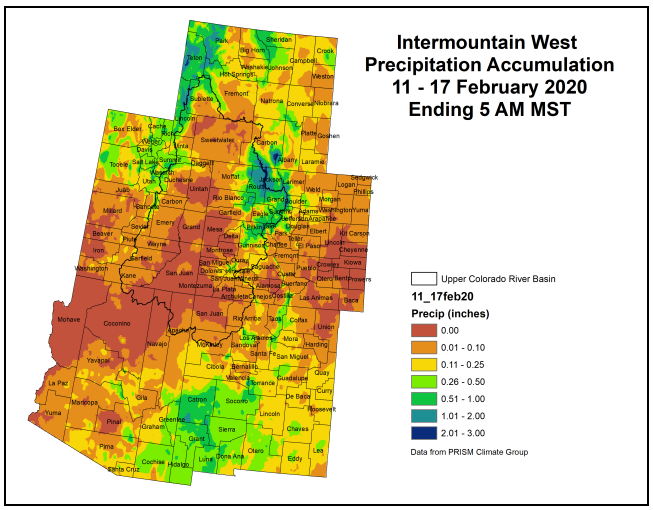
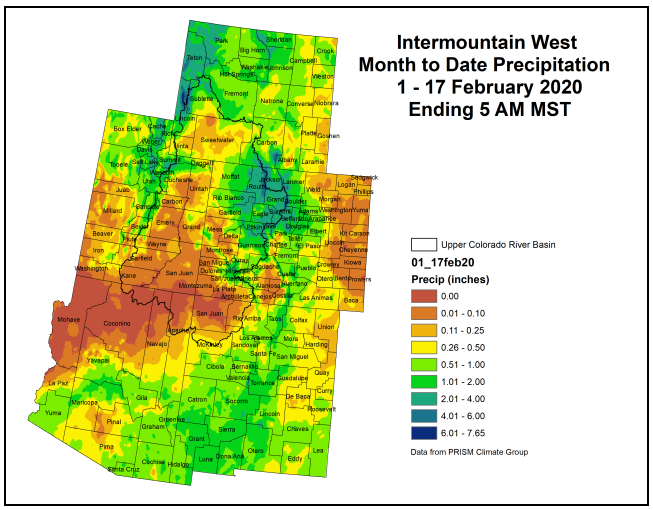
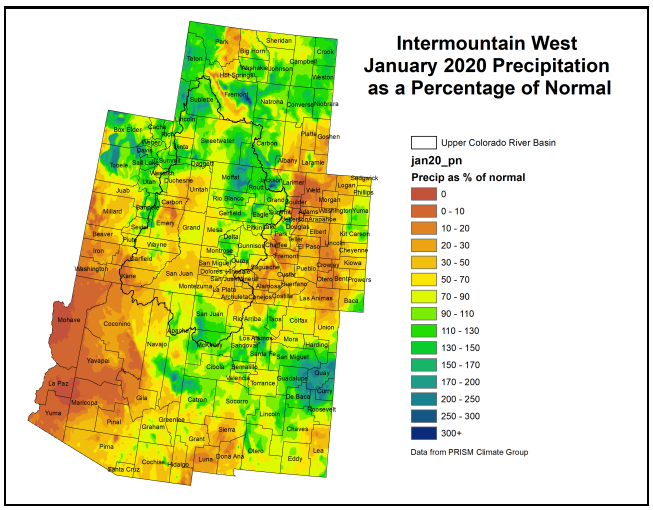
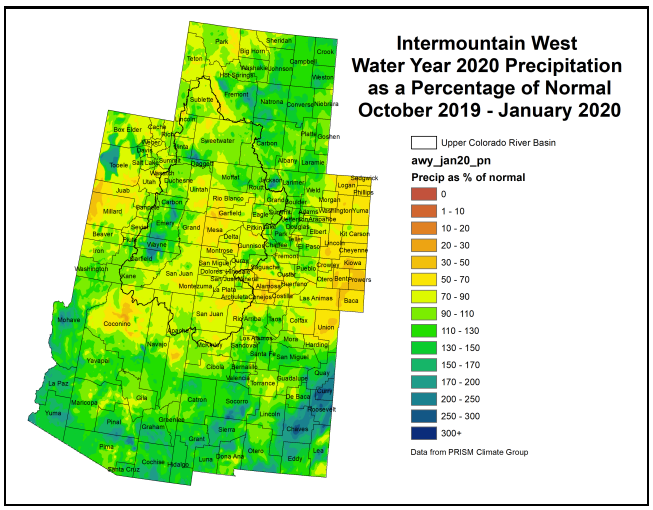
NIDIS Intermountain West
Drought Early Warning System
February 18, 2020

Precipitation



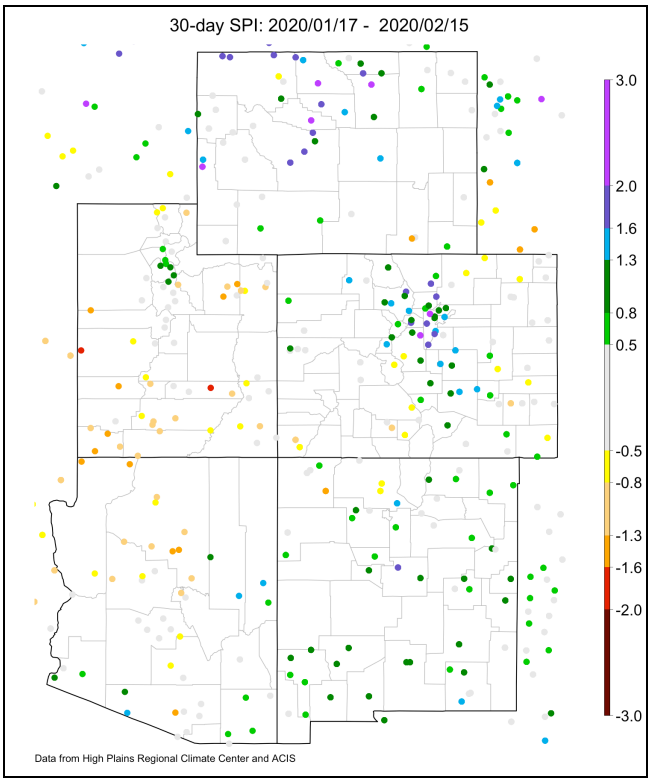


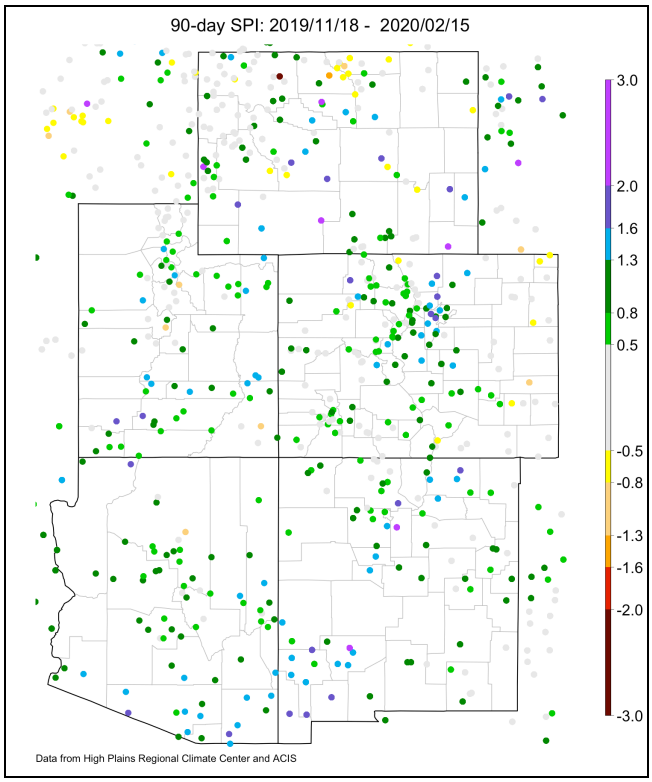


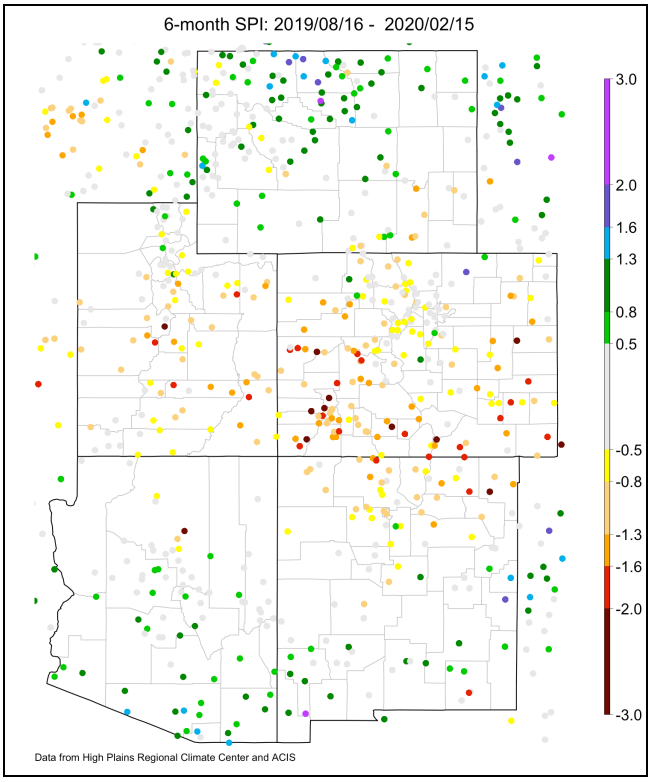


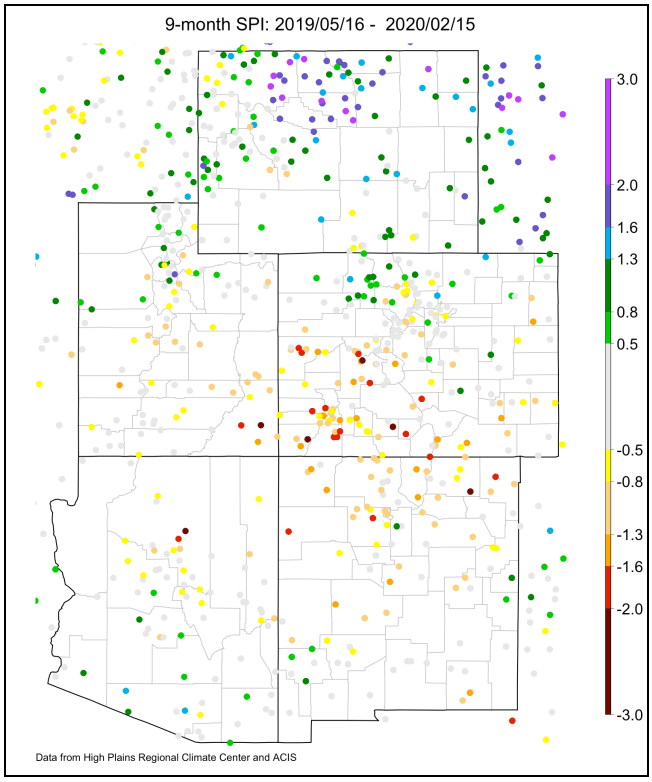
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index



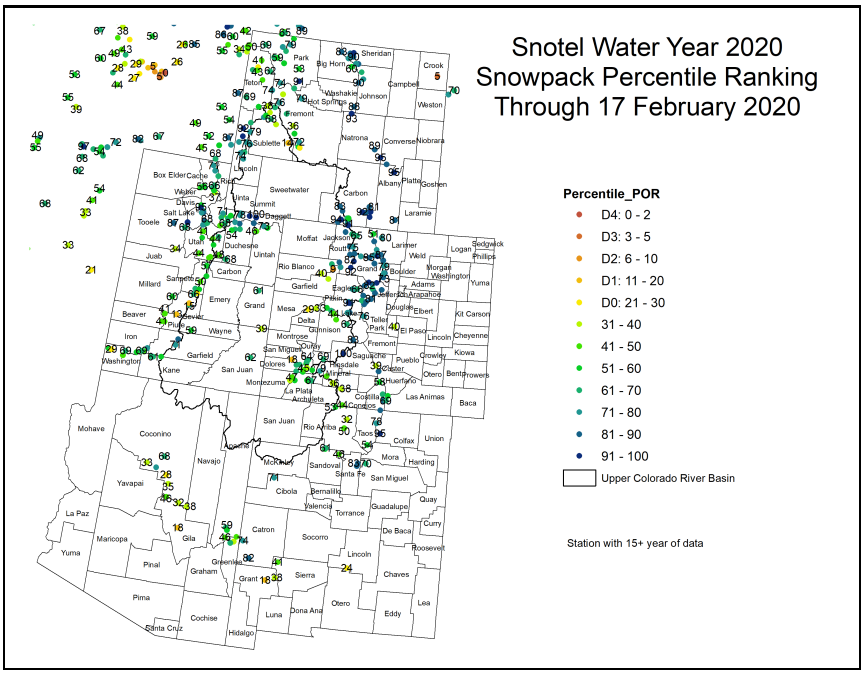




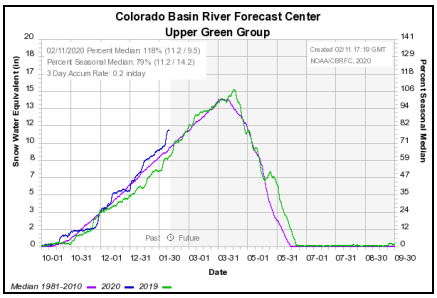


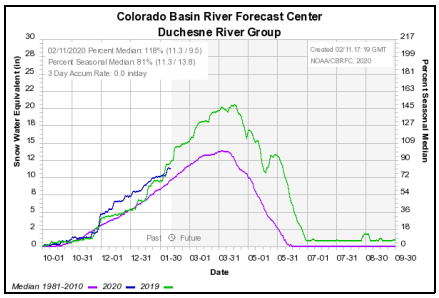
Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. Colors match the different drought categories with the U.S. Drought Monitor. 30- and 60-day SPIs focus on short-term conditions while 6- and 9-month SPIs focus on long-term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

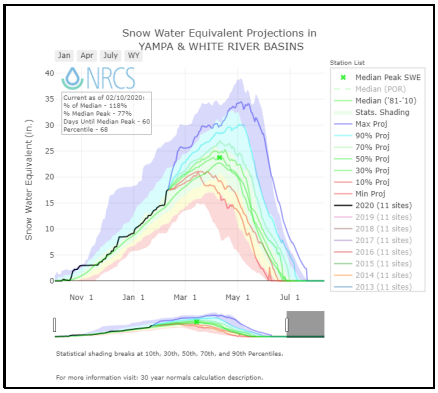
Snotel and Snowpack

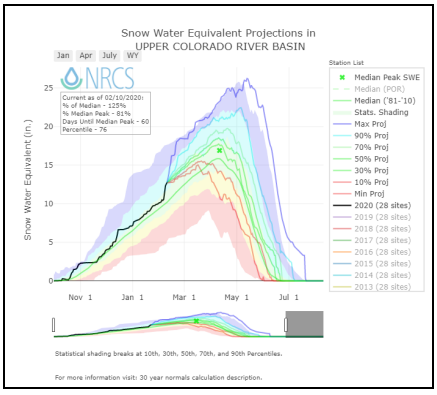


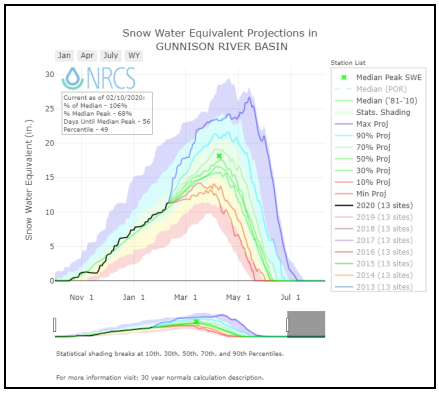
The above image shows SNOTEL snowpack percentiles for each SNOTEL site in the Intermountain West. The images below show accumulated snow water equivalent in inches (green) compared to average (blue) and last year (red) for several different sub-basins across the UCRB (and were created by the Colorado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

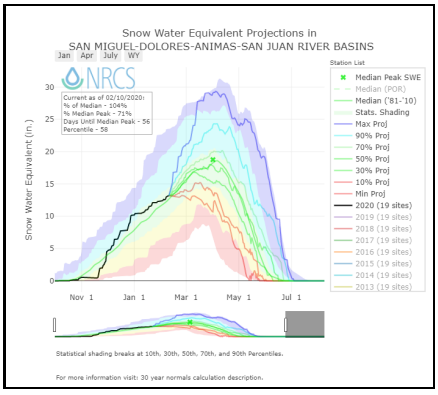




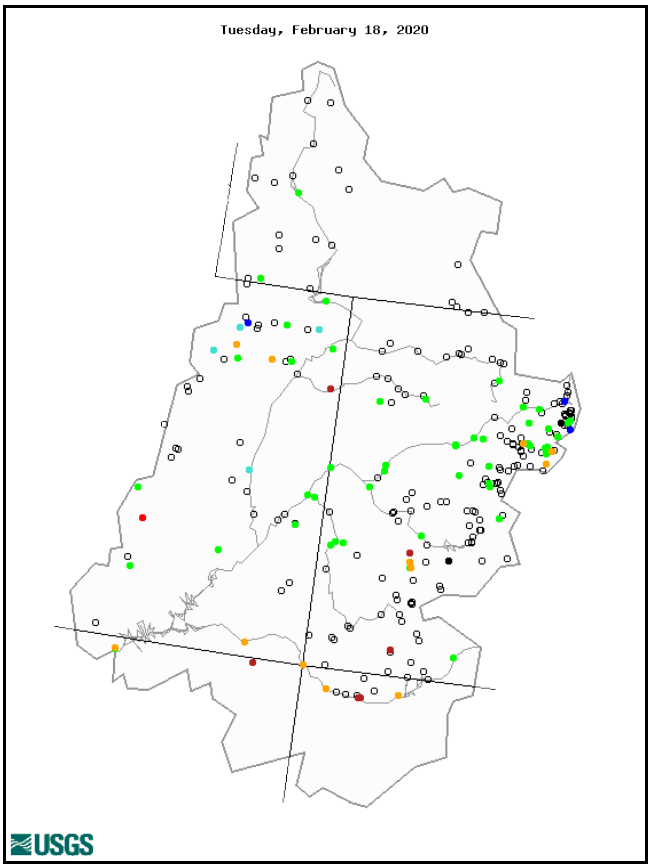


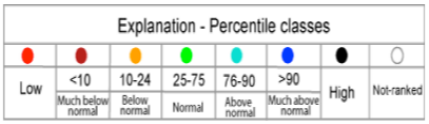


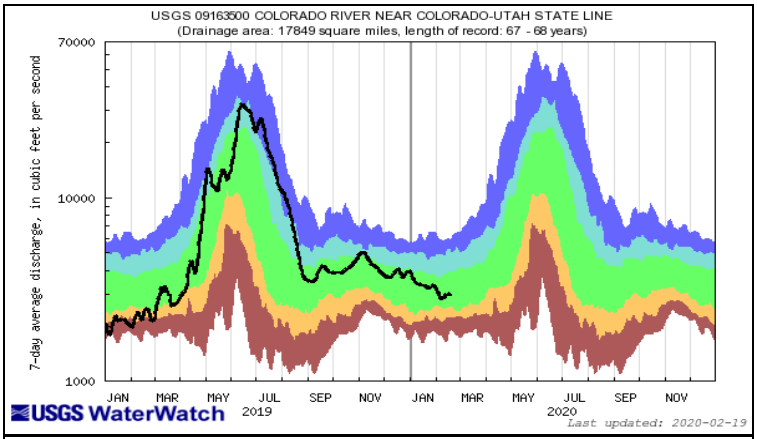


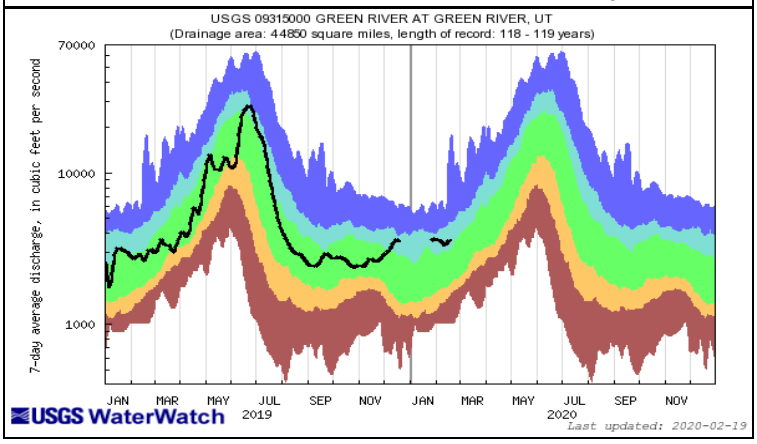


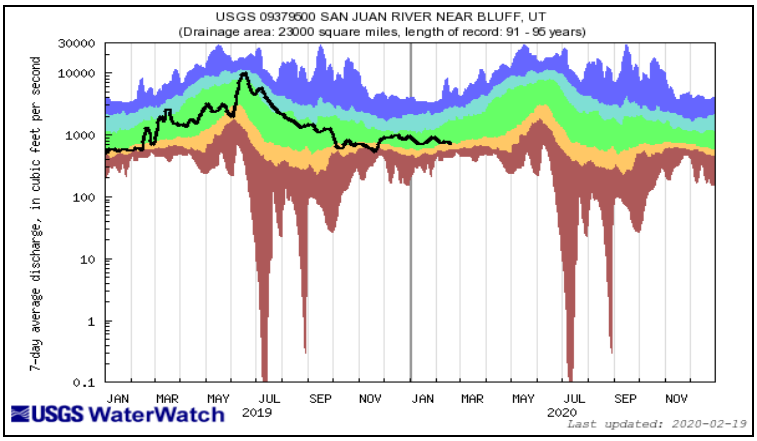
Streamflow


Tuesday, February 18, 2020
USGS


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

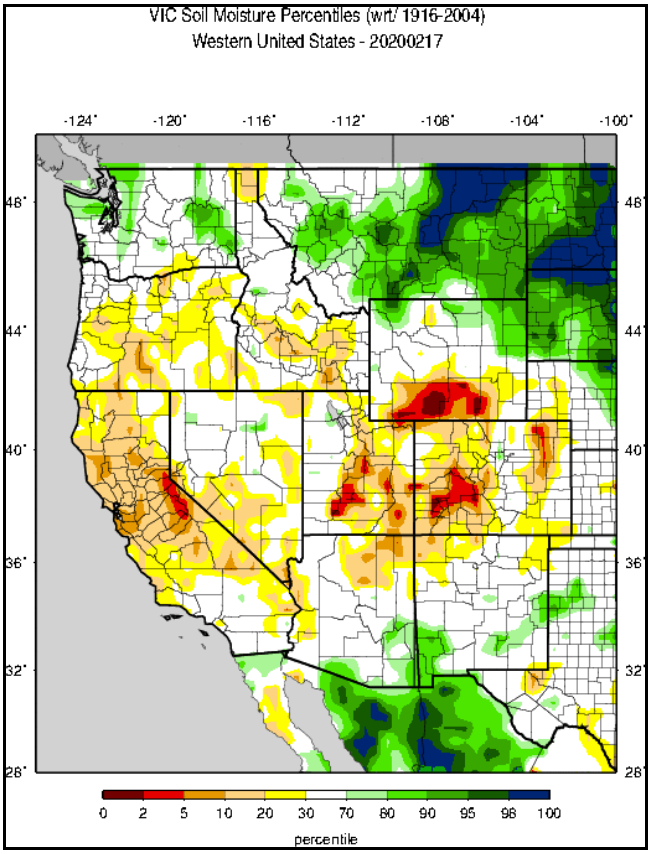

USGS 09163500 COLORADO RIVER NEAR COLORADO-UTAH STATE LINE
(Drainage area: 17849 square miles, length of record: 67 - 68 years)
7-day average discharge, in cubic feet per second
70000
10000
1000
JAN MAR MAY JUL SEP NOV JAN MAR MAY JUL SEP NOV
2019
2020
USGS WaterWatch
Last updated: 2020-02-19

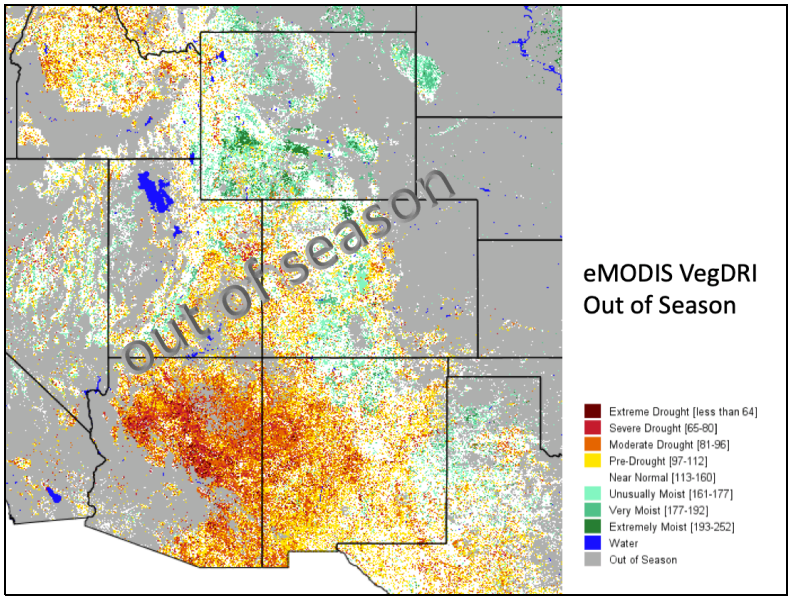

USGS 09315000 GREEN RIVER AT GREEN RIVER, UT
(Drainage area: 44850 square miles, length of record: 118 - 119 years)
7-day average discharge, in cubic feet per second
70000
10000
1000
JAN MAR MAY JUL SEP NOV JAN MAR MAY JUL SEP NOV
2019
2020
USGS WaterWatch
Last updated: 2020-02-19



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

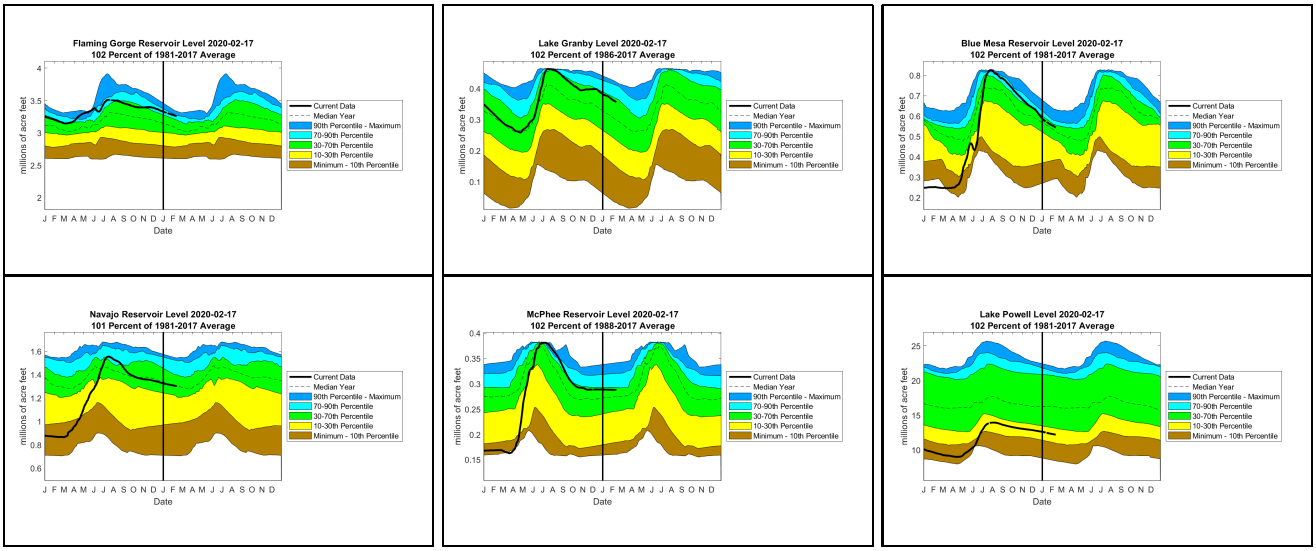




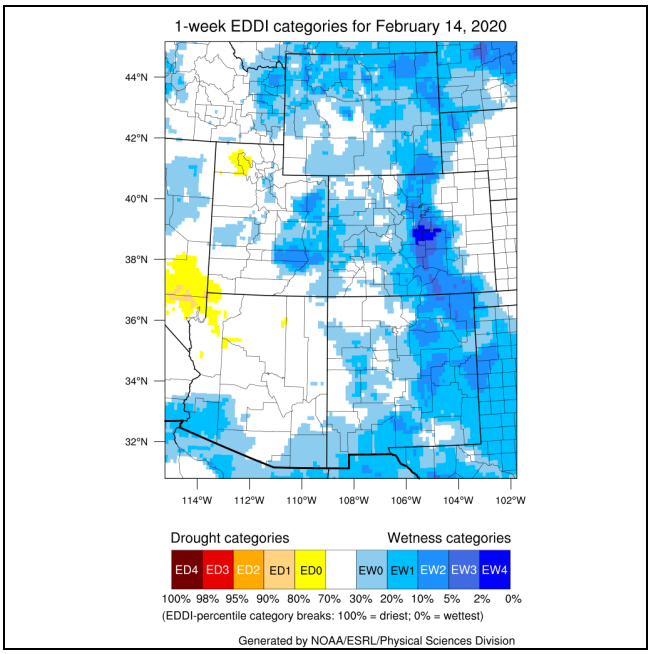
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

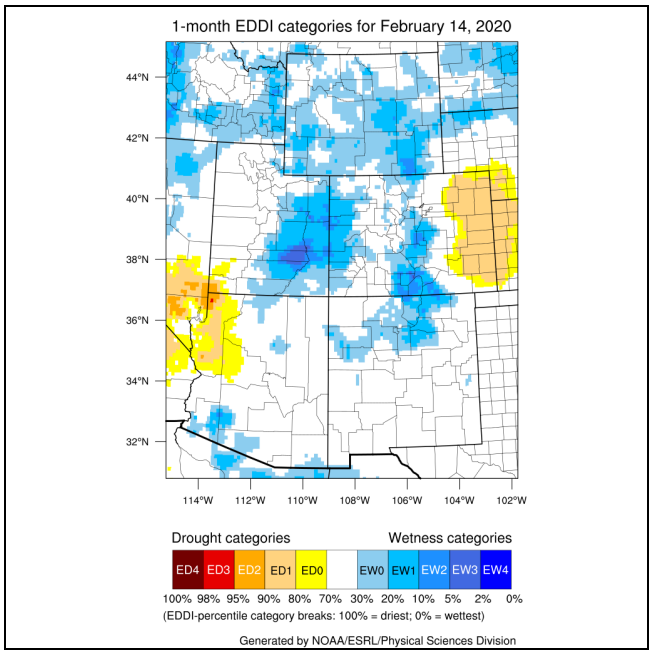
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir

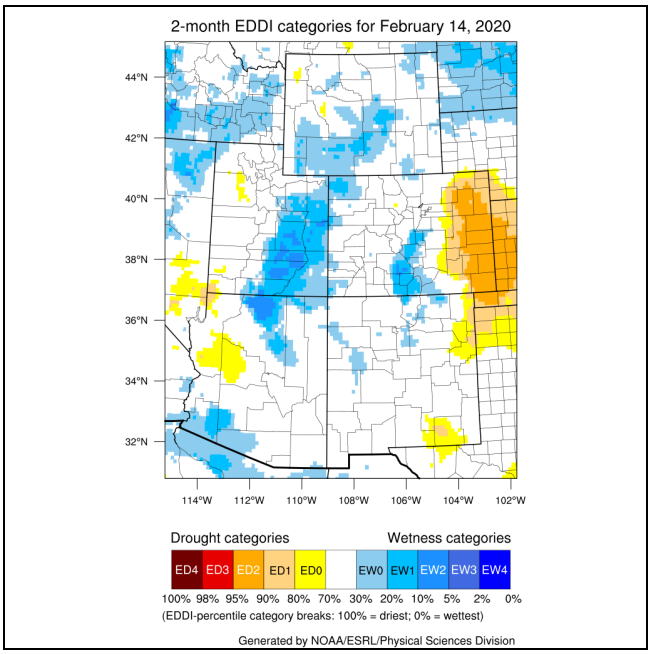
levels observed over the past 30 years. The data are obtained from the Bureau of Reclamation. Some of the reservoir percentiles don't line up at the new year due to differences in reservoir levels at the beginning of 1985 and the end of 2014. Dead storage has been subtracted. Note: Lake Granby data are obtained from the Colorado Division of Water Resources, and only goes back to the year 2000.

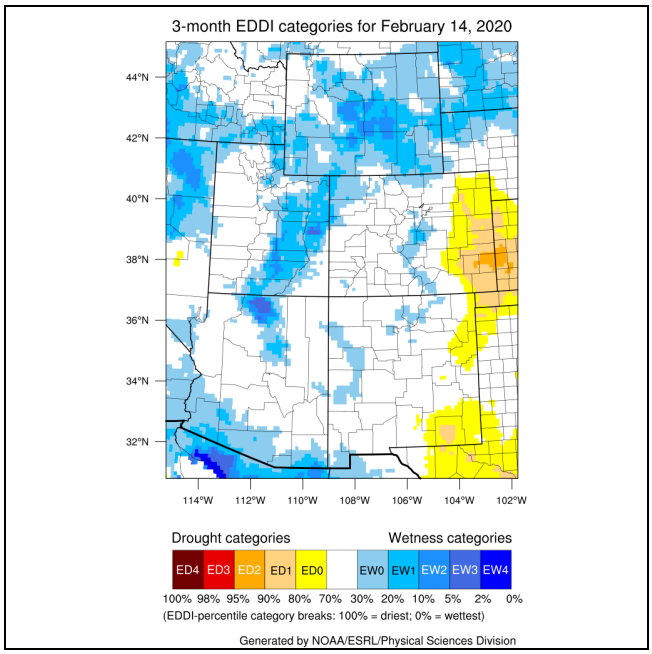


Evaporative Demand



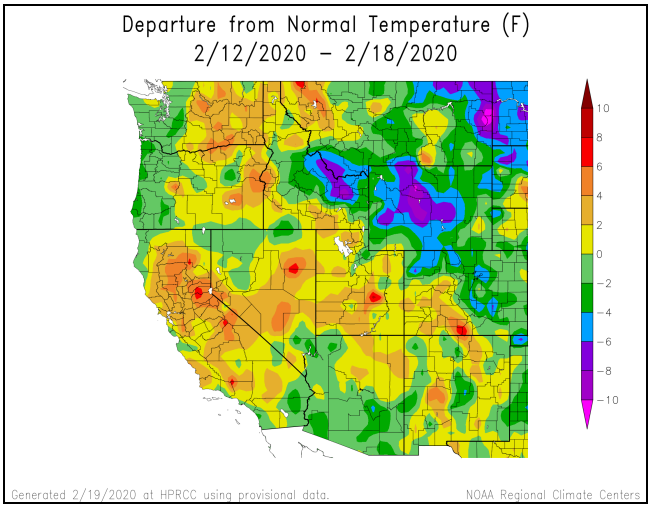


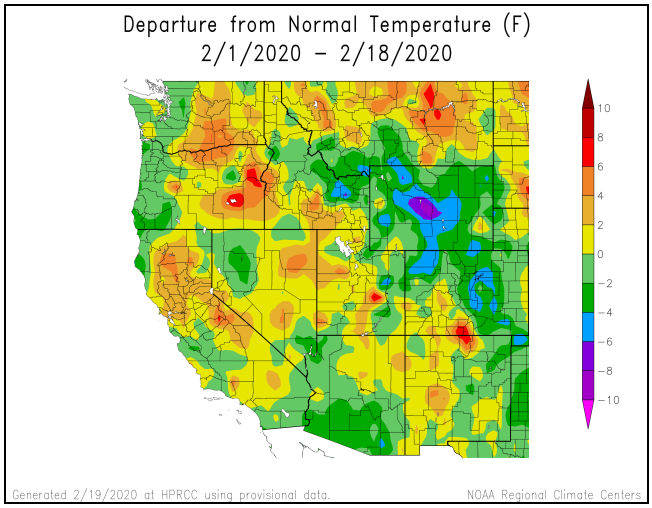




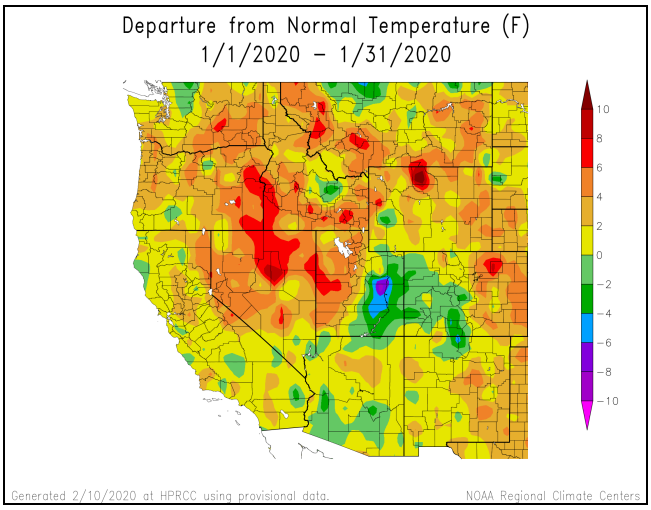
The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

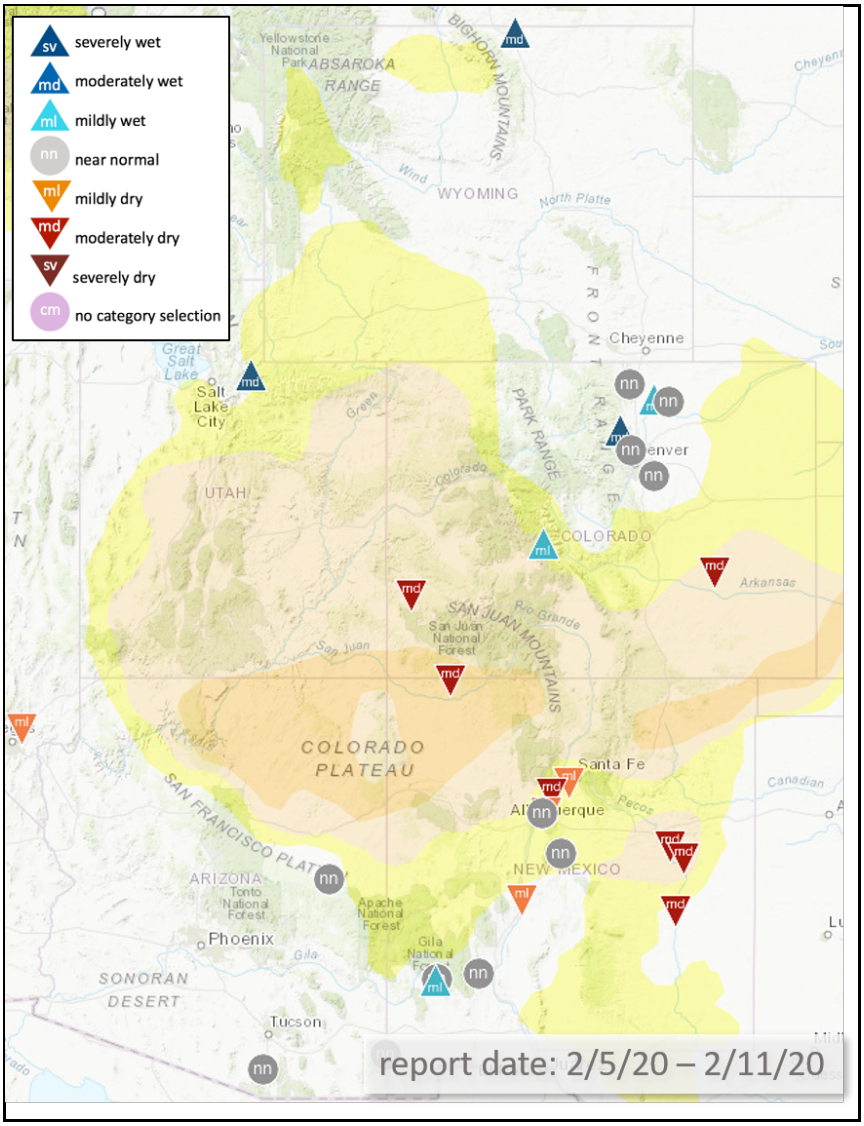




All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.



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.

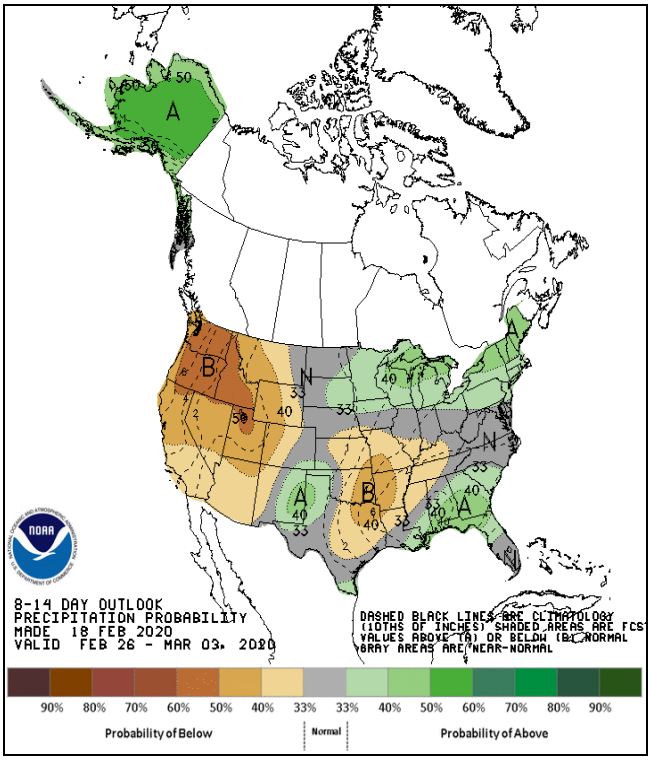
San Juan County, Utah Extension Director: Above normal for snowfall and precipitation right now. The events have been very timely and beneficial to improving conditions.

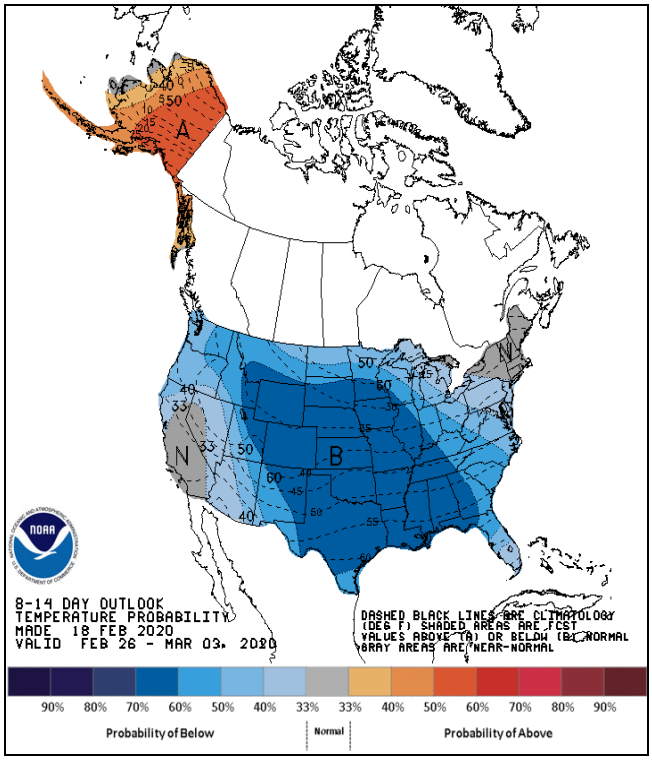
Central and Eastern UT: The general consensus is D1 is still appropriate for now. They unfortunately have missed out on recent storm events and could be teetering on the edge of falling back into D2 if storms don't come in the next couple of weeks.

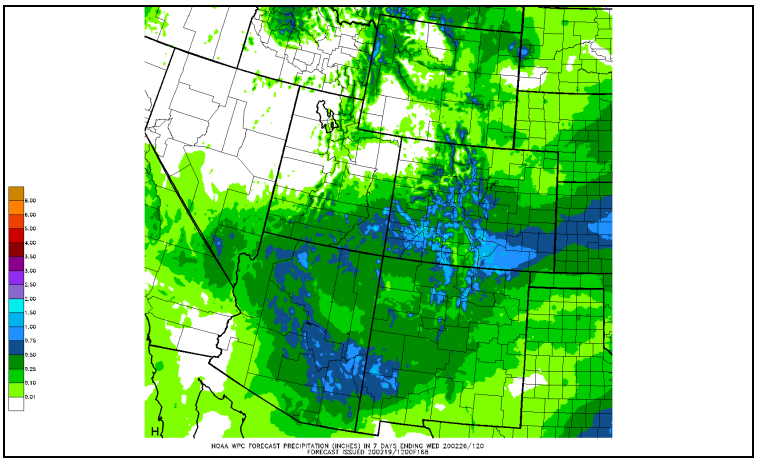
Front Range Colorado Water Managers: Very happy with above normal snowpack in the mountains and water supplies are looking good.

San Juan County FSA: "San Juan County shows better precipitation numbers than Grand County, yet Grand County has been down graded to the D1 Moderate Drought on the US Drought Monitor, and portions of San Juan County still remain in the D2 Severe Drought. We would like to see all of San Juan County Down graded to the D1 Moderate Drought for now. If conditions do not improve we would expect to go back into the D2 in the future."

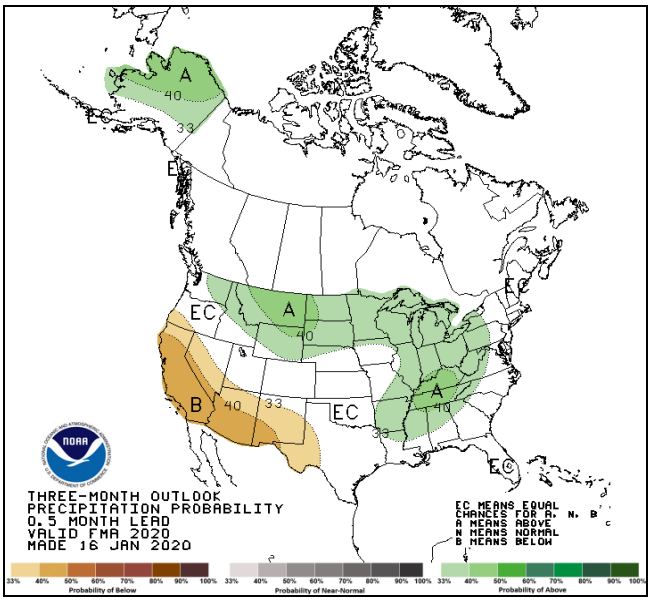
Outlook

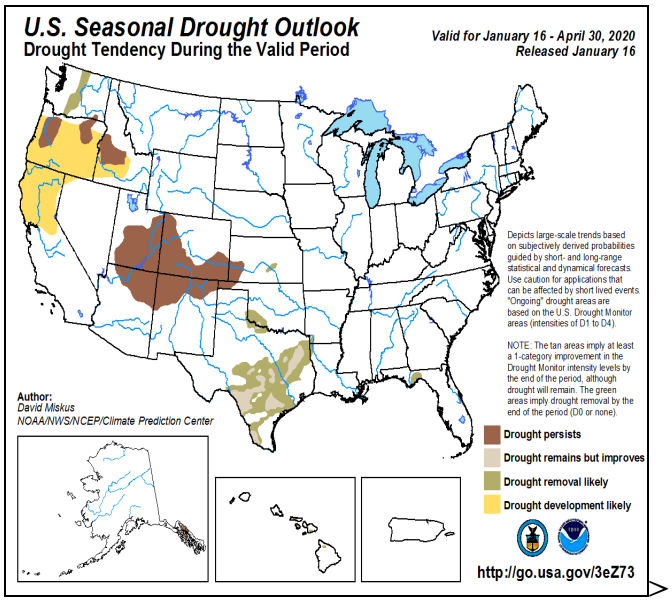




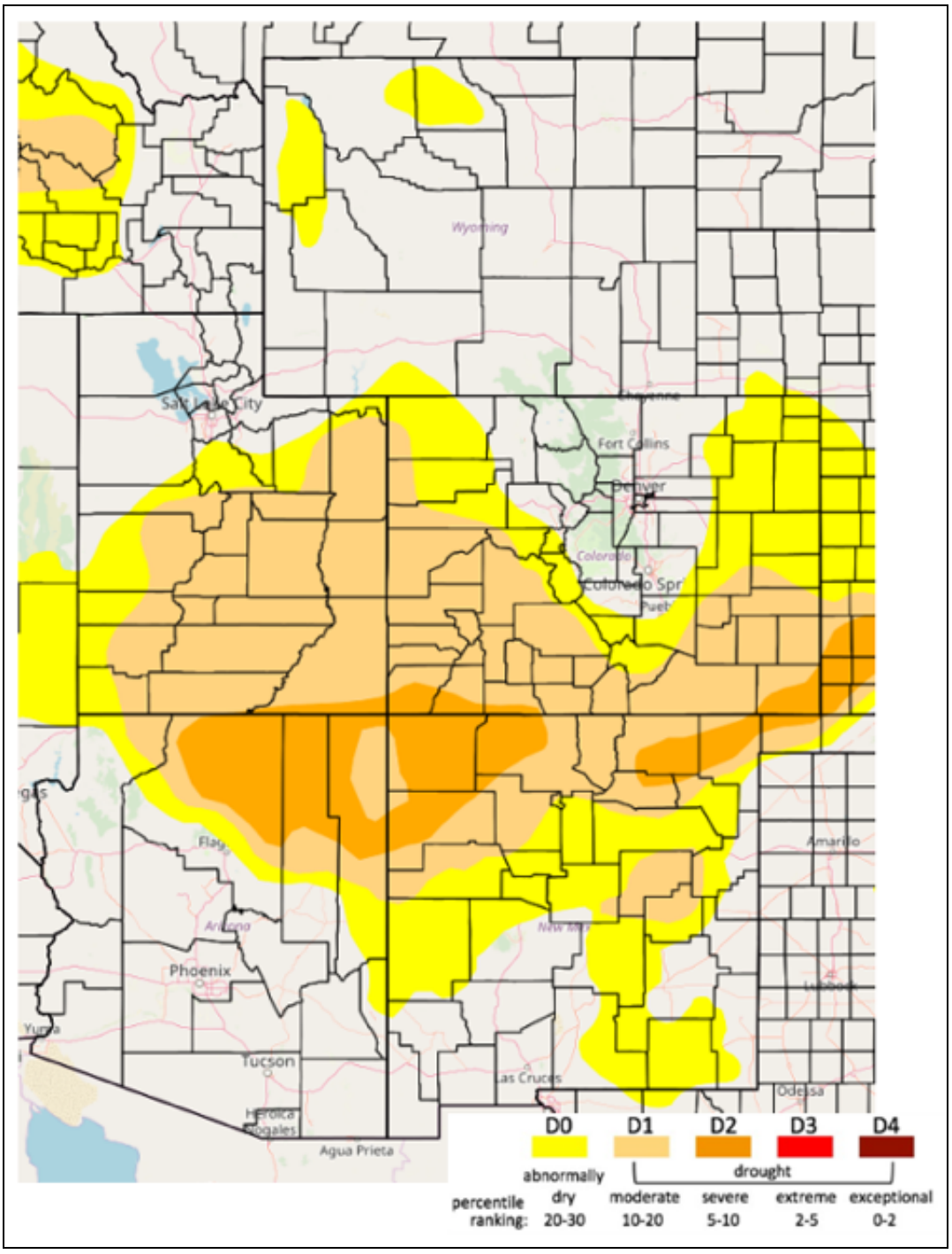


The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate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

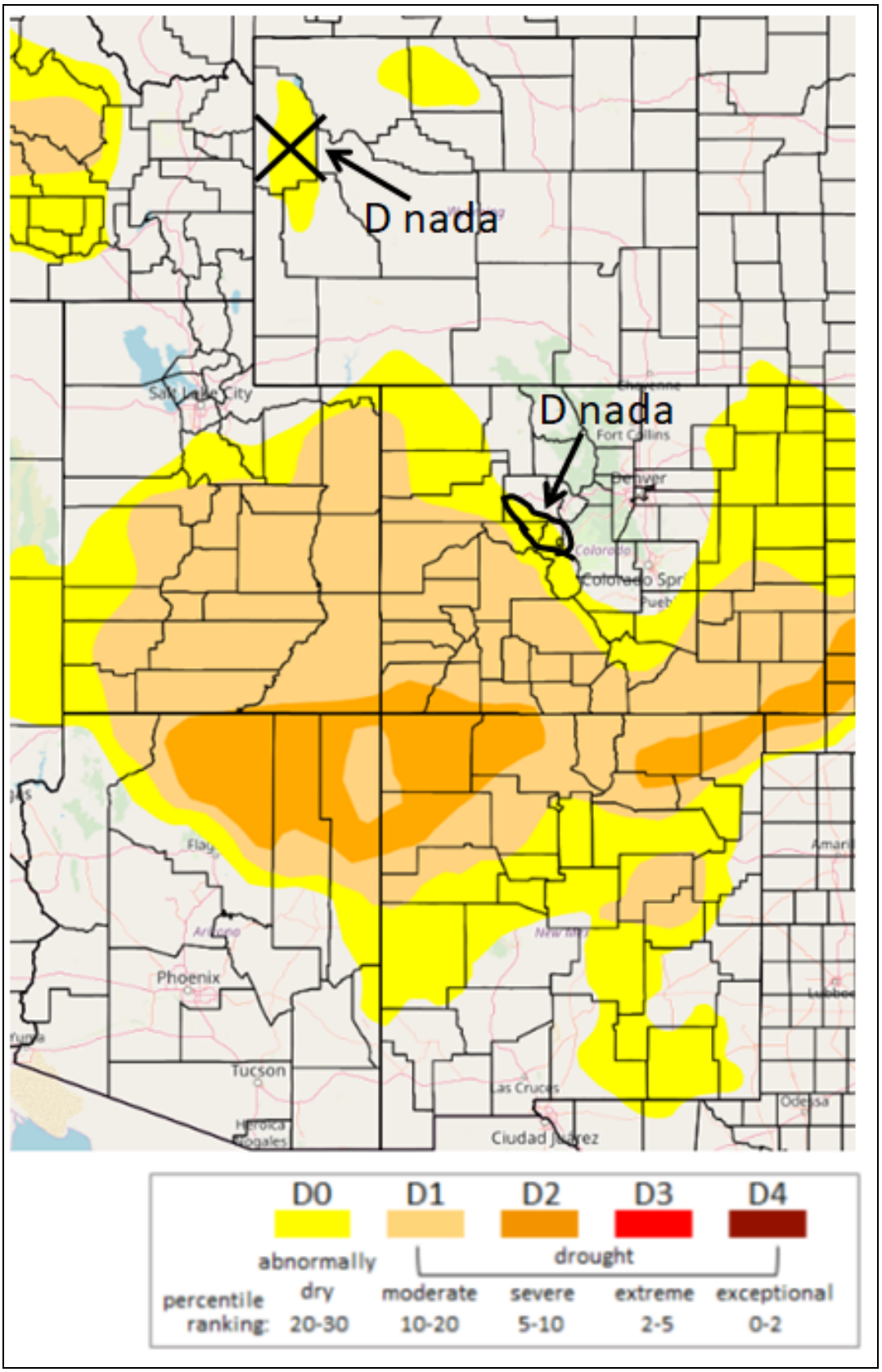




Summary and Recommendations



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 18, 2020

This last week has been dry for much of the Intermountain West and Eastern Colorado. Decent precipitation fell through much of the northern Rockies in

Colorado, and along the northern Colorado Front Range. The northern Front Range received at least 0.50" of precipitation over the last week. Jackson and Routt counties in Colorado saw upwards of 2.00". This is a welcome after a very dry January. Northwestern Wyoming also received decent snowfall. Teton County received about 1" to 2" of precipitation.

Standardized precipitation index values (SPIs) are a mixed bag across the region and across time scales. For the Four Corners area, very dry SPIs still show up on the 6-month timescale. In the short-term 30-day timescale, dry SPIs dominated much of Utah. Colorado is wet in the northern and central mountains and the Front Range, and near normal to dry for the rest of the state.

With the system that moved through eastern Colorado, the region saw a nice cool down with below normal temperatures over much of the region. The Front Range saw a temperature departure of 4 to 6 degrees cooler than average. This has helped the month-to-date temperatures cool to below normal for much of eastern Colorado.

Snowpack across the IMW is near-to-above normal. A few values in New Mexico and Arizona are below normal, but much of the region is between 100-120% of normal.

The outlook for the next 7 days is showing precipitation in the mountains of Colorado, Utah and northwestern Wyoming and also a good amount of precipitation is in the forecast for southeastern Colorado. The 2-week outlook is hinting at chances for below normal precipitation for the western half of the IMW region and chances of above normal for the eastern half with an even greater chance of precipitation over southeastern Colorado. Temperatures are forecast to be cooler than normal for the region over the next two weeks.

Recommendations:

UCRB: We are recommending removing D0 over Teton County Wyoming. This area received decent precipitation of 1" to 2" over the last week and experienced below average temperatures which has helped to improve snowpack. This is in agreement with the improving SPIs in this region.

We are recommending a trimming of D0, improving to the west, over Lake county Colorado. This region received decent precipitation, experienced cooler than average temperatures and improved snowpack. This is in agreement with the improving SPIs in this region.

We are recommending status quo for southeastern Utah including San Juan county. This is the second week in a row we considered improving this region by taking D2 completely out of San Juan after having a discussion with the FSA in Monticello. However, a lack of data in southern San Juan county as well as no precipitation since the beginning of the month has pushed us to hold off on improvements for now.

Eastern Colorado: Status Quo. While this region did not receive much precipitation in the last week, temperatures were cooler than average which has helped improve evaporative demand in eastern Colorado. While we don't typically rely on this product in the winter, an improvement is telling us a couple of things, it's not as dry, less windy and cooler than the previous week. While there isn't much to evaporate right now from the croplands, these types of conditions are easier on the dormant vegetation.