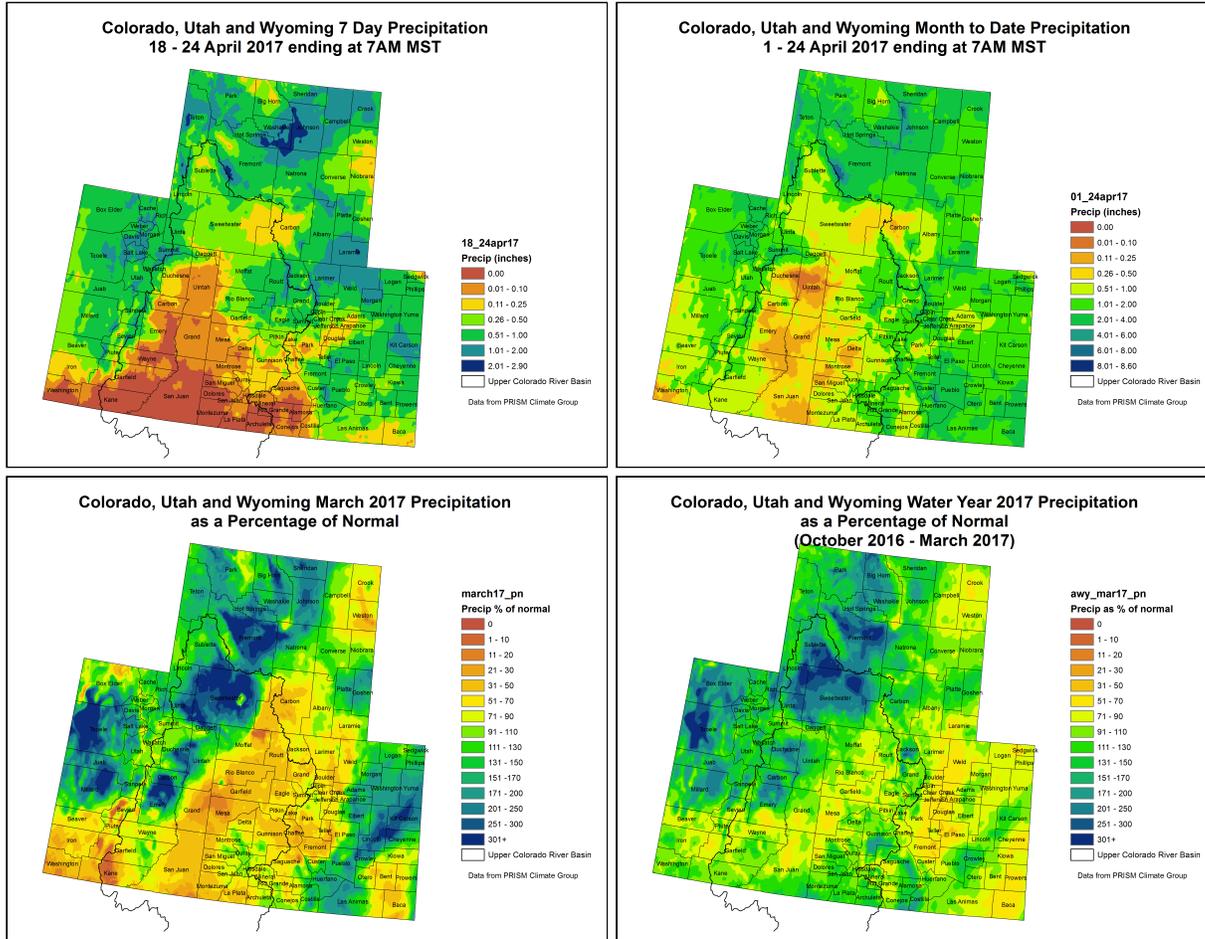


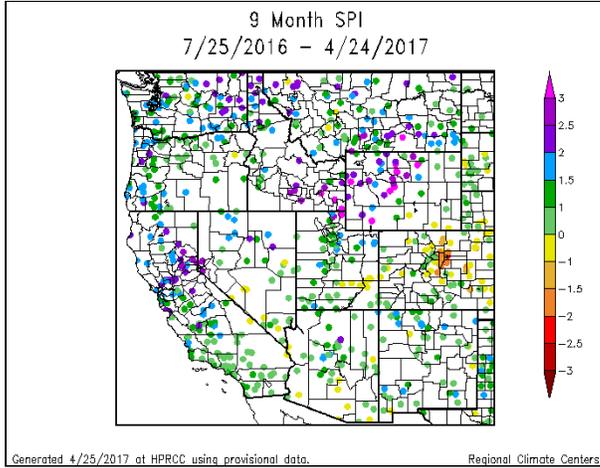
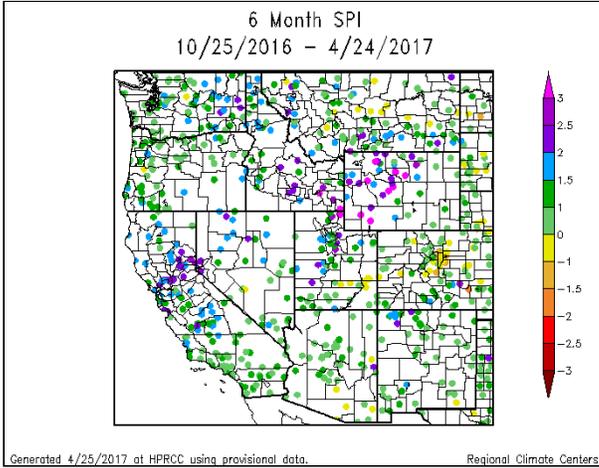
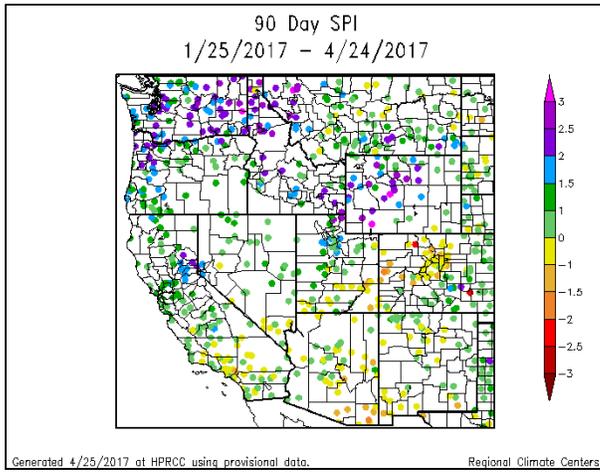
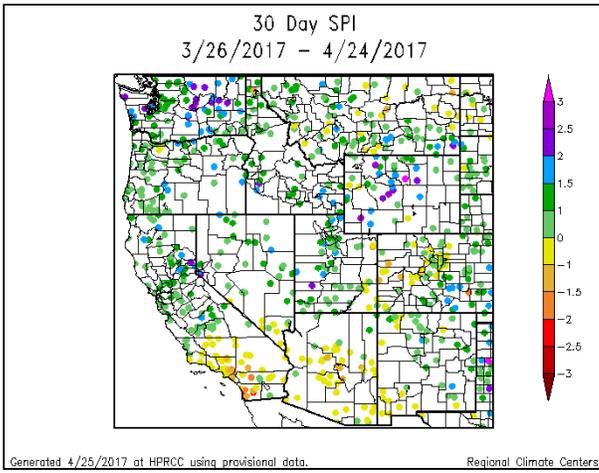
# NIDIS Intermountain West Drought Early Warning System April 25, 2017

## Precipitation



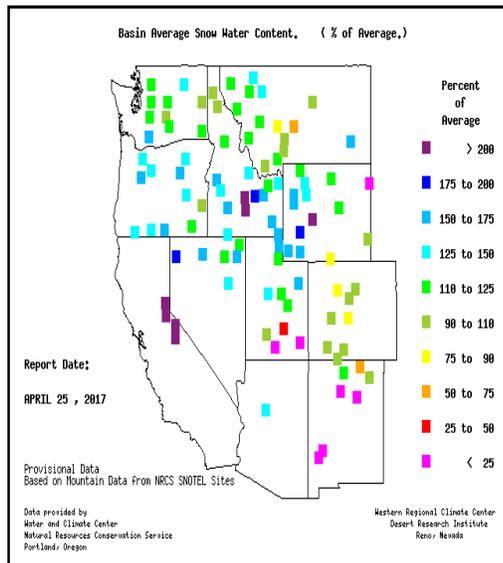
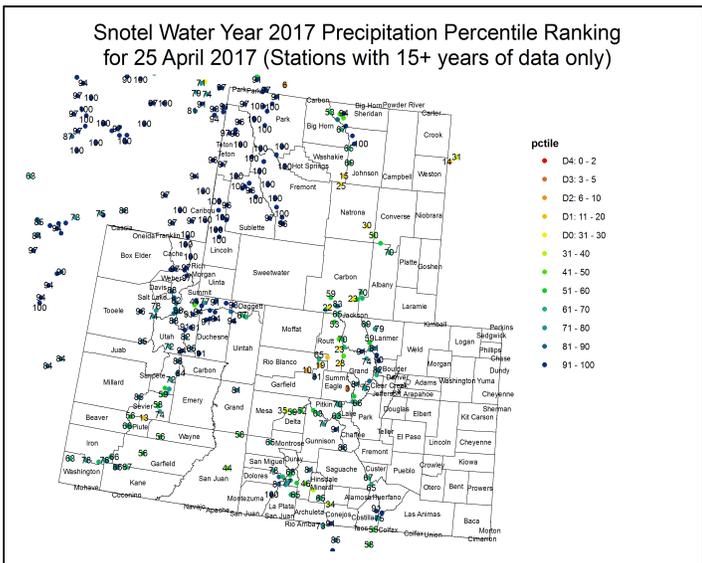
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

## Standardized Precipitation Index



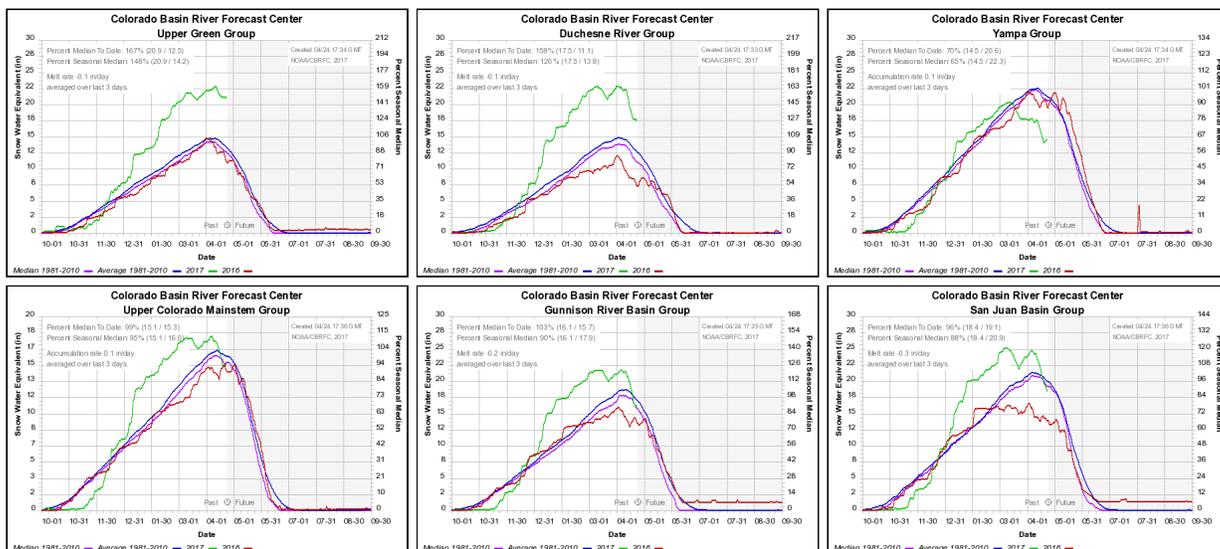
Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions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

# Snotel and Snowpack



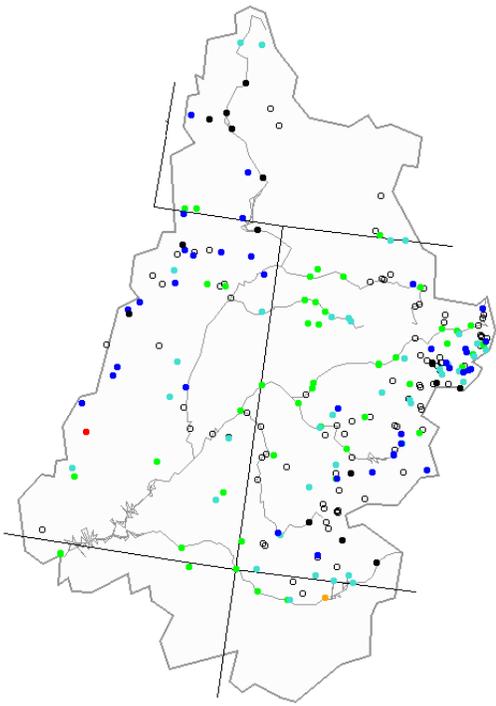
The top left image shows the Natural Resources Conservation Service's SNOTEL water-year-to-date precipitation percentile rankings. The top right image shows sub-basin averaged snow water equivalent accumulations as a percent of average. The images below show accumulated snow water equivalent in inches (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

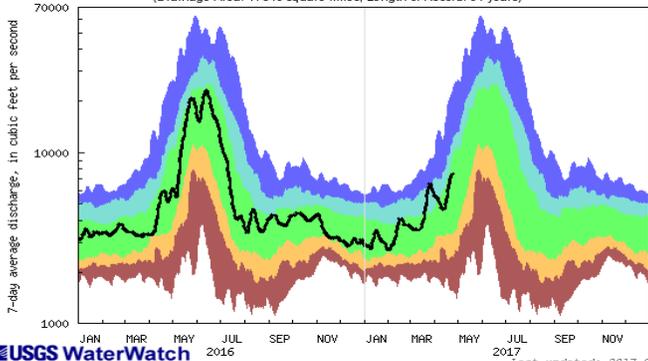
Monday, April 24, 2017



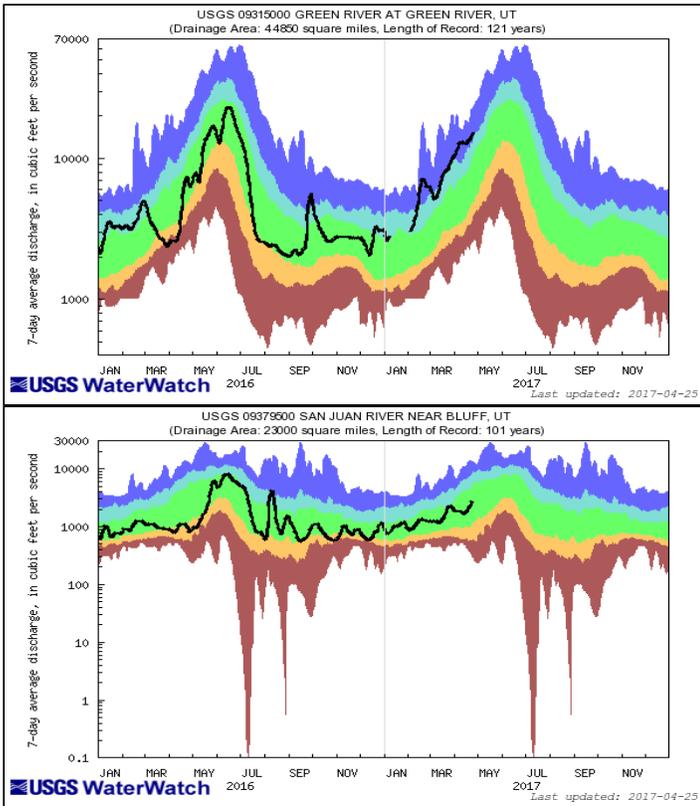
Explanation - Percentile classes							
<span style="color: red;">●</span>	<span style="color: orange;">●</span>	<span style="color: green;">●</span>	<span style="color: cyan;">●</span>	<span style="color: blue;">●</span>	<span style="color: black;">●</span>	<span style="color: black;">○</span>	
Low	<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: 64 years)

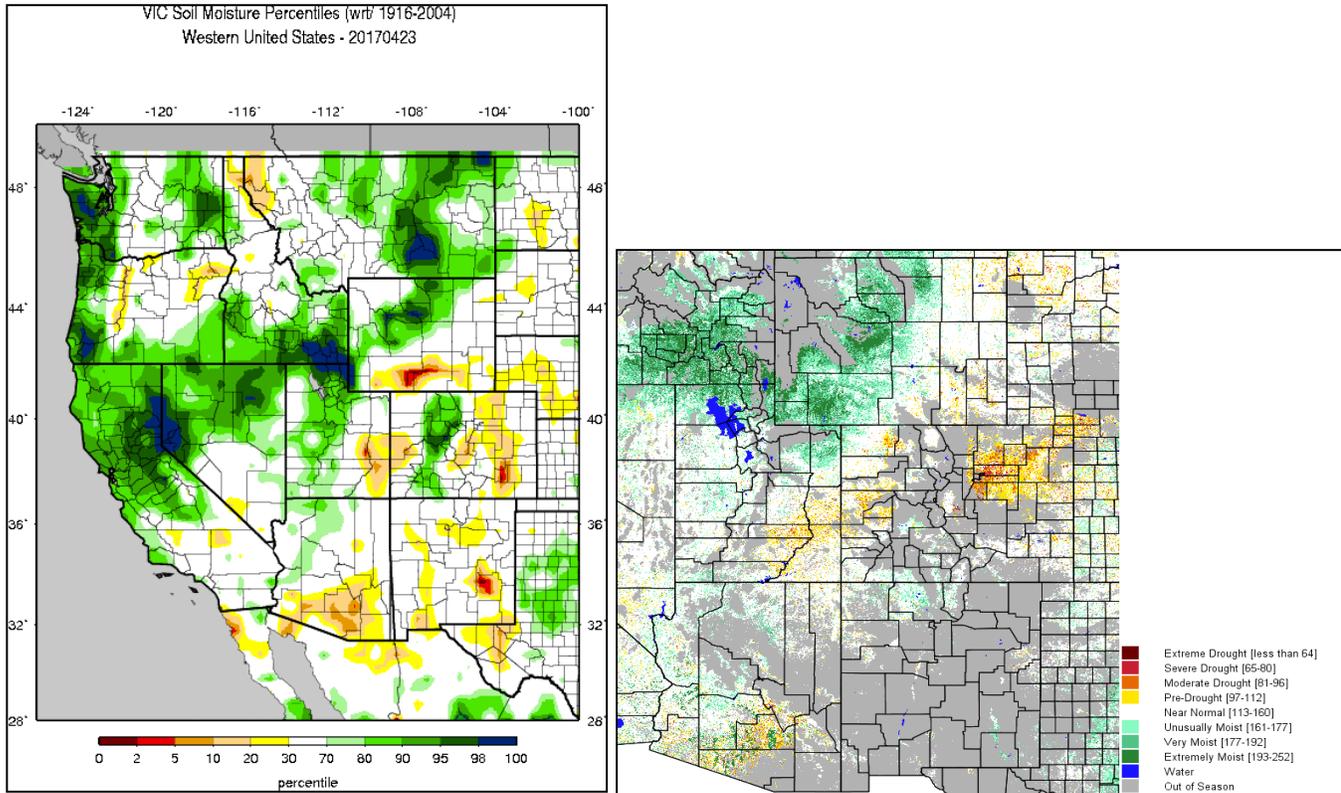


Last updated: 2017-04-25



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.

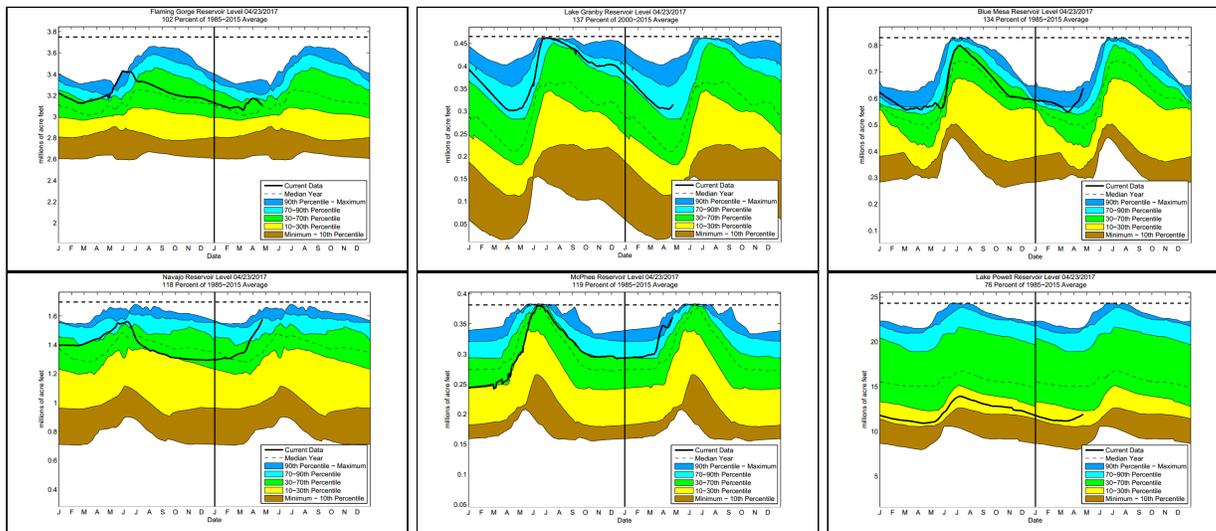
## Surface Water



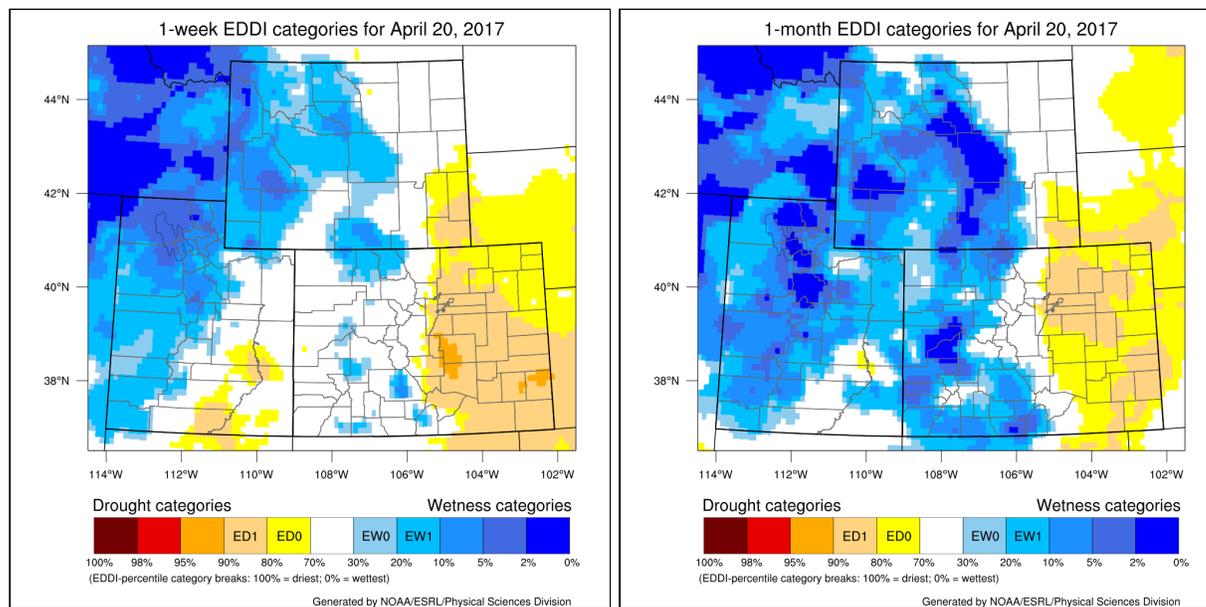
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right

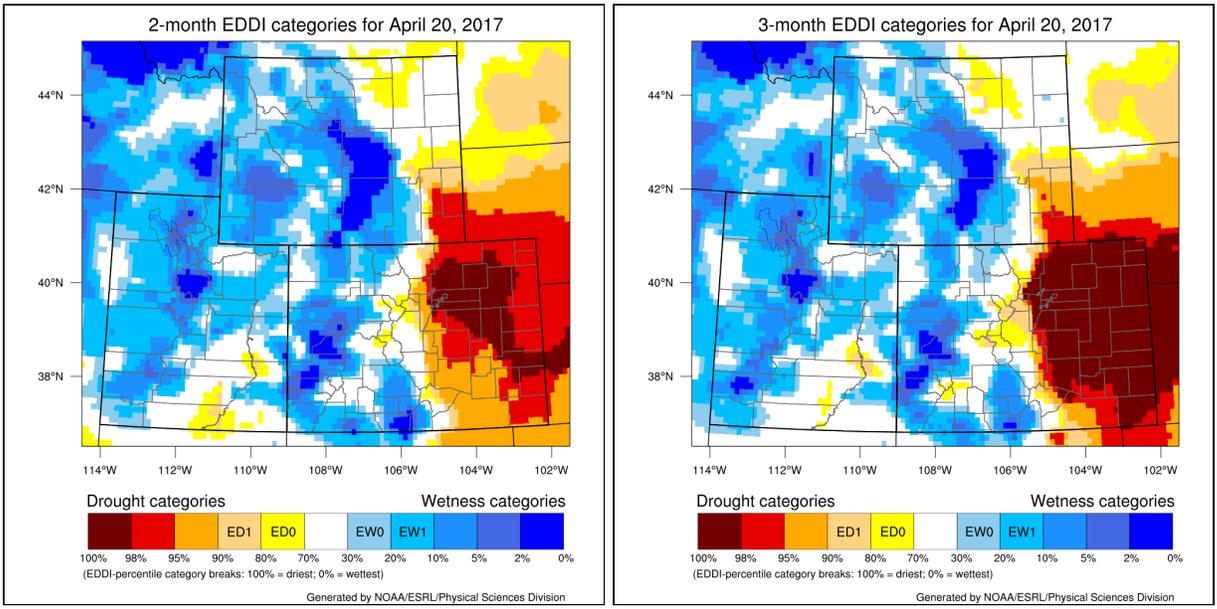
image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

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.



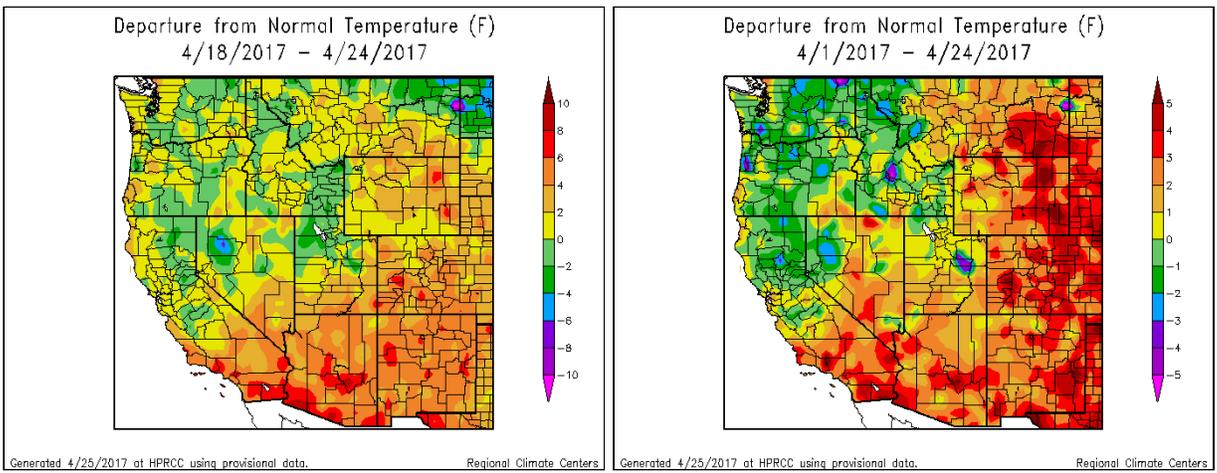
## Evaporative Demand



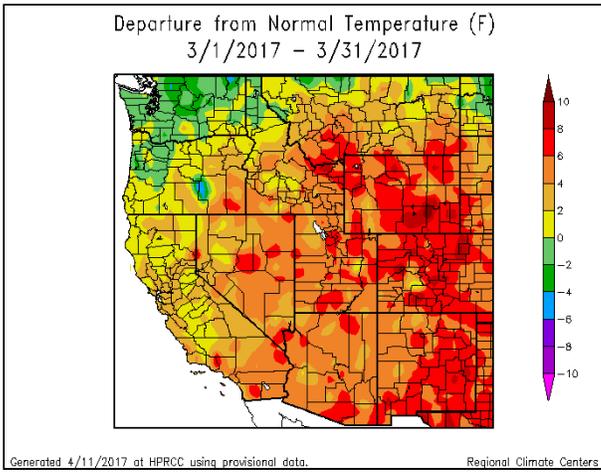


The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

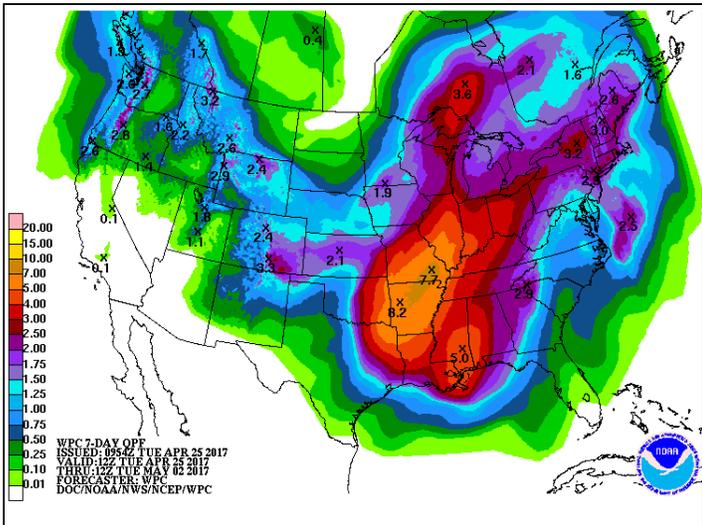
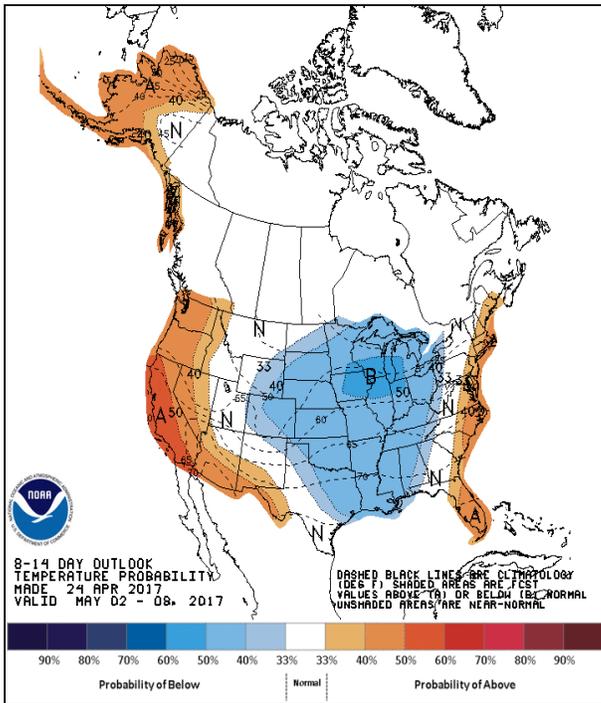
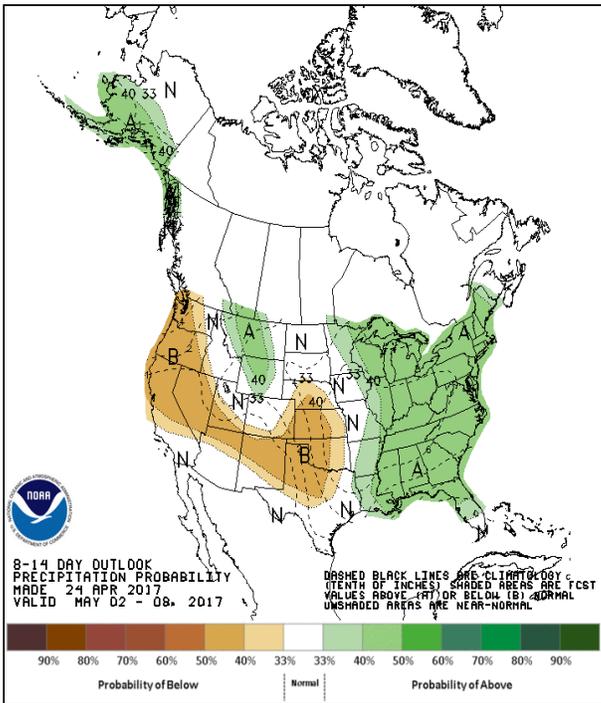
## Temperature



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.

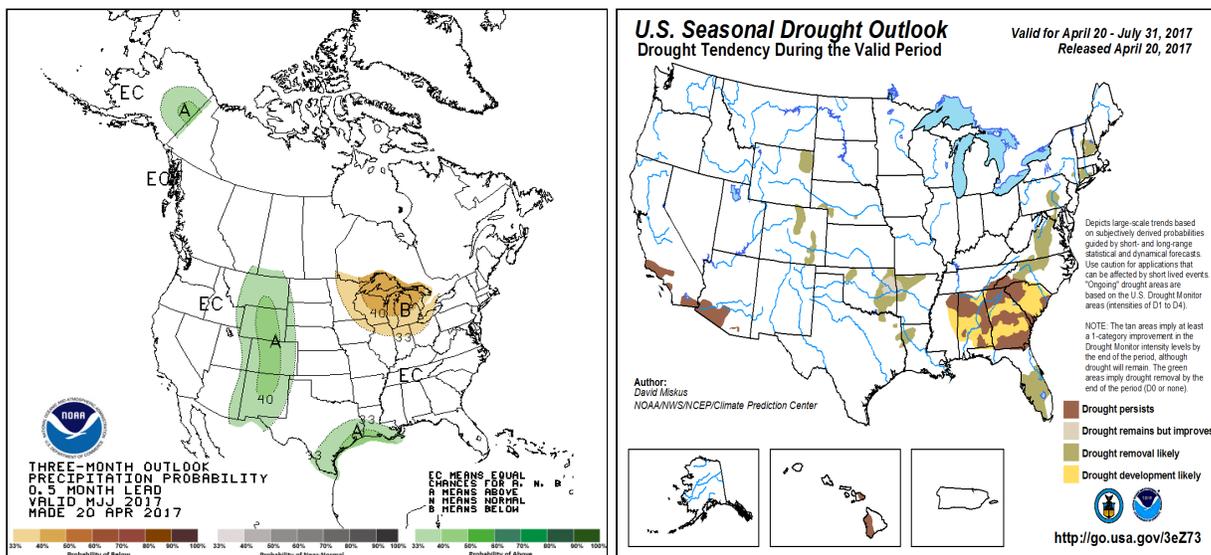


# Outlook

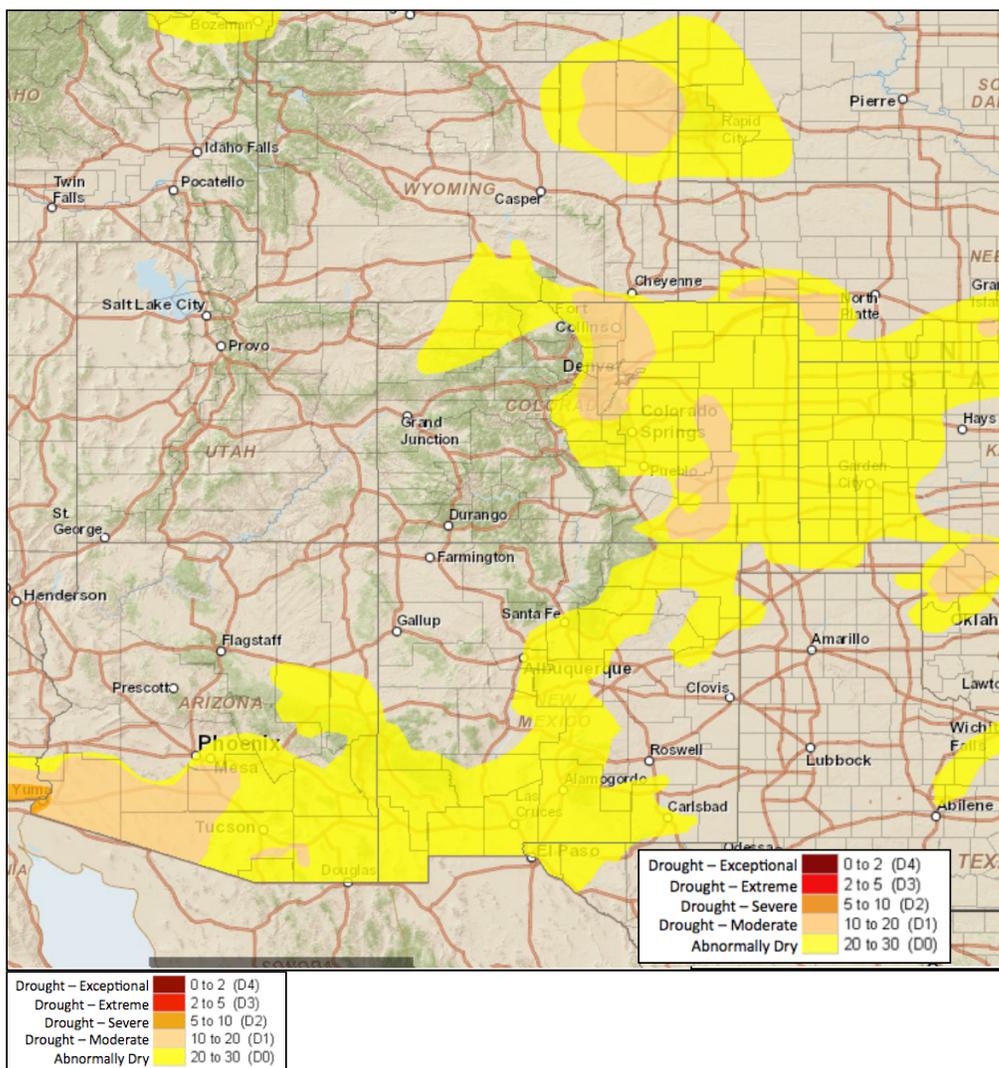


The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month

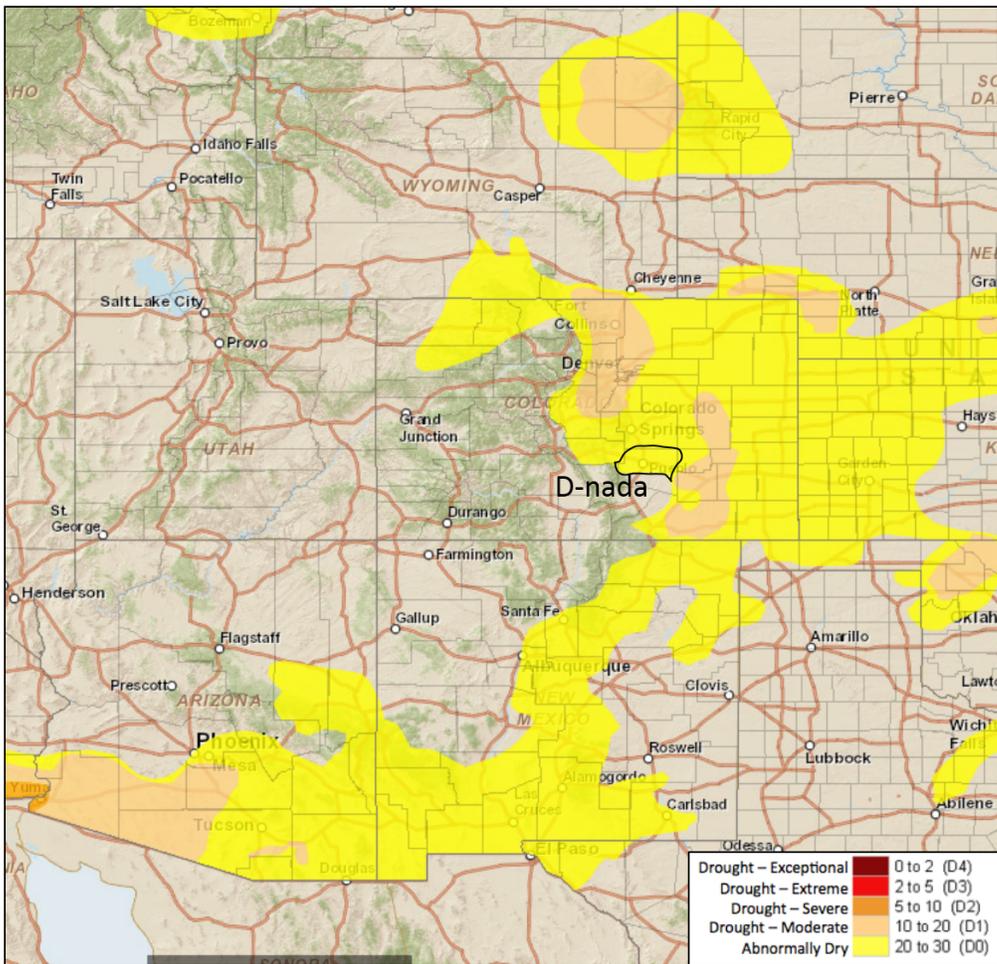
precipitation outlook from Climate Prediction Center, and the bottom right image shows the Climate Prediction Center's most recent release of the U.S. Seasonal Drought Outlook.



## 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 25, 2017

Last week the Upper Colorado River Basin had a large area in eastern Utah and southwestern Colorado with little to no precipitation. Precipitation in the range of 0.25" to 1.00" fell over the weekend in northwestern Colorado and southwestern Wyoming. The higher amounts were in Moffat, Routt, Grand, Summit and parts of Eagle, Garfield and Rio Blanco counties. Not showing up on the map is precipitation that fell Monday after 7 AM into Tuesday. Much of northwestern Colorado received between 0.10 and 0.50" yesterday. Most of this precipitation was rain, however the higher elevations saw snow. April precipitation through the 24th at 7AM is in the 1-2" range along the Divide and less than 0.5" in eastern Utah.

SPIs in western Colorado are showing quite a bit of dryness, with 30-day SPIs in the 0 to -1 range with a few down to the -1.5 range. 90-days SPIs look even drier. The 6-month SPI is looking much better with many SPIs in the 0 to +1 range.

Eastern Colorado saw some very beneficial precipitation last week, with much of the area seeing at least 0.5" and Larimer, Weld, Morgan and Kit Carson counties receiving over 1 inch of new precipitation. Chaffee, Park, Douglas and part of Arapahoe counties saw less than 0.25" last week. Much of northeastern Colorado from Larimer to Philips and Sedgwick counties saw an additional 0.25 to 0.5" Monday afternoon and Tuesday morning.

SPIs in eastern Colorado are pretty mixed. Southeastern Colorado is showing 30-day SPIs in the +1 to +2 range and 0 to +1.5 for the 90-day. Farther north,

SPIs are only in the 0 to +1.5 range. In the Denver Metro and northern Front Range, 3-day SPIs vary between the -1 to +1, but dry out to the 0 to -1.5 range for the 90-day SPI, showing the longer term dryness.

Despite the precipitation, temperature for April remain above normal for the entire area. This has been driving snowmelt in the mountains. Basins in Colorado are currently below normal for this time of year, meaning the snow is currently melting faster than normal. Streamflows are responding to the rapid snowmelt, with the majority of streamgages reporting at to much above normal.

It should be noted, that while snowpack in the mountains was great this year, much of the snowpack was above 9,000 feet, the mountain valleys have not seen the same great snow and precipitation since February.

The outlook shows a good chance for precipitation coming to the area this week, with the main chunk hitting eastern Colorado, especially the Arkansas Valley. Temperatures with this pattern could be cold enough to bring snow and killing freeze into the plains of Colorado.

### **Recommendations**

**UCRB:** Status quo is recommended for the UCRB. While the higher elevations have seen a great season, the mountain valleys have been dry for a few months now and SPIs are starting to show it. With the precipitation that fell over the last few days and the great water supply, we will continue with status quo, however keep a close eye on the valleys.

**Eastern Colorado:** The USDM author has proposed reduction of D0 in eastern Colorado and D1 in Weld and Larimer counties. The Climate Center endorses most of these changes with the exception of the D0/D1 reduction in Larimer County. Much of the county has missed out on many of the events and remained dry. 30 and 60-day SPIs are now positive, however the SPI quickly goes back to dry on the 90-day SPI.

In addition to the proposed improvements, reduction of D0 in northern Pueblo County is recommended. This area has seen the same beneficial precipitation that helped wipe out D0 from Huerfano County and SPIs are positive on all time scales.