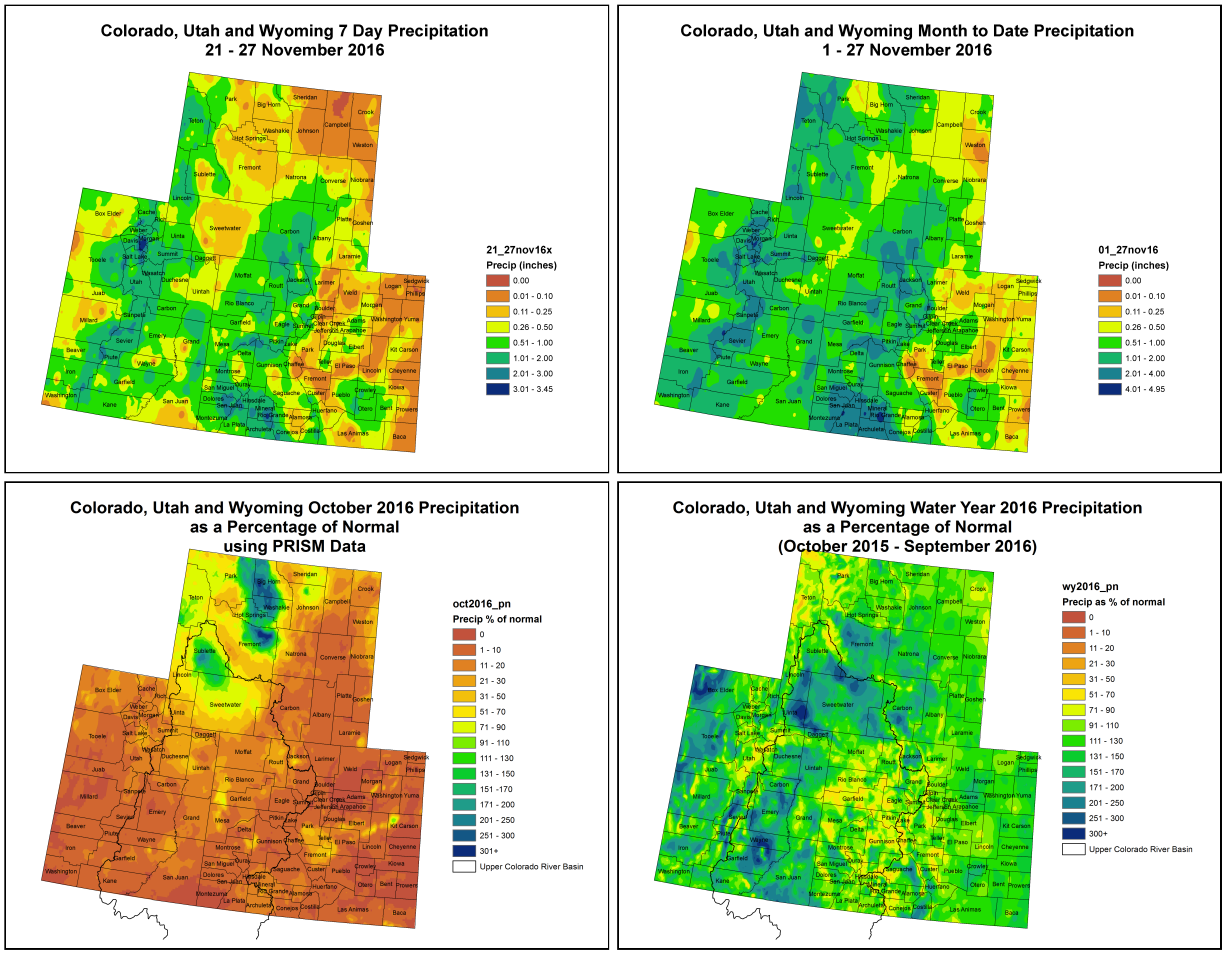
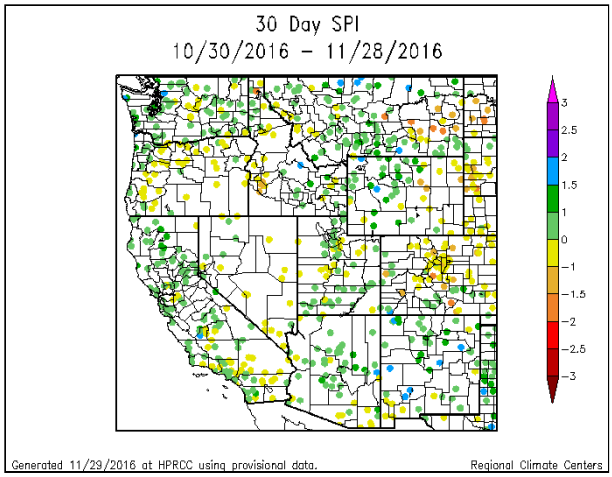
NIDIS Intermountain West
Regional Drought Early Warning System
November 29, 2016

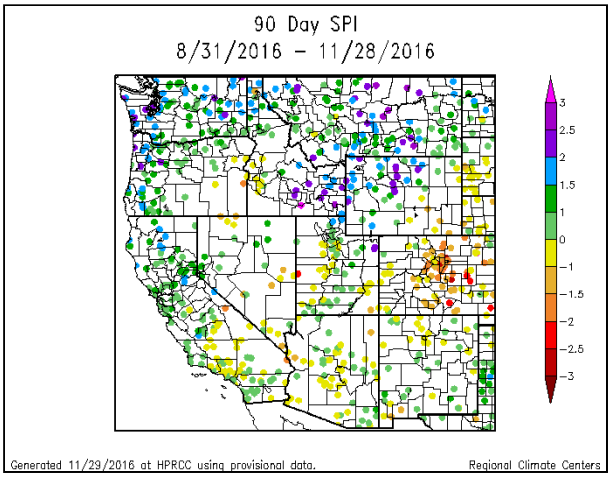
Precipitation

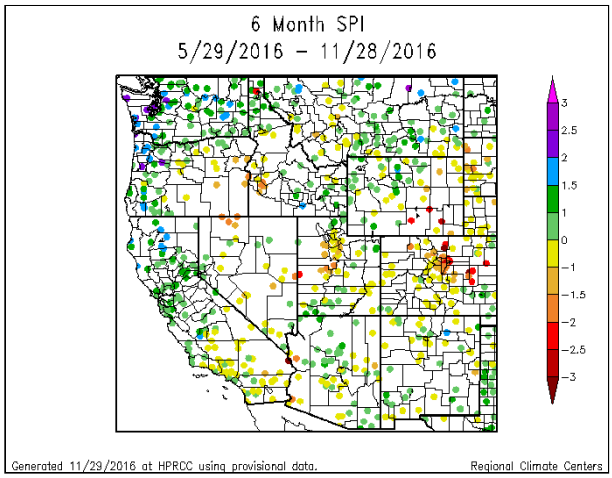


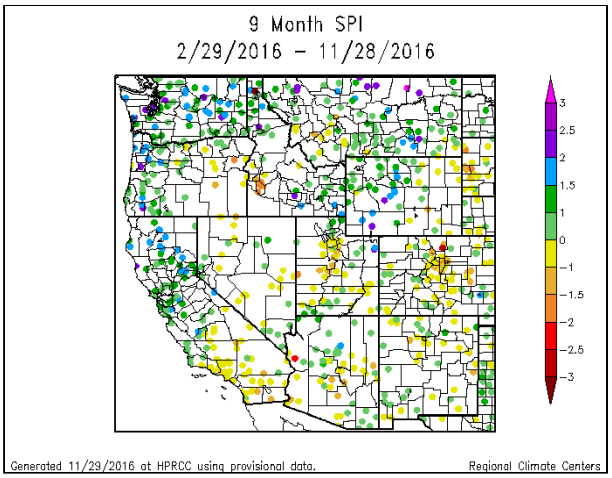
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index



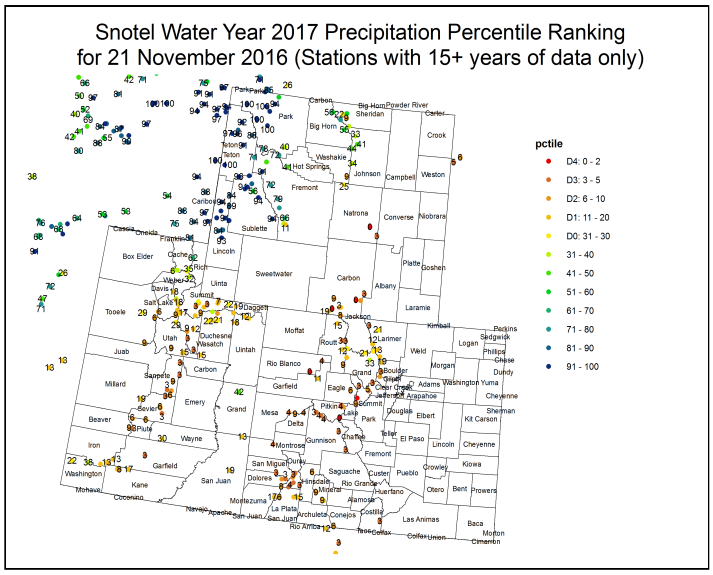


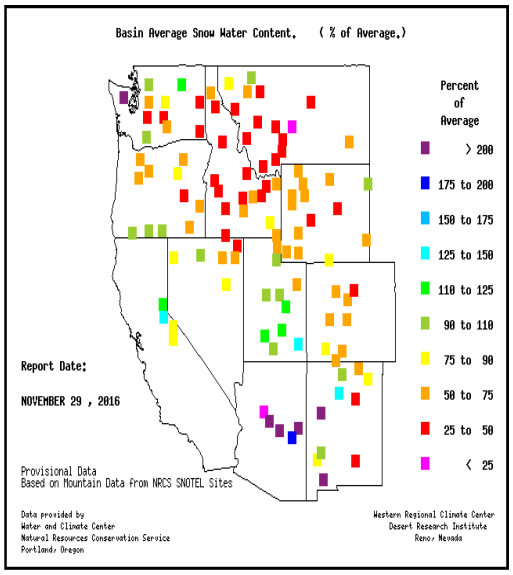




Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions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

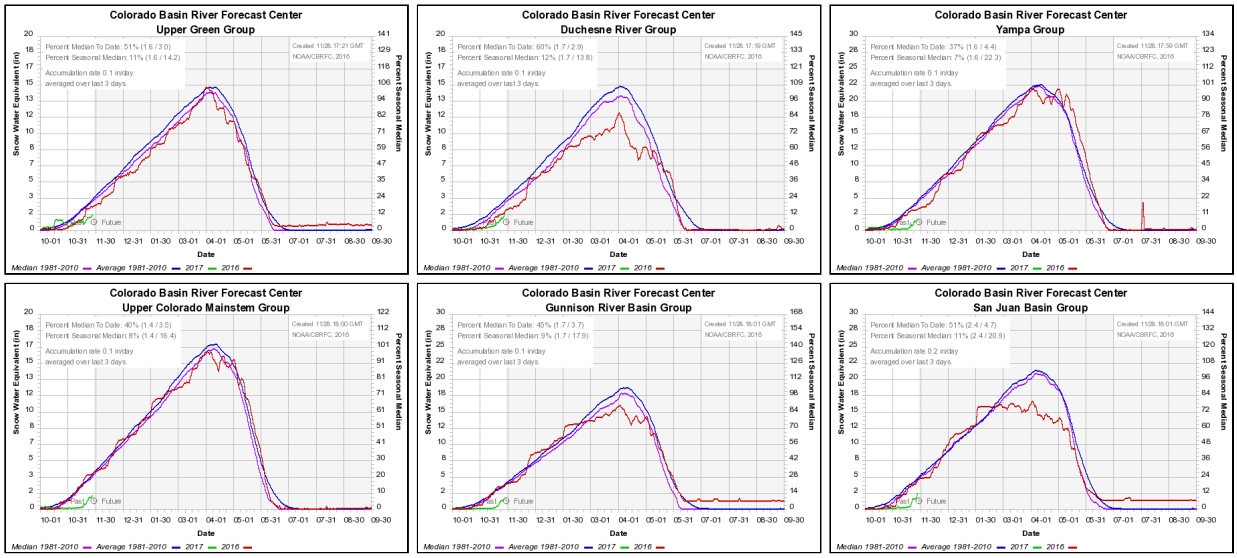
Snotel and Snowpack



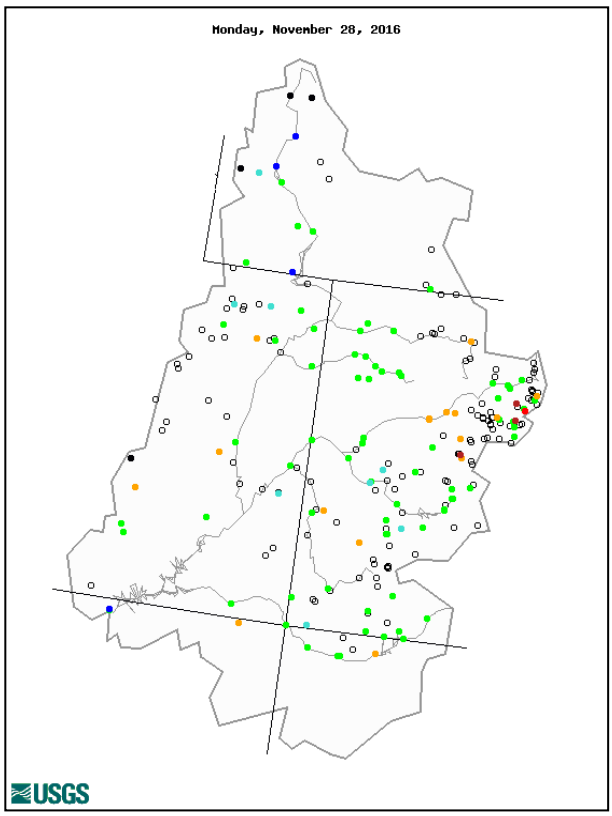


The top left image shows the Natural Resources Conservation Service's SNOTEL water-year-to-date precipitation percentile rankings. The top right image shows sub-basin averaged snow water equivalent accumulations as a percent of average. The images below show accumulated

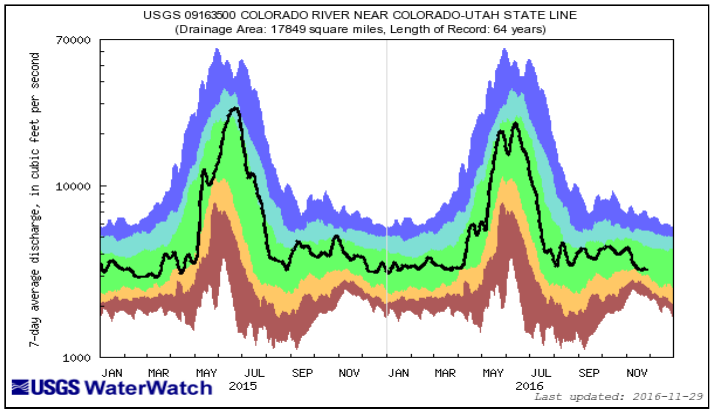
snow water equivalent in inches (green) compared to average (blue) and last year (red) for several different sub-basins across the UCRB (and were created by the Colorado Basin River Forecast Center).

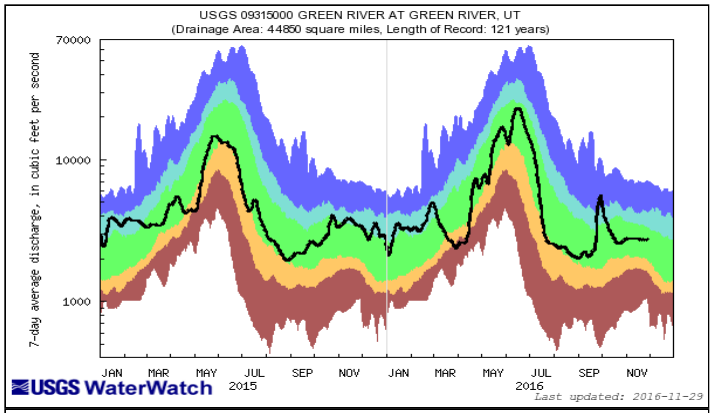


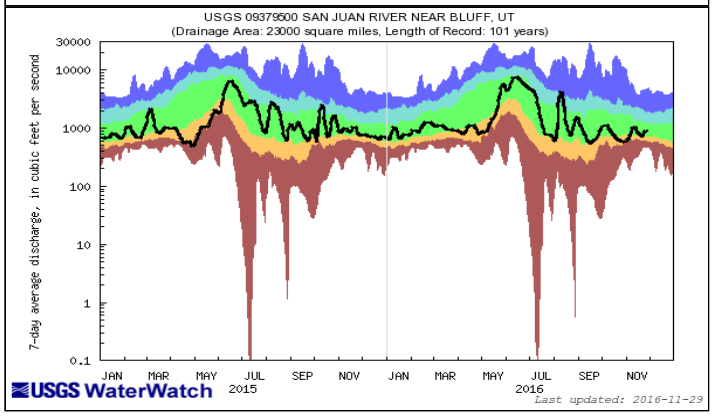
Streamflow



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		

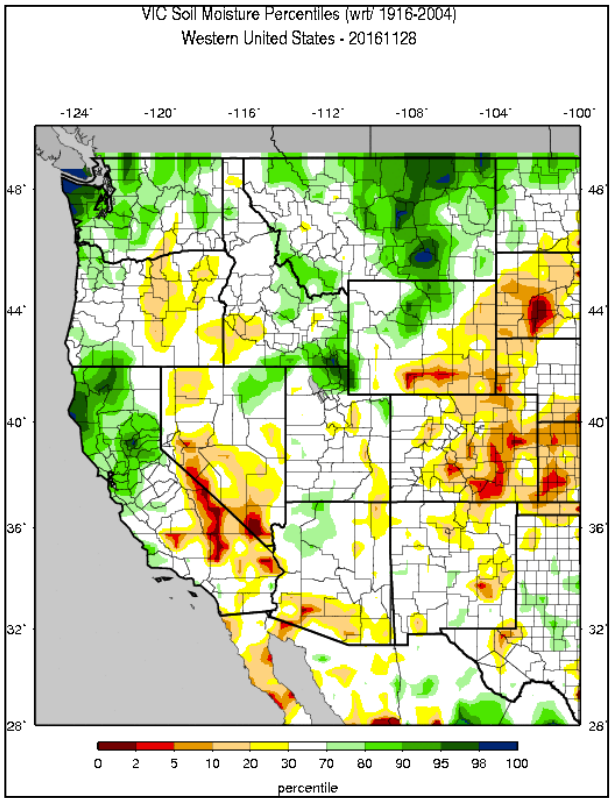


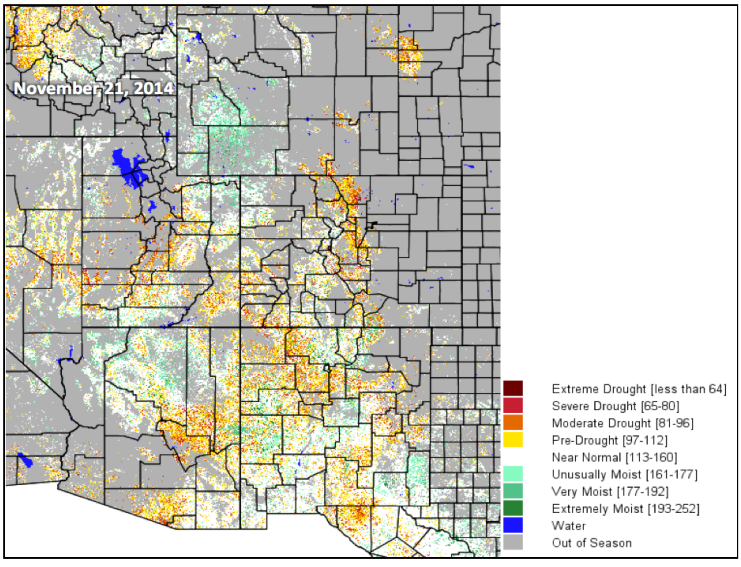




The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff,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

Surface Water

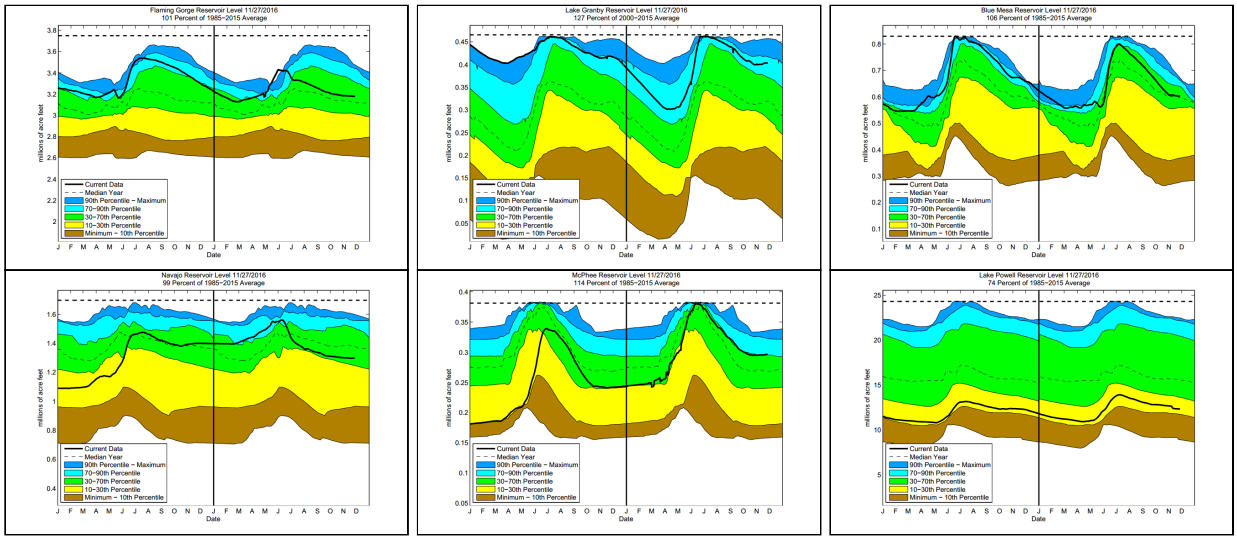




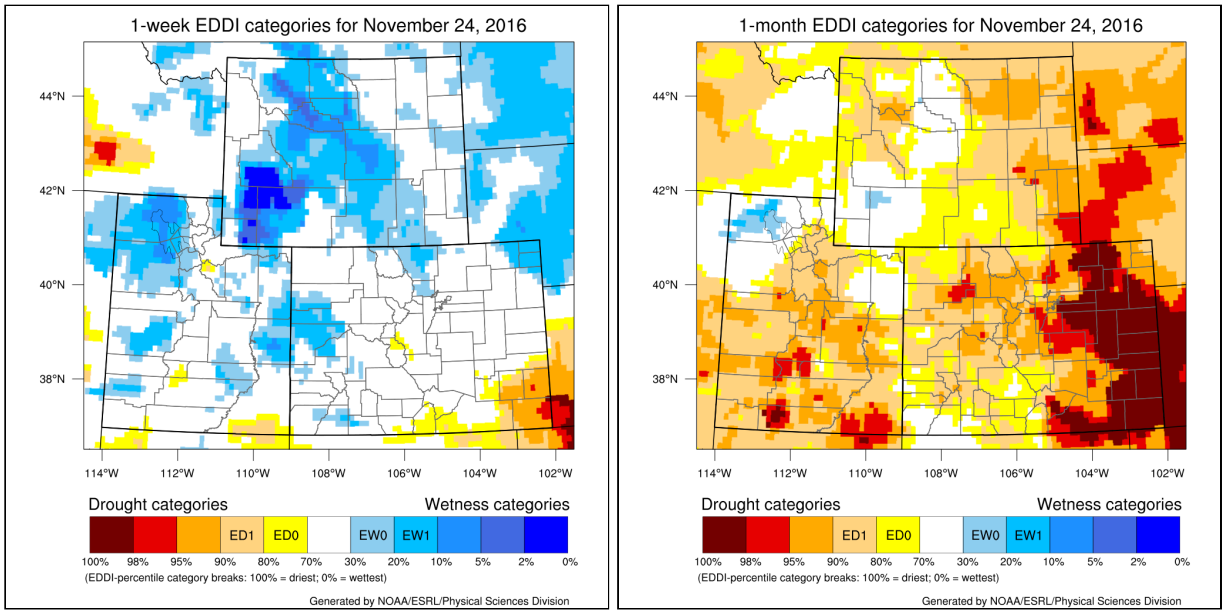
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right

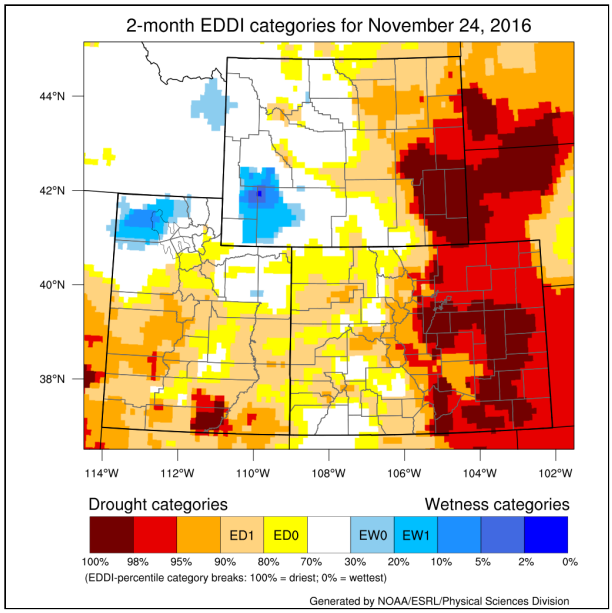
image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

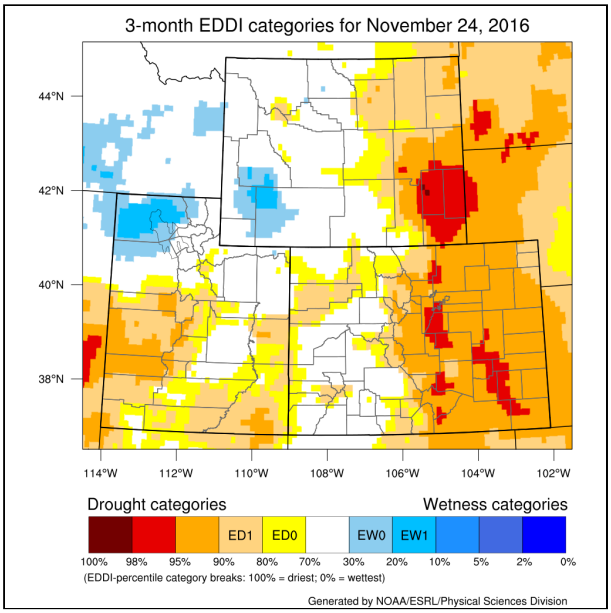
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir levels observed over the past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

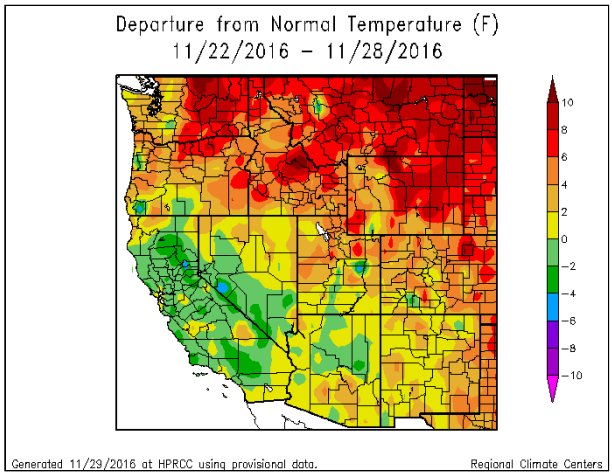


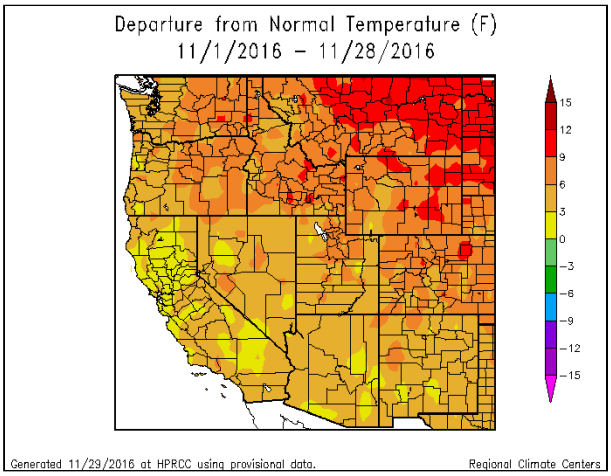




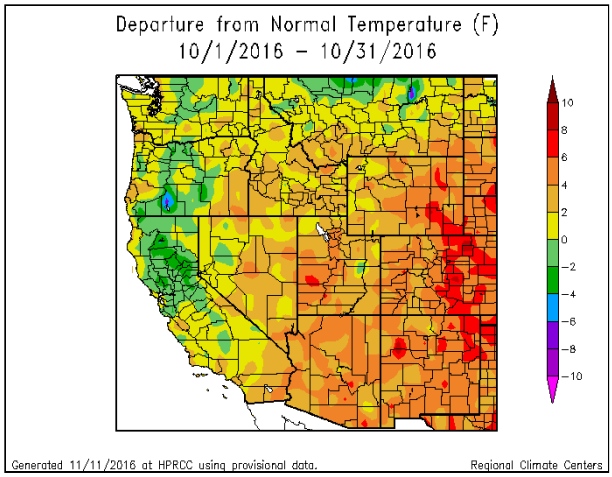
The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

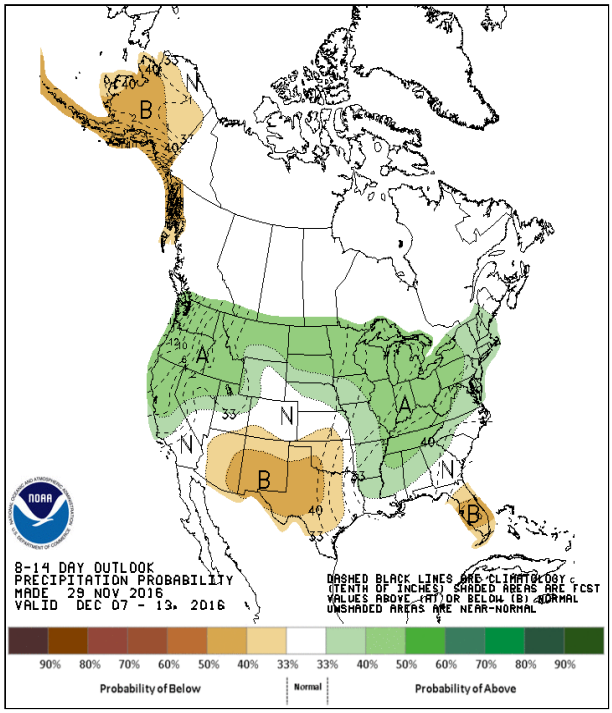


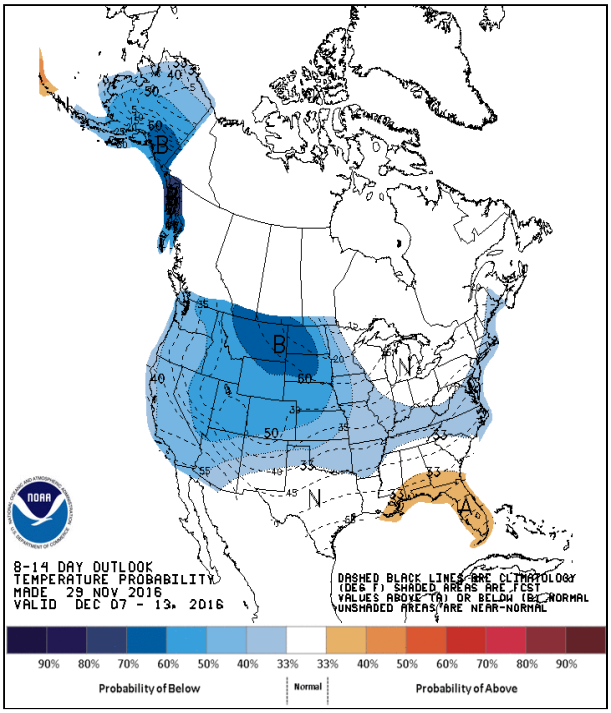


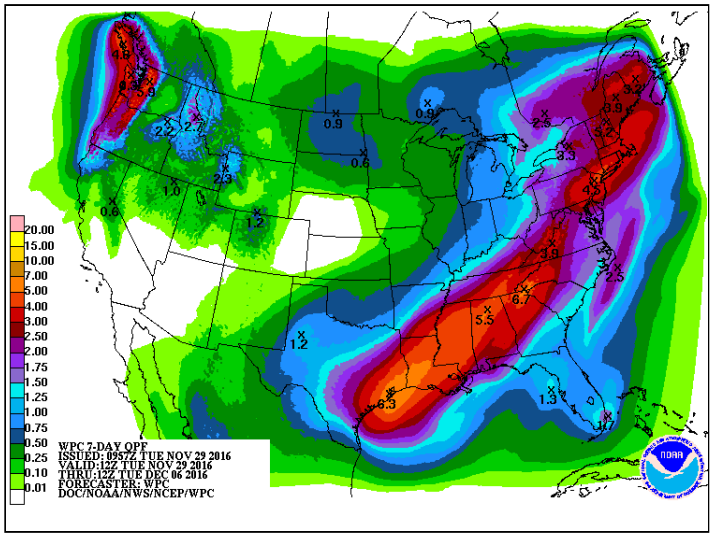
All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.



Outlook

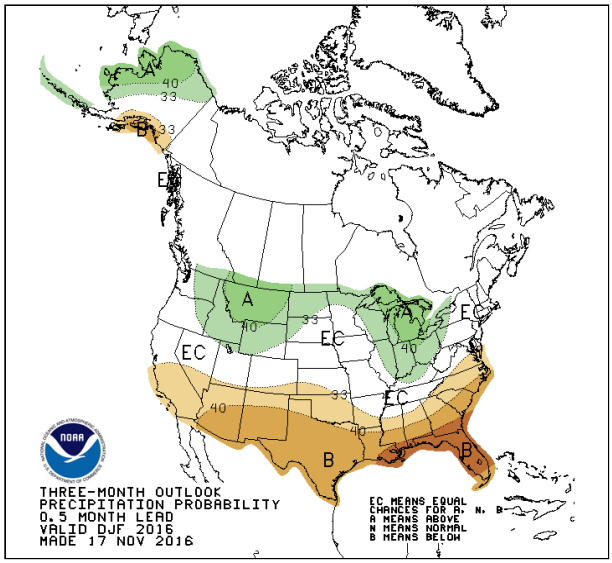


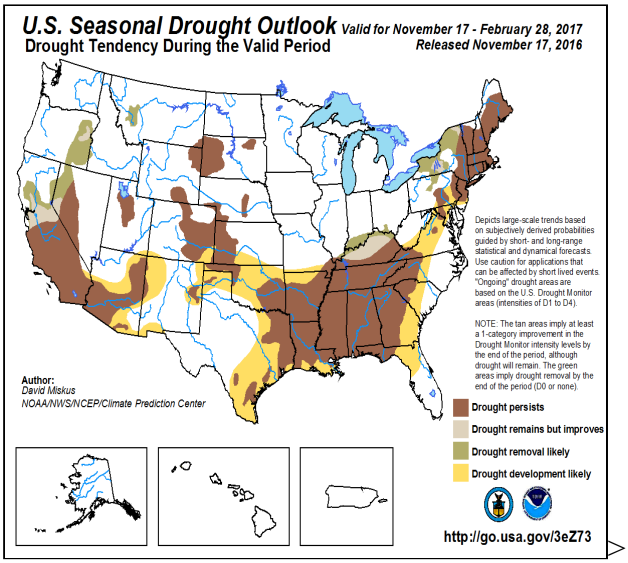




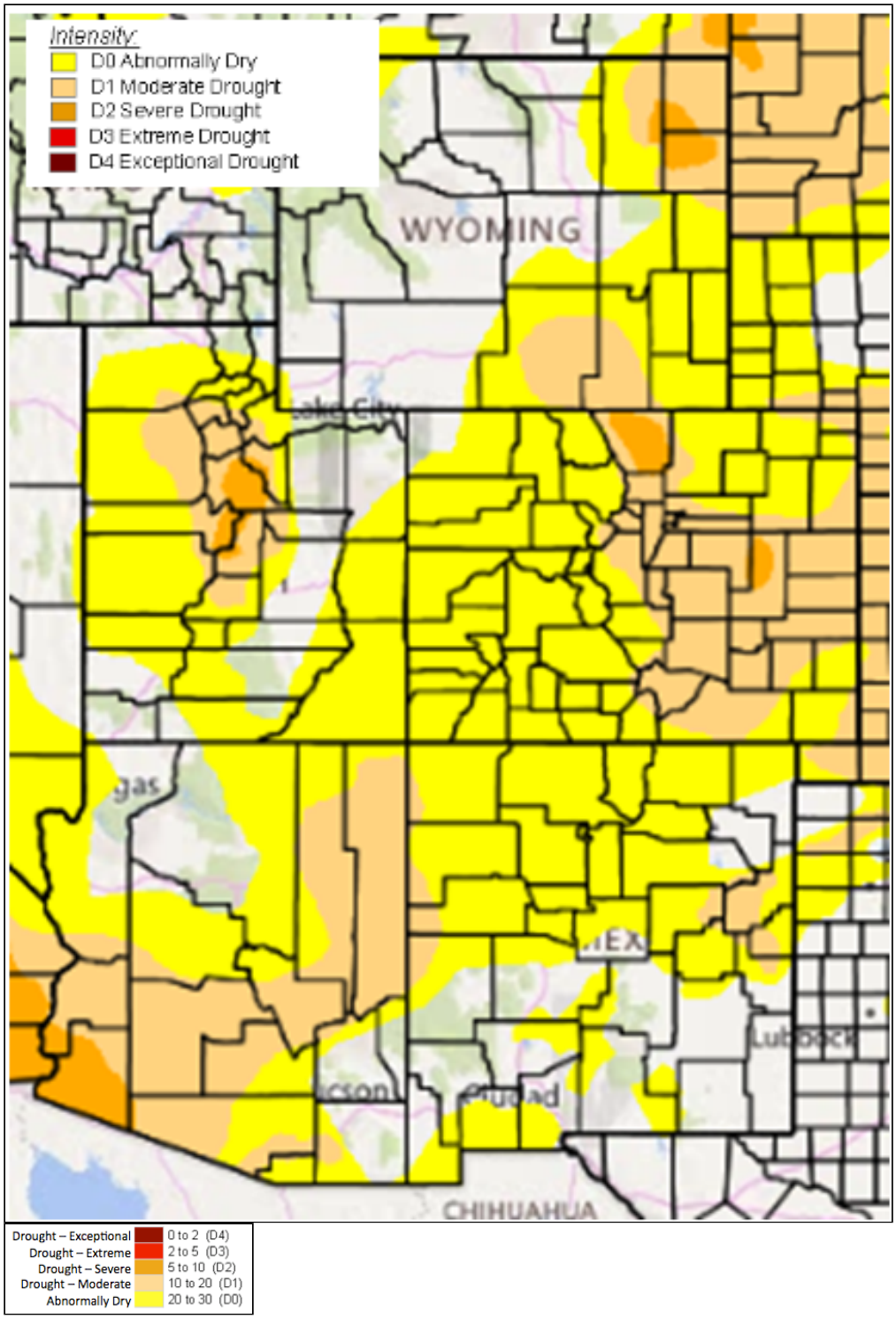
The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month

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.

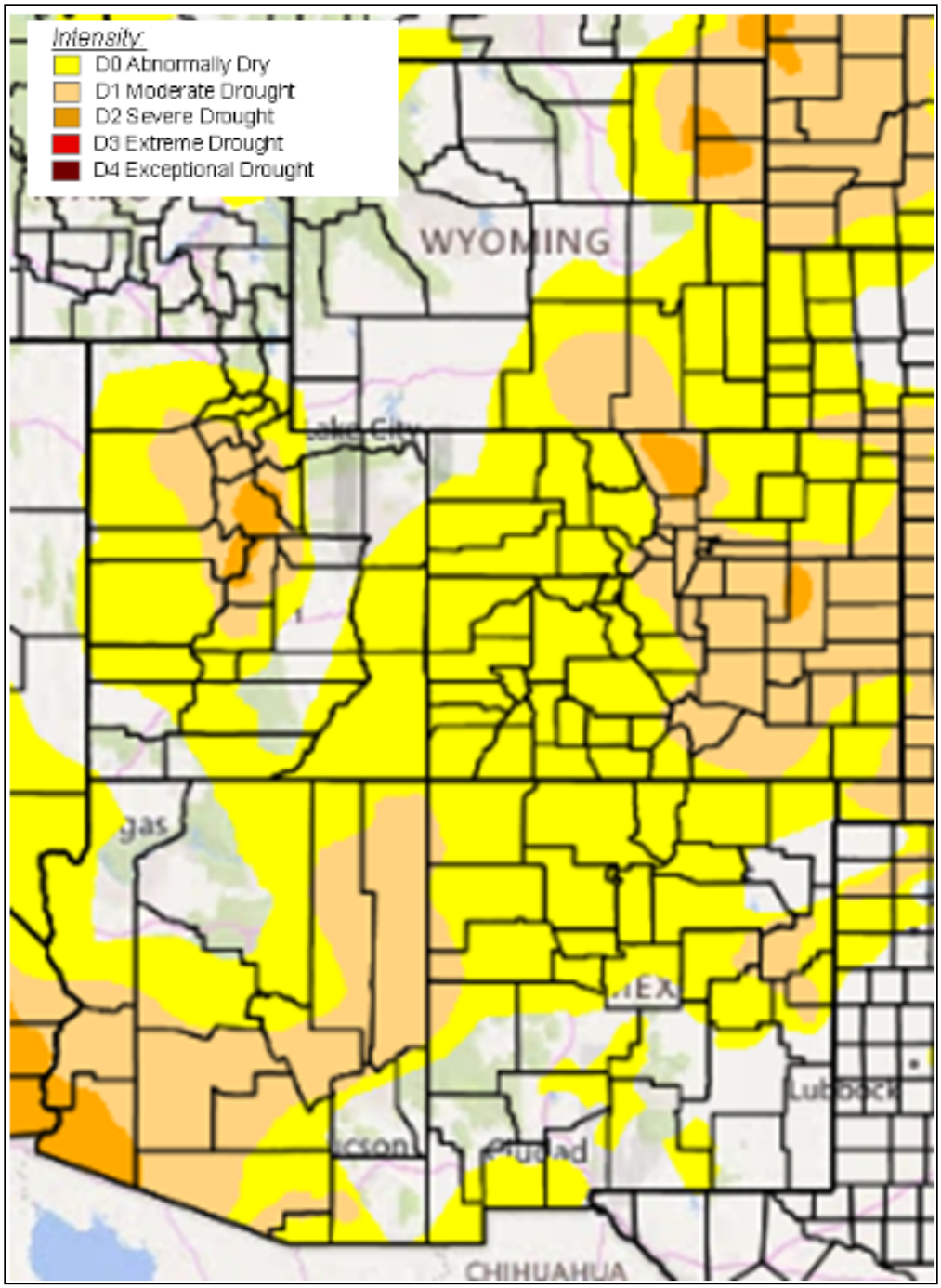




Summary and Recommendations



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 29, 2016

Last week, the UCRB received another nice shot of snowfall. Most of the basin received between 0.50 and 2.00 inches of new precipitation, which is a near normal week for this time of year. The San Juan Mountains in sw Colorado saw 2.00 to 3.00 inches. Southwestern Wyoming and northeastern Utah saw less precip last week, up to 0.50 inches. The new snow helped the snowpack in the UCRB, however most basins are still below 60% of normal snowpack for this time of year. Most basins will need at least 110% of normal precipitation for the rest of the snow accumulation season to reach normal peak snowpack.

East of the Continental Divide saw less precipitation, with most of the area receiving less than 0.25 inches for the week. Isolated areas in Adams, Arapahoe, Elbert and Teller counties saw between 0.50 and 1.00 inches last week. Pueblo, Crowley, Otero and Bent counties also saw beneficial amounts

between 0.50 and 1.00 inches. Snowpack east of the divide is struggling as well, hovering around 50%. The Rio Grande basin is a little better at 65% of normal snowpack for this time of year.

Even with the snowfall in the mountains, warmer than average temperatures were seem through most of the basin and eastern Colorado. With this being the end of the month, the area has seen another month with above normal temperatures.

The current outlook is showing the UCRB and Colorado receiving less than 1.00 inch of new precip for the next week. Two weeks out shows a possibility for cooler than average temperatures, and higher chances of normal or slightly above normal precipitation. The southern portion of the basin is seeing probabilities of lower than normal precipitation.

Recommendations

UCRB: Status quo is recommended. Even though the basin received another shot of snow, this is not yet enough to make up for the long-term deficits and snowpack is still very low.

Eastern Colorado: Status quo is recommended. The only area to receive precipitation in eastern Colorado, like the basin, did not see enough to make up for those deficits. No need for degradations in areas that missed precipitation, yet. If areas of D0 in ne Colorado remain dry for another few weeks, D1 expansion may be justified.