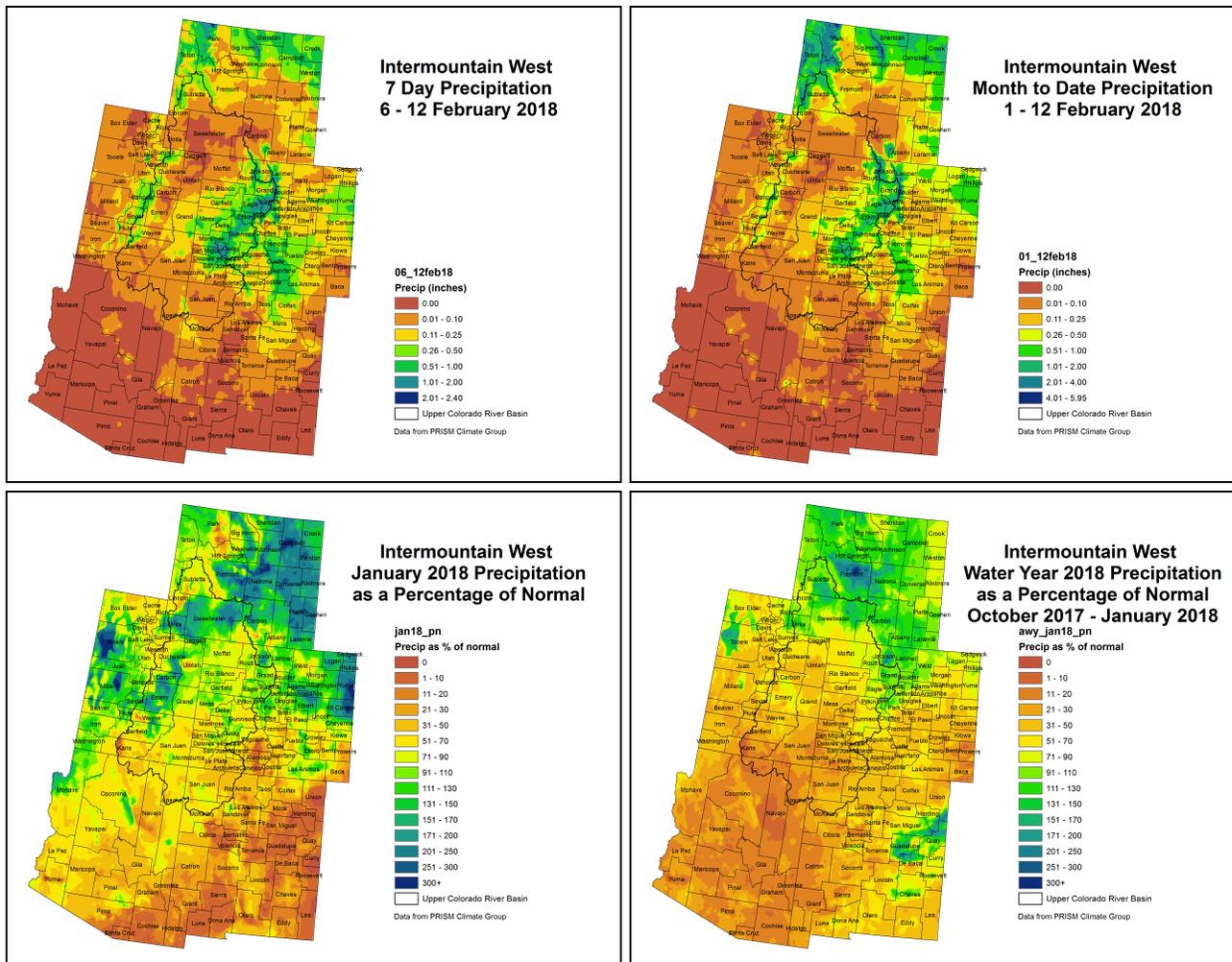


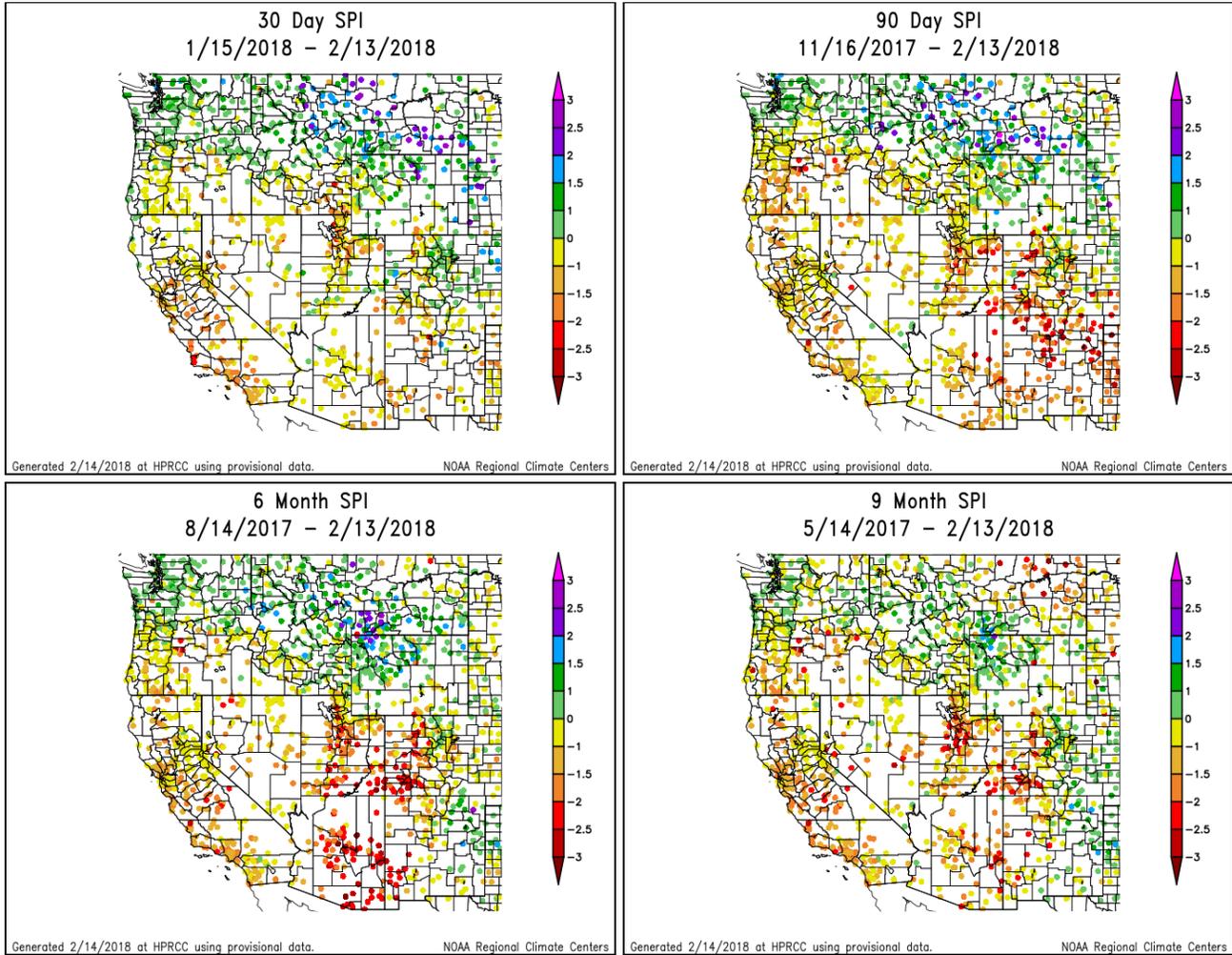
NIDIS Intermountain West Drought Early Warning System February 13, 2018

Precipitation



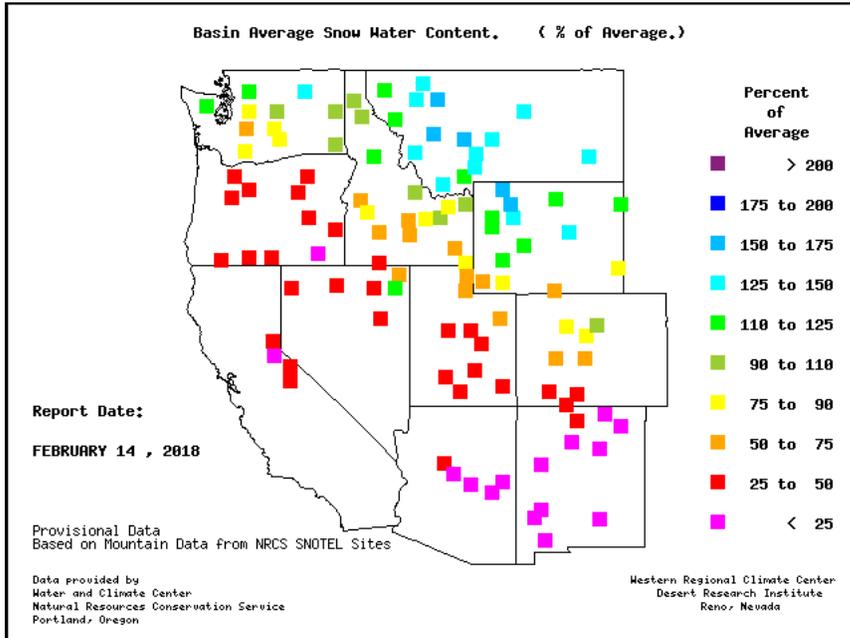
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index

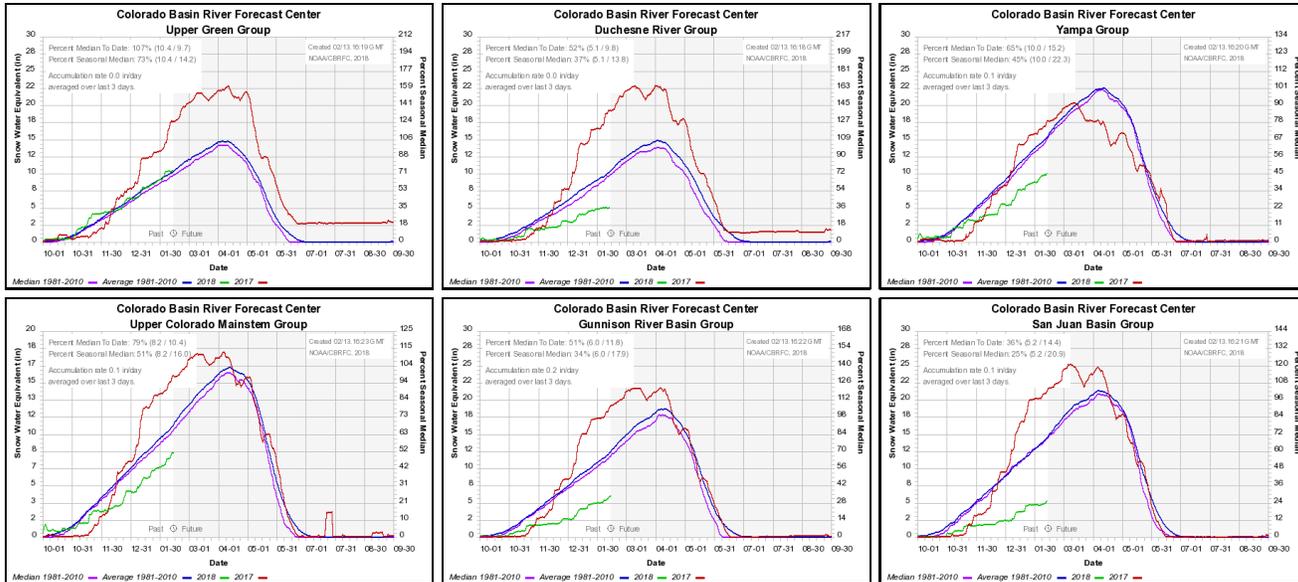


Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions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

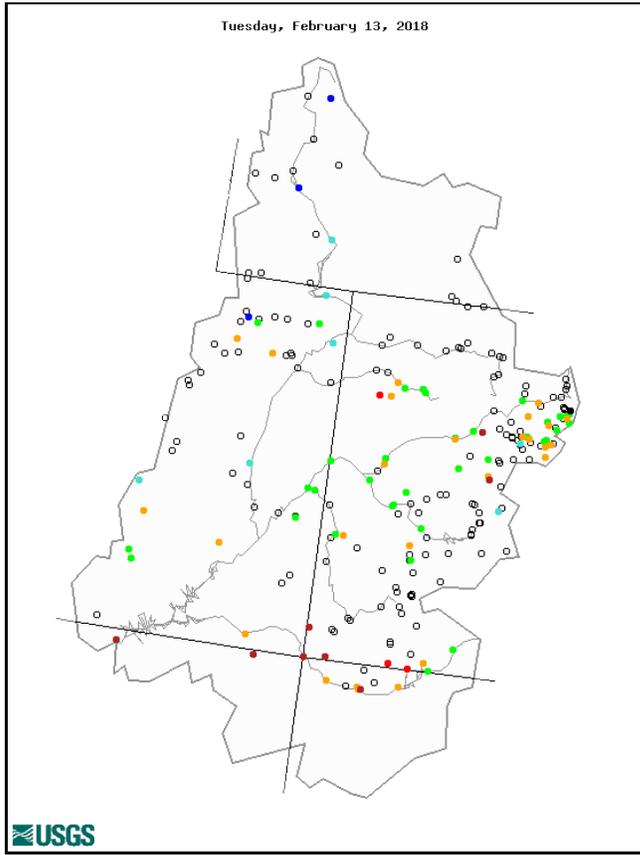
Snotel and Snowpack



The above image shows 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).

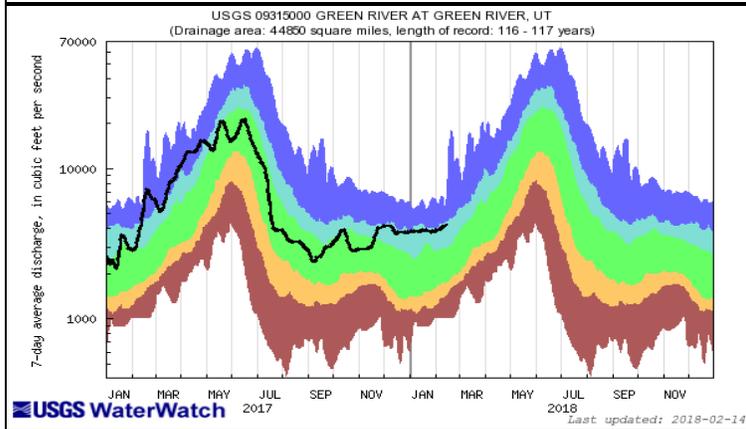
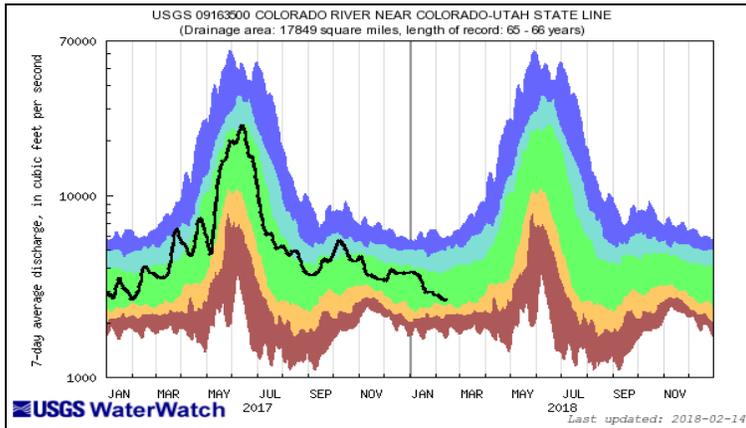


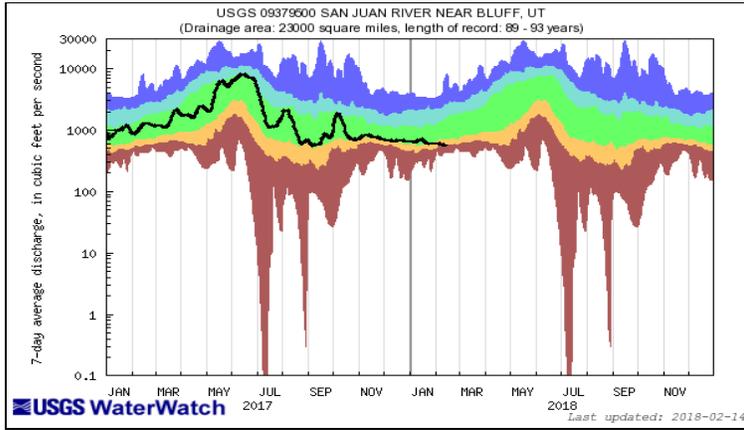
Streamflow



Explanation - Percentile classes

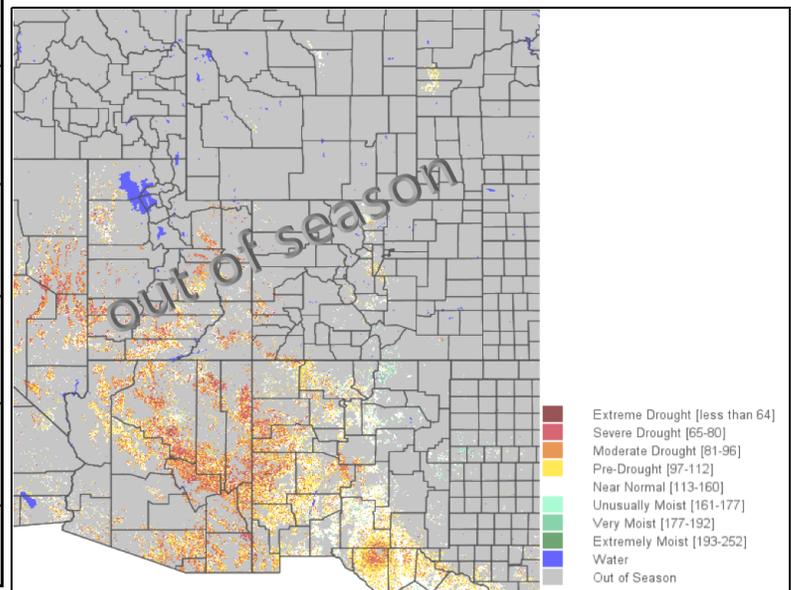
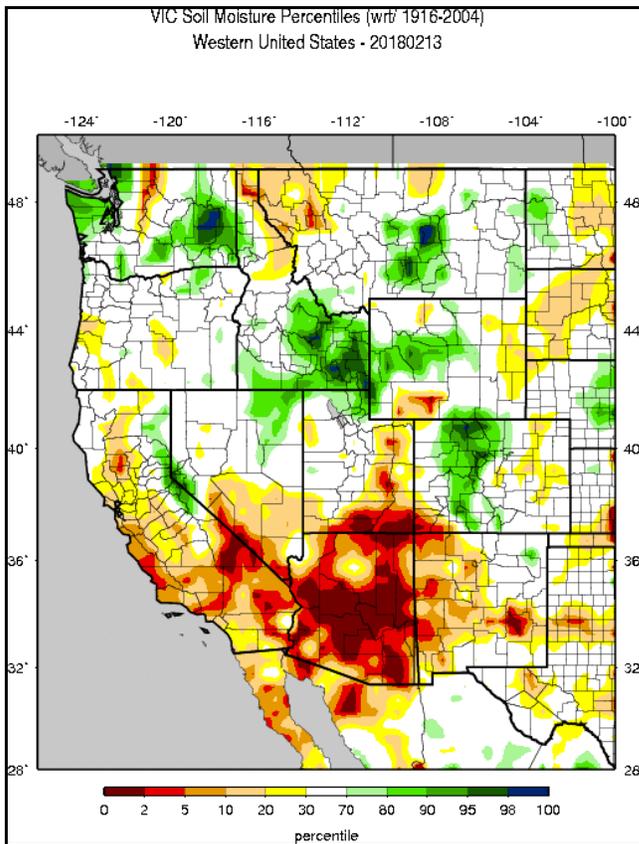
●	●	●	●	●	●	○
Low	<10	10-24	25-75	76-90	>90	High
	Much below normal	Below normal	Normal	Above normal	Much above normal	Not-ranked





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.

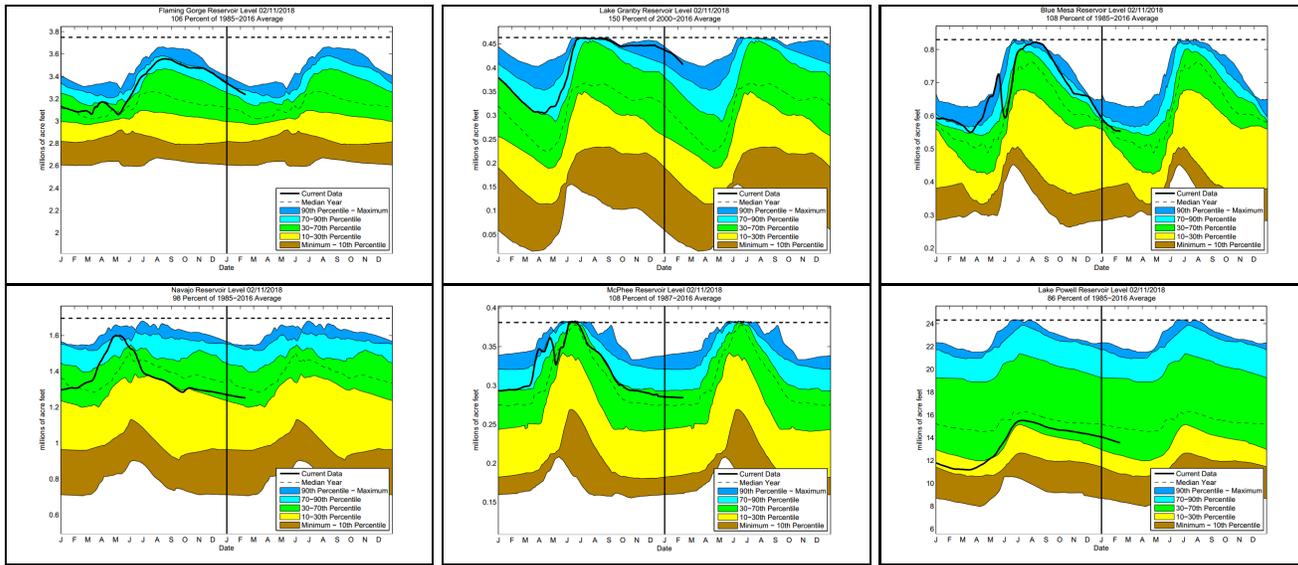
Surface Water



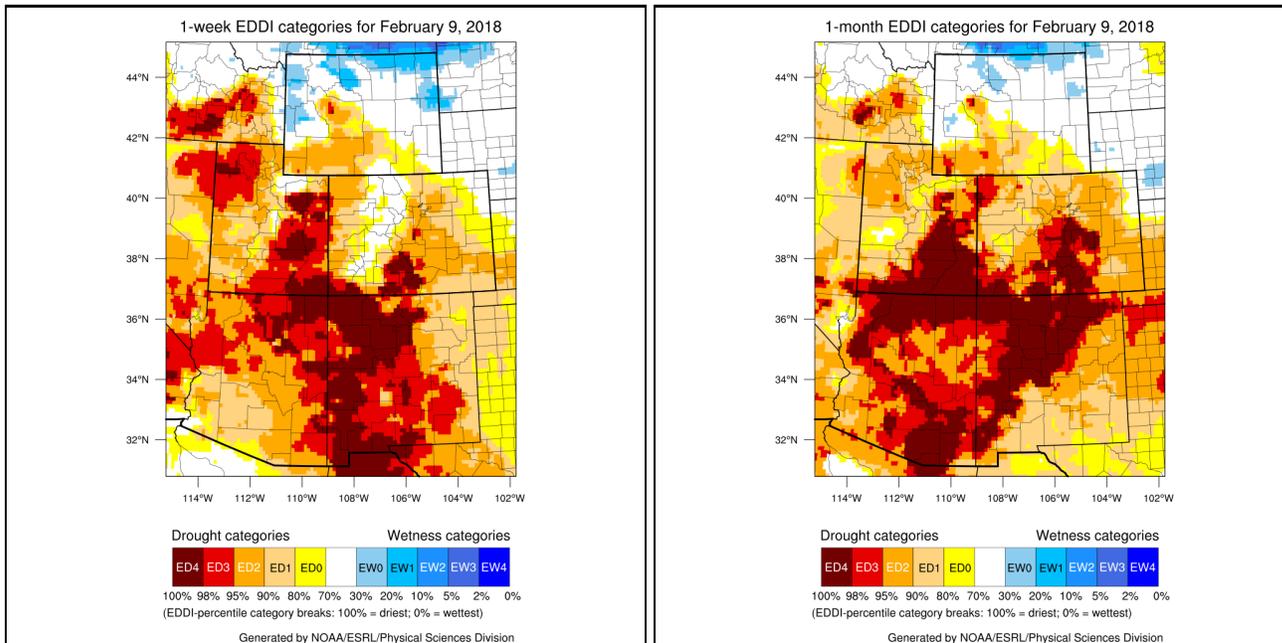
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

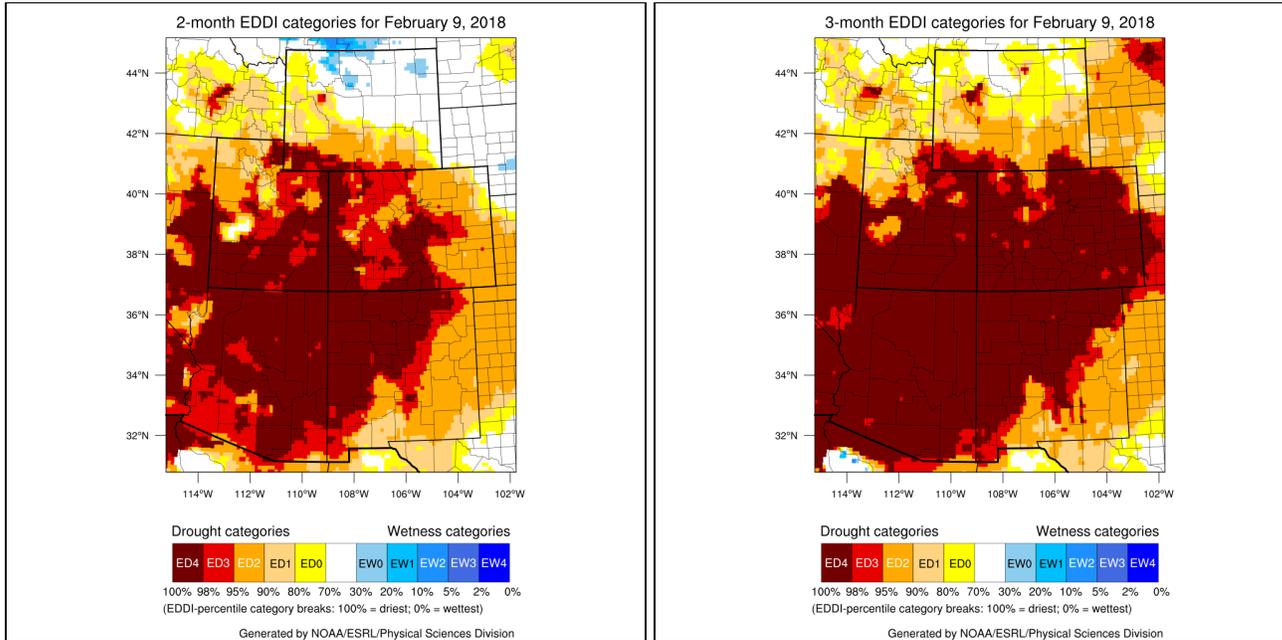
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir

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.



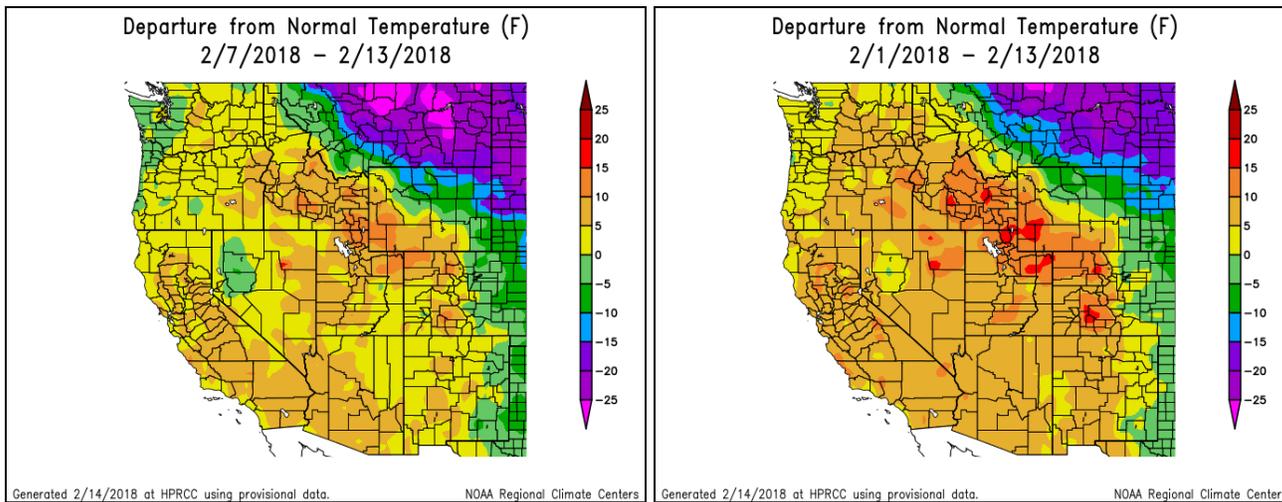
Evaporative Demand



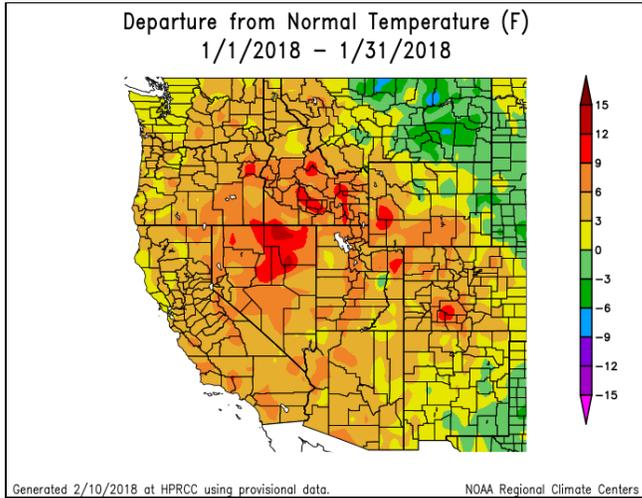


The above images are available courtesy of NOAA’s Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

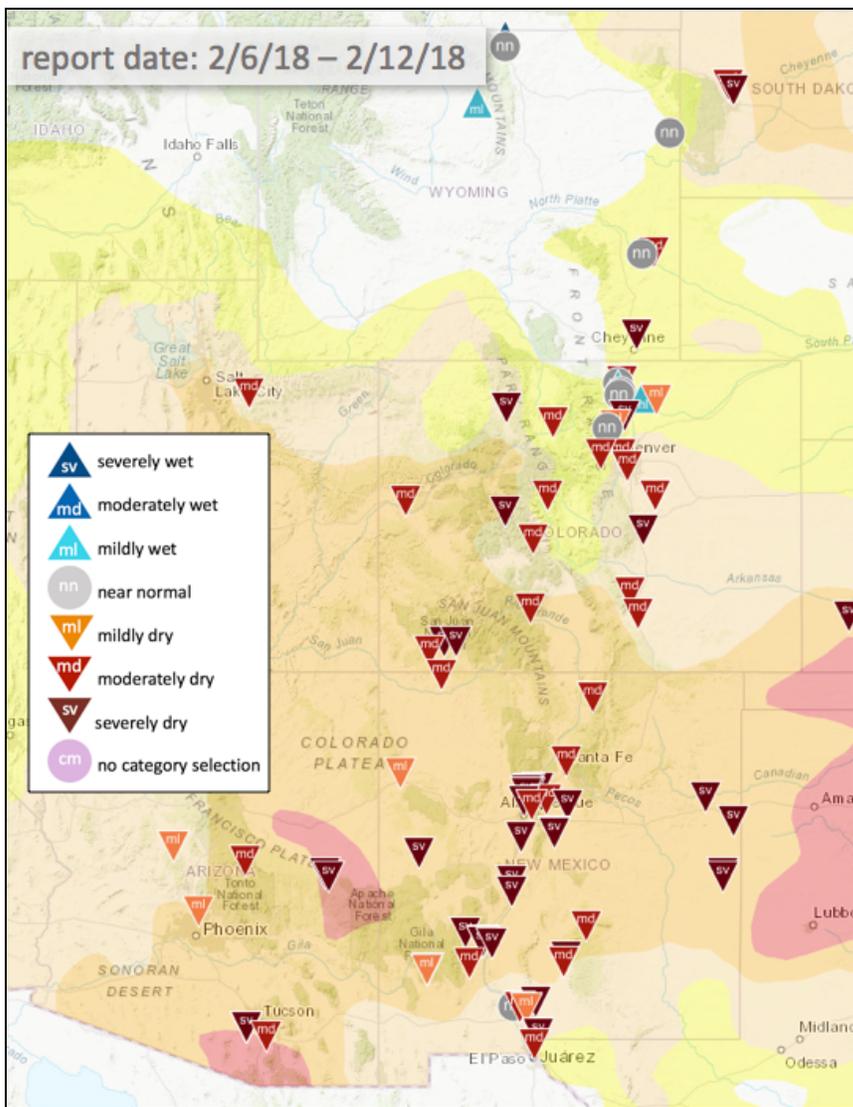
Temperature



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.

Otero County

Otero had less than 2" of snow this week, and are still behind on moisture.

Kiowa County

Winter wheat is in dormancy and there's not much to say about it now. There was some really bad wind with blowing dirt.

Arkansas Basin

Irrigators are in great shape. Reservoirs are full along the Arkansas River. Pueblo is projected to spill this spring.

Dolores Water Conservancy

Much of McPhee's storage is not active storage. There is concern about receiving enough water this year.

Grand Junction WFO

If we continue to have a similar deficit in March then some areas could go D3. A couple basins may be able to move one way or the other from D2 currently. The depiction, is for the most part, representative. This drought would be much more concerning if it were the second year in a row of drought.

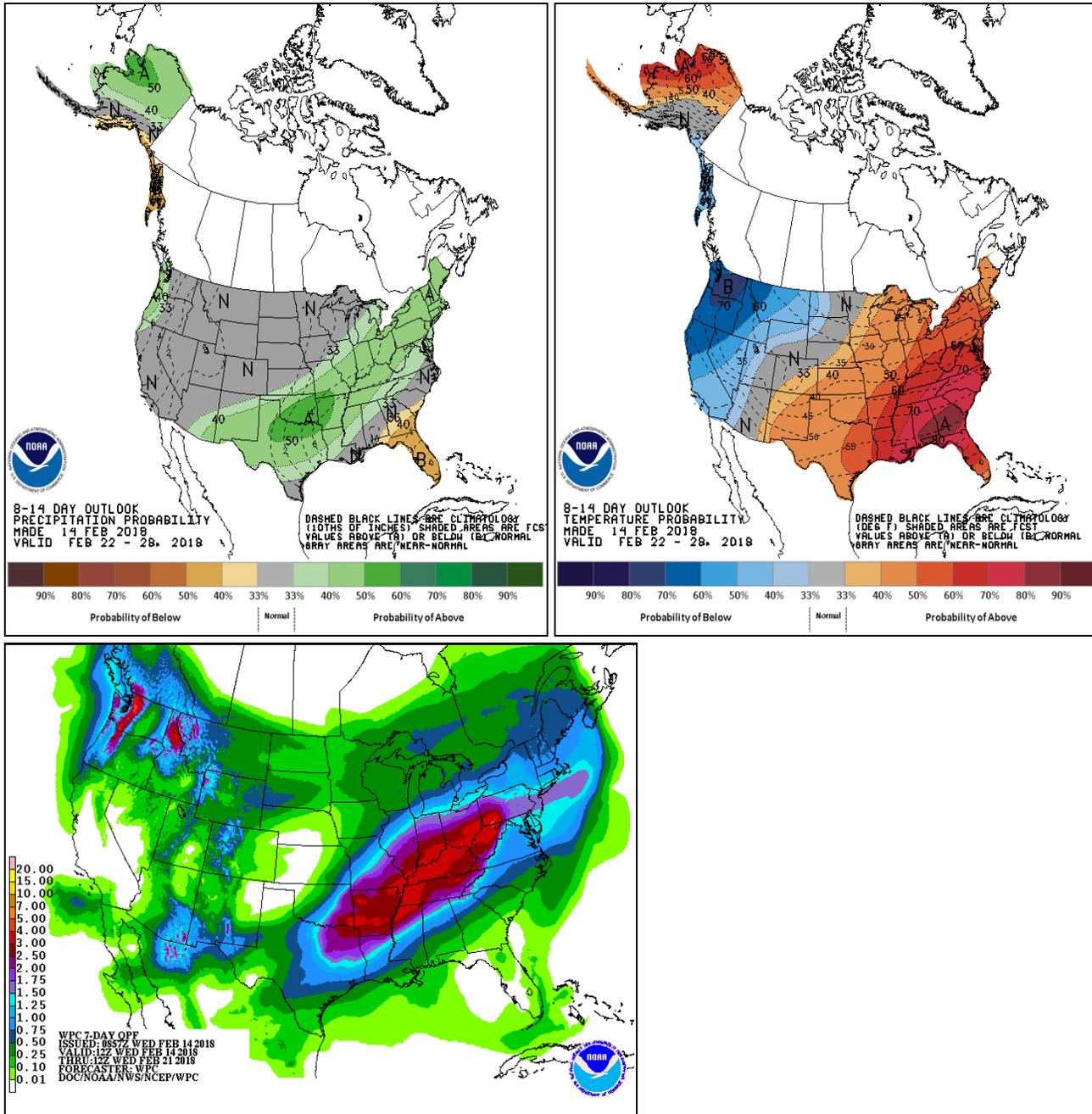
La Plata and Archuleta Counties

Really nice snow in Durango (4-6"). Further west there was less snow, and windy conditions. Not much sunk in.

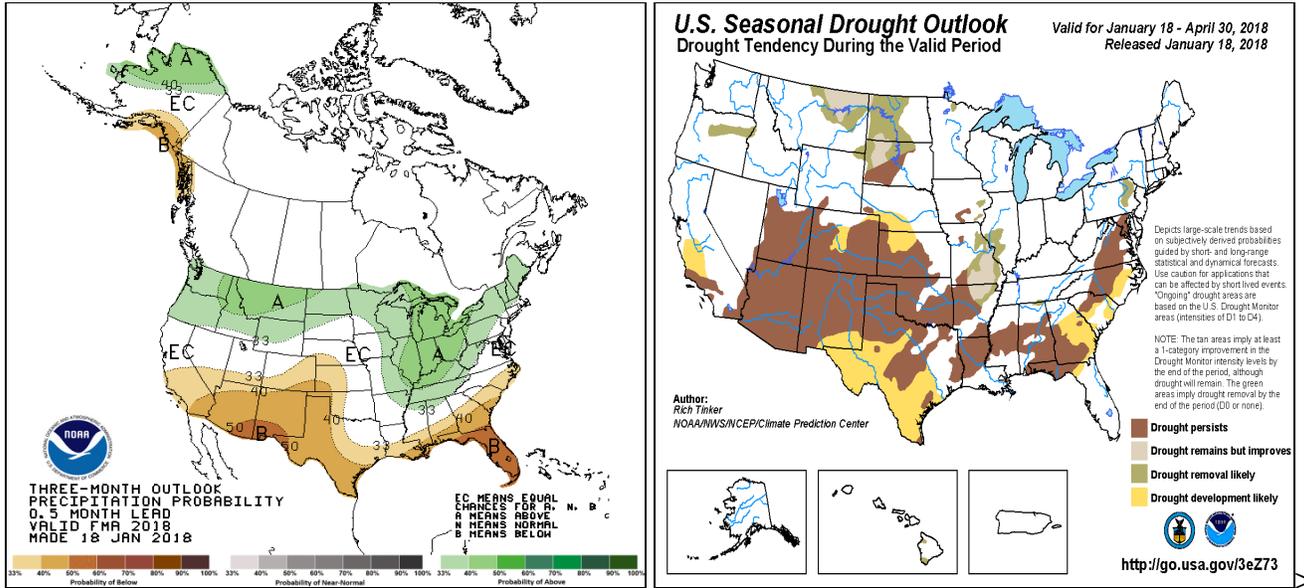
Montrose, Gunnison, & Ouray

Ranchers in Gunnison are concerned about the warm temperatures and lack of precipitation. Meadows are bare. There is concern about what kind of summer we will have with the low snowpack.

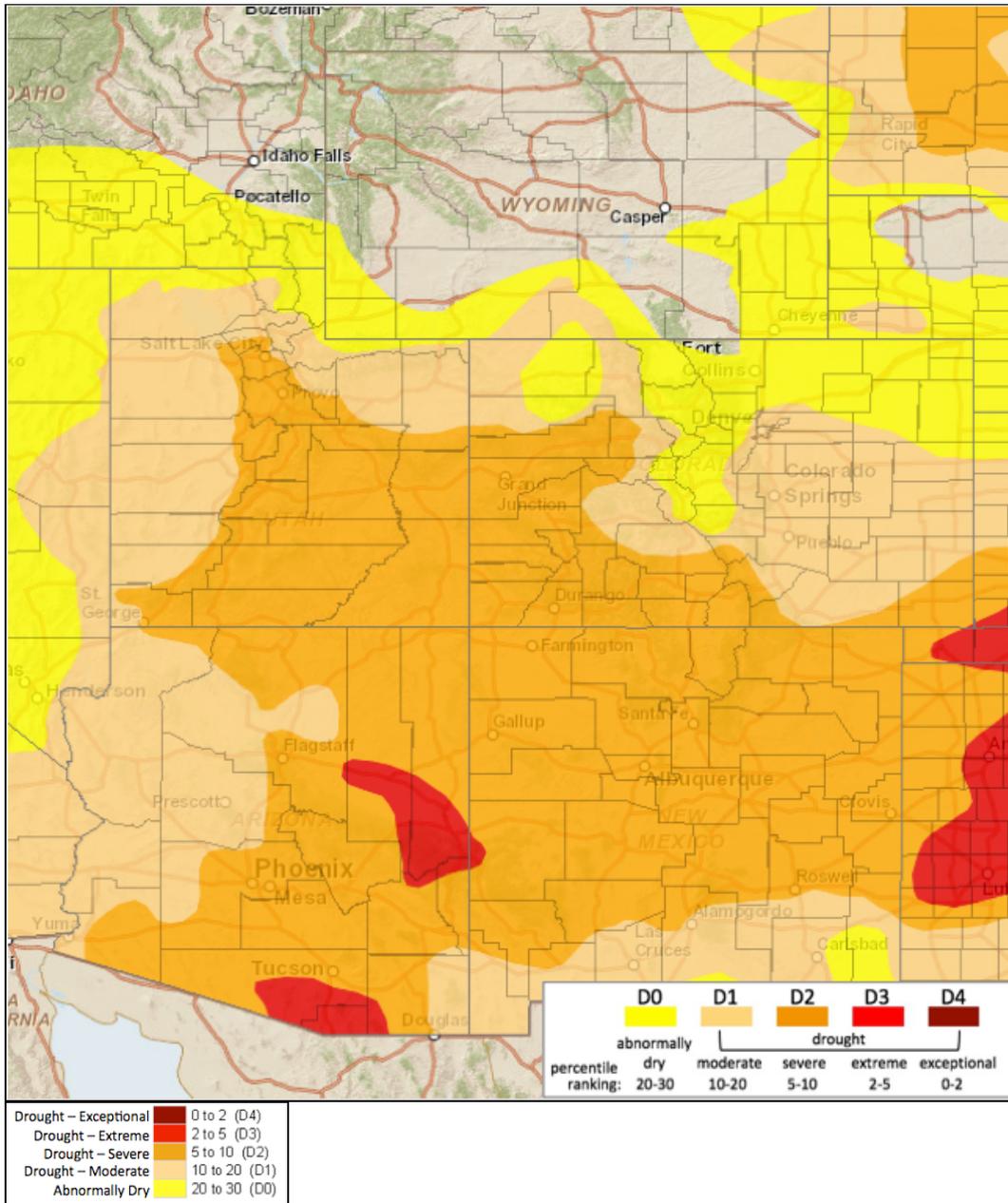
Outlook



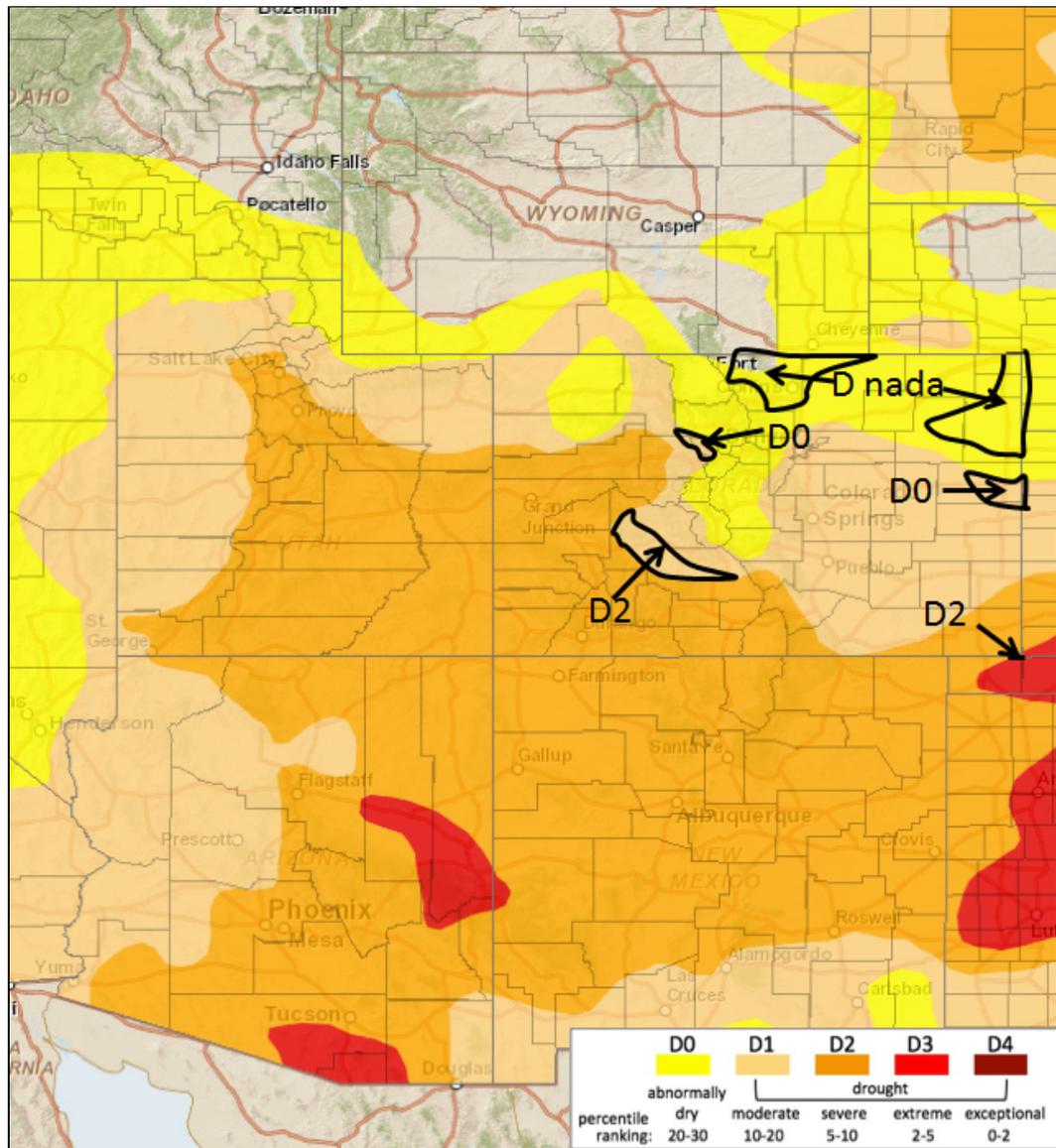
The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate 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: February 13, 2018

The last week has continued a pattern of near-to-slightly below normal temperatures east of the Continental Divide, but anomalously warm conditions in the Colorado River Basin. However, high pressure over the Great Basin did shift westward enough to allow for moisture to dig into some areas of the Colorado River Basin that it has had trouble reaching all winter long.

A round of moisture came across Colorado Saturday, which hit the west slopes, southern Front Range, and Sangre de Cristos the hardest. Another round of moisture came through Sunday and Monday. This moisture once again hit the west slopes, but finally bull's-eyed the San Juans on Monday where the moisture is much needed. Much of the Continental Divide in Colorado from Rocky Mountain National Park down to Ouray received over an inch of precipitation on the week by Monday Morning. There was an additional 1.00-1.50" of moisture at Wolf Creek Pass by this morning. East of the Sangre de Cristos, widespread totals of 0.50-1.00" of moisture fell, including at some lower elevations.

Further to the west, the Wasatch and Teton Mountains were drier, receiving 0.25-0.50" of precipitation on the week. Arizona and western New Mexico remain drier than normal. East of the divide, there was above normal precipitation in Washington, Yuma, and Kit Carson County in Colorado over the last week. There was also some good low elevation totals in Wyoming in the Bighorn Range and immediately to the east.

Precipitation surpluses and deficits for the water year to date still follow a very La Nina-like pattern across the Intermountain West. Conditions generally degrade from northeast to

southwest. The dry side of the gradient (south) is showing more extreme dryness for the water year to date than one would expect regardless of sea surface temperature pattern. SNOTEL precipitation percentiles for the water year to date are below the 10th percentile in the Wasatch Range, San Juans, Sangre De Cristos, and even part of the Colorado Mainstem (such as along the Grand Mesa).

Snowpack (naturally) follows a pattern similar to water year precipitation across the Intermountain West. Northern Wyoming has much above average snowpack. Southeast Wyoming and northeast Colorado are at average snowpack levels. Snowpack is below average south of Flaming Gorge Reservoir in the Colorado River Basin, and well below average south of the confluence of the Green and Colorado Rivers. Most Basins south of the Colorado Mainstem are showing less than 50% of average snowpack for this point in the season, which is exceptionally concerning this deep into the winter.

The silver lining continues to be reservoir storage. Most areas are showing average to above average reservoir storage, largely thanks to last year. The reservoir giants, Lake Powell, and Lake Mead, are below average storage for this time of year, and likely to have lower inflow than normal given the current snowpack drought. If this were a second year drought, we would be in much worse shape.

Recommendations

UCRB: It is recommended that D2 be added to southern Gunnison County, and northwest Saguache County. Long-term SPIs are as low or lower here than areas further south currently covered by D2. Ranchers are reporting bare meadows and are concerned about the coming warm season.

It is recommended that D1 be downgraded to D0 in northern Summit County and far southwest Grand County. Recent snowstorms have brought water year precipitation percentiles back into the normal range in this area.

Eastern Colorado: It is recommended that D0 be removed from northeast Grand County, Cameron Pass, south and east Larimer County, and northwest Weld County. This is an extension of the D0 removal already being proposed by the Drought Monitor Author in draft 2, and uses 90-day SPI, 6-month SPI, and SNOTEL water year precipitation percentiles as the primary guides for the boundary.

It is recommended that D0 be removed from eastern Sedgewick and Phillips Counties, north and central Yuma County, and central east Washington County. These areas are showing positive short term and long term SPIs. Winter wheat reports indicate good conditions.

It is recommended that D1 be removed from eastern Kiowa County. Precipitation is above average in this area over the last 90 days, and much above average over the last 30.

It is recommended that D3 be kept out of Baca County. USDM must not follow state lines explicitly, and thus we did have some bleedover of D3 into Baca County from recommendations in the Oklahoma Panhandle. We did have FSA employees on our drought update call who were not in agreement with D3 in Baca County. Conditions are dry, and the 90-day SPI is reflective of the 5th percentile or worse, but at longer timescales Baca County is still running a surplus from a very wet 2017. Winter wheat reports from the area have been fair, but not poor.