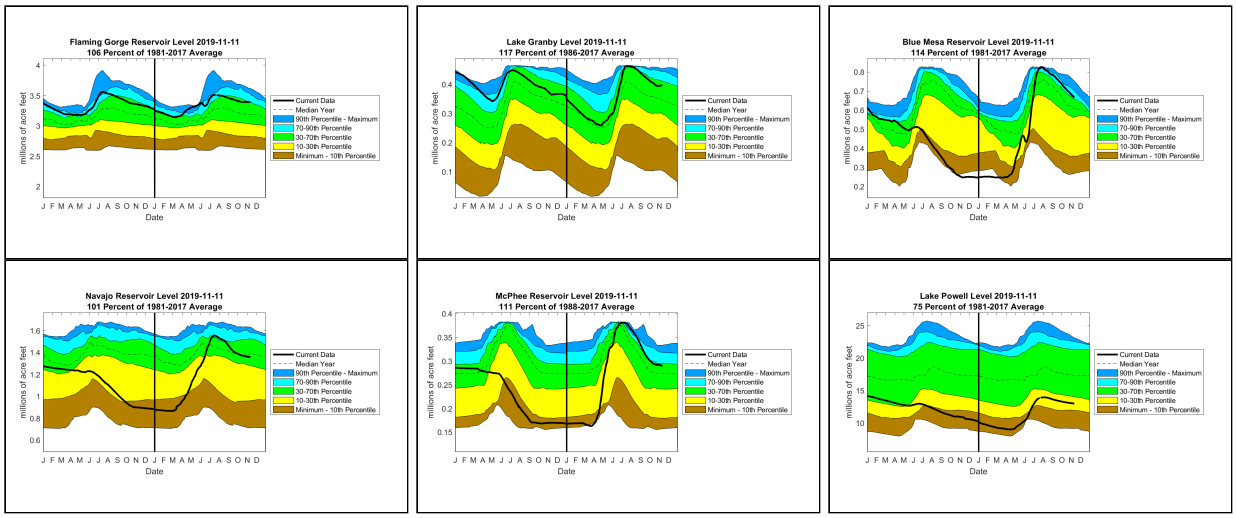
Surface Water



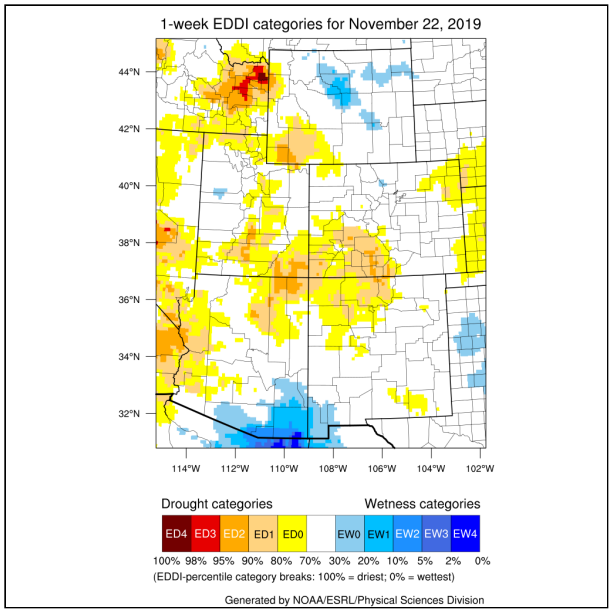


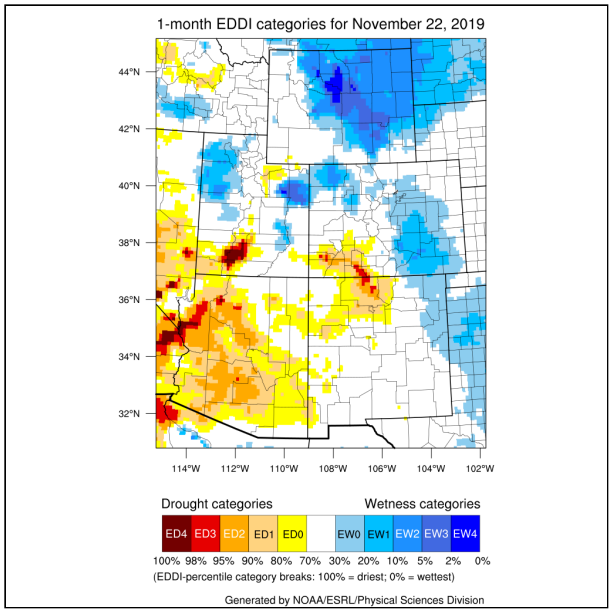
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

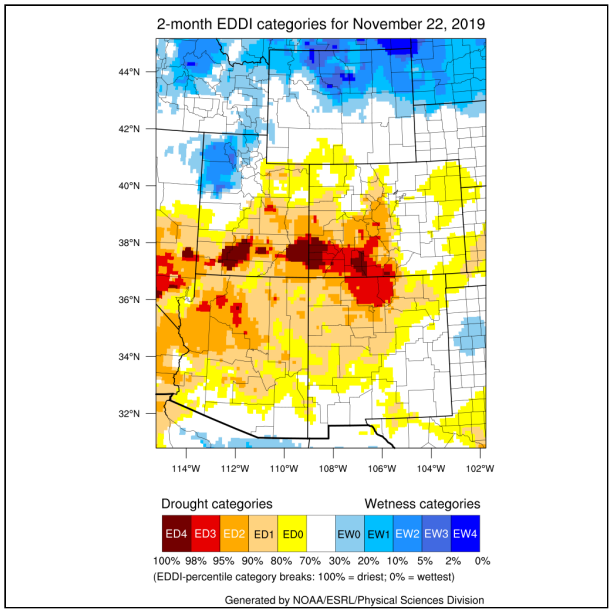
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir levels observed over the past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

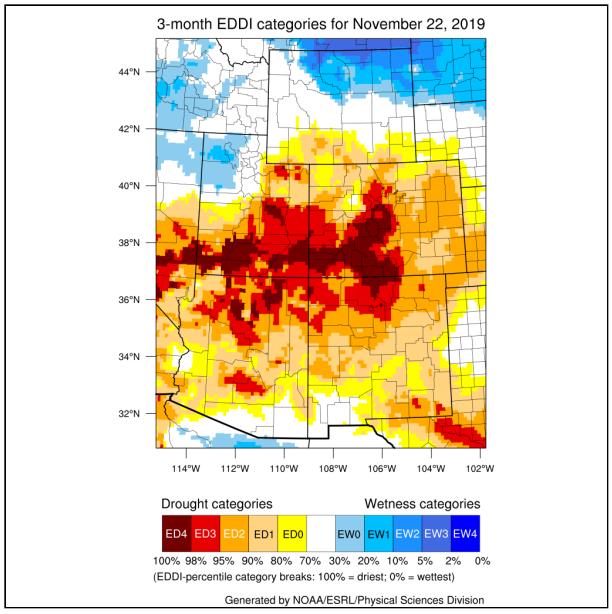


Evaporative Demand



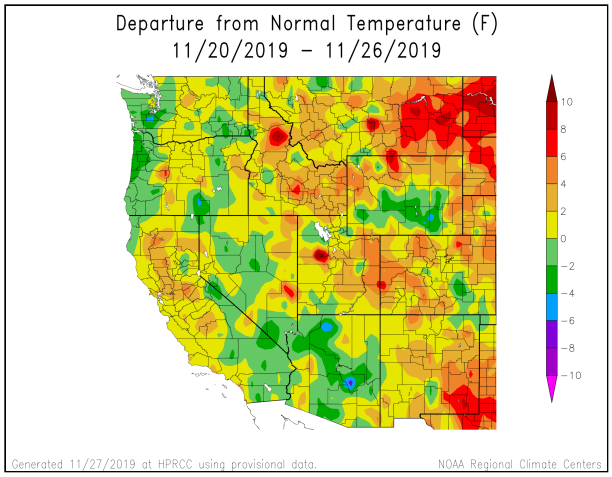


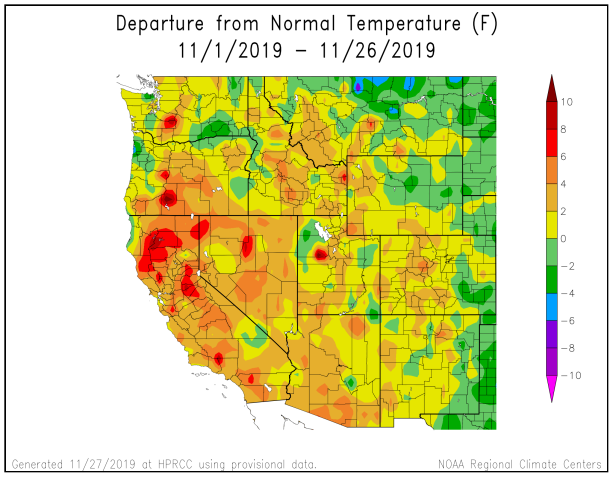




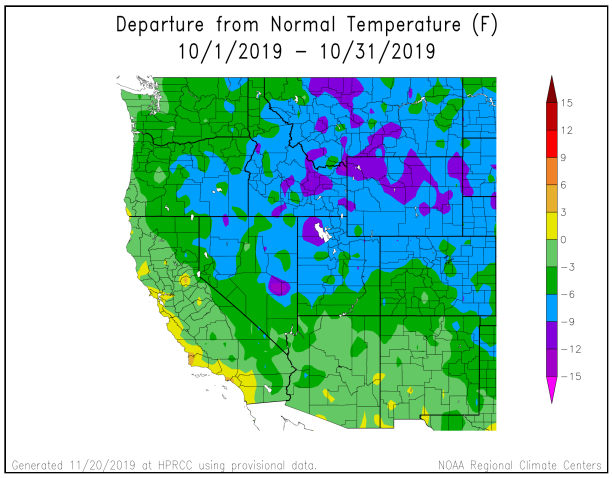
The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

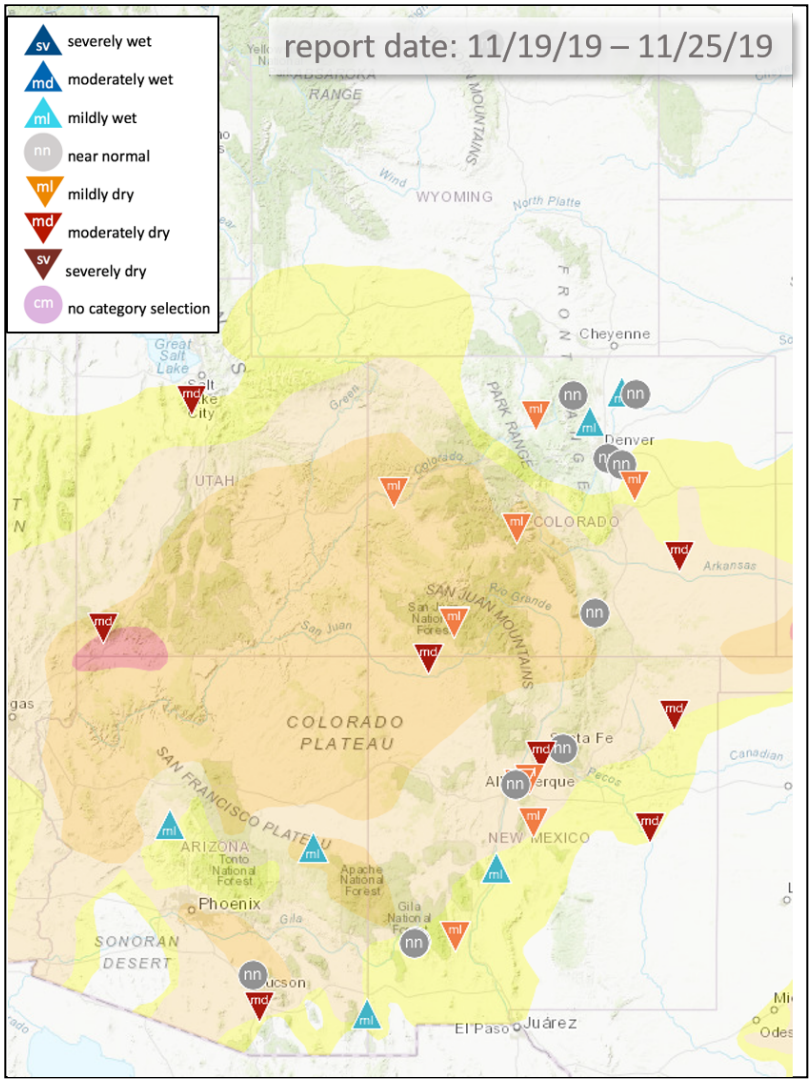




All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.

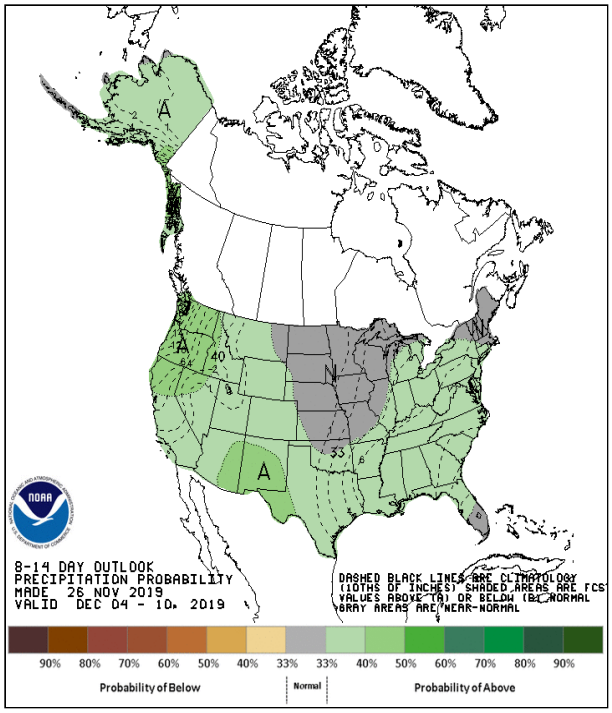


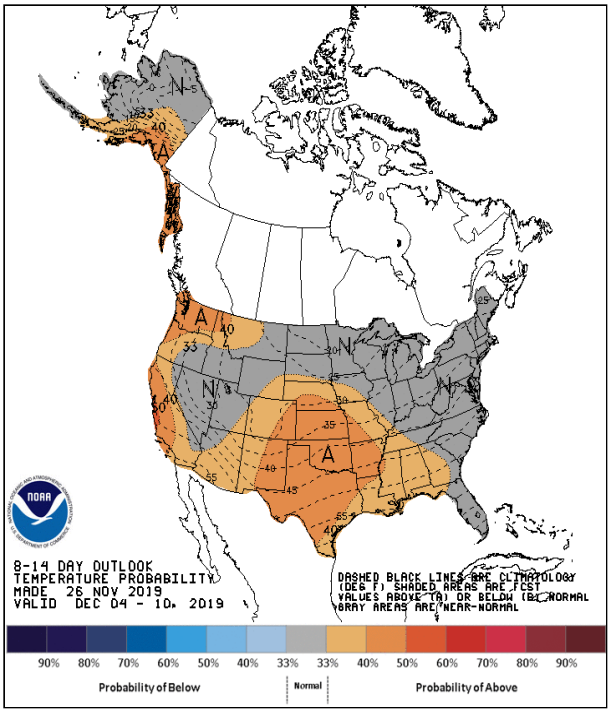
Condition Monitoring and Impacts

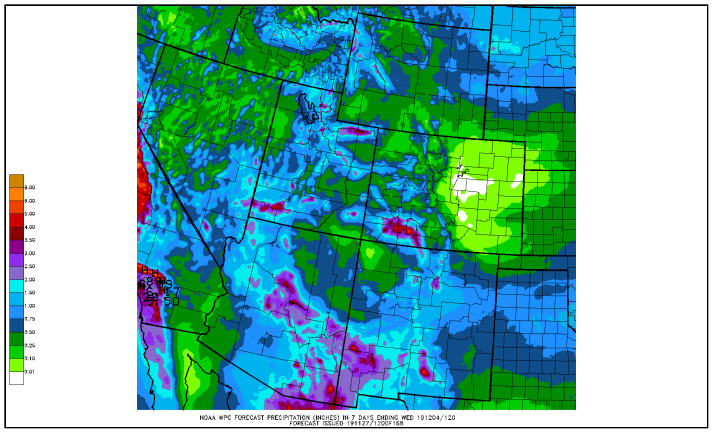


Map of current condition monitoring reports submitted to CoCoRaHS in the last week overlaid on the current U.S. Drought Monitor depiction. Specific impacts reports from local experts listed below.

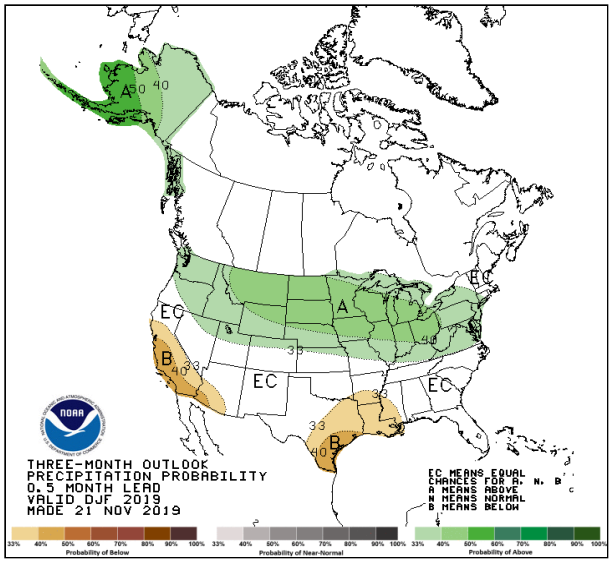
Outlook

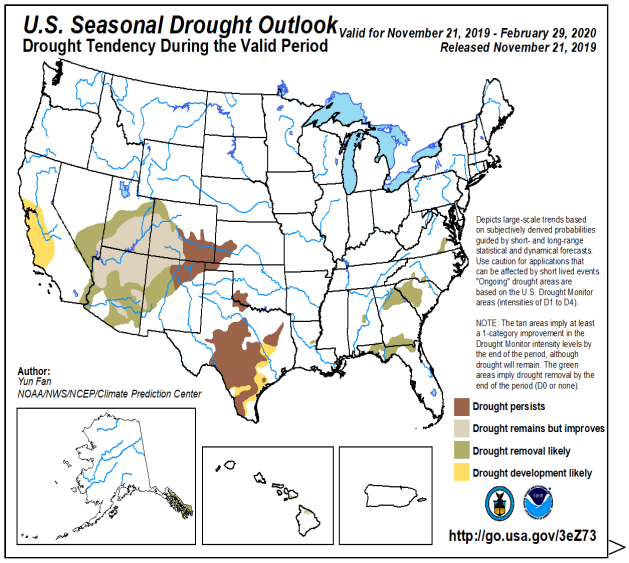




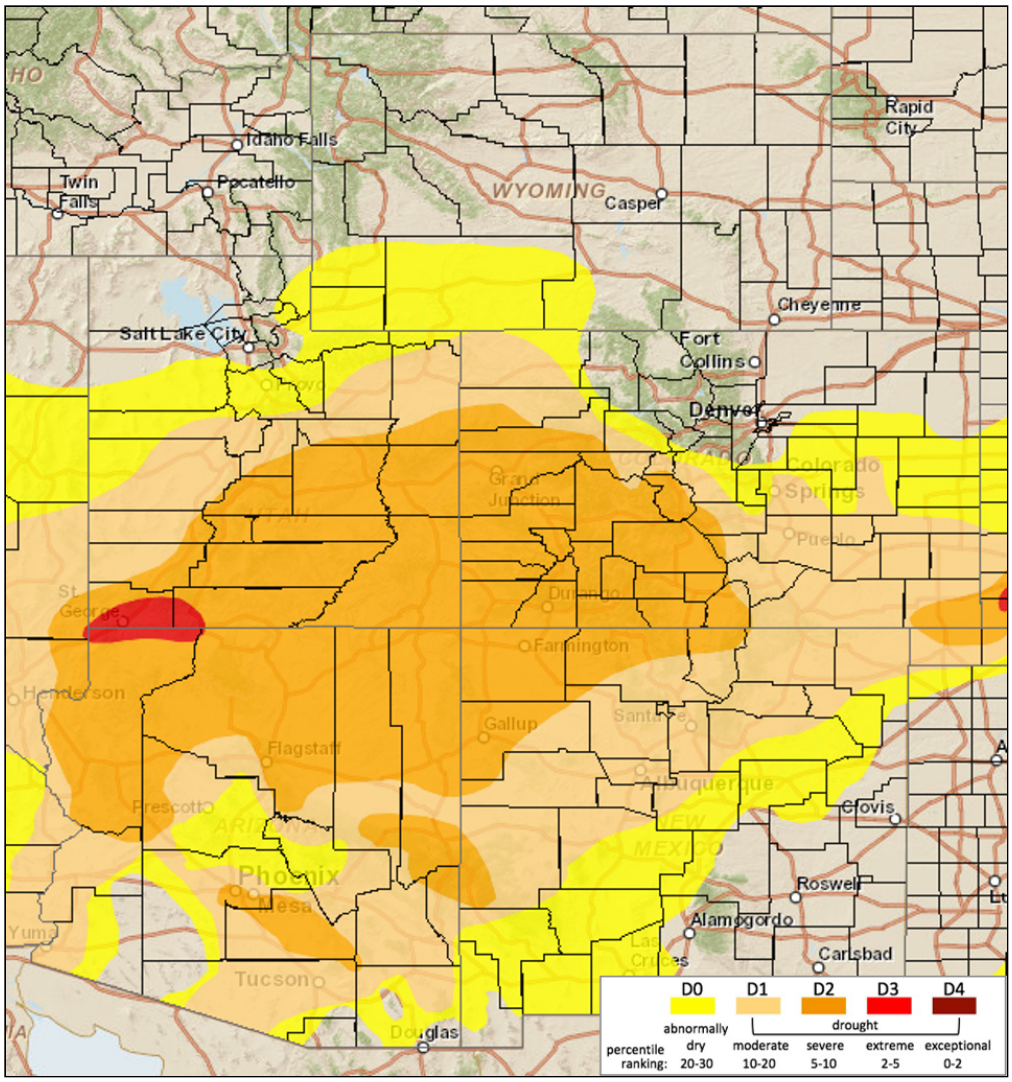


The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate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

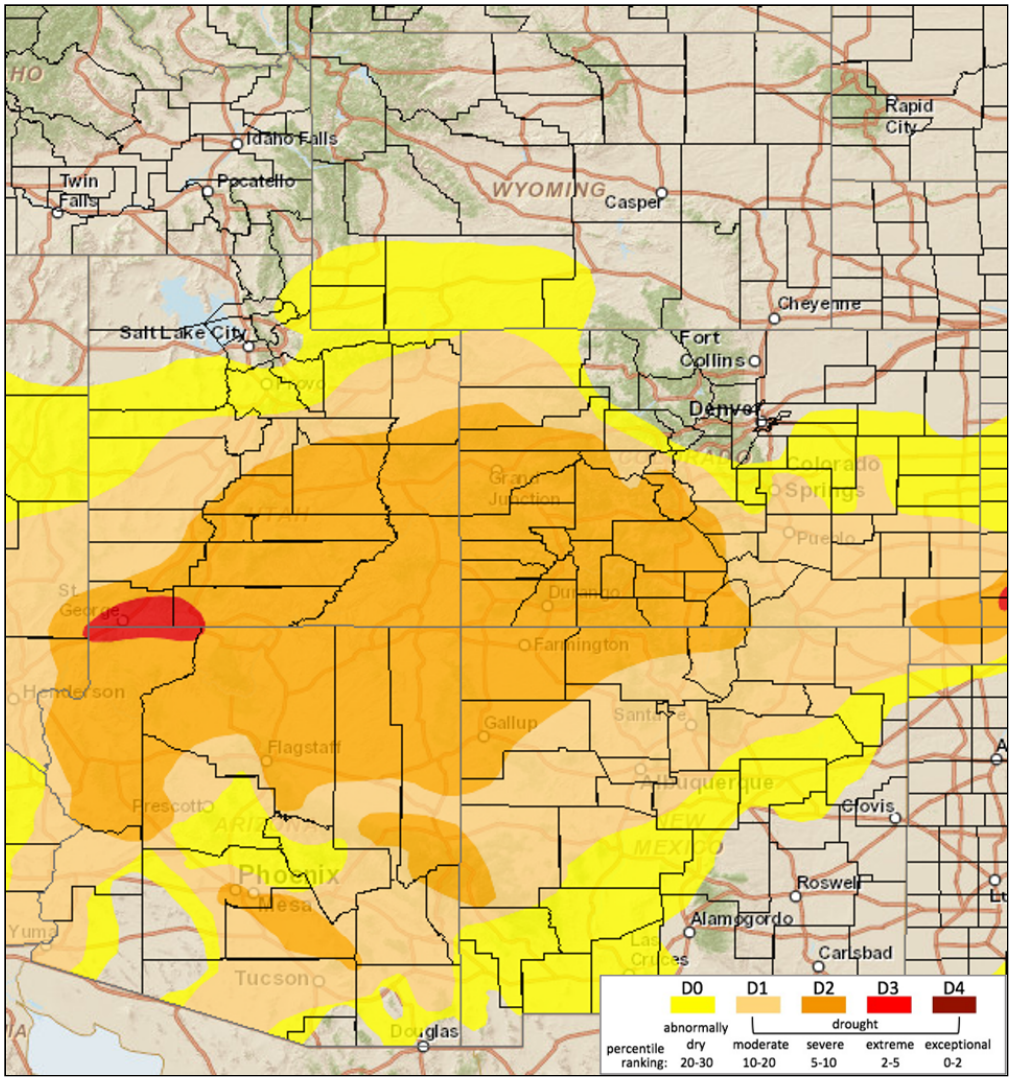




Summary and Recommendations



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: November 26, 2019

Last week saw some beneficial precipitation in the southwestern US. Arizona was the winner, receiving over 1" through most of the state with a large area seeing over 2". Utah and New Mexico also saw widespread amounts over 1". Southwest Colorado saw between 0.5" and 1", up to 2" in the San Juan mountains, which was helpful to hold off worsening conditions, but not good enough to improve conditions. The rest of western Colorado saw between 0.25 and 1" of new precipitation, again, not enough for improvements.

As of Monday afternoon, eastern Colorado saw less than 0.50", and less than 0.25" along the border. There is as the system just ramping up and we are expecting totals of at least 0.5" of liquid through much of northeastern Colorado by Tuesday morning. Areas with the best totals by the 5AM MST cutoff of the USDM are already free of any drought category. Precipitation falling through Tuesday could benefit areas near the Palmer Divide, however, this will be evaluated on next week's summary.

Despite the beneficial precipitation in the Four Corners, eastern Utah and Western Colorado, SPIs are still below normal for the 30-day and still showing D3 and D4 SPIs on the 90-day.

Eastern Colorado is showing some dry SPIs before this storm on the 90-day, but near and above normal on the shorter time steps. It will be interesting to

see what this storm does.

As hinted, we have a major snowstorm starting up as of Monday afternoon. Snowfall amounts will be as high as 15" in Larimer County, which is the bullseye for this storm, by Tuesday morning, with a storm total up to 20" by Wednesday morning. This system is mainly staying in northeastern Colorado with some spill over into western Colorado. Snowfall amounts in wester CO will remain below the 10" mark.

Later in the week the forecast shows another system arriving that will benefit western Colorado. Current 7-day totals for western Colorado are showing widespread amounts of over 1.5" and more in the San Juans. Utah and Arizona are forecast to see very nice precipitation amounts over the next 7 days as well.

Recommendations:

UCRB: Status Quo. Precipitation was beneficial in the Four Corners area, but it wasn't enough to erase any drought impacts.

Eastern Colorado: Status quo. The storm hitting northeastern Colorado is hitting an area largely free of any drought category. Adams and Arapahoe counties, where we are seeing D0 conditions, will see the bulk of their precipitation after the 5AM MST cutoff of the USDM. We will reevaluate this area next week.

Arizona: Improvements to western and southern Arizona are being recommended by the Arizona drought team.