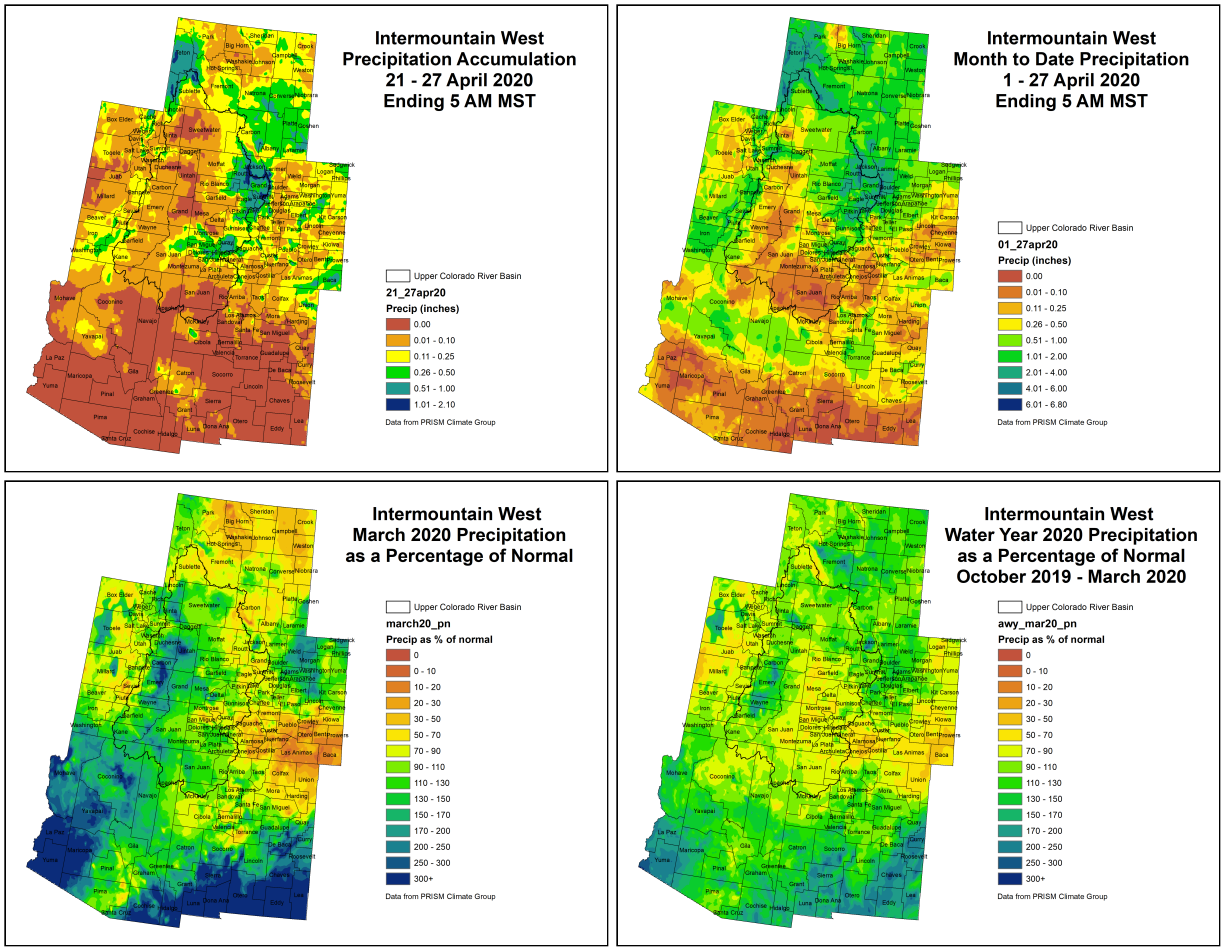
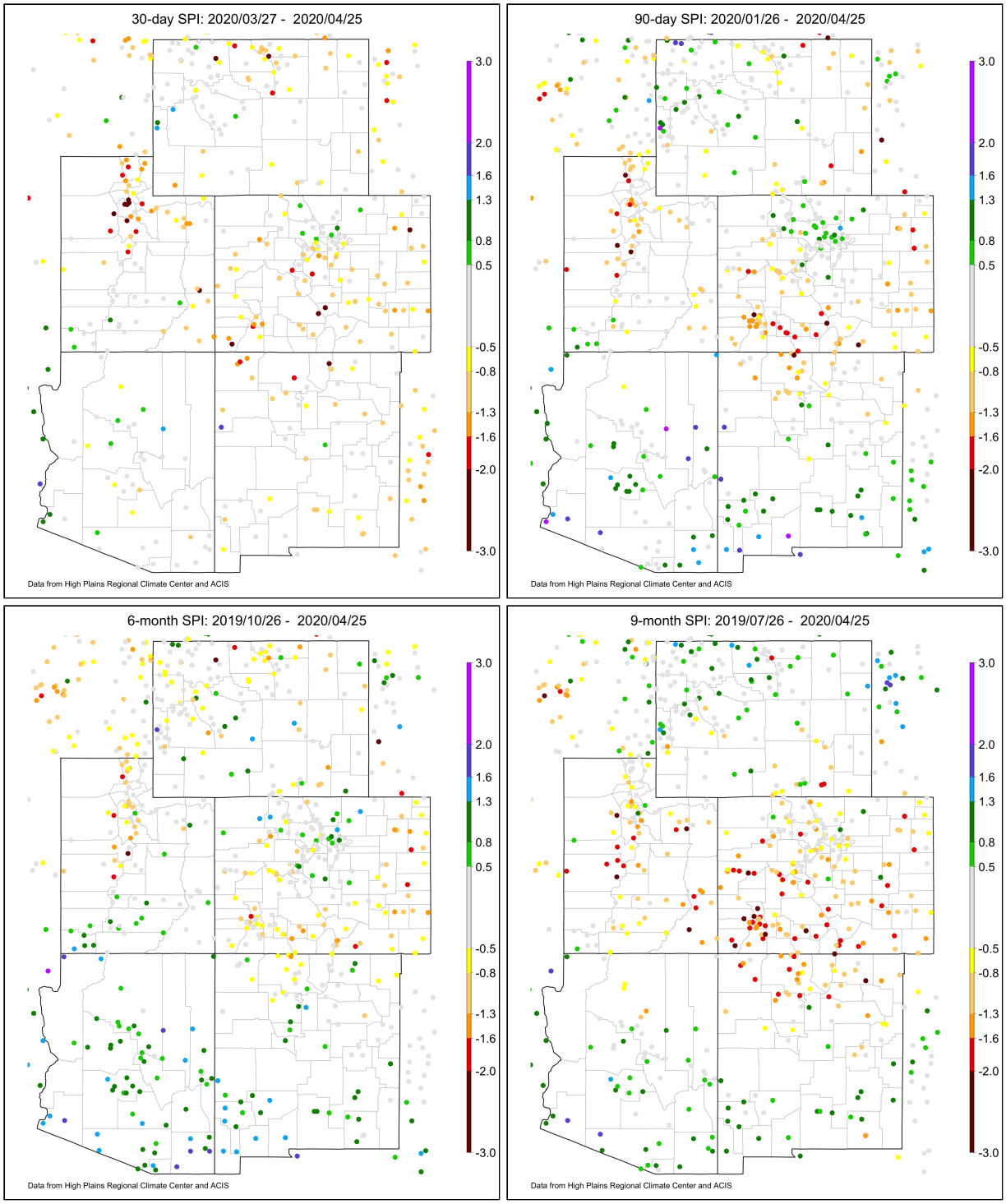
NIDIS Intermountain West
Drought Early Warning System
April 28, 2020

Precipitation



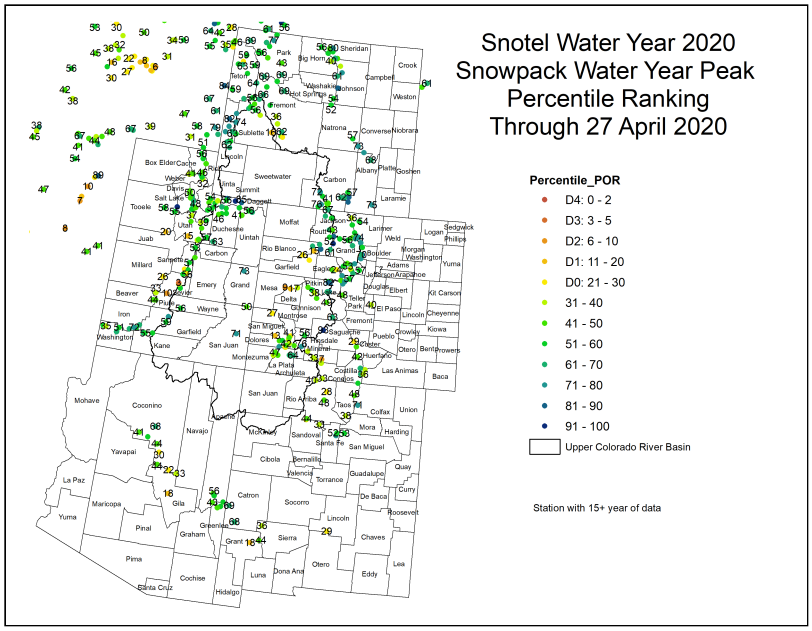
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index

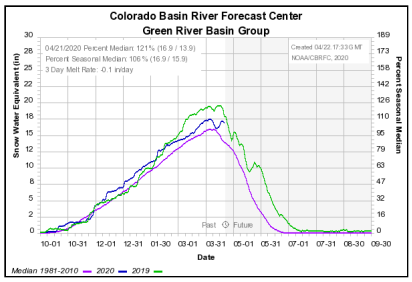


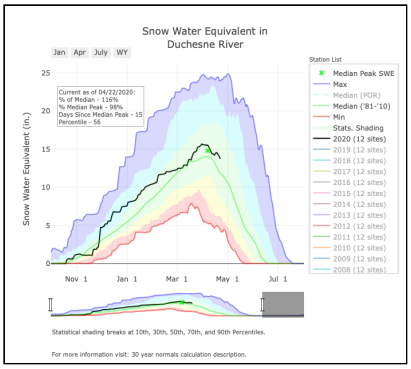
Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. Colors match the different drought categories with the U.S. Drought Monitor. 30- and 60-day SPIs focus on short-term conditions while 6- and 9-month SPIs focus on long-term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

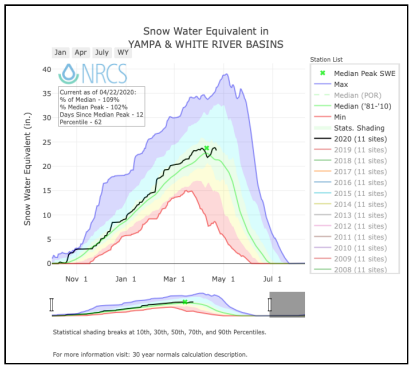
Snotel and Snowpack

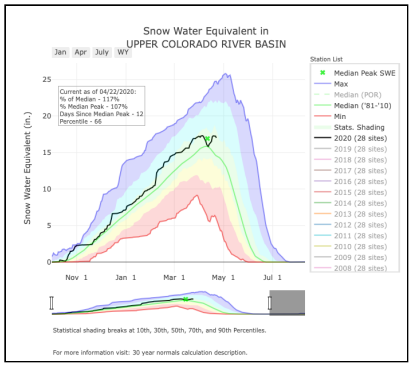


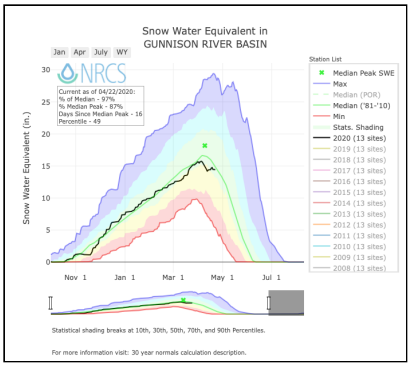
The above image shows SNOTEL snowpack percentiles for each SNOTEL site in the Intermountain West. The images below show accumulated snow water equivalent in inches (green) compared to average (blue) and last year (red) for several different sub-basins across the UCRB (and were created by the Colorado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

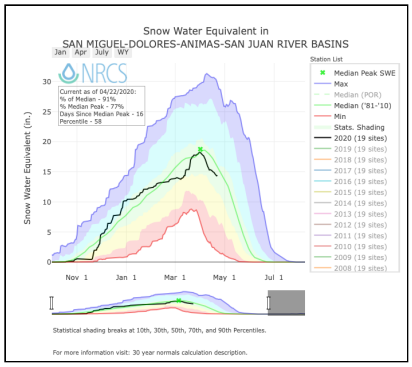




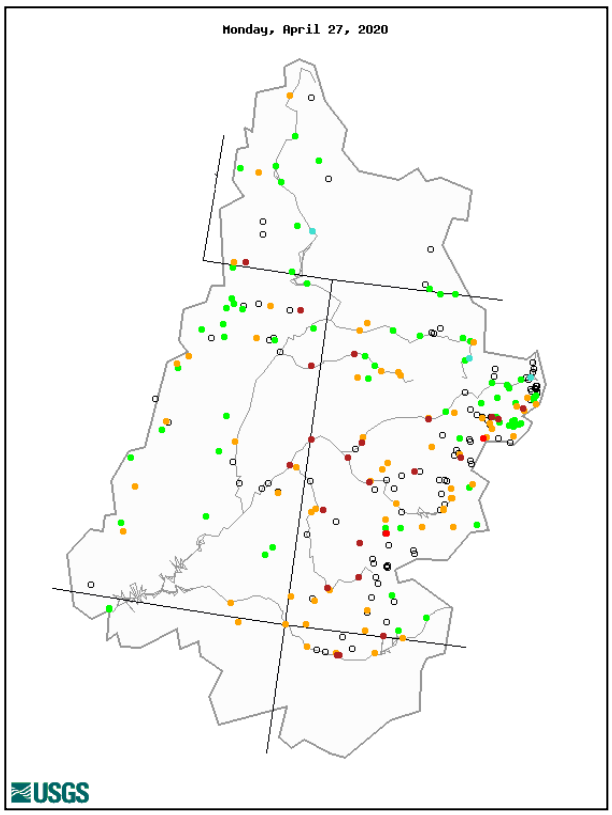




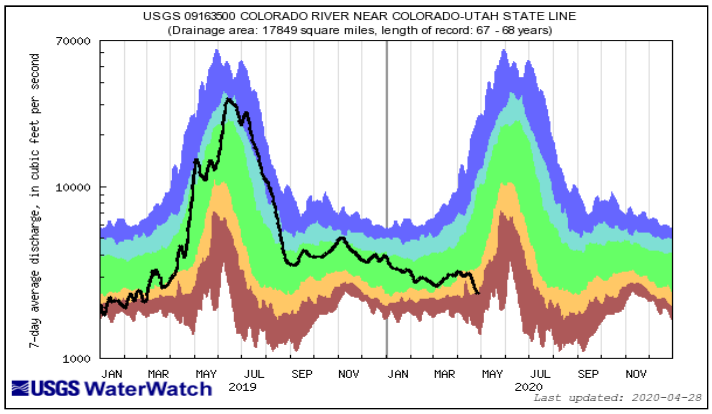


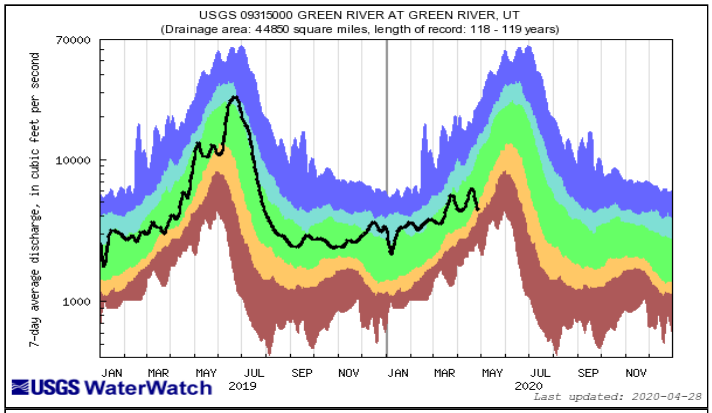


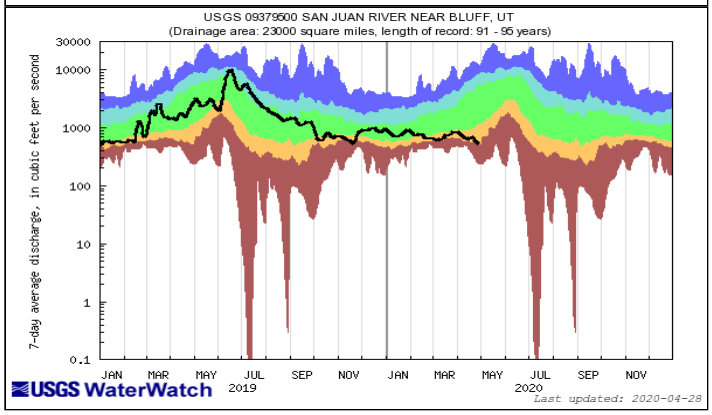
Streamflow



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		

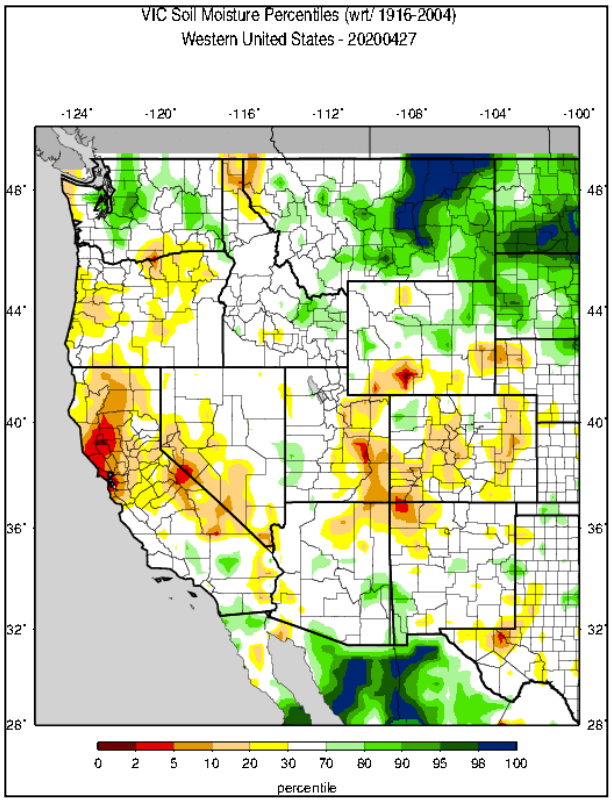


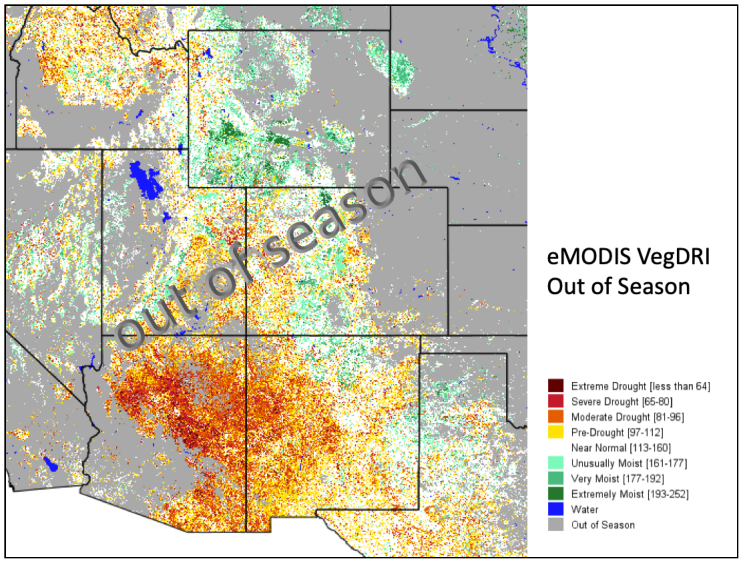




The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff,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

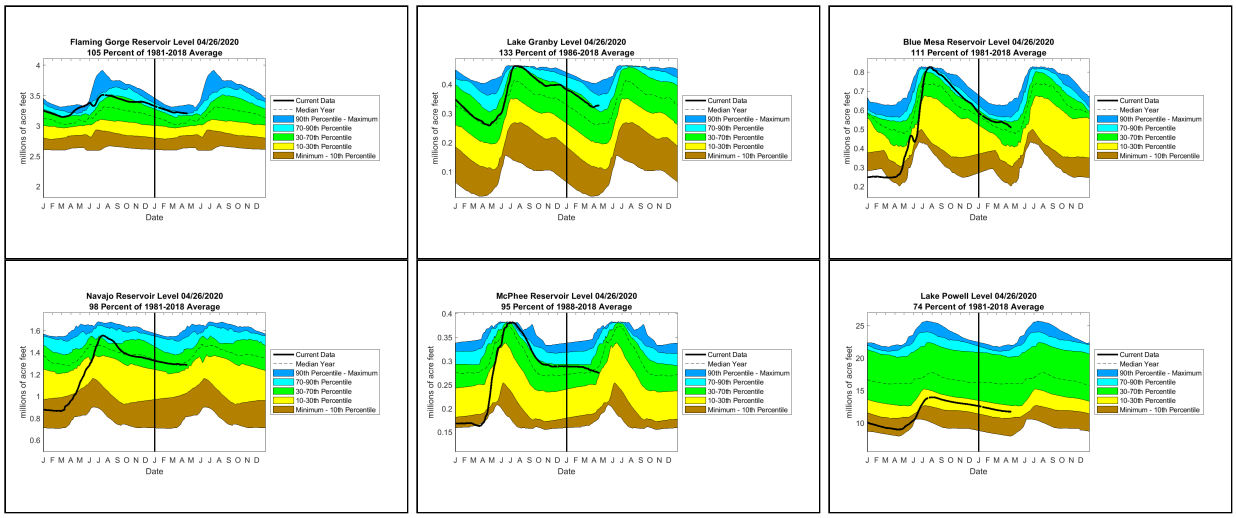
Surface Water



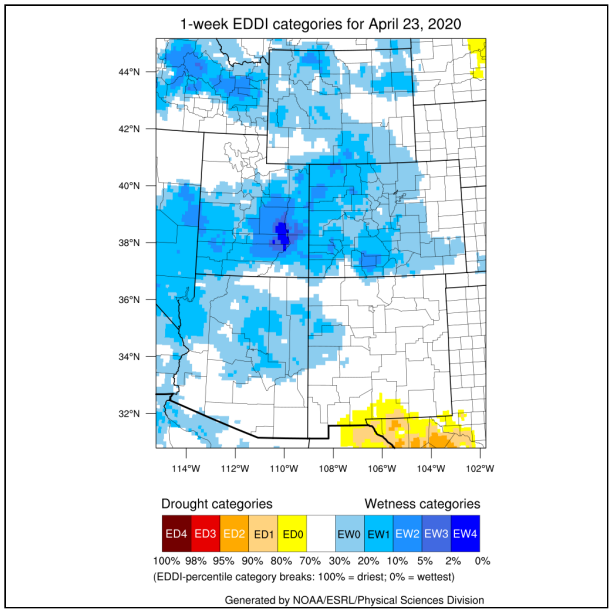


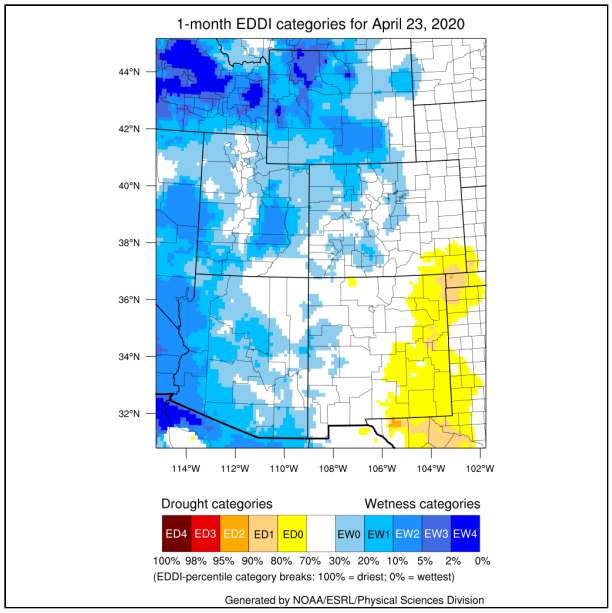
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

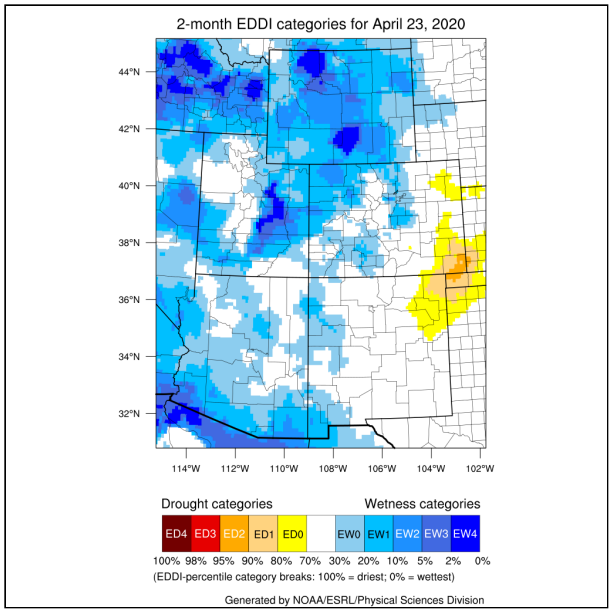
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir levels observed over the past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

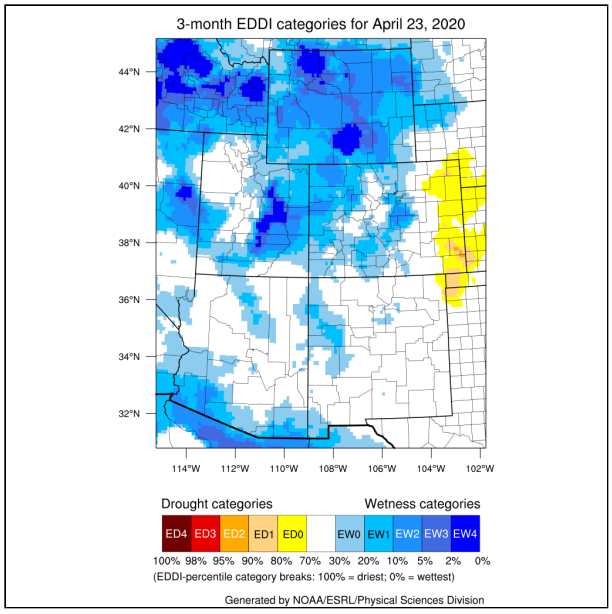


Evaporative Demand



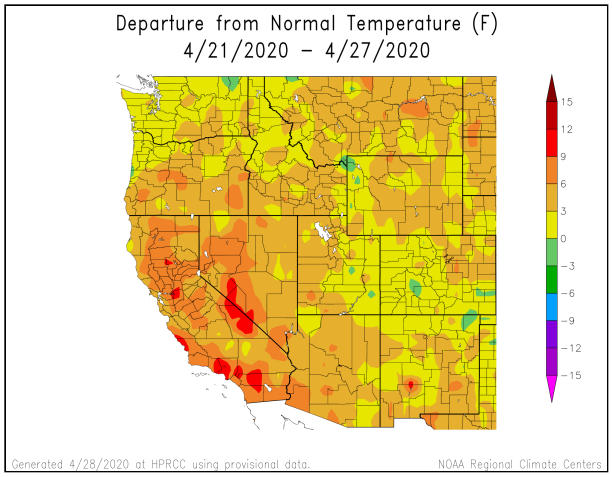


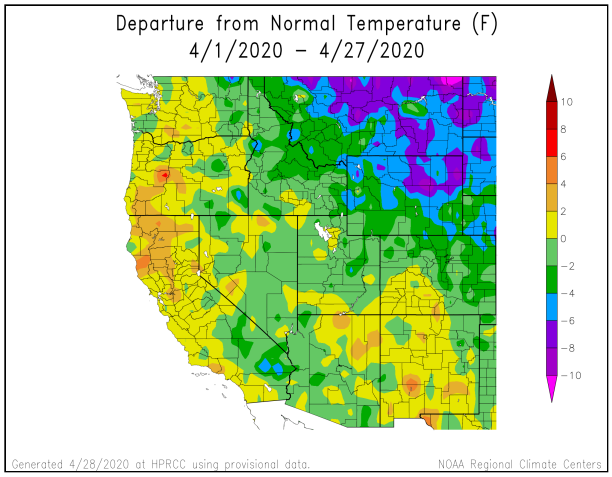




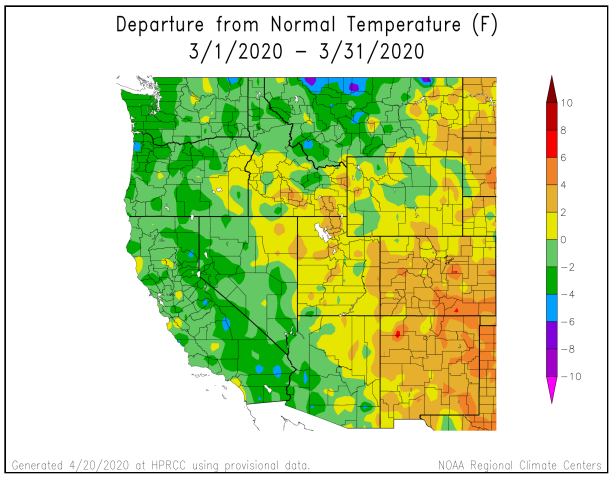
The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

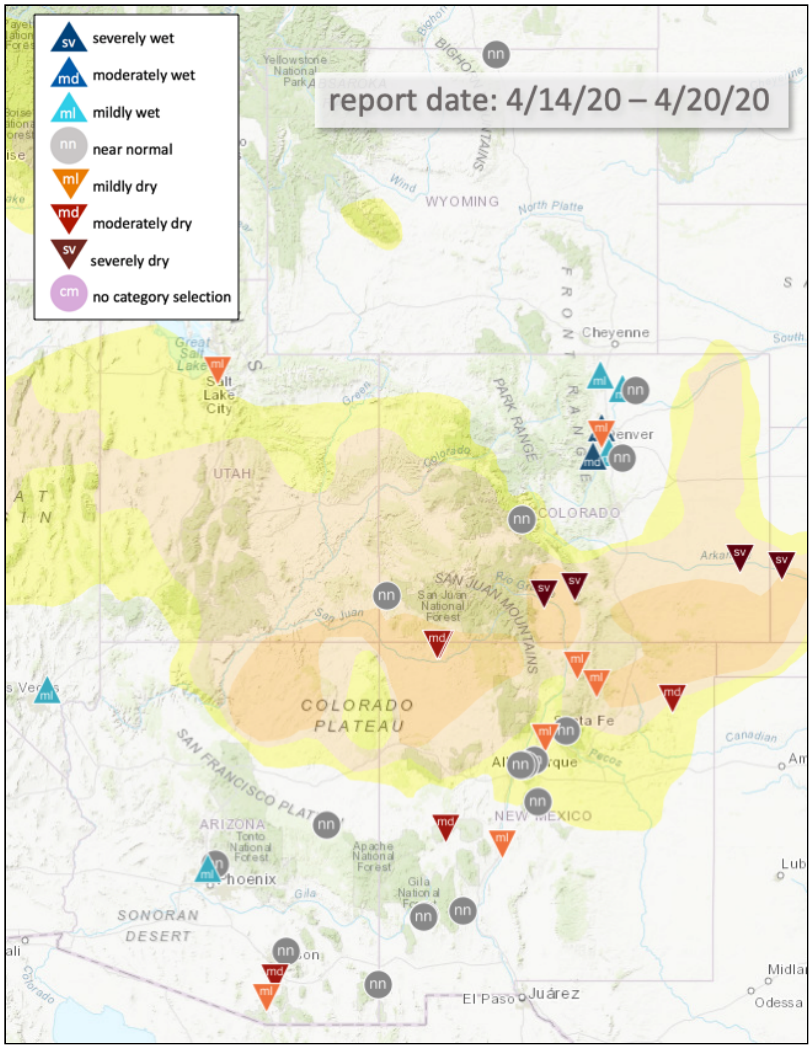




All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.



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.

Lincoln County, CO

Information from a producer in the NW area is the freeze after Easter has set what wheat was growing back. Currently, the wheat is brown. Not all of the wheat in the area came up last fall. Dirt is blowing and more people are starting to chisel or use manure to try and hold the ground. The grass looks like it is the middle of winter and cattlemen were thinking about selling off but with the current market, trying to come up with a different solution. Feed is being fed probably double the rate it was last year at this time.

Middle of the county, wheat is poor, very sparse and probably only 50% or less will go to harvest as of right now. Grass has had little to no moisture and showing no green. The producers are feeding more feed and some are going to plant a feed mix on ground to feed cattle because they are not going to be able to use their summer grass. Ground is moving in this area but it is more spotted in the middle of the county than in the north part. Chisels are being used in this area as well.

For the south part of the county, there is more winter wheat but is very thin. Production is probably going to be about 30% of what it was last year. The grass isn't near as good as last year. Probably at 25% of last year. Producers are feeding double of what they were last year at this time. Ground is being chiseled.

I spoke with our sheriff today and he reported that Lincoln County is currently at stage 2, which means large fires must be called in. If we don't receive any moisture at the end of the week, they are looking at reviewing this and making it more restrictive.

Kiowa County, CO

Dust storms picking up. A lot of wheat acres being released by crop insurance. Precipitation expected last weekend, but it didn't come.

UTAH (April 23, 2020)

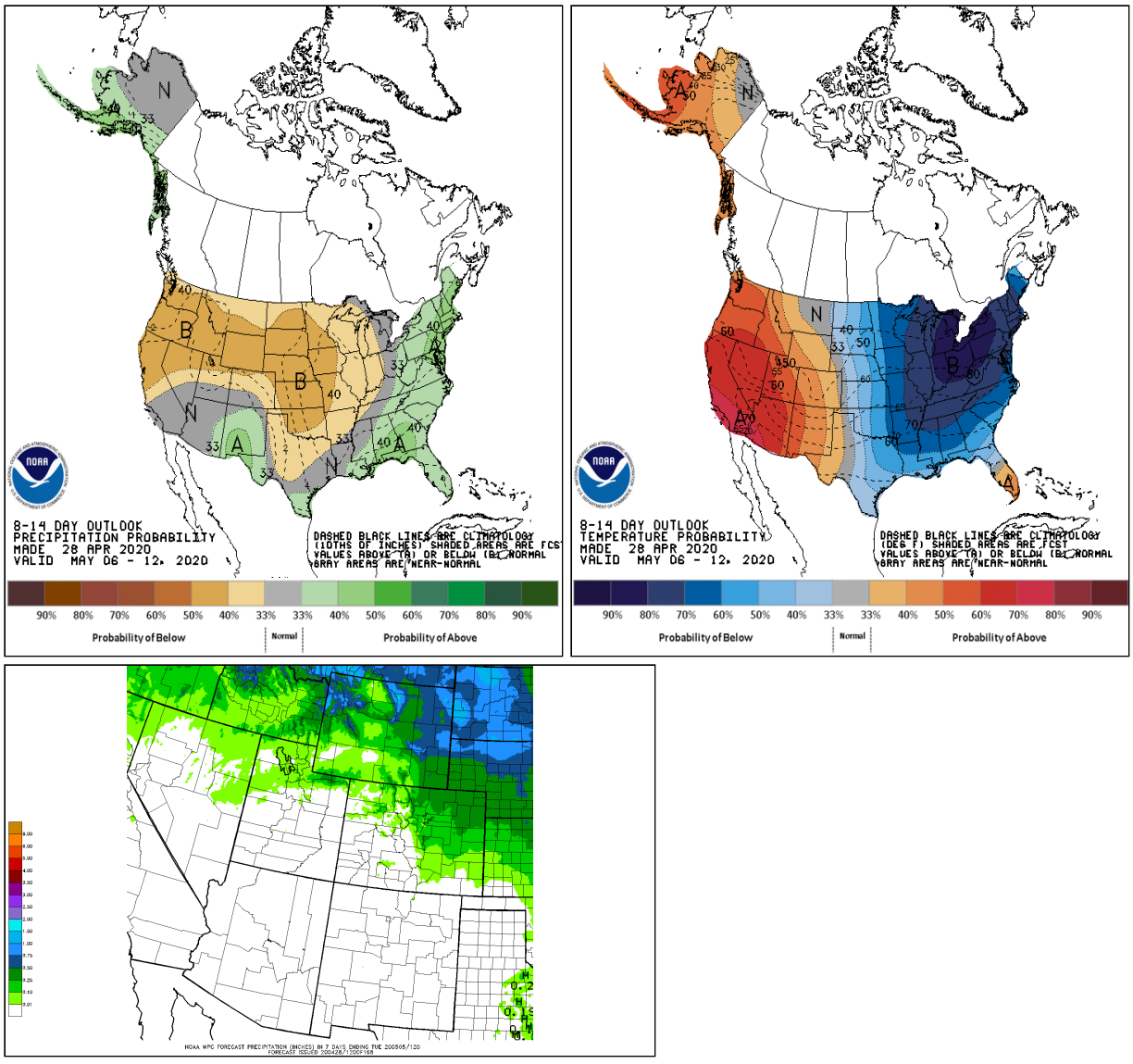
Washington County: Starting to warm up and seeing some runoff. Things going pretty good so far.

Tooele County: Biggest problem has been the cold.

Eastern Utah: April has been drier, so we need to keep an eye on things. Can get worse quickly. Still okay right now, but starting to get scary. Last couple of storms have missed the eastern part of the state.

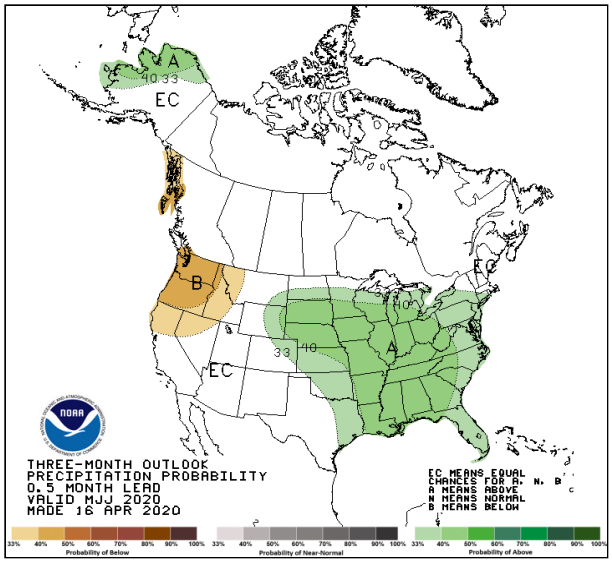
Vernal: Things are looking about what you'd expect this time of year. No moisture for a week or two could push us unti drought. We have been getting some of the scattered storms. A little cold, but nothing extreme. Doing okay.

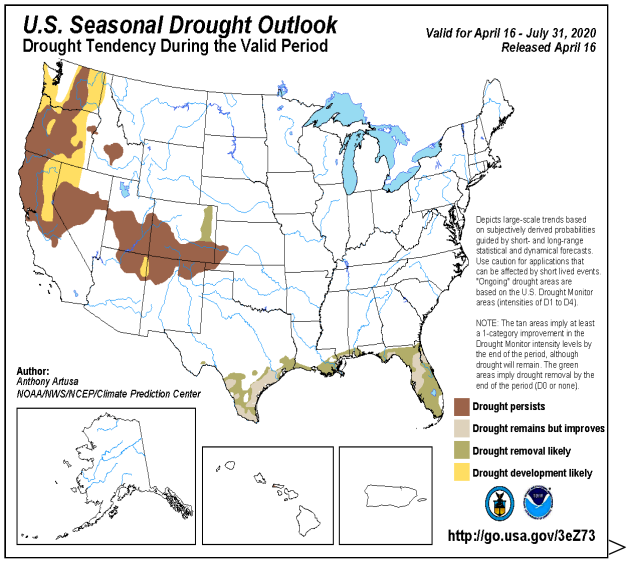
Outlook



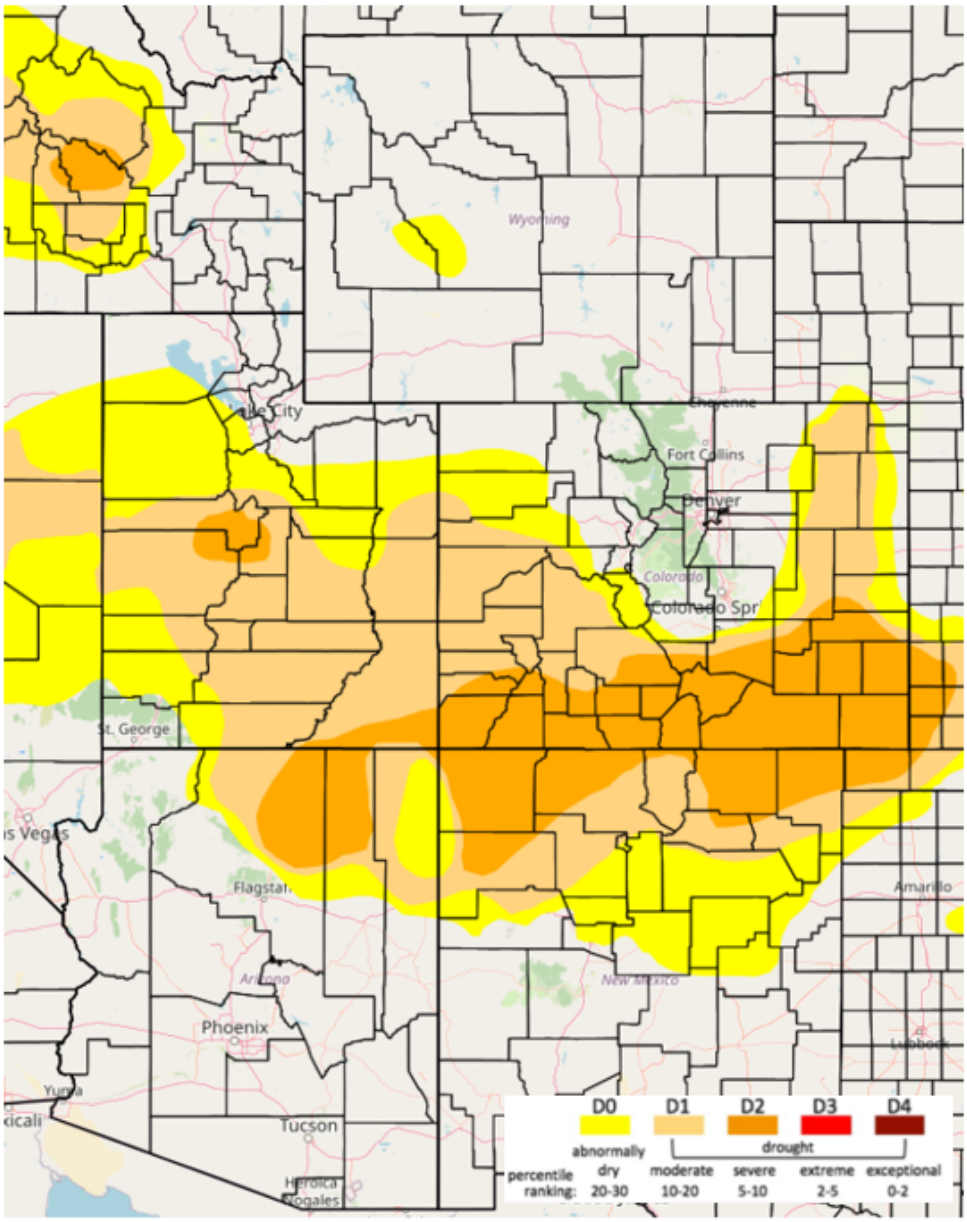
The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation

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.

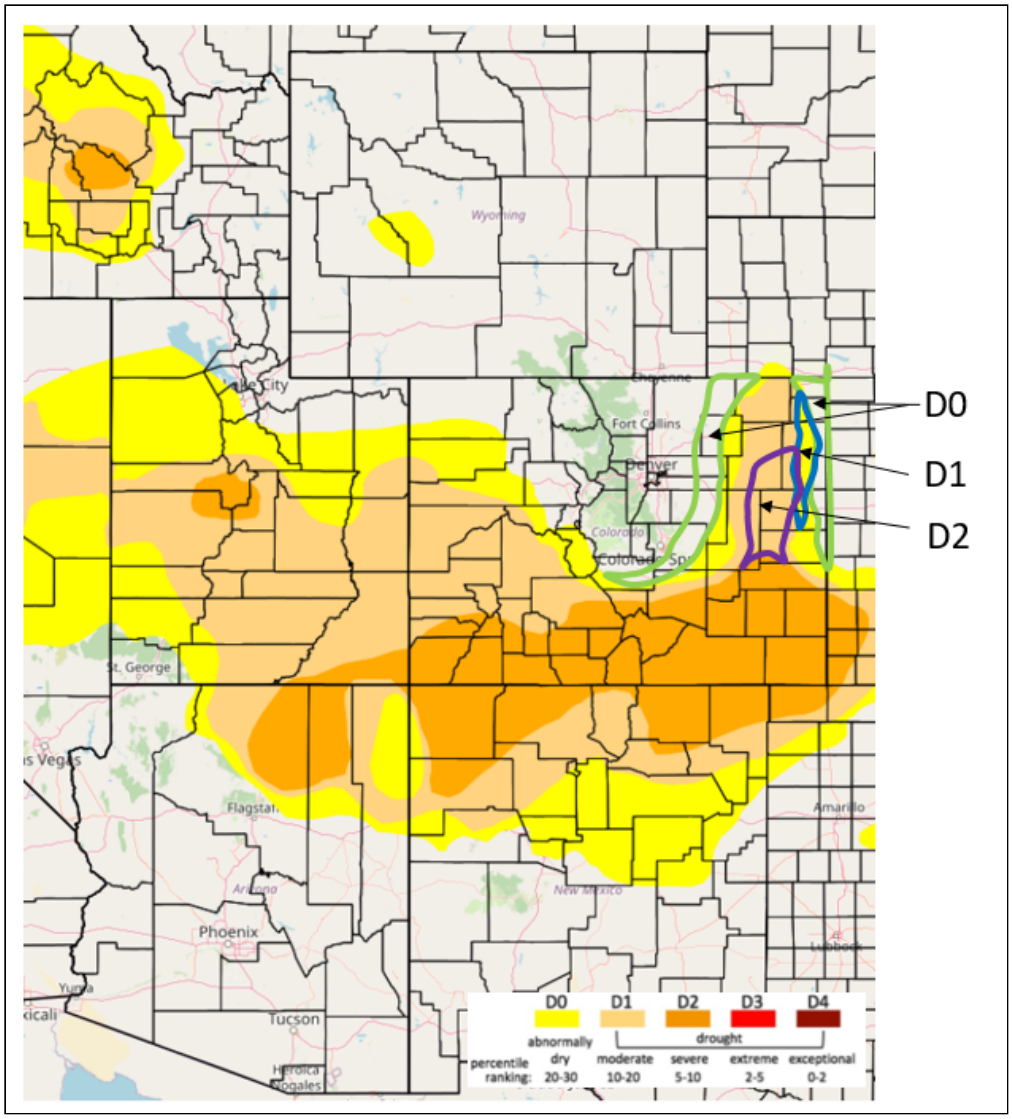




Summary and Recommendations



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: April 28, 2020

After a cool middle of the month with big snows for some, the IMW has reverted to a warmer spring pattern. There were several shortwave disturbances that brought moisture mostly to north-central Colorado and western Wyoming. While conditions have been ideal in many places for basking outside, our agricultural lands are not in a healthy enough position to tolerate a long dry spell.

Snowpack has peaked, and begun the melting cycle across the region. In southern basins, such as the Rio Grande Basin and San Juan Basin, this melt has swiftly reached full force. These basins have lost 40 and 36% of their peak snowpacks respectively. Such losses are one-to-two weeks ahead of normal timing. Meanwhile, snowpack in further north basins peaked right on schedule, and have not lost nearly as high a percentage of peak snowpack yet.

Despite a near-normal snowpack, streamflow projections mostly suggest below normal runoff. This is owing largely to the lack of soil moisture from 2019's failed monsoon season. Below normal streamflows are particularly concerning for southern portions of the basin. An earlier than normal snowmelt at this point should produce above normal streamflows, as streamflow volumes are nearer their peaks. However, most of the stream gages in the southern UCRB are still indicating below normal flows.

With the giant exceptions of Lake Powell and Lake Mead, reservoir storage remains mostly healthy. Other major reservoirs in the basin, such as Navajo, Blue Mesa, Lake Granby, and Flaming Gorge, are holding normal-to-above normal storage. Thank you, 2019 snowpack! Inflow projections from the Gunnison Basin south indicates volumes will trend towards below normal over the next two months.

May and June marks the dry season for the southern portion of the IMW, but the wet season for the northeast portion. This is well reflected by the 7-day QPF from WPC. No precipitation is forecast to accumulate across New Mexico, Arizona, and southern Utah. Eastern Wyoming and Northeast Colorado are forecast to receive widespread moisture, but only 0.10-0.25" (below normal for this time of year). The 8-14 day outlook suggests drier than normal conditions are more likely than not to continue. This news is somewhat grave for eastern Colorado, which needs a soaking badly now.

Recommendations:

UCRB: status quo. We will be watching streamflows and storage carefully. Despite a near-normal snowpack year, streamflow projections that account for last year's dry fall raise concern.

Eastern Colorado: Due to poor winter wheat planting conditions, a dry winter, and warm/windy spring conditions, the Colorado Climate Center is recommending several extensions of currently existing drought conditions for eastern Colorado. Areas with D1, and especially D2 recommended have not received the timely, cold, soaking rains relied upon in spring to ensure crop and forage success to this point in the season. These recommendations were drawn primarily using 9-month SPIs with VegDRI used to interpolate between locations. These indicators were used due to their correlation with impacts submitted by FSA in eastern Colorado.

We recommend extending D2 in eastern Colorado to cover eastern Lincoln County, western Cheyenne and Kit Carson Counties, southern Washington County, and southeast Yuma County.

We recommend expansion of D1 through central Kit Carson and Yuma Counties.

We recommend expansion of D0 to at least the northern and eastern borders of the state in NE CO. Beyond that, we defer to other teams.

We recommend expansion of D0 in eastern Weld County, western Morgan County, eastern Adams, Arapahoe, and Elbert Counties, and central El Paso County.