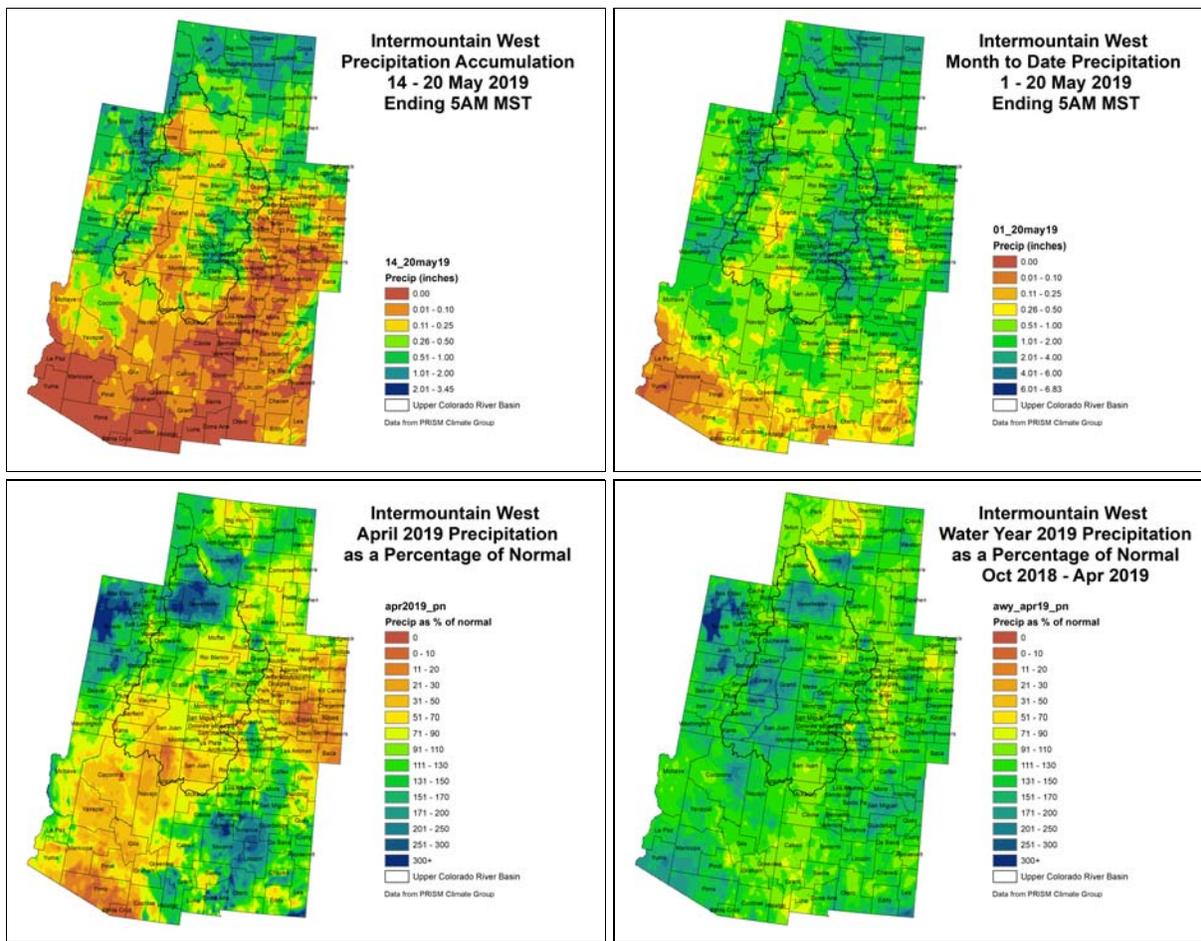


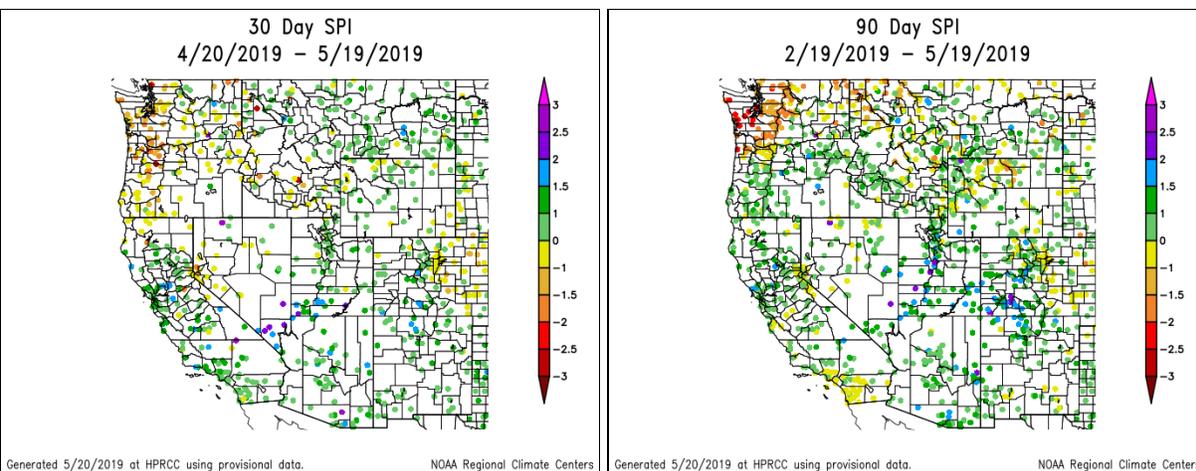
NIDIS Intermountain West Drought Early Warning System May 21, 2019

Precipitation

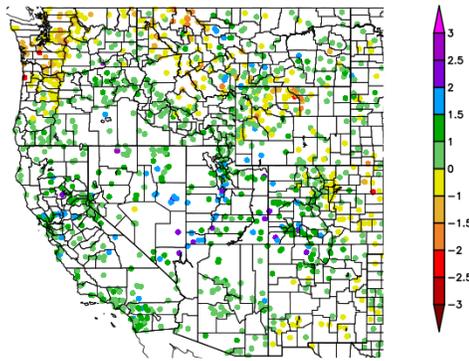


The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index

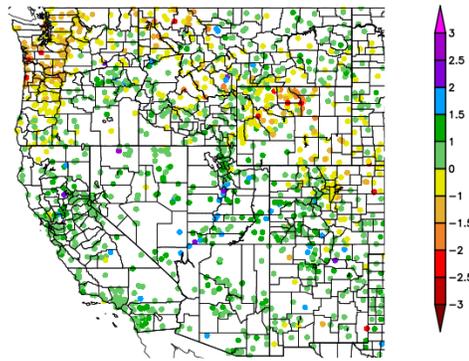


6 Month SPI
11/20/2018 - 5/19/2019



Generated 5/20/2019 at HPRCC using provisional data. NOAA Regional Climate Centers

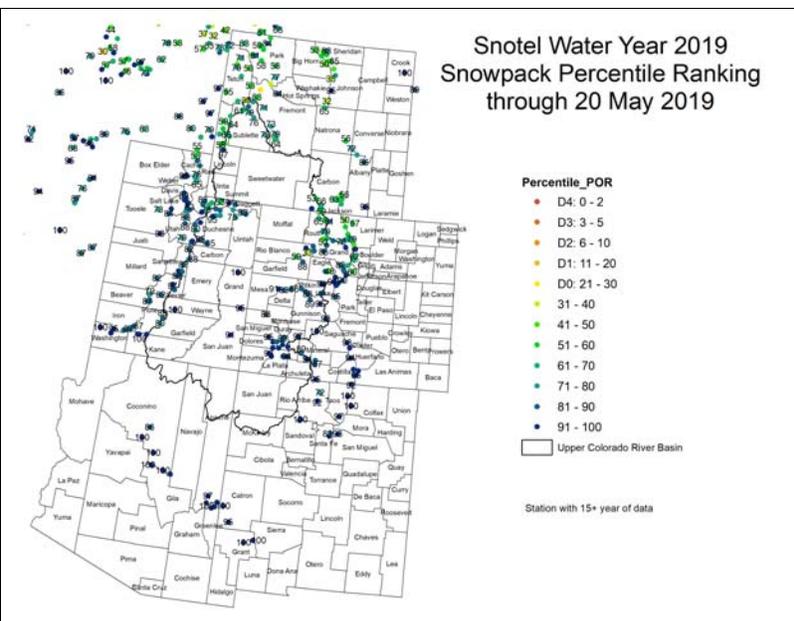
9 Month SPI
8/21/2018 - 5/20/2019



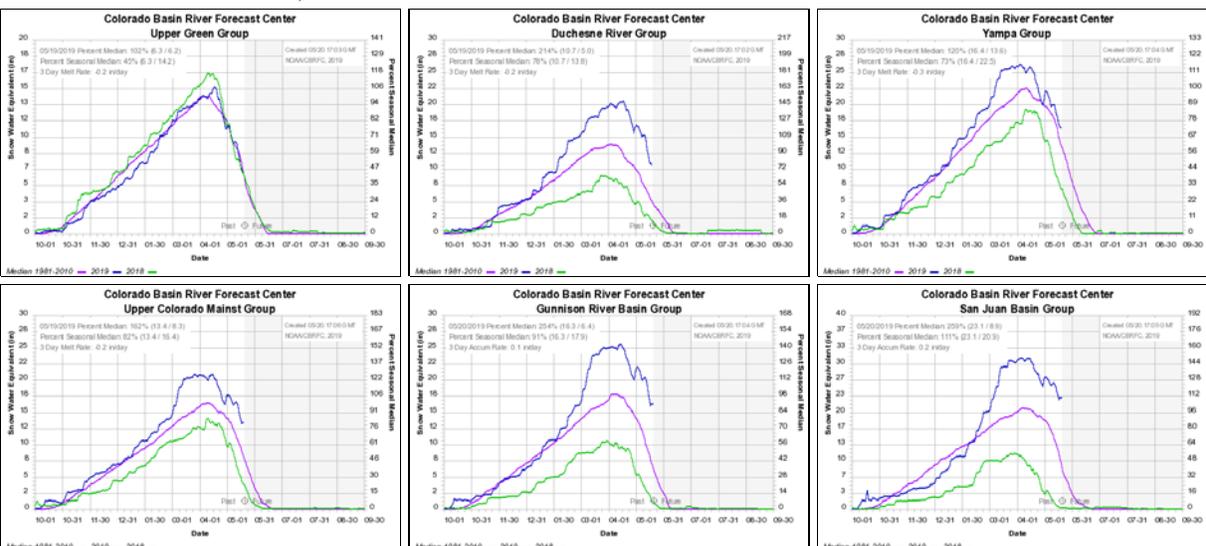
Generated 5/21/2019 at HPRCC using provisional data. NOAA Regional Climate Centers

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

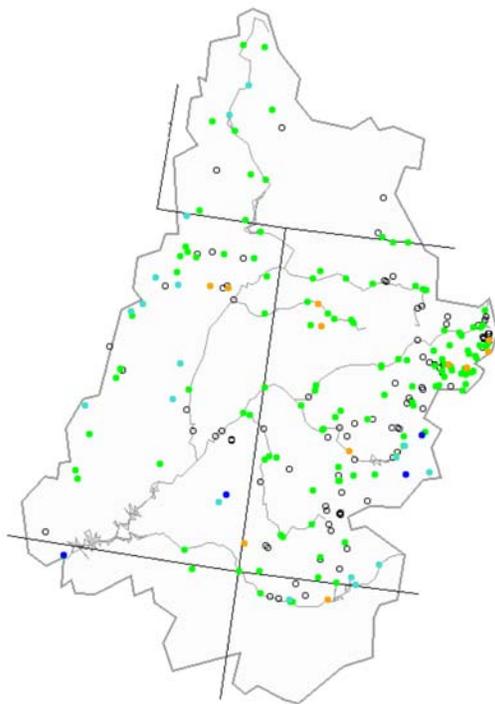


The above image shows SNOTEL snowpack percentiles for each SNOTEL site in the Intermountain West. The images below show accumulated snow water equivalent in inches (green) compared to average (blue) and last year (red) for several different sub-basins across the UCRB (and were created by the Colorado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



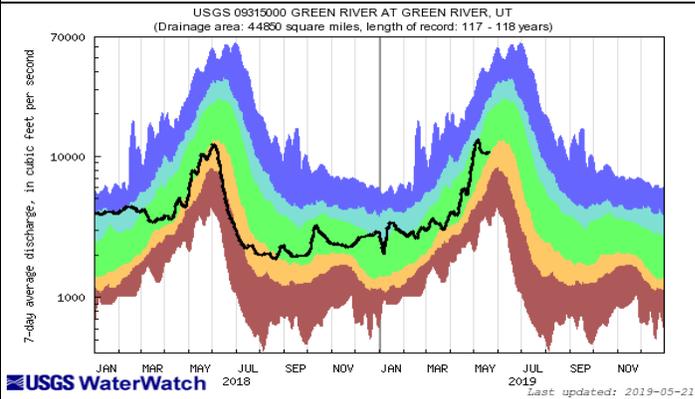
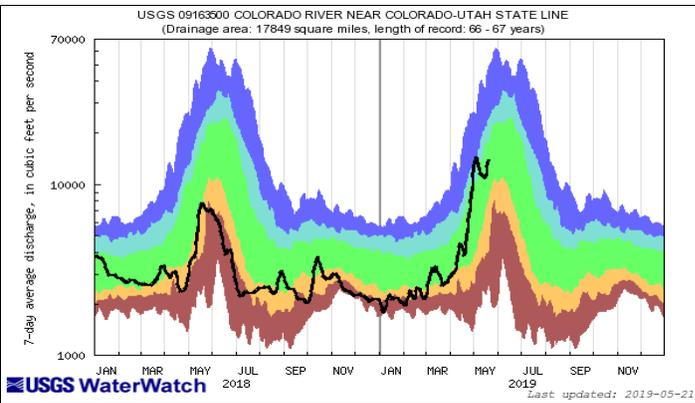
Streamflow

Monday, May 20, 2019

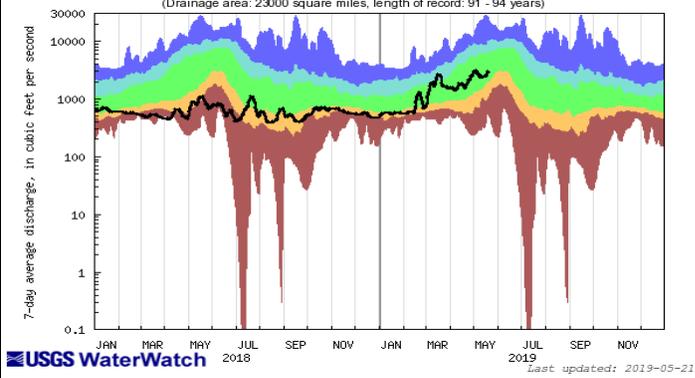


Explanation - Percentile classes

Color	Percentile Class	Description
Red	<10	Much below normal
Orange	10-24	Below normal
Green	25-75	Normal
Cyan	76-90	Above normal
Blue	>90	Much above normal
Black	High	
White	Not-ranked	

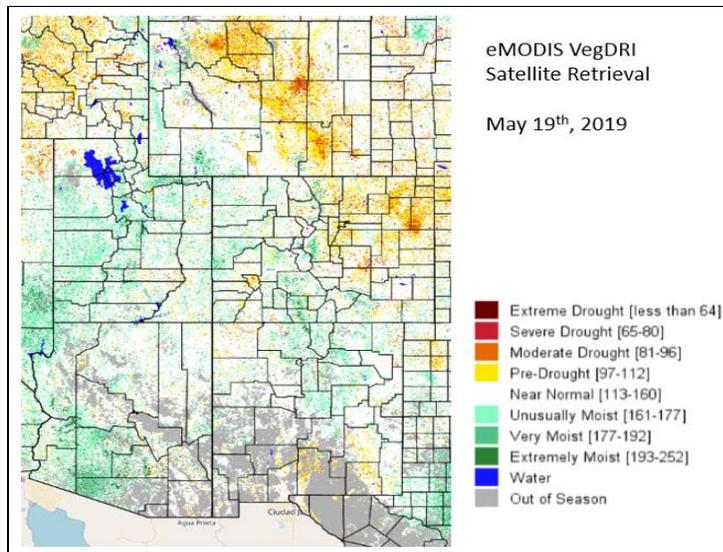
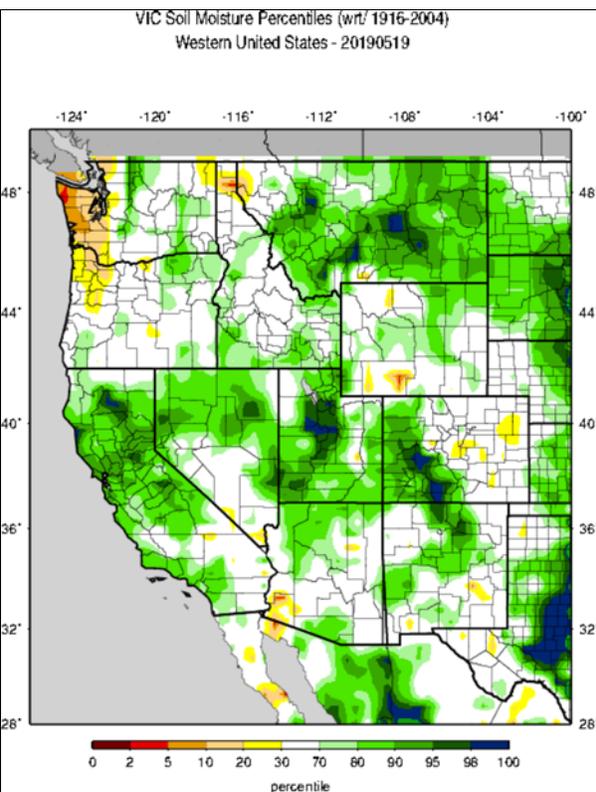


USGS 09379500 SAN JUAN RIVER NEAR BLUFF, UT
(Drainage area: 23000 square miles, length of record: 91 - 94 years)



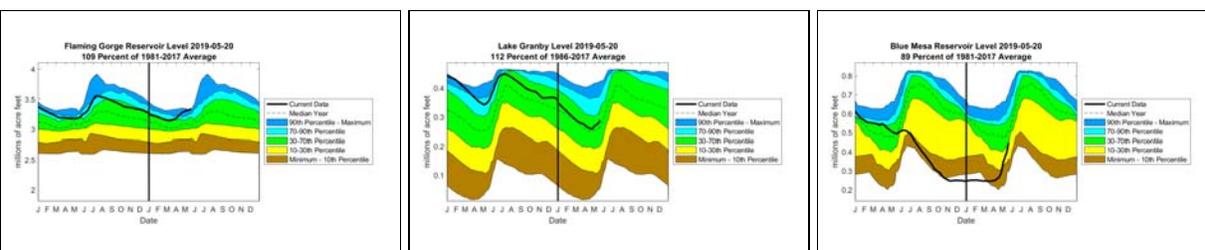
The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff,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

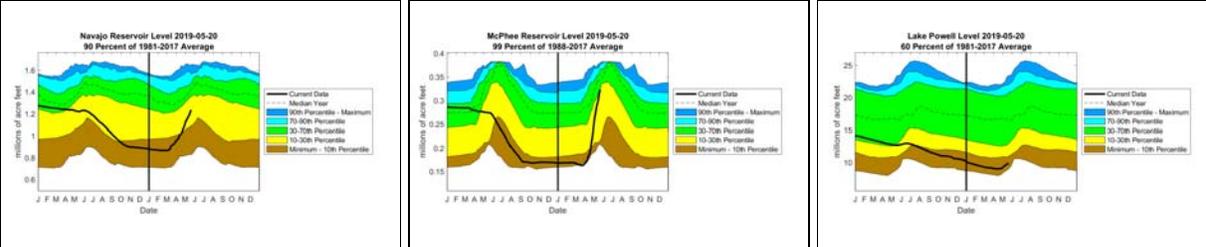
Surface Water



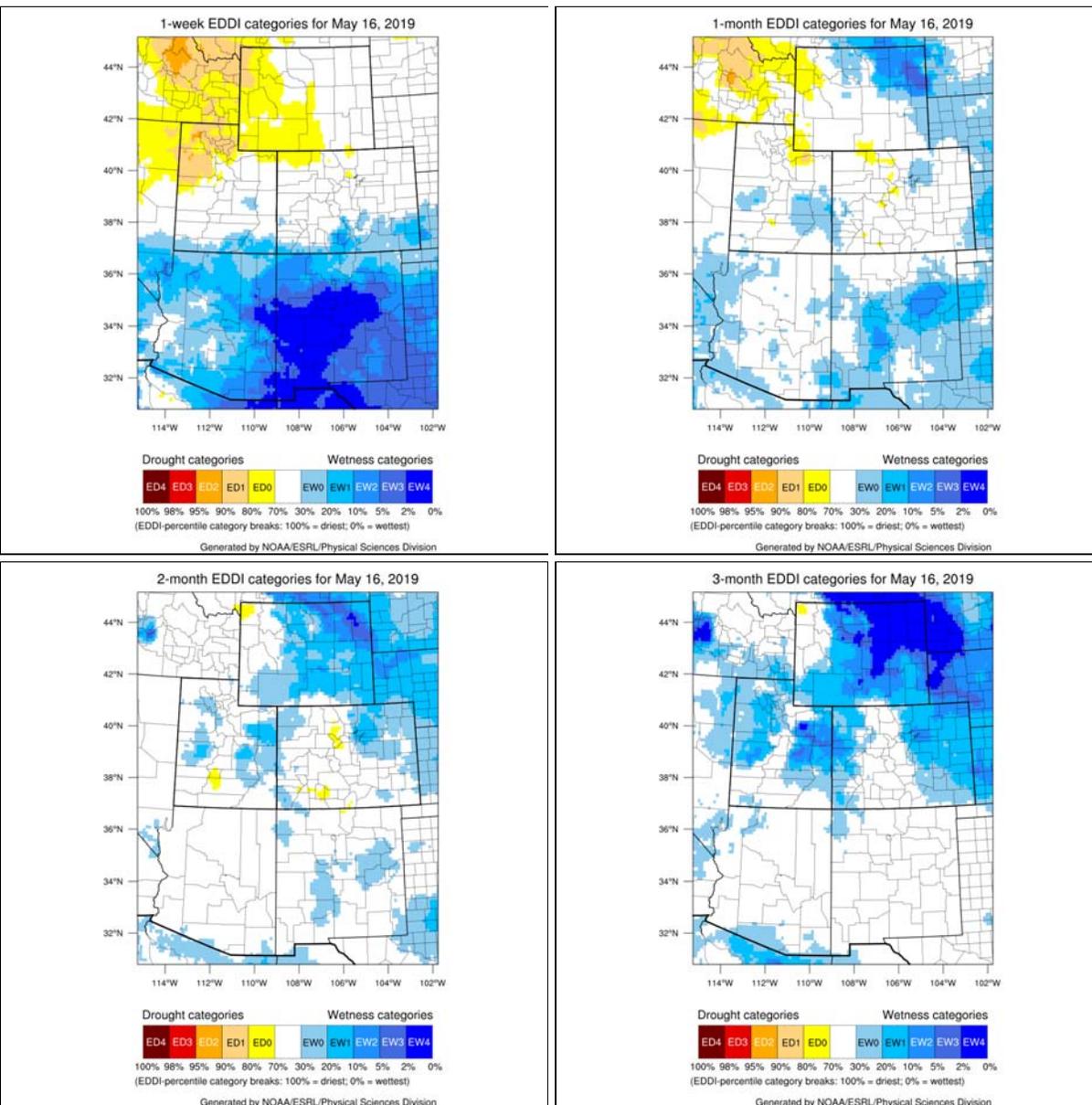
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

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.





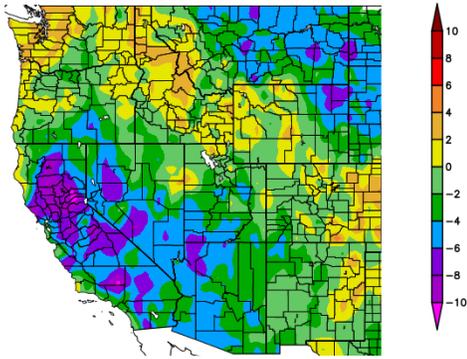
Evaporative Demand



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.

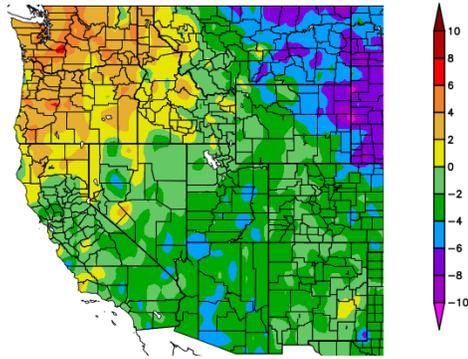
Temperature

Departure from Normal Temperature (F)
5/14/2019 – 5/20/2019



Generated 5/21/2019 at HPRCC using provisional data. NOAA Regional Climate Centers

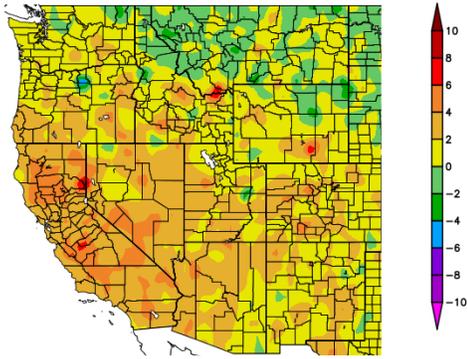
Departure from Normal Temperature (F)
5/1/2019 – 5/20/2019



Generated 5/21/2019 at HPRCC using provisional data. NOAA Regional Climate Centers

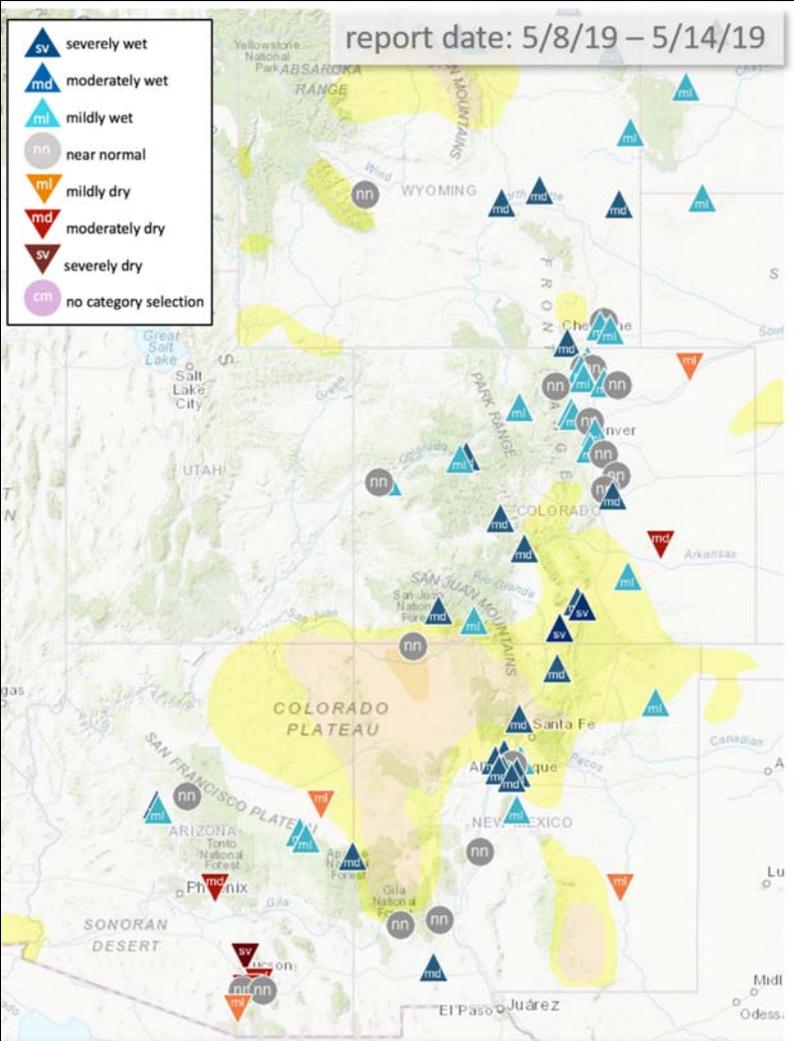
All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.

Departure from Normal Temperature (F)
4/1/2019 – 4/30/2019



Generated 5/20/2019 at HPRCC using provisional data. NOAA Regional Climate Centers

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.

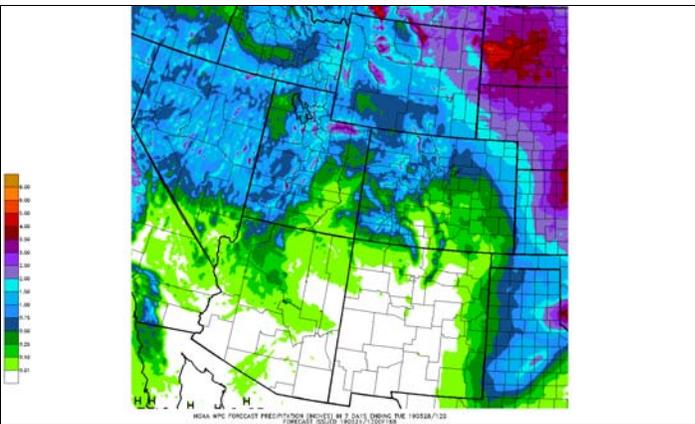
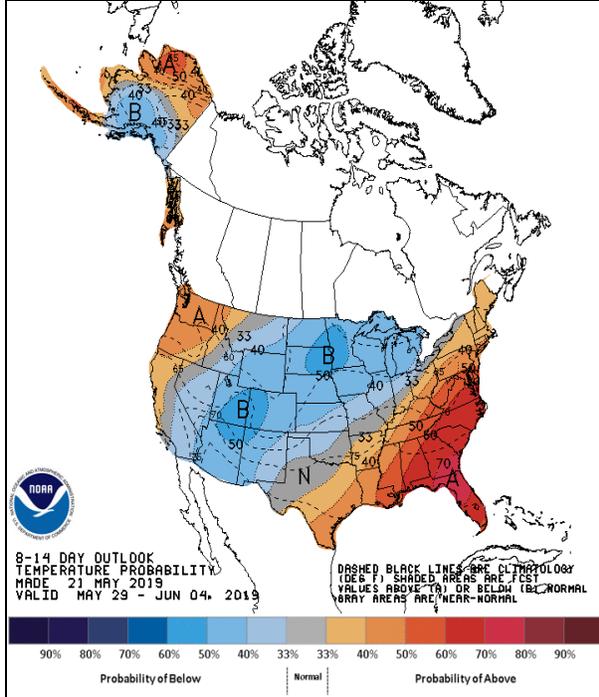
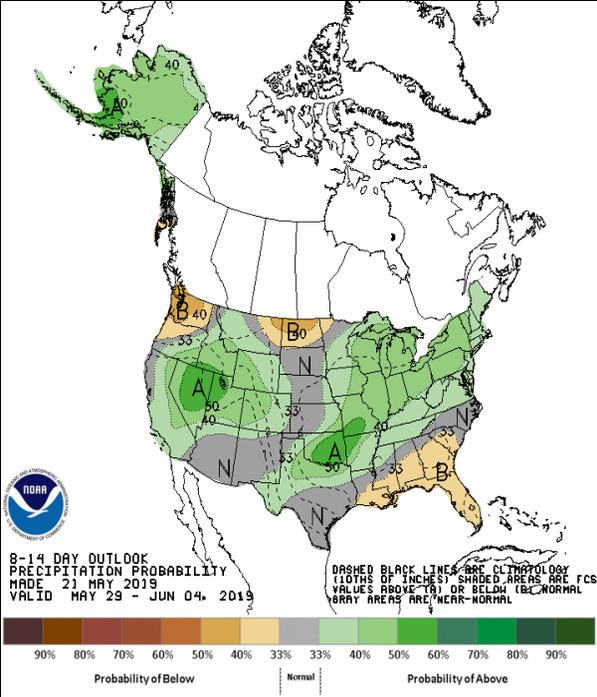
Central UT

Most precipitation events have been hit and miss, though the region has seen some sort of precipitation on most days. Due to colder temperatures, the ground is slow to show green-up and recovery. Feed is still being brought in for livestock because the pastures are lagging behind where they should be.

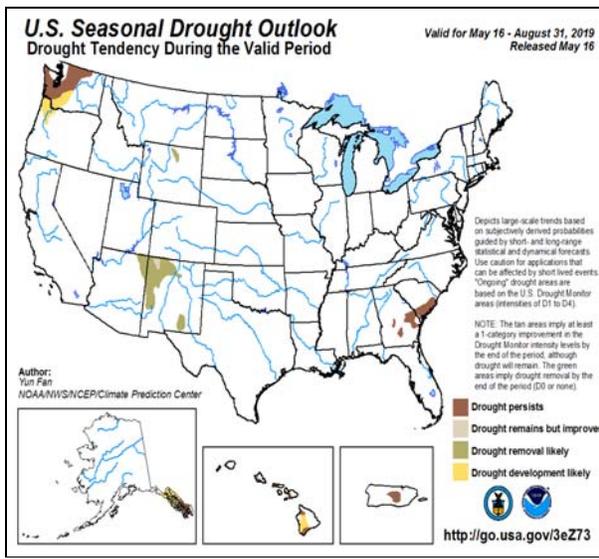
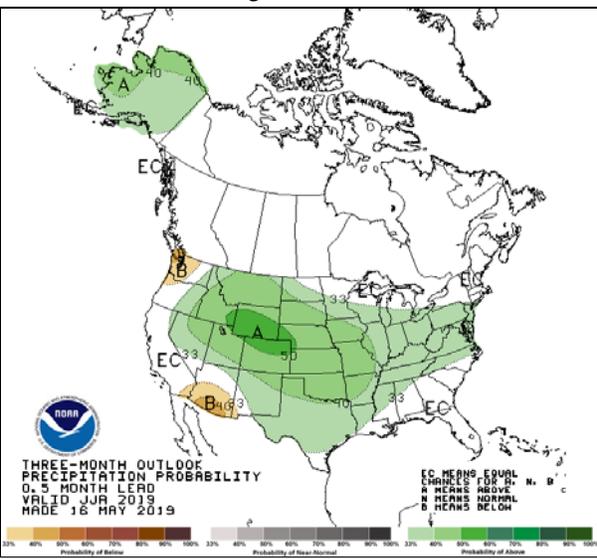
Sweetwater County, WY

Conditions are looking good, soil moisture seems to be on the wet side. Not consistent with what the VIC soil moisture model currently shows.

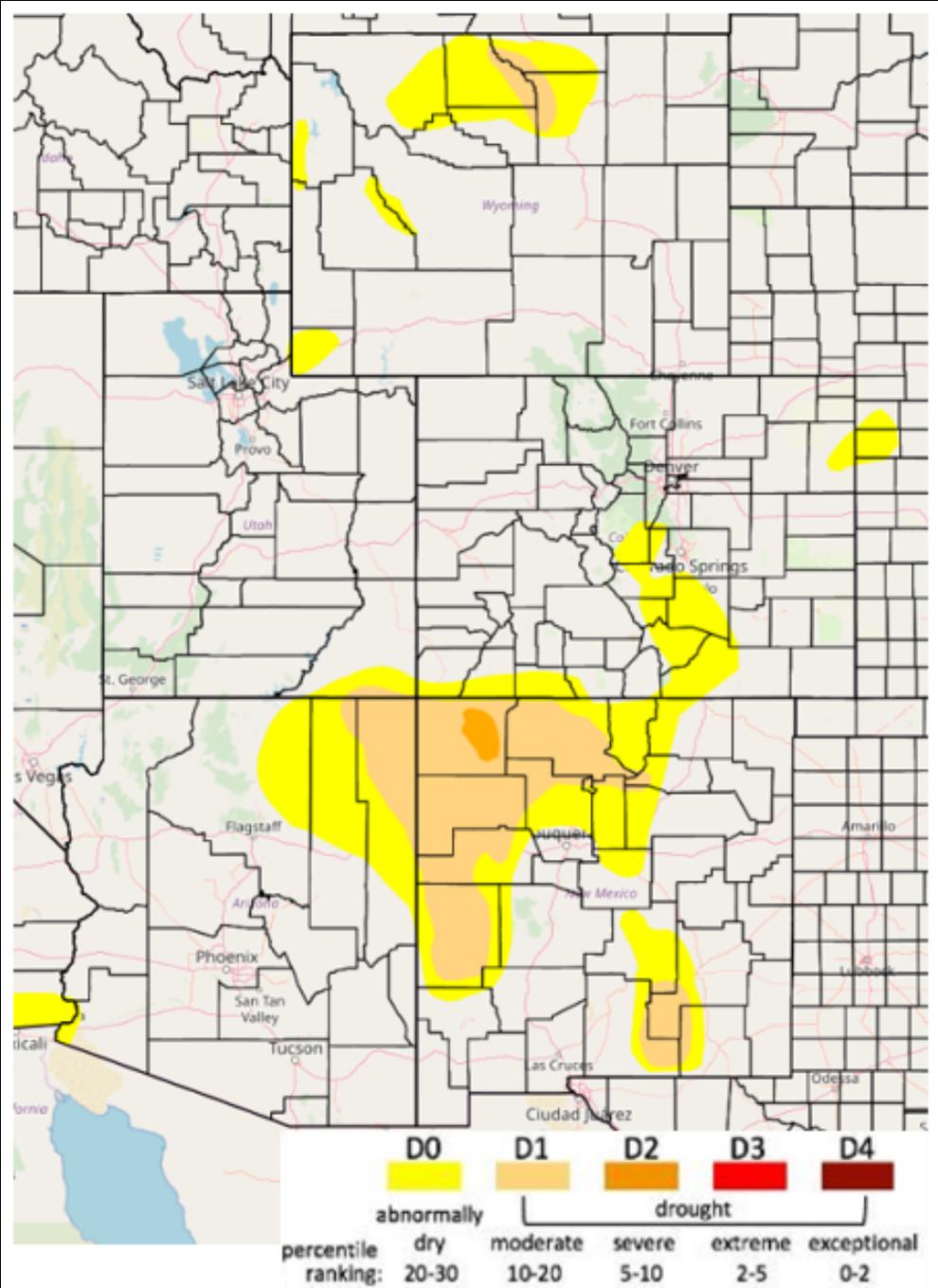
Outlook



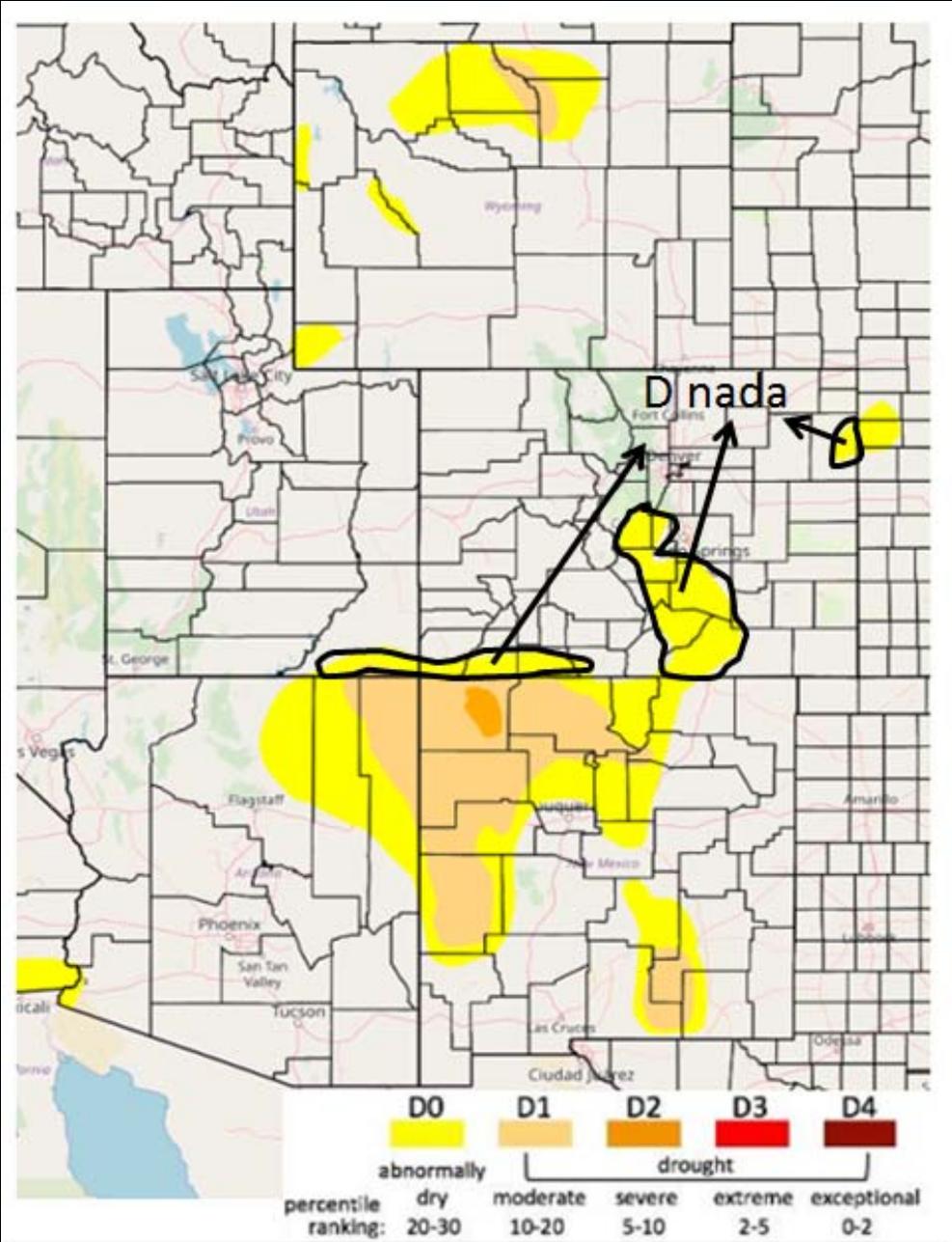
The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month precipitation outlook from Climate 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: May 21, 2019

Over the last week much of the Intermountain West Region continued seeing cooler than average temperatures while eastern Colorado experienced temperatures that were slightly warmer than average. However, month-to-date temperatures are showing cooler than average temperatures across the all of the IMW, including eastern Colorado, with the biggest anomalies being 6 to 10 degrees cooler in eastern Wyoming. Cooler temperatures associated with the current spring snow storm has brought decent snowfall over the past 24 hours to eastern Wyoming and central Colorado. El Paso county in Colorado seeing up to 20.00' of snow.

Looking at the precipitation maps you see that there was a mix of dry conditions in southwestern Wyoming, eastern Colorado, and southeastern Utah, and at least 0.25" through the rest of the region, with the exception of northwestern Utah, southern Arizona and parts of southern New Mexico. Parts of eastern Colorado also saw drier conditions: El Paso County, Pueblo County and northeastern Colorado. However, over the past 24 hours much of the IMW saw decent precipitation/snowfall. The bulk of precipitation was seen through central Colorado where they received over 1.00" and up to 3.00" in areas in central Colorado.

SPIs are still showing dryness on the short term in eastern Colorado and Wyoming.

This is the beginning of the wet season in eastern Colorado and Wyoming, so deficits quickly show up on the SPI. Current SPI data does not include precipitation from the current storm and short term SPIs could improve once this storm is taken into account next week. SPIs through the rest of the IMW region are still looking good.

With the cooler temperatures in the mountains, snowmelt slowed down and there was a slight increase in snowpack in most basins throughout the Upper Colorado River Basin. Current snowpack through the UCRB are still at or near record numbers in the southern mountains and median or better to the north. The slowing in melt was seen in the streamflow with decreases in streamflow being observed over the past 2 weeks.

Evaporative demand season is just starting up and with the cooler than normal temperatures, demand is off to a slow start, which is a positive. More on this as the season progresses.

The outlook for the rest of the week looks cooler than normal with the remnants of the current storm adding more precipitation to the beginning of this week. Utah and Wyoming are expected to see decent precipitation throughout the following week and central through eastern Colorado has a good chance of pop up showers and thunderstorms throughout the week. The 8-14 day outlook is showing good chances for below normal temperatures for the UCRB and eastern Colorado and above normal precipitation over most of the UCRB with the greatest probability over northern Utah.

Recommendations:

UCRB: We are recommending an improvement of the D0 depiction in southwestern Colorado through Utah. Additional precipitation in southern CO near the Four Corners, coupled with the hydrologic rebound from snowmelt, suggest that more improvements can be made. We are open to any improvements in the area (in-line with NM recommendations) up to and including removing the D0/D1 from southwest CO and southeast UT.

We are recommending status quo in Wyoming. We are leaving the current D0 and D1 categories in Wyoming since precipitation in eastern Wyoming did not fare as well as western Wyoming with the current spring storm. SPIs are in agreement with the current depiction. Improvements might be implemented next week as outlook is showing a good chance of decent precipitation in this area over the next two weeks.

Eastern Colorado: We are recommending a category improvement of the D0 over south central Colorado. SPI data for the last week does not support this as the current spring storm precipitation and temperature data has not been included. However, the current spring storm did bring cooler than average temperatures and decent precipitation into this region over the past 24 hours. Much of south central Colorado saw at least half an inch of new precip with areas such as El Paso county seeing over 2.50" of new precip and 10-20" of new snow.

We are also recommending a category improvement, from D0 to D nada, over Yuma county Colorado. This region experienced about 0.50' of precipitation in the past 24. This region has seen above average precipitation in the past week thanks to the precipitation over the past 24 hours. This is not shown on SPI data as the current storm is not included.

