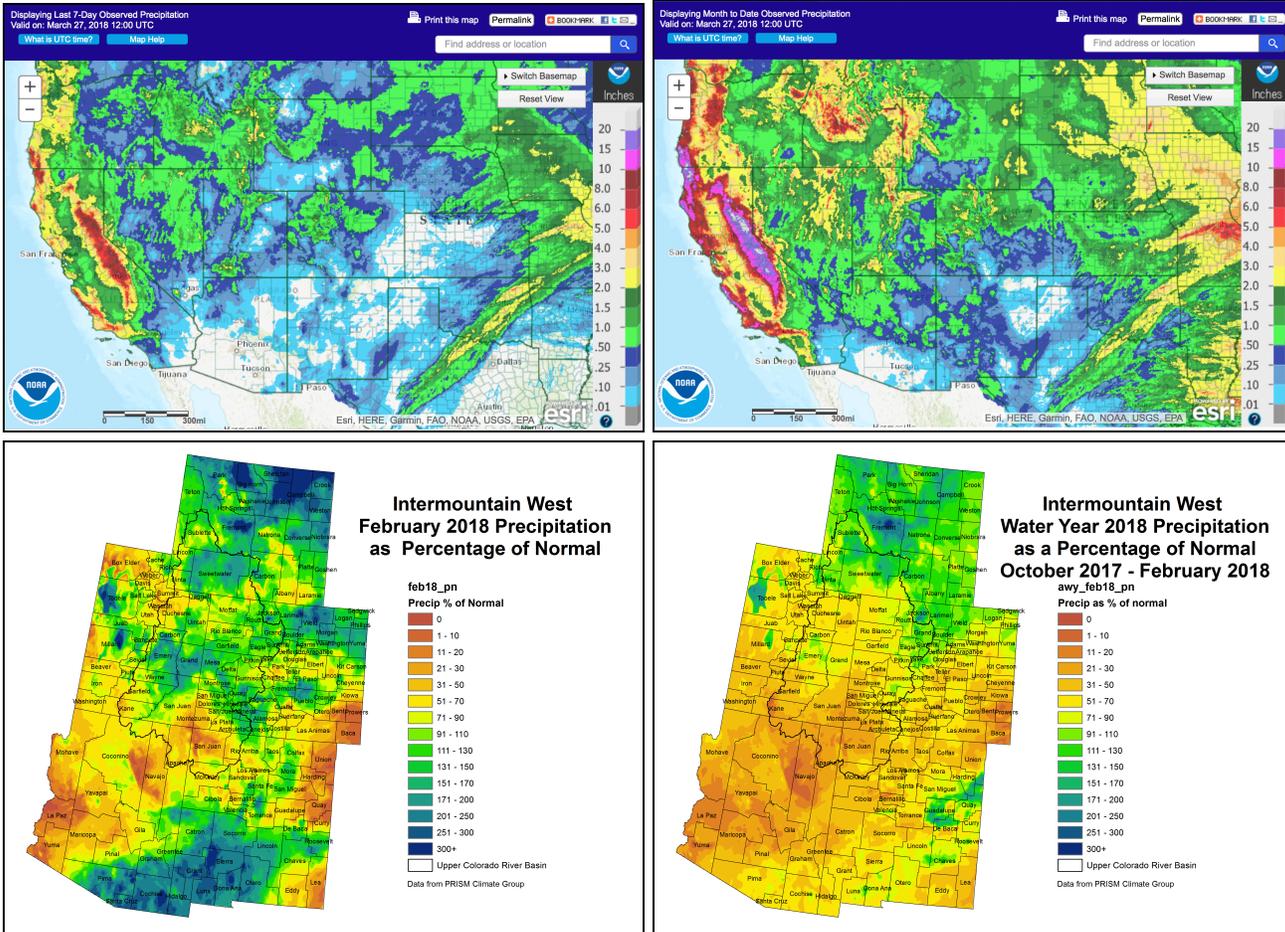


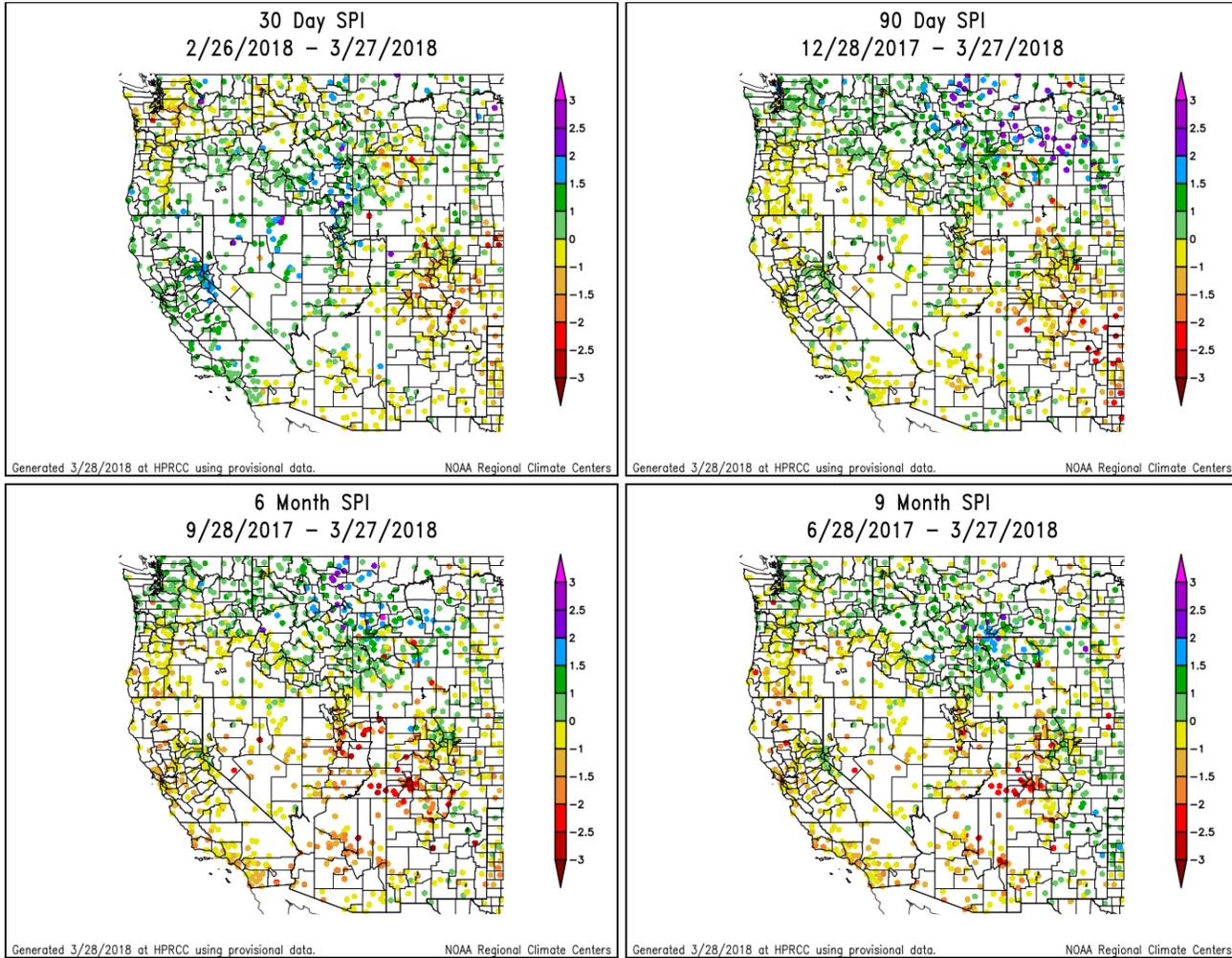
NIDIS Intermountain West Drought Early Warning System March 27, 2018

Precipitation



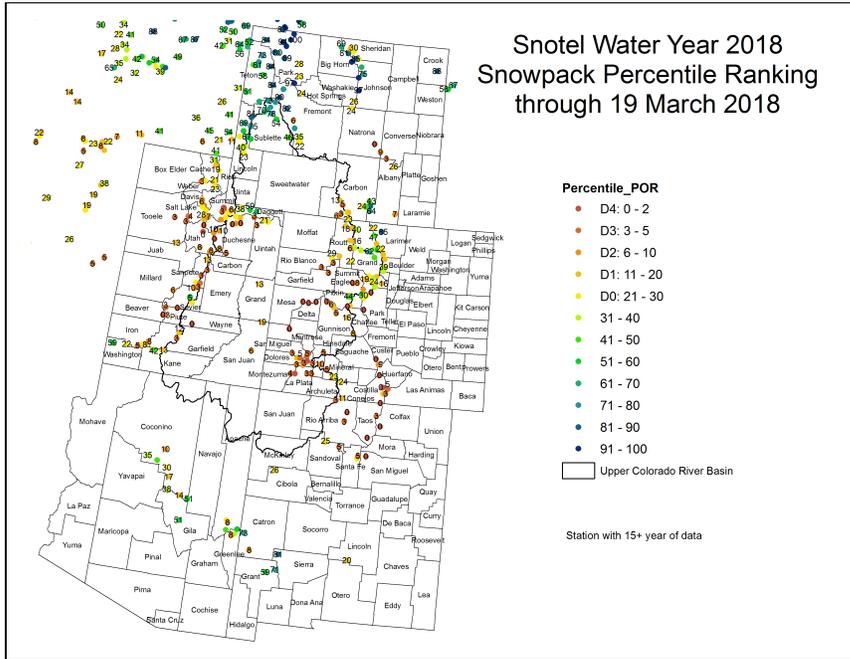
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index

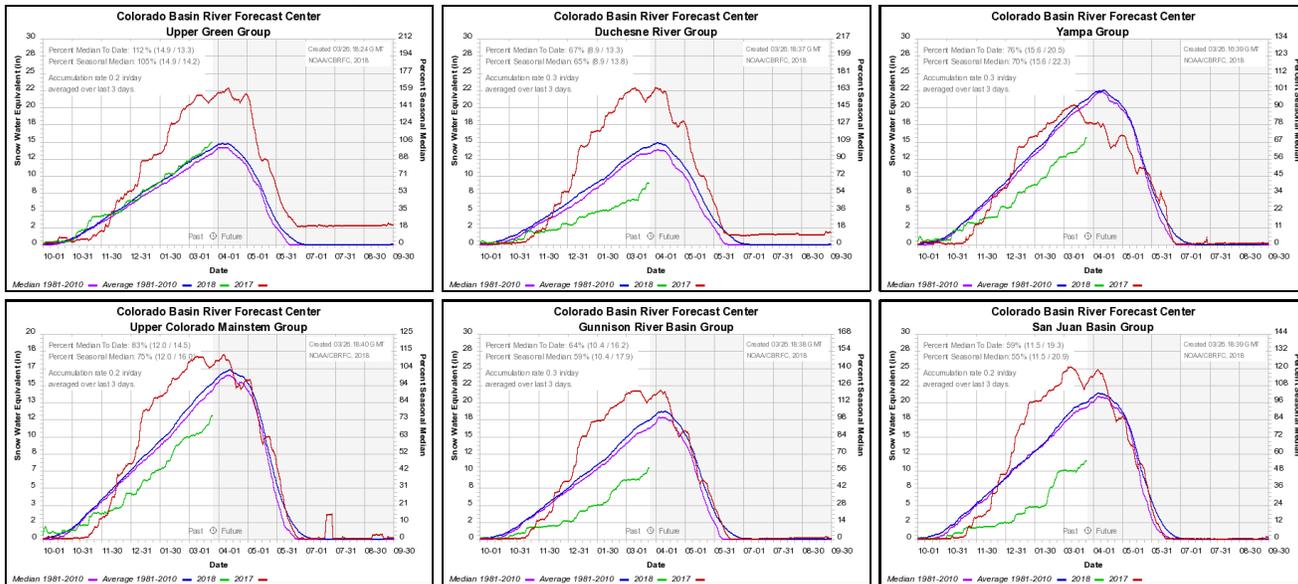


Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions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

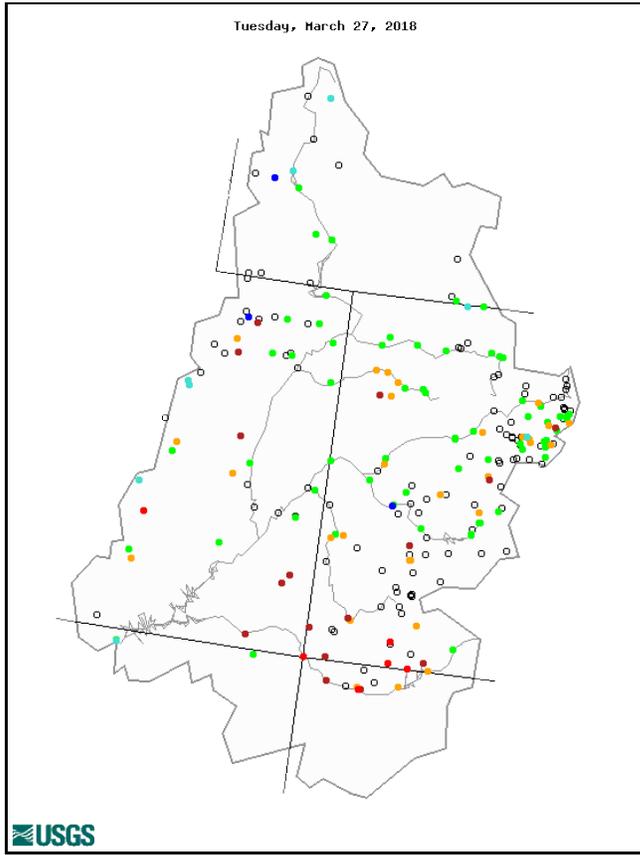
Snotel and Snowpack



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).

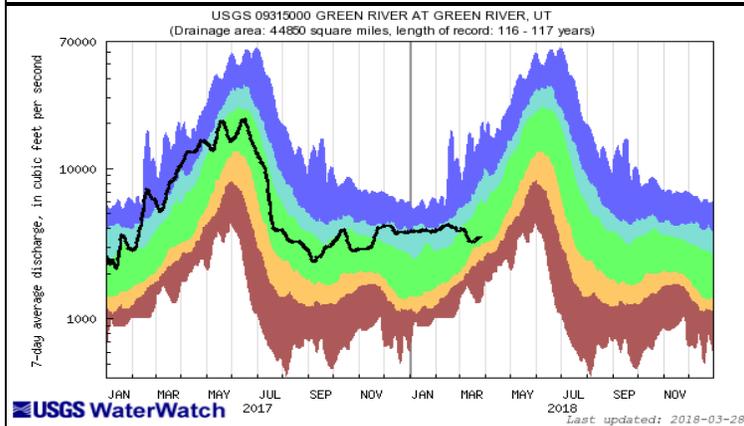
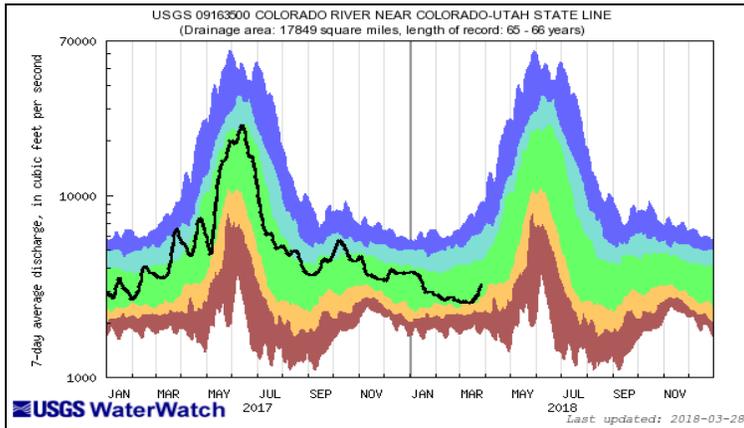


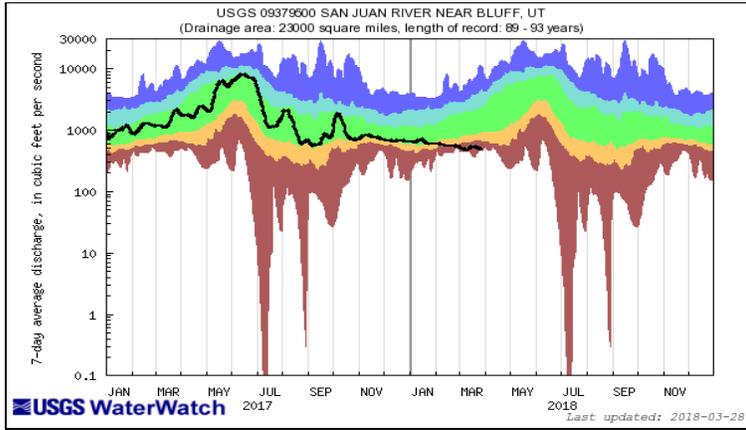
Streamflow



Explanation - Percentile classes

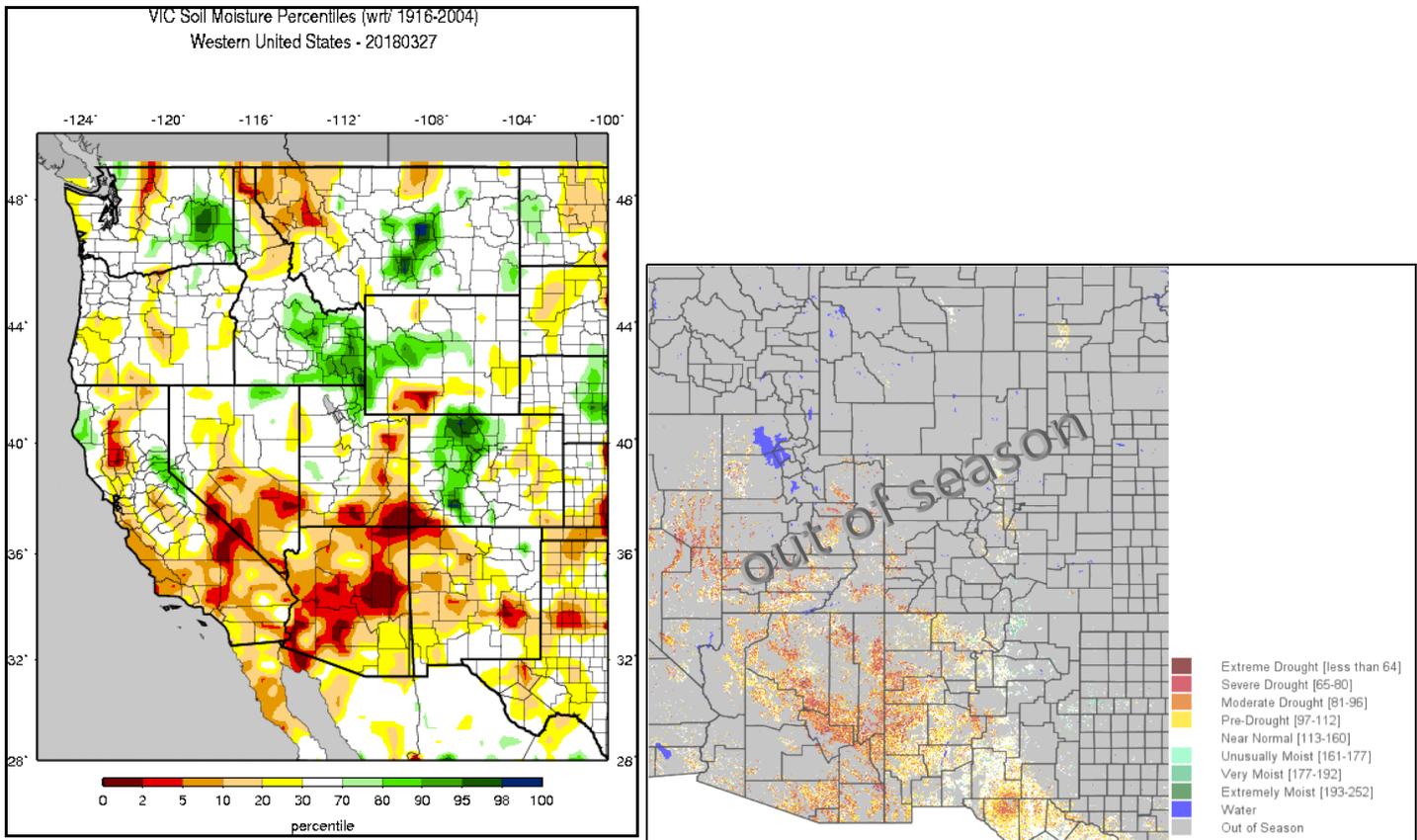
●	●	●	●	●	●	○
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	Not-ranked





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.

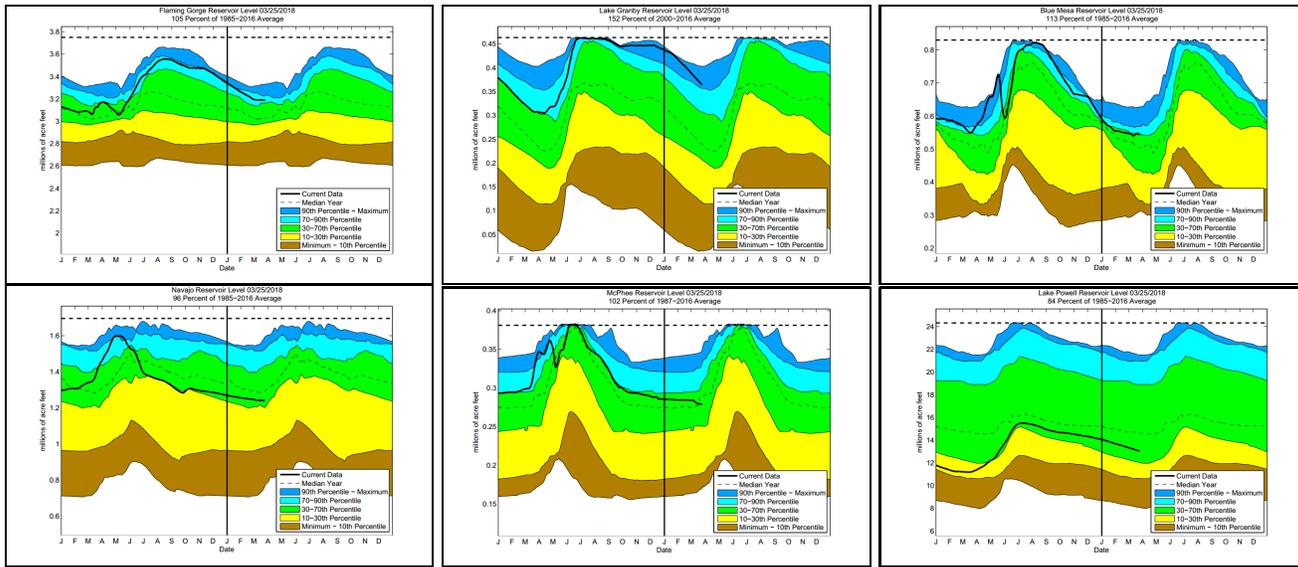
Surface Water



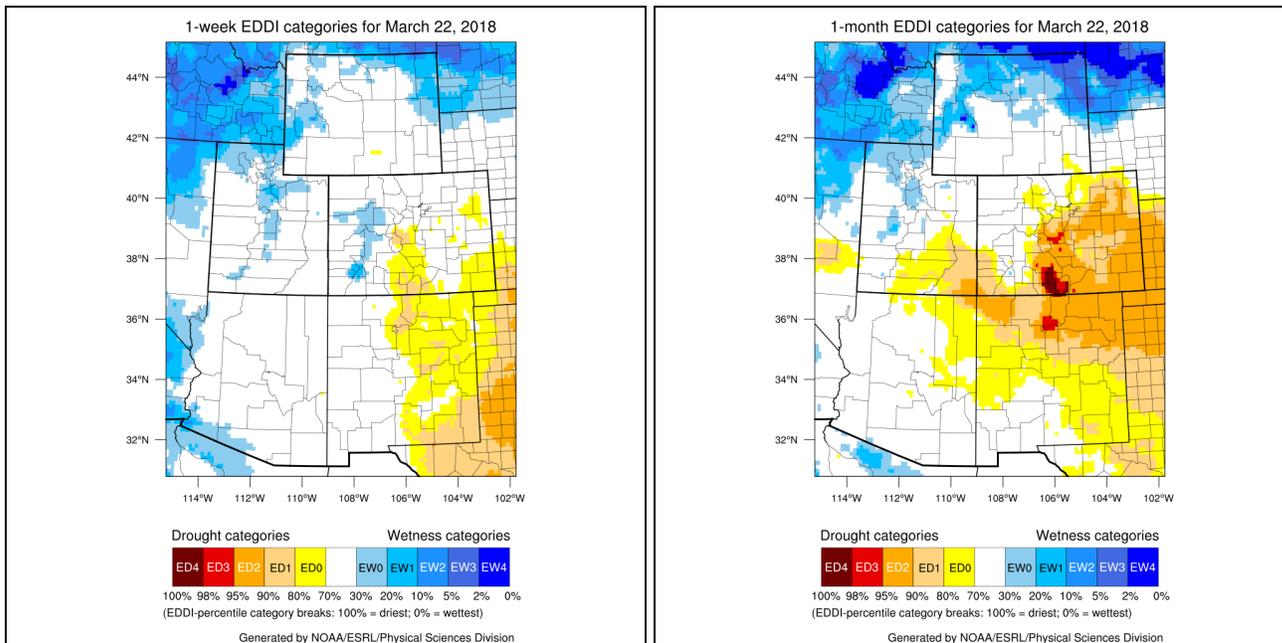
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

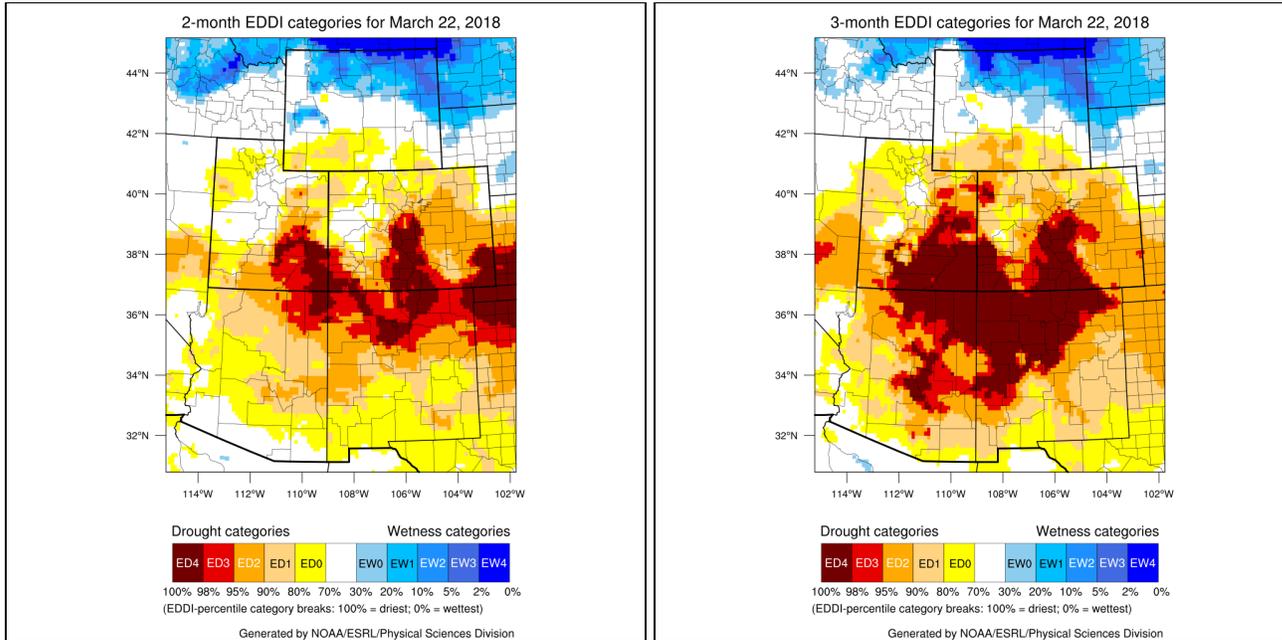
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir

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.



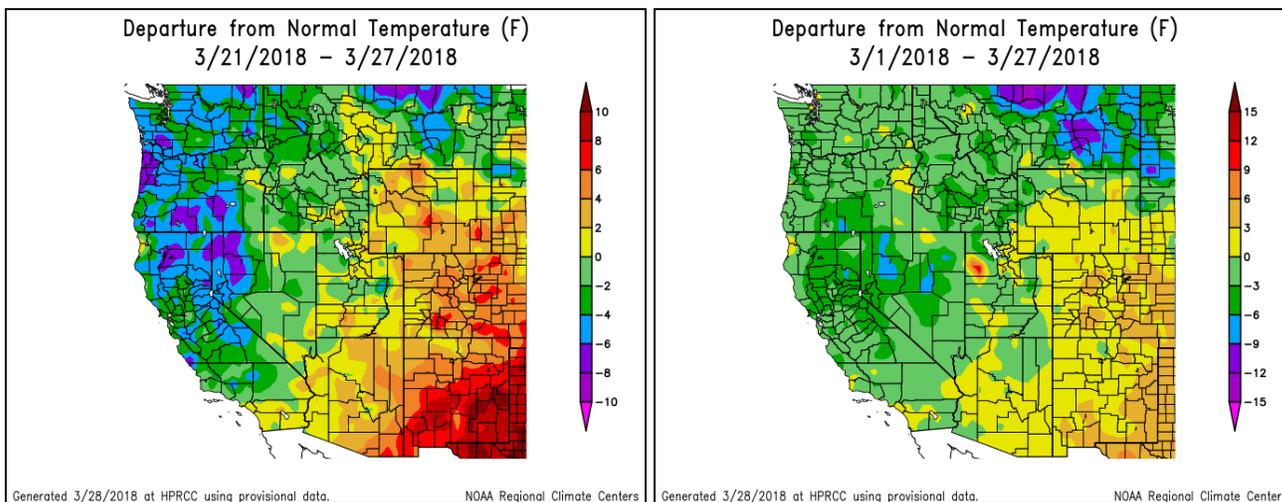
Evaporative Demand



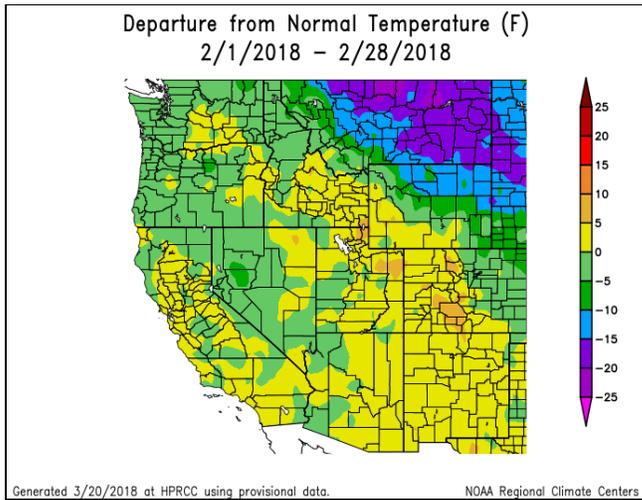


The above images are available courtesy of NOAA’s Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

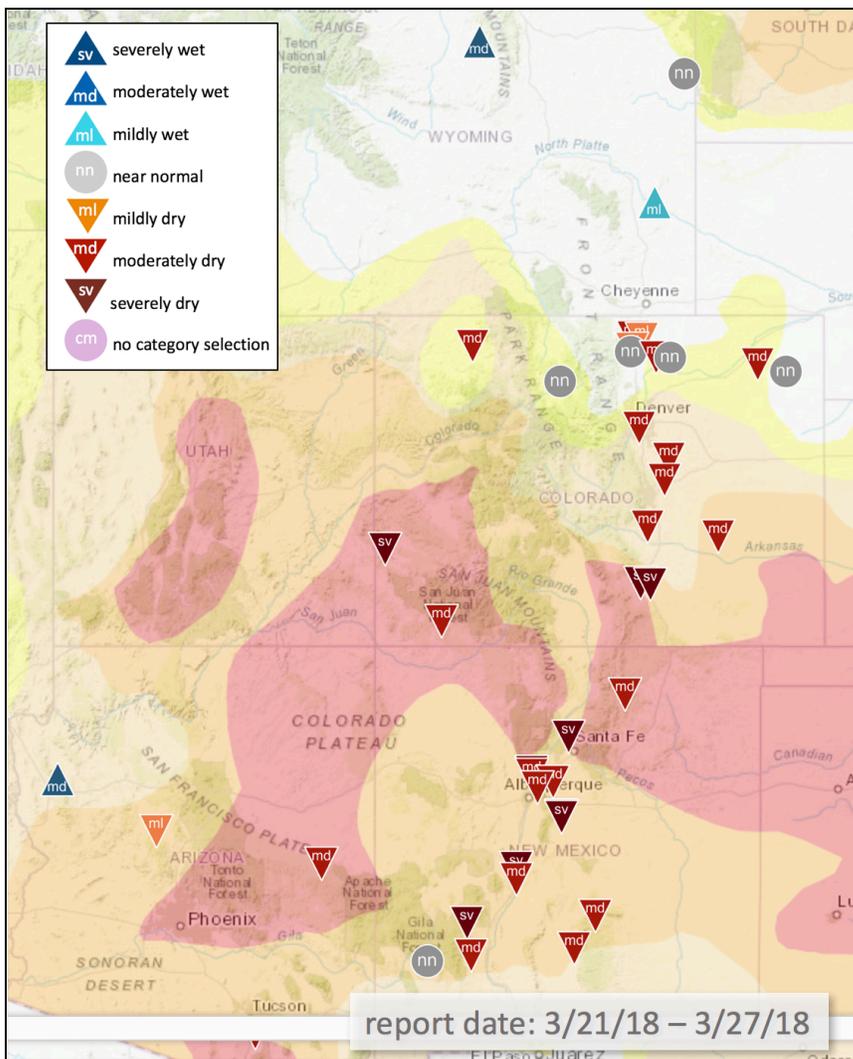
Temperature



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



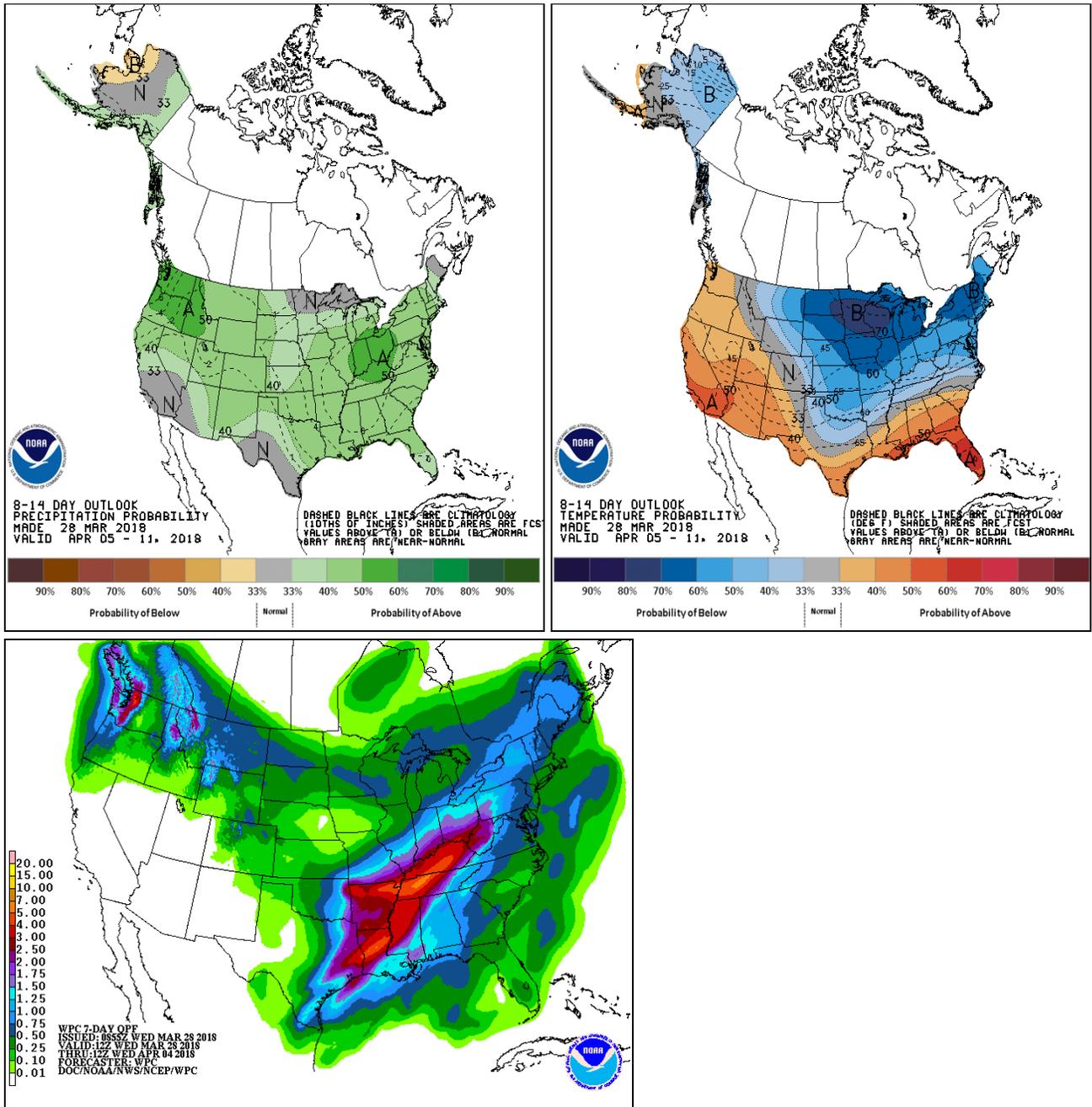
Map of current condition monitoring reports submitted to CoCoRaHS in the last week overlaid on the current U.S. Drought Monitor depiction. Specific impacts reports from local experts listed below.

Things are not looking great here. The moisture missed us again last night. We are having reports of failed Triticale now and the wheat is not looking good. If it doesn't get moisture by next week most of it isn't going to make it too much longer. Thankfully we haven't had any more fires at this point. Talking to my employees, they think 2013 was far worse than it is right now. That one started in 2010 and it didn't turn back around until 2014. We have submoisture now and in those years there was not any submoisture. We haven't seen failed wheat and triticale due to drought since that time frame. - Baca County, CO FSA

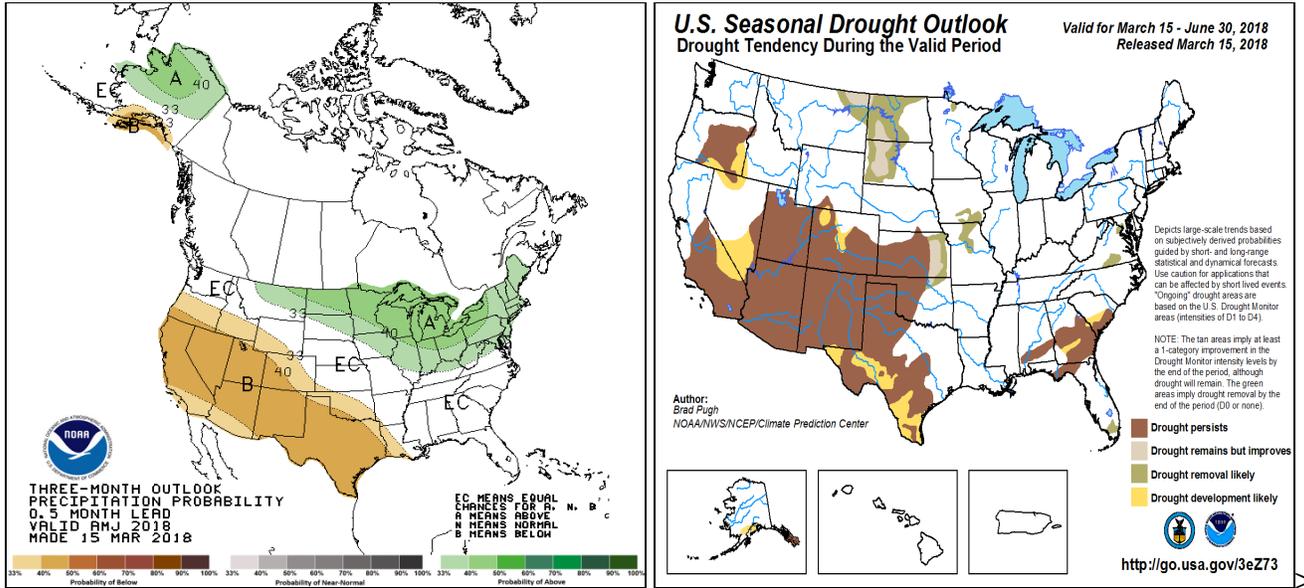
Drought is on everyone's mind here. Snotels feeding into the Dolores River Basin are around 50% of normal. Some folks say they have to dig down to 5-6 feet to find moisture. Areas further south are drier. Dry land winter wheat has failed, and irrigated winter wheat is very short. I have been here 20 years and can't recall another year where dry land winter wheat failed this early. - Montezuma County, CO Extension

Things look rough around here. I have been looking at 2017 fall and spring planted alfalfa. There is a great concern that it may not have survived the winter. The crown area about 3/4 inches below are hard. Below that, the roots are flexible. When you cut into the crown it looks like interior is pithy. If this is correct, it means the plant is dead. We won't know for sure until it breaks dormancy. Some producers are considering taking the fields out and planting an annual grain or forage then going back to alfalfa. Some mature alfalfa fields are also considered high risk because there was no ground cover this winter. Some new planted alfalfa and small grains were allowed to irrigate in February and March to try to save them. Spring grains and potatoes will go in and plan to irrigate as they can. - San Luis Valley Extension Ag Agent

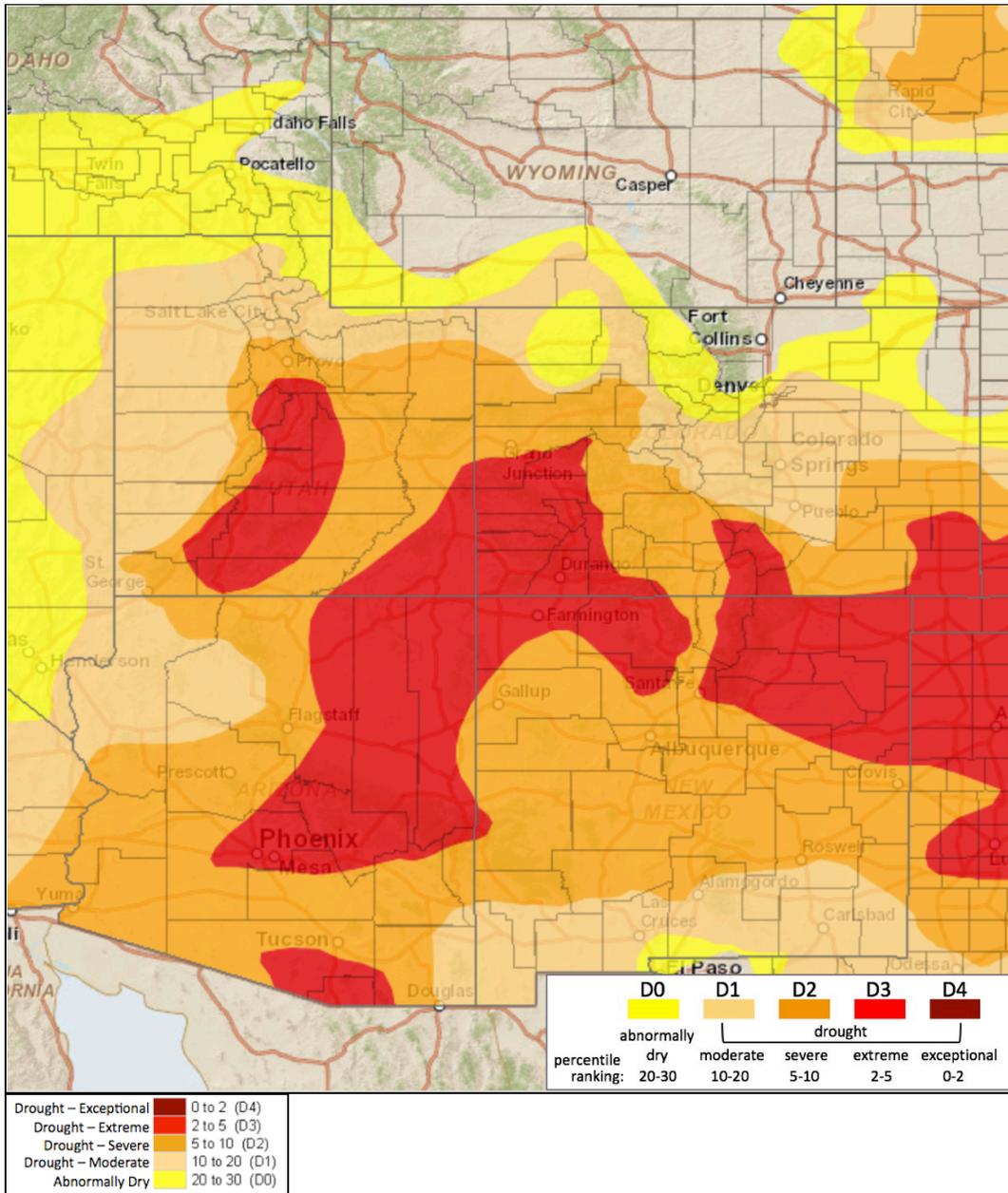
Outlook



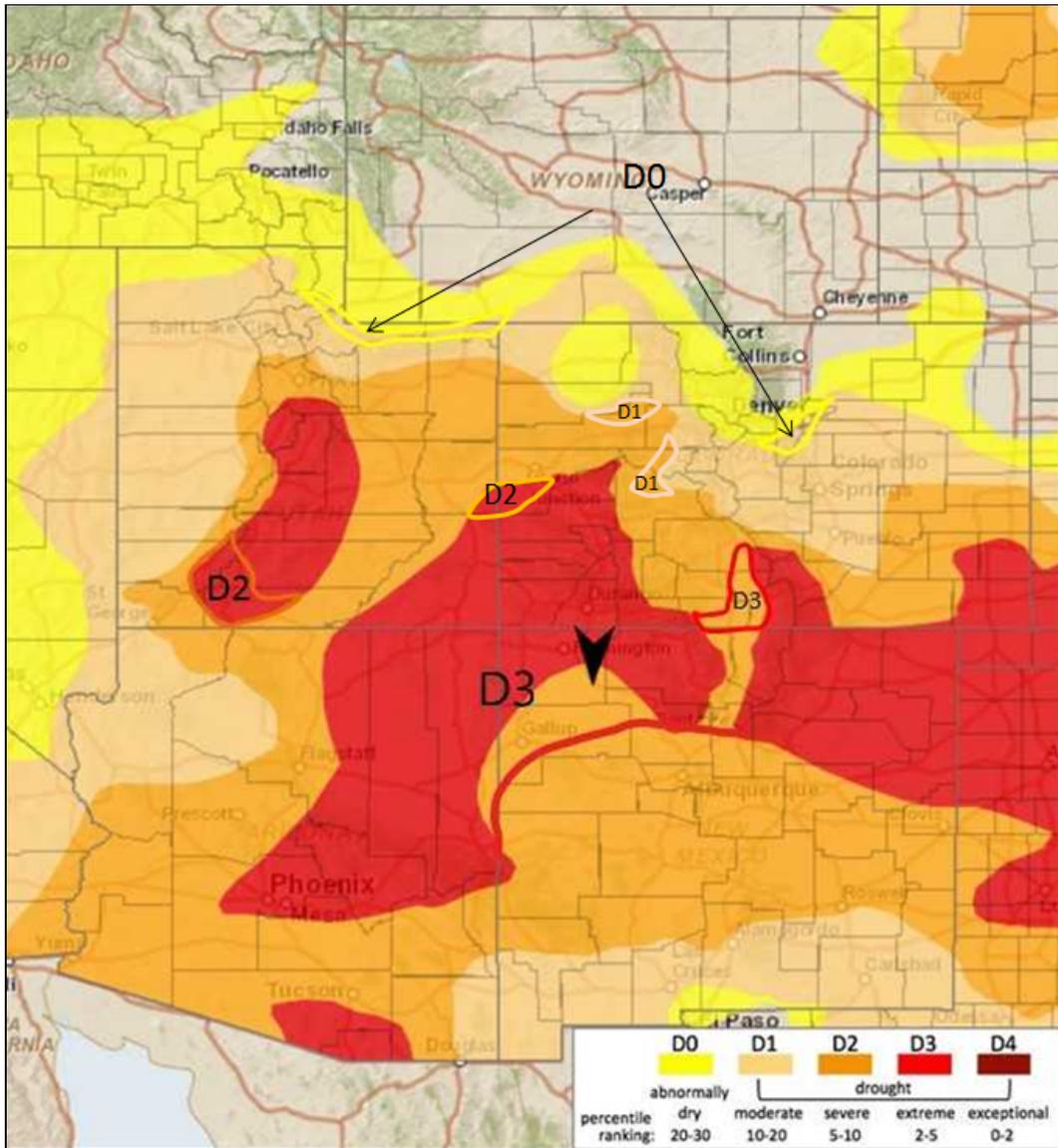
The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate 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: Summary: March 27, 2018

Spring is in the air across the IMW! We've had two storms track across the region over the last week: one brought moisture to the Wasatch Range Thursday and the Western Slopes of Colorado Friday. The other hit the northern Wasatch and Uintahs Sunday, and rolled into eastern Colorado Monday Night. While south Denver did see 6-8" of snow, these storms did not have very cold cores. Temperatures were near normal across the UCRB, and warmer than normal east of the divide over the last week. Furthermore, some areas missed out on precipitation completely, and some only received sprinkles. The Four Corners, the San Luis Valley, and southeast Colorado were all on the dry side again. These areas received less than a tenth of an inch, and were once again in the wind belt.

Basin-wide snowpack percent of normal numbers have improved some, particularly in Utah, and a slight bit in southern Colorado. All basins in

Colorado and Utah now have at least 50% of normal snowpack, but we are getting close to peak season, and what you see now is likely to be just about what you get. Streamflow is a mix of above and below normal for much of the Upper Colorado River Basin, and is still above normal east of the divide. The San Juan Basin is showing low streamflows. We aren't getting particularly concerned about these numbers yet as ablation in the high elevations hasn't yet hit in full force. A month from now, these numbers will mean more.

Important local reservoirs in short-term drought-stricken areas are holding onto a healthy supply. Blue Mesa and McPhee Reservoirs are still holding normal storage for this time of year. Navajo Reservoir on the San Juan River Channel is below normal. The CRB giants, Lake Powell and Lake Mead, are at 84 and 59% of normal storage for this time of year respectively.

Some light rain and snow showers are currently falling across southern Colorado. These aren't expected to be drought busters, and are expected to move off to the south and east by Tuesday evening. Another disturbance will be right on its tail, diving out of the north Wednesday night and Thursday morning. This could bring some rain and snow showers to eastern Colorado. Once again, moisture totals are not expected to be drought busters for southeast Colorado, mostly less than a quarter of an inch. The remainder of the week will likely bring some light moisture to northern Colorado and northern Wyoming.

Longer term, the Climate Prediction Center is not painting a rosy picture, as the seasonal forecast for April - June shows an increased likelihood of above average temperatures for all of the IMW and below average precipitation for most of the region.

Recommendations

UCRB: Based on recent precipitation and improvements to snowpack, it is recommended that the D1 be downgraded to D0 in Dagget County, and northern Summit, Morgan, and Weber Counties in Utah.

It is recommended that D2 be downgraded to D1 in northeast Garfield County, extreme northwest Eagle County, central Pitkin County, and north-central Gunnison County. These are areas that received over an inch and a half of precipitation, and have rebounded to D1-level snowpack percentiles.

It is recommended that D3 be downgraded to D2 in southwest Mesa County, CO, and southeast Grand County, UT. Recent rains have brought 90-day SPIs back into the positive range. The area is still behind on moisture longer term, but in much better condition than further south.

Recent precipitation made substantial improvements to short-term SPIs in the southern Wasatch Range. The area is still dry, but better off than a week ago.

It is recommended that D3 be downgraded to D2 in western Kane and Garfield Counties, and in eastern Iron County.

Eastern Colorado: It is recommended that D3 be added on the east and south portions of the Rio Grande River Valley in southeast Saguache, Alamosa, western Costilla, and eastern Conejos Counties. The San Luis Valley Airport is showing its worst start to the water year on record. This recommendation will coordinate well with New Mexico's recommendations.

It is recommended that D1 be downgraded to D0 in southern Jefferson, Denver, and western Adams Counties. This area has had two good shots of rain/snow in the last two weeks. Long term water supplies are in adequate shape via reservoirs too. 90-day and 6 month SPIs still show enough dryness for D0 to make sense.