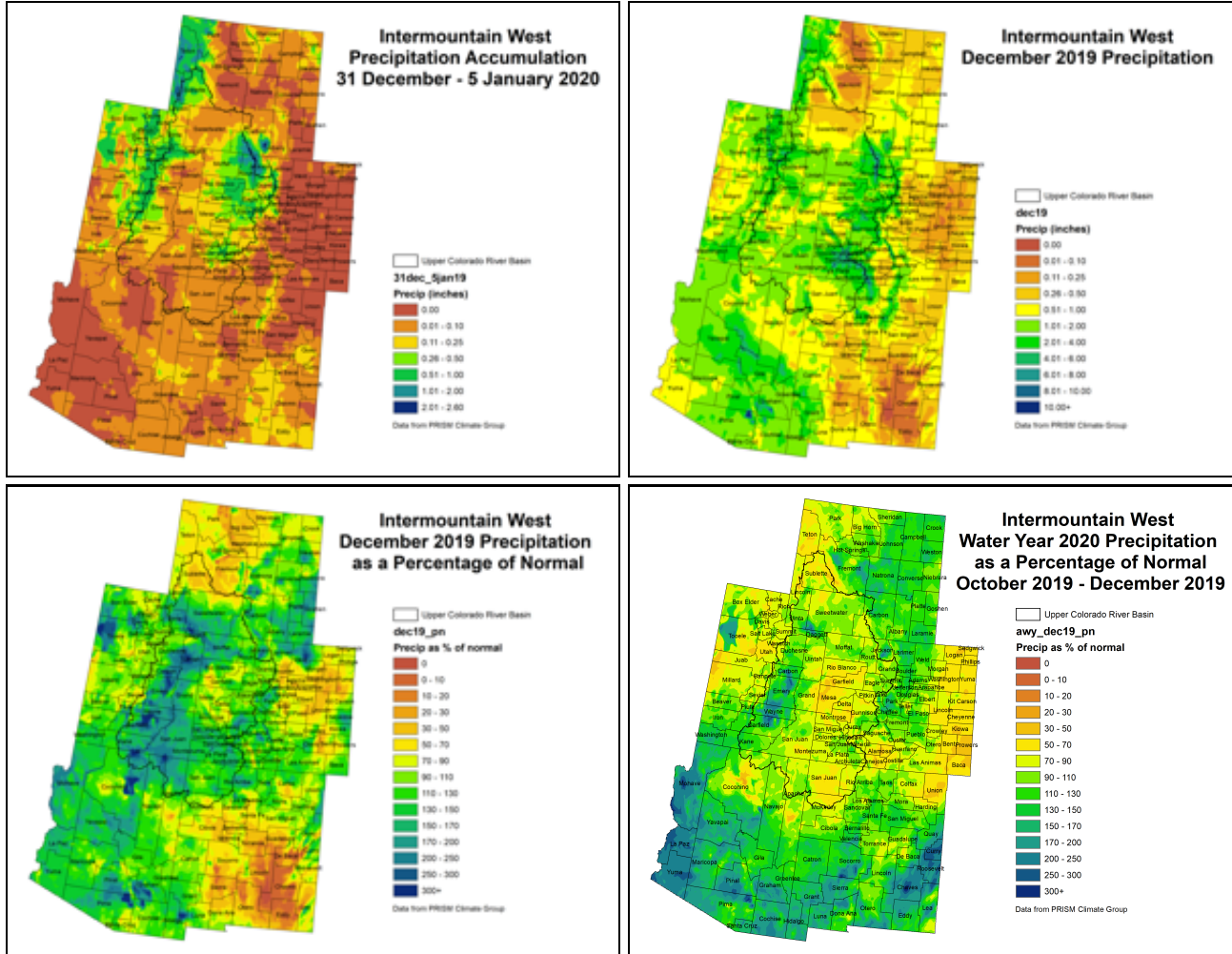


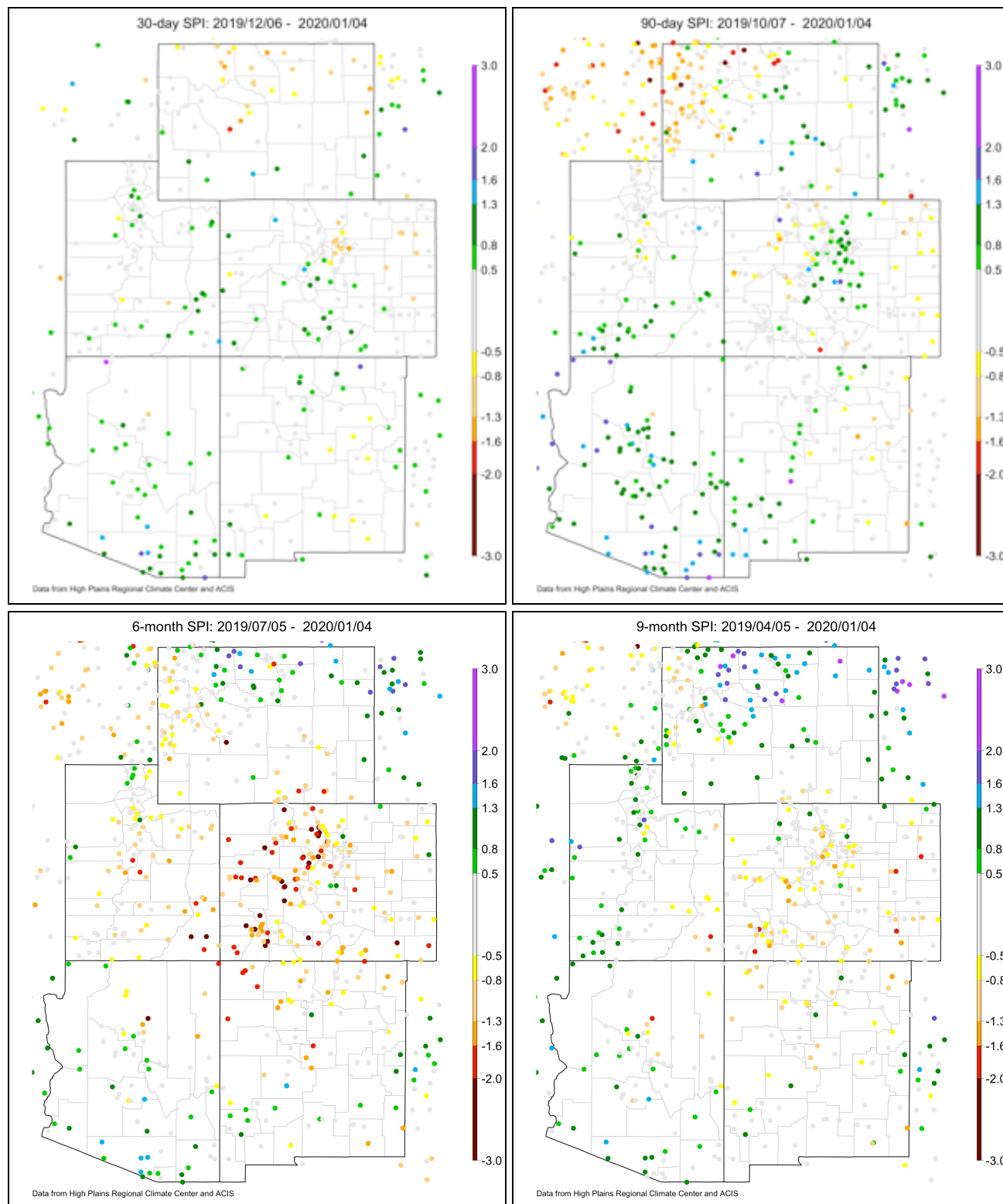
NIDIS Intermountain West Drought Early Warning System January 7, 2020

Precipitation



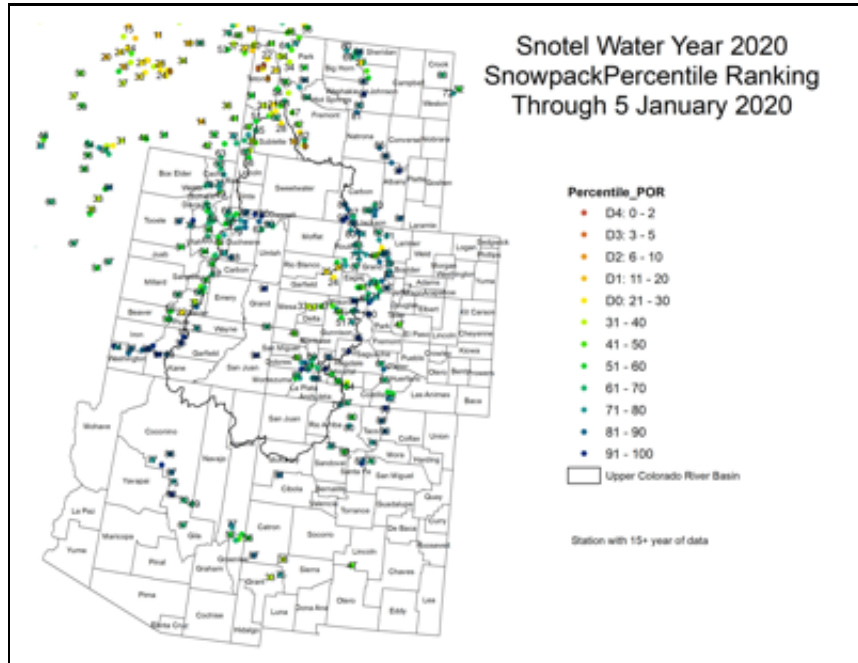
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index

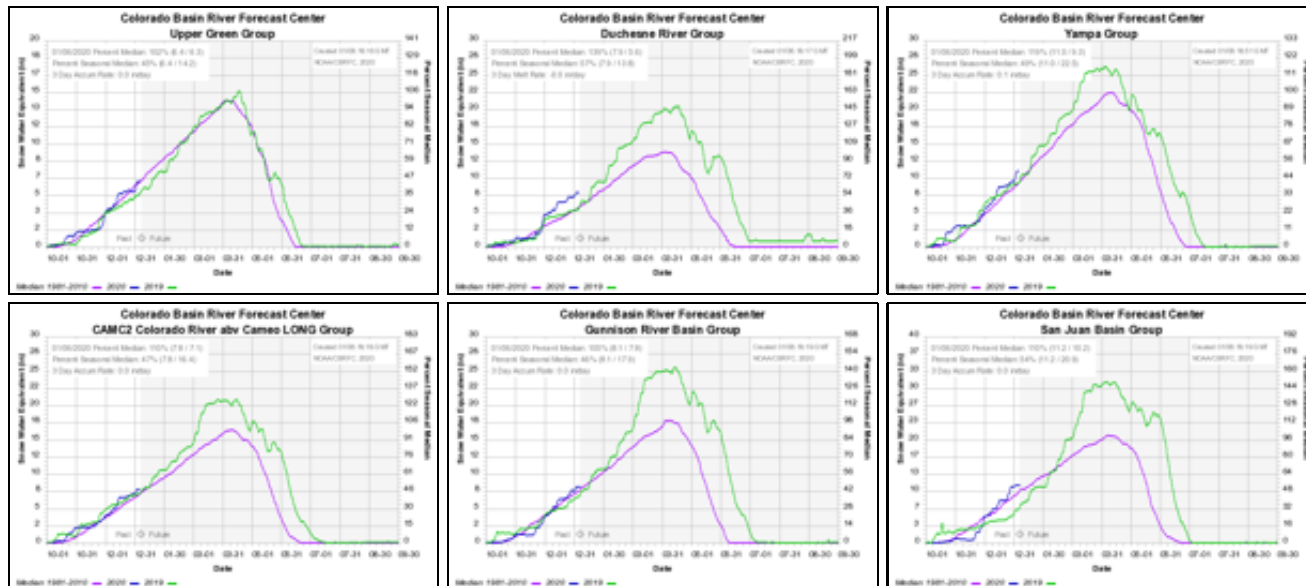


Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. Colors match the different drought categories with the U.S. Drought Monitor. 30- and 60-day SPIs focus on short-term conditions while 6- and 9-month SPIs focus on long-term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

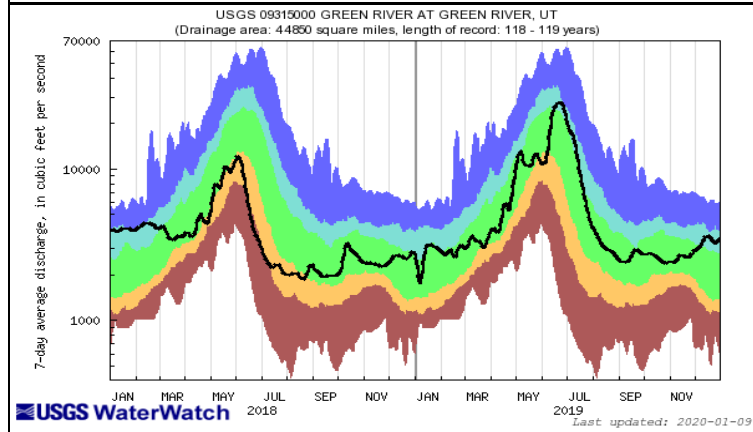
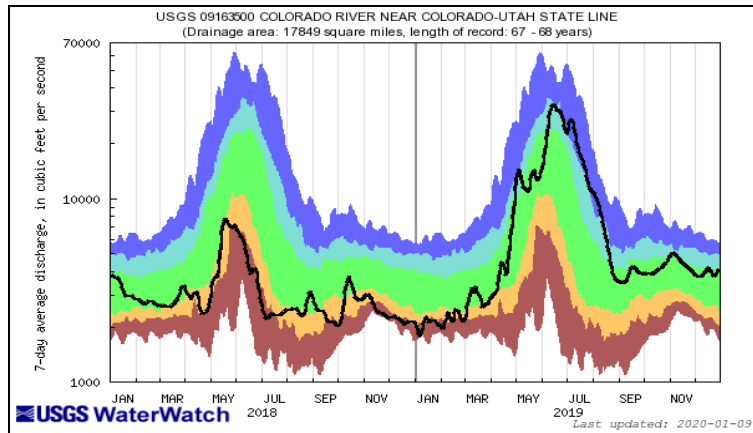
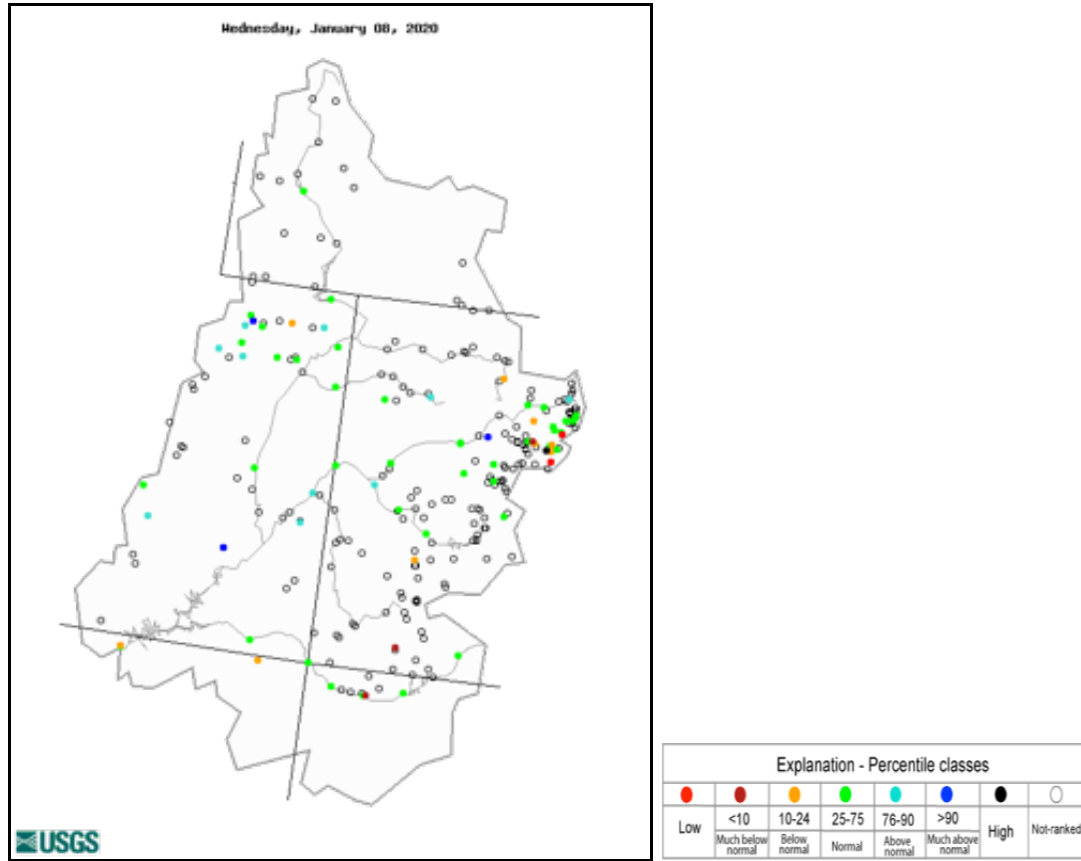
Snotel and Snowpack

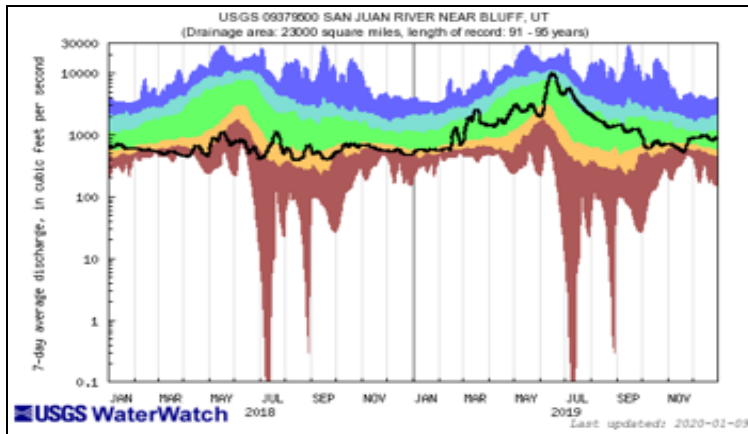


The above image shows SNOTEL snowpack percentiles for each SNOTEL site in the Intermountain West. The images below show accumulated snow water equivalent in inches (green) compared to average (blue) and last year (red) for several different sub-basins across the UCRB (and were created by the Colorado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



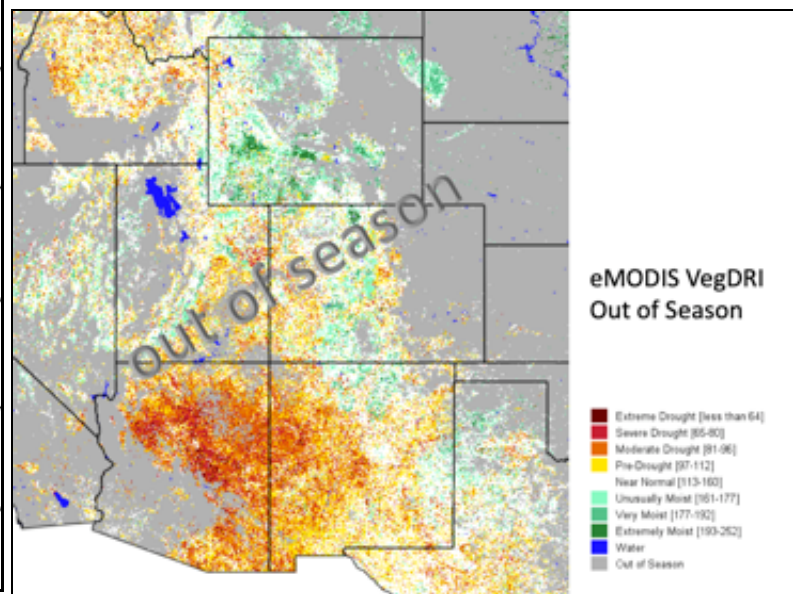
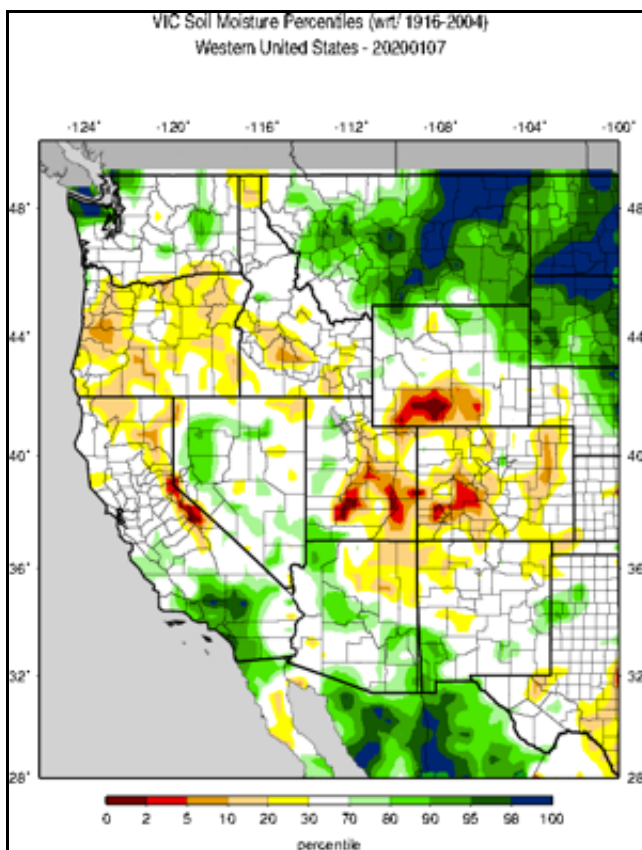
Streamflow





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.

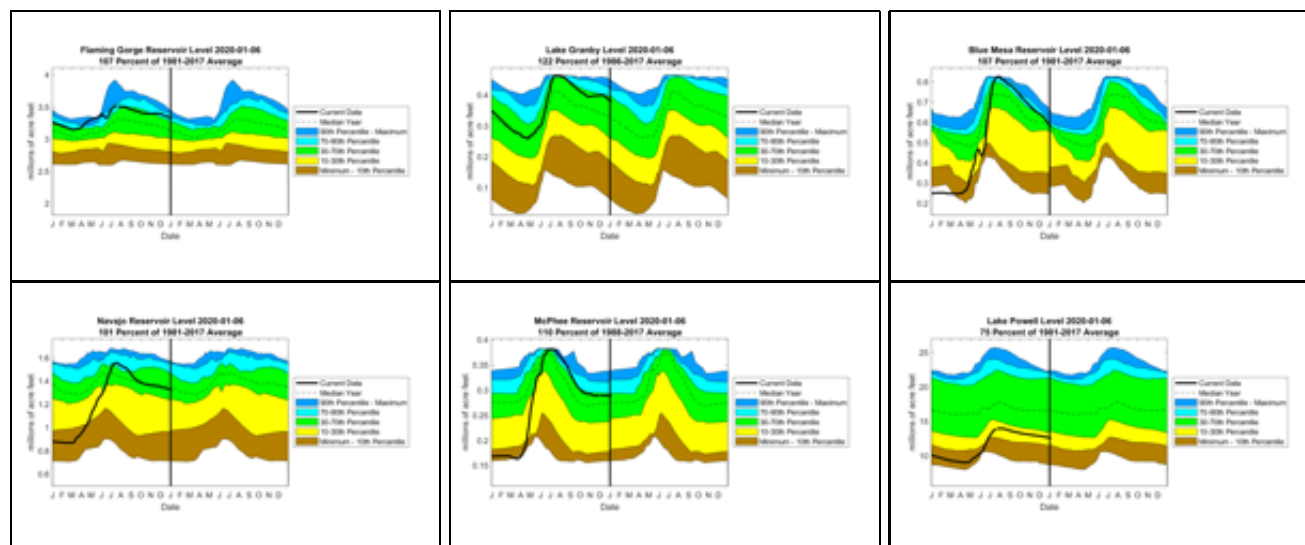
Surface Water



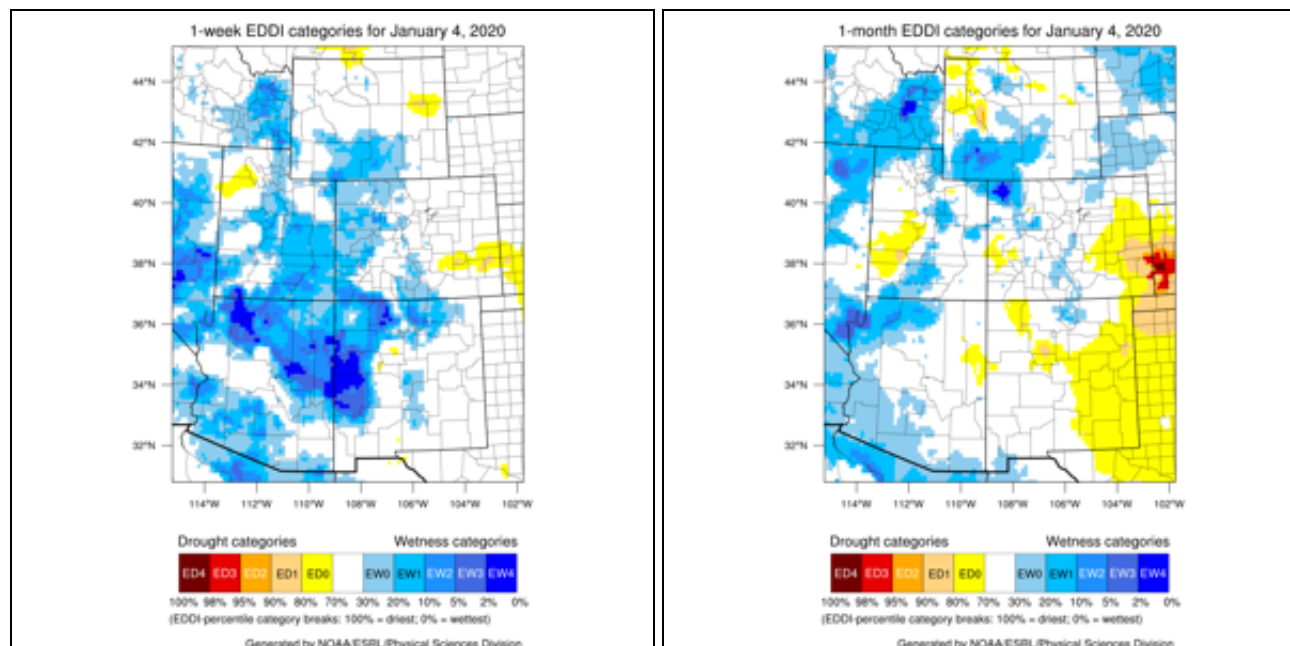
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

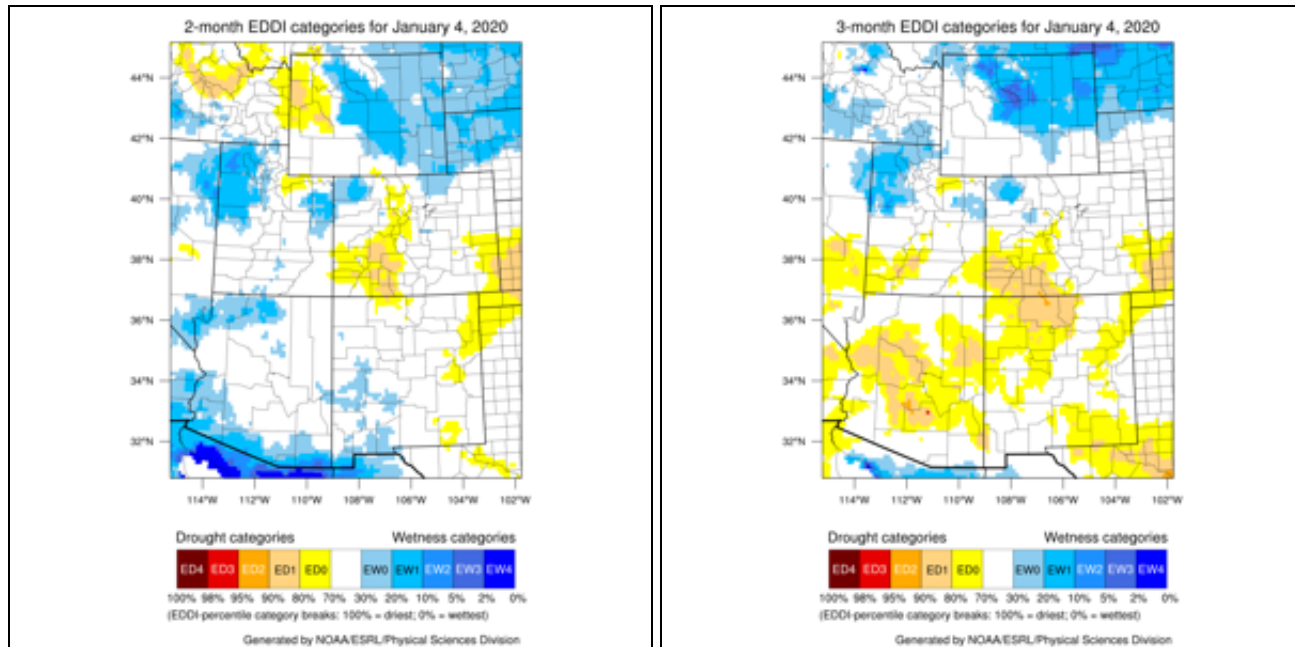
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir

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.



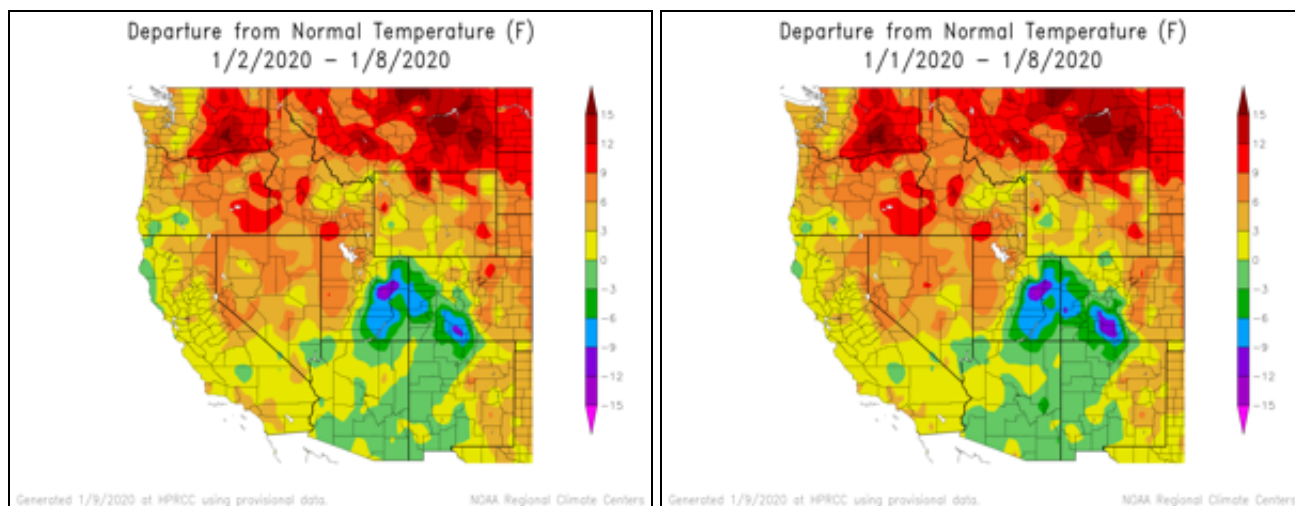
Evaporative Demand



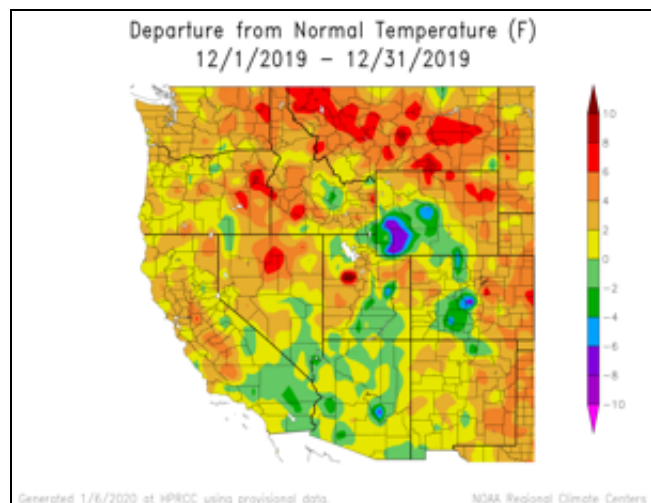


The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

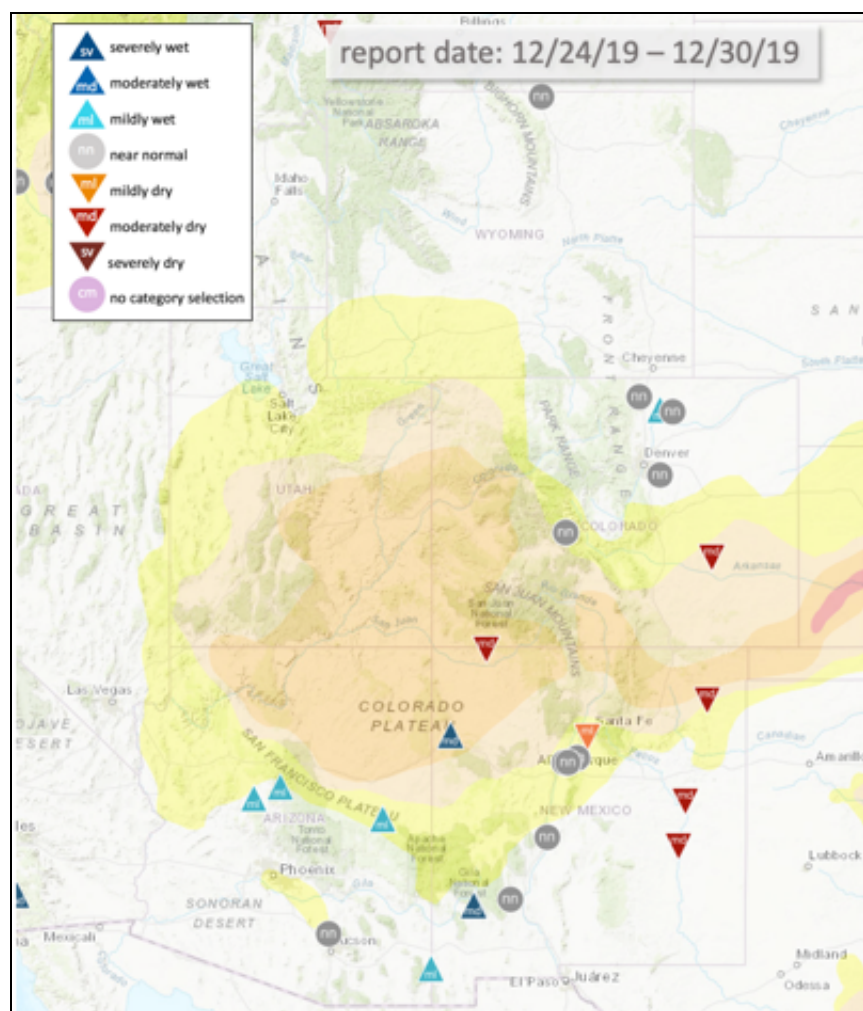
Temperature



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.

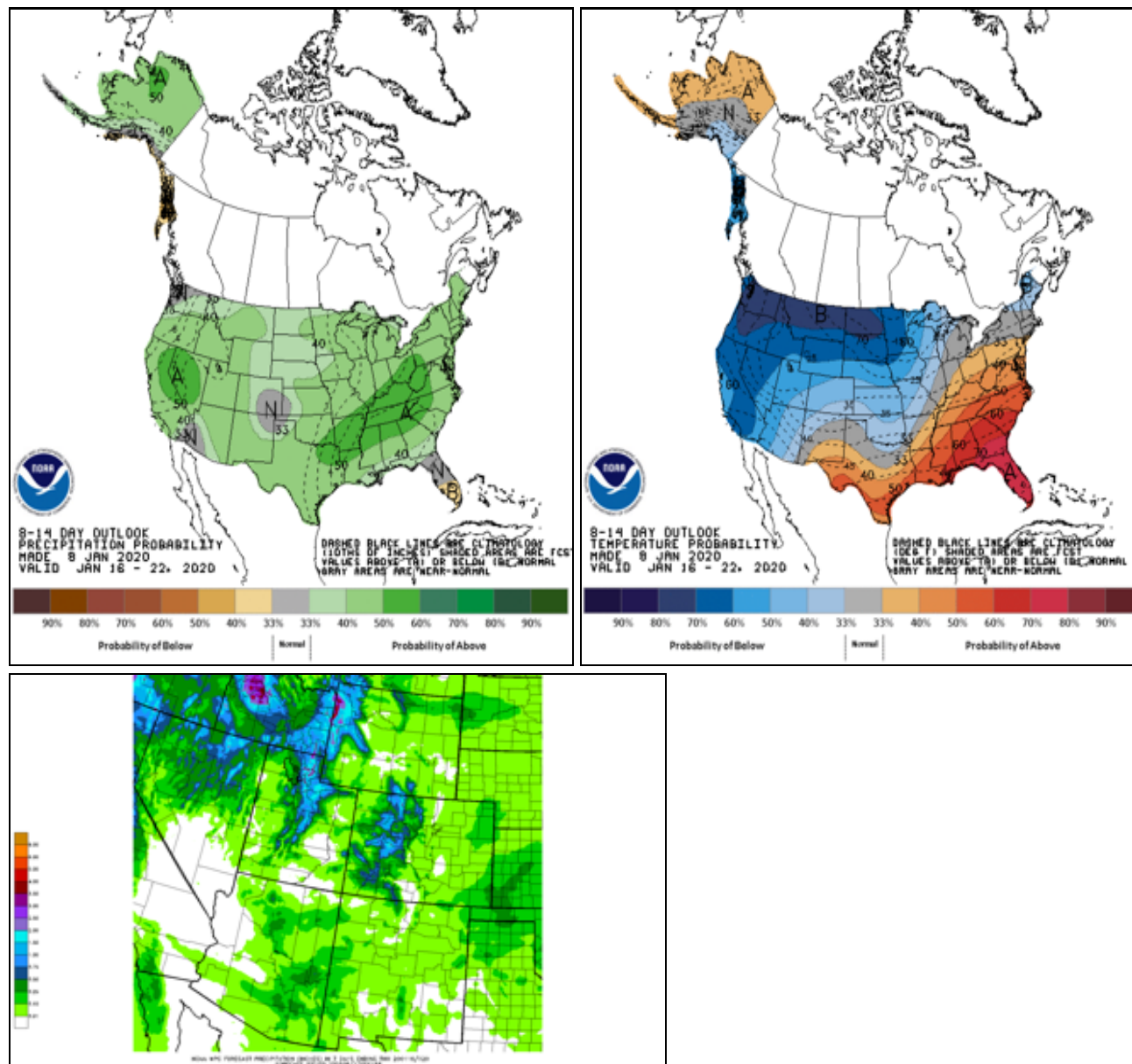


Condition Monitoring and Impacts

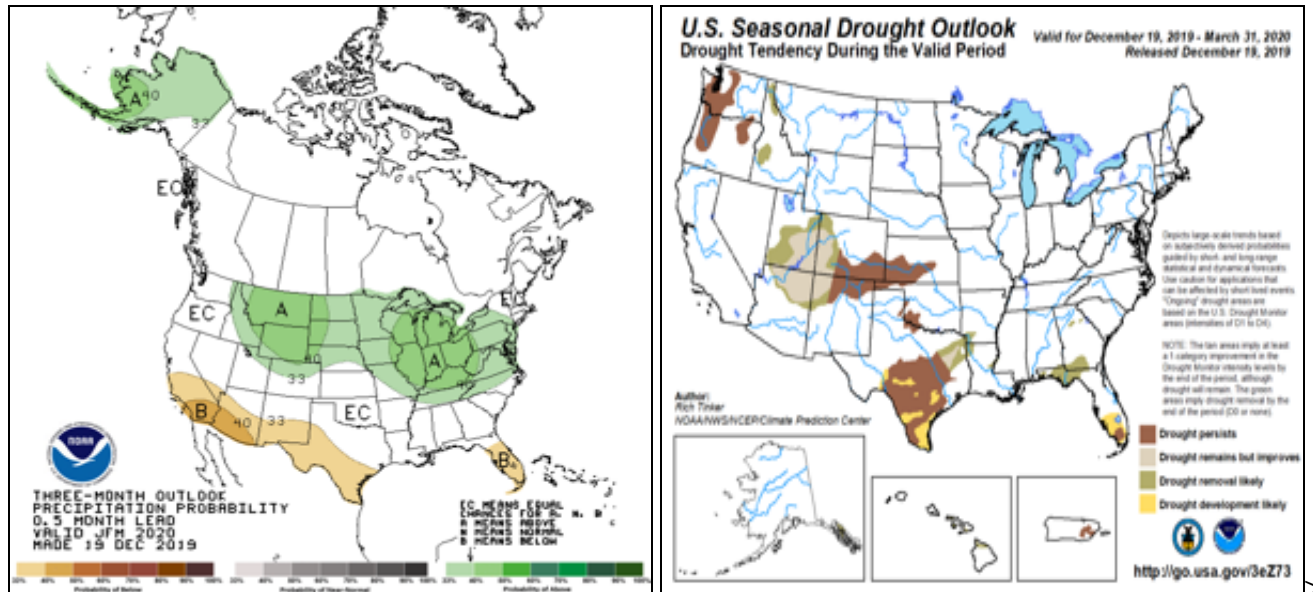


Map of current condition monitoring reports submitted to CoCoRaHS in the last week overlaid on the current U.S. Drought Monitor depiction. Specific impacts reports from local experts listed below.

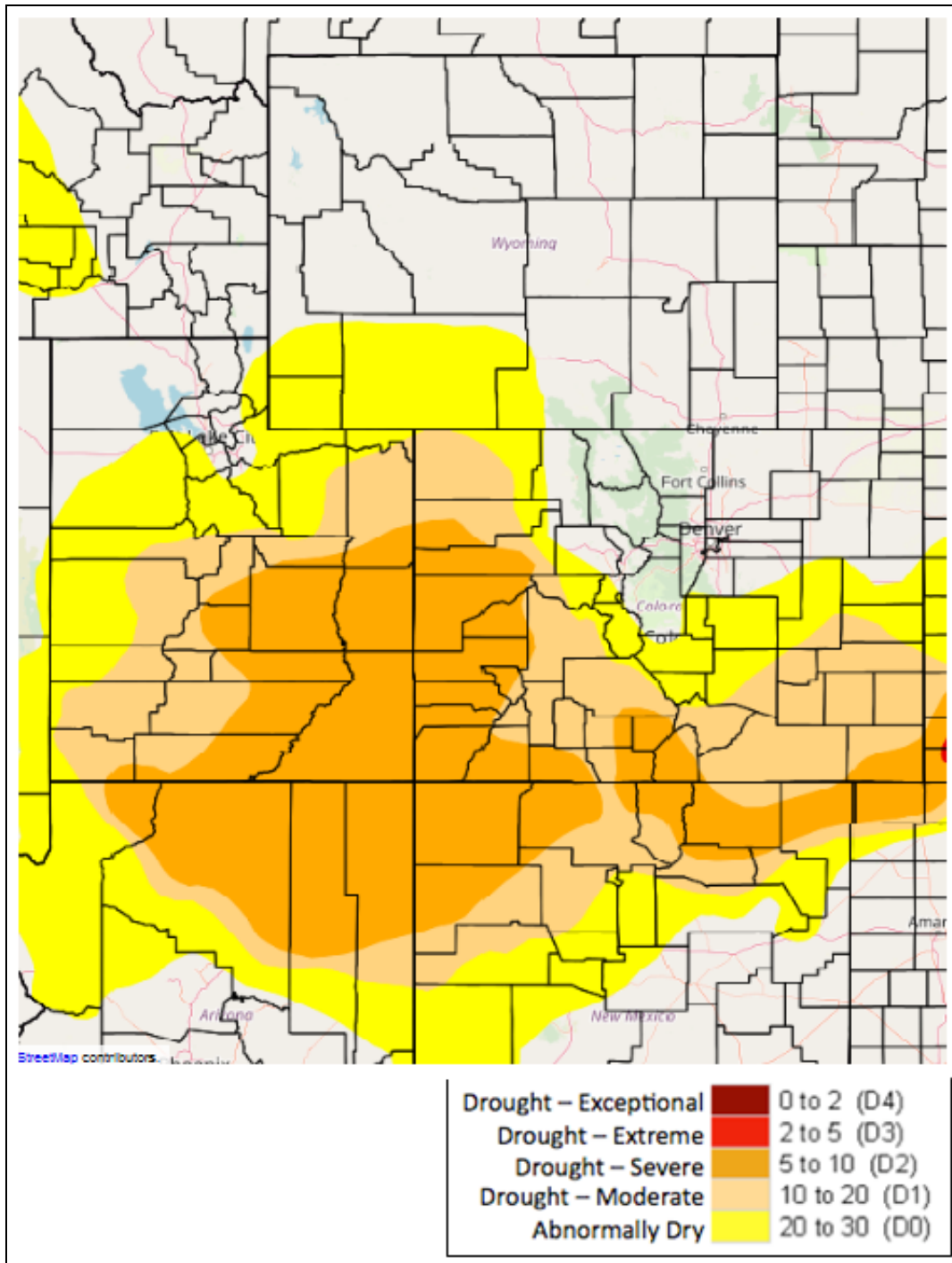
Outlook



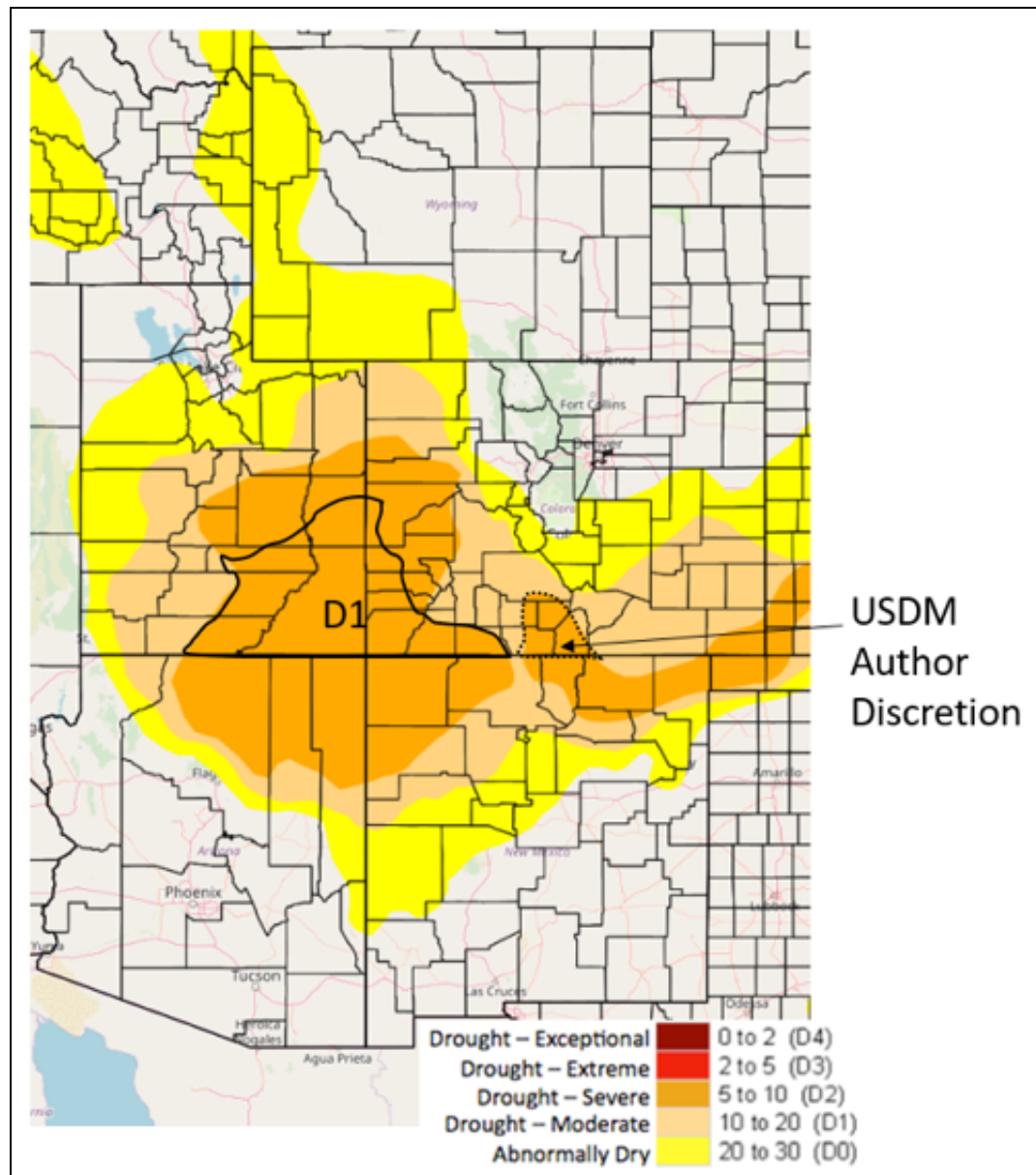
The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate 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: January 7, 2020

Happy New Year and Decade! The Intermountain West rang in the new year with snow in the Teton, Wasatch, and northern Colorado Rocky Mountain Ranges, and with chinook winds on the eastern plains. Consequentially, temperatures were cooler than normal through much of the upper and lower Colorado River Basins, but well above normal east of the Continental Divide.

Snowpack continues to increase across the high elevations of the Intermountain West. Snowpack is over 150% of average for this point in the season in Arizona and southern Utah. It is above normal throughout New Mexico, Colorado, and Northern Utah. Conditions in Wyoming are more varied, but still mostly on the high side of average.

The cool winter conditions have lead to most streams in the Upper Colorado

River Basin being ice affected. There are still low flows being reported in the Animas and Uncompahgre River Basins. In the Uncompahgre, this is being driven by reservoir management. Because of the hot, dry summer, more water was released from Ridgeway Reservoir than normal. Reservoir Managers are now saving as much water as possible. Reservoir conditions are varied throughout the basin as well. Large reservoirs, such as Blue Mesa, Flaming Gorge, and Lake Granby are reporting normal-to-above normal storage, but some small reservoirs in western Colorado and eastern Utah are low. Examples of small, but low reservoirs are Paonia, Fruitgrowers, Millsite, and Gunnison. Lake Powell is low, but better than one year ago.

Soil moisture models are showing below normal root zone storage across much of the Upper Colorado River Basin. The San Juan and southern La Sal mountain ranges are showing less than 10th percentile root zone storage. However, most of this area is snow covered. Lower and middle elevations may not see the impact of recent precipitation in the soils for days or weeks. For the high country, it will be months (as long as the snow does not melt).

Outlook:

Conditions are unseasonably warm across the IMW at the moment, save for eastern Utah. This is going to change by the end of the week. Cold air moves into the UCRB on Thursday, and the eastern Plains on Friday. Following the cool down, temperatures are likely to be wintry for some time. The CPC shows an increased chance of below normal temperatures for the 6-10, and 8-14 day time frames. The coming weather pattern should be conducive to continued snowfall in the mountains, particularly in western Wyoming, northern Utah, and northern Colorado. Accumulations are less certain further south. Eastern Colorado, particularly southeast Colorado, is slated to receive just wind.

Recommendations:

UCRB - A large removal of D2 is recommended across southern Utah and SW CO. This recommendation is based largely on continued above average snowpack accumulation across the region. After an historically dry late summer/early fall, low antecedent soil moisture became a concern for the coming runoff season. Soil moisture is still low across much of the region, but with the robust snowpack thus far, confidence has increased that impacts will not be "severe" in the coming runoff season.

For south-central Utah, D2 can conservatively be removed from areas where 6-month SPIs are D1-level or better. The 6-month SPI is the worst SPI as it shows the full impact of the dry summer and fall, but not the impact of the cool, wet spring.

For SE UT and SW CO the recommendation for improvement is based on solid mid-season snowpack, and large storms last week. We tried to make

this recommendation a week ago, but it was not included in the final drought monitor map.

Eastern Colorado - Status Quo. Above average temperatures and wind have generated concern recently, particularly in the Arkansas River Basin, but it is the dry season for the eastern plains, and precipitation over the last 90 days has still been near normal. No changes at this time.

Sangre de Cristos - Author Discretion: After discussions with the NM group, we are both leaning towards improving the Sangres to D1. Snowpack is above average, which points to improvement. However, recent precipitation alone does not justify improvement, and 6-month SPIs are still at D2-level.