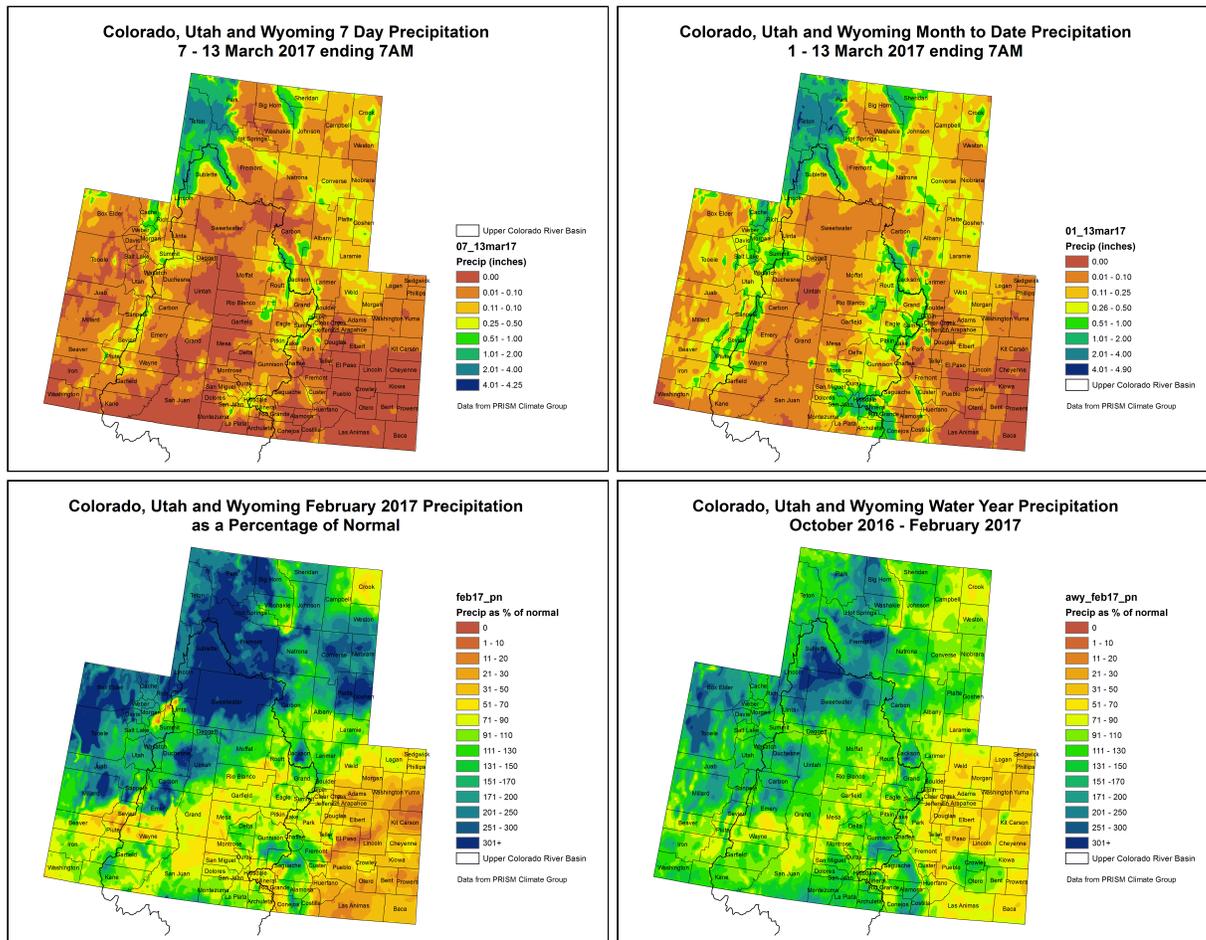


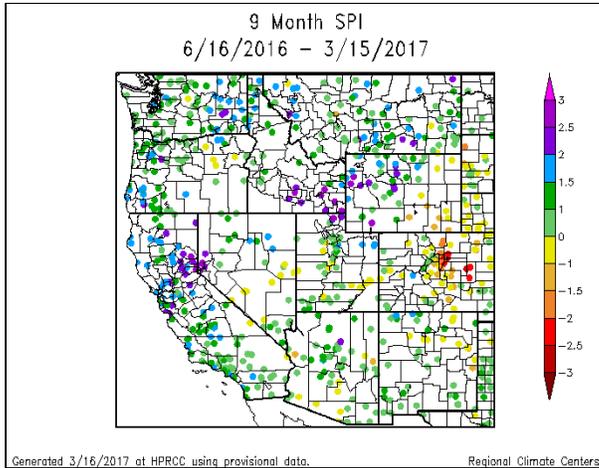
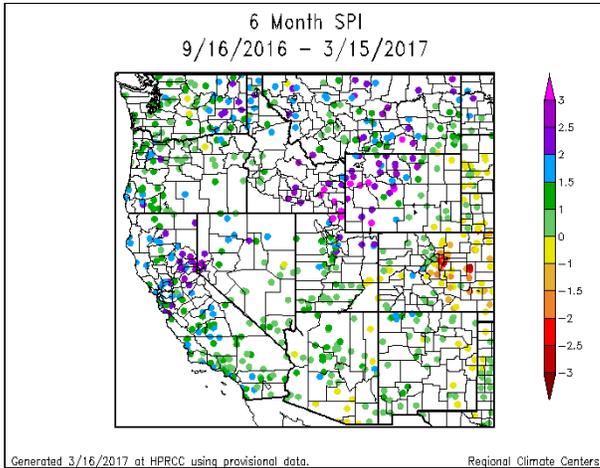
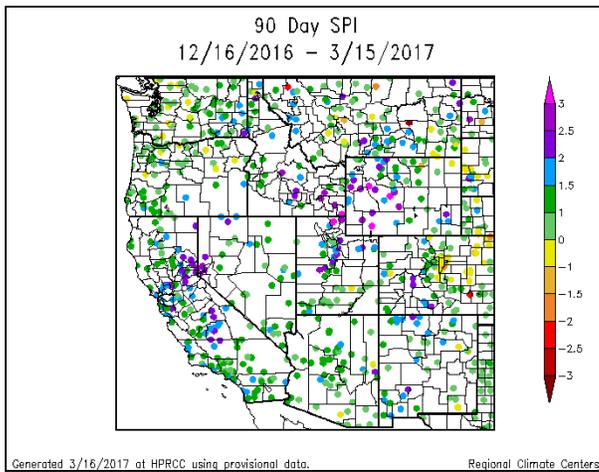
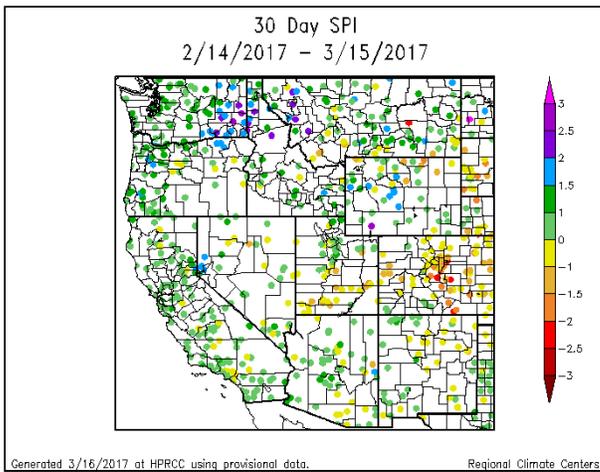
NIDIS Intermountain West Regional Drought Early Warning System March 14, 2017

Precipitation



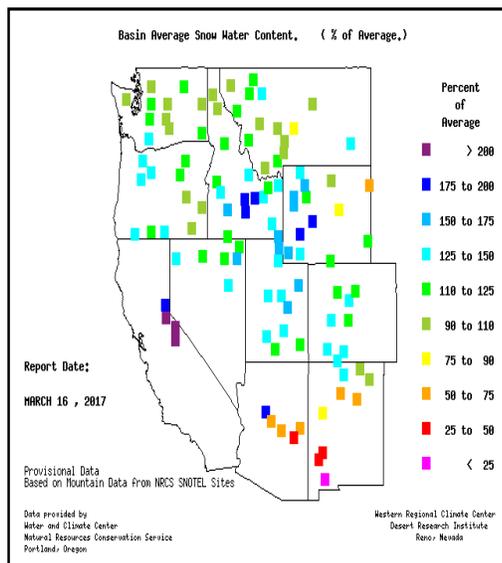
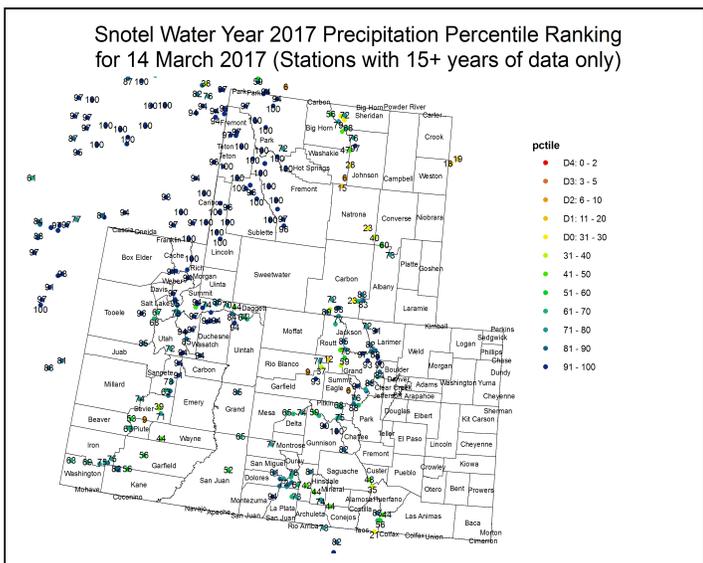
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average;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

Standardized Precipitation Index



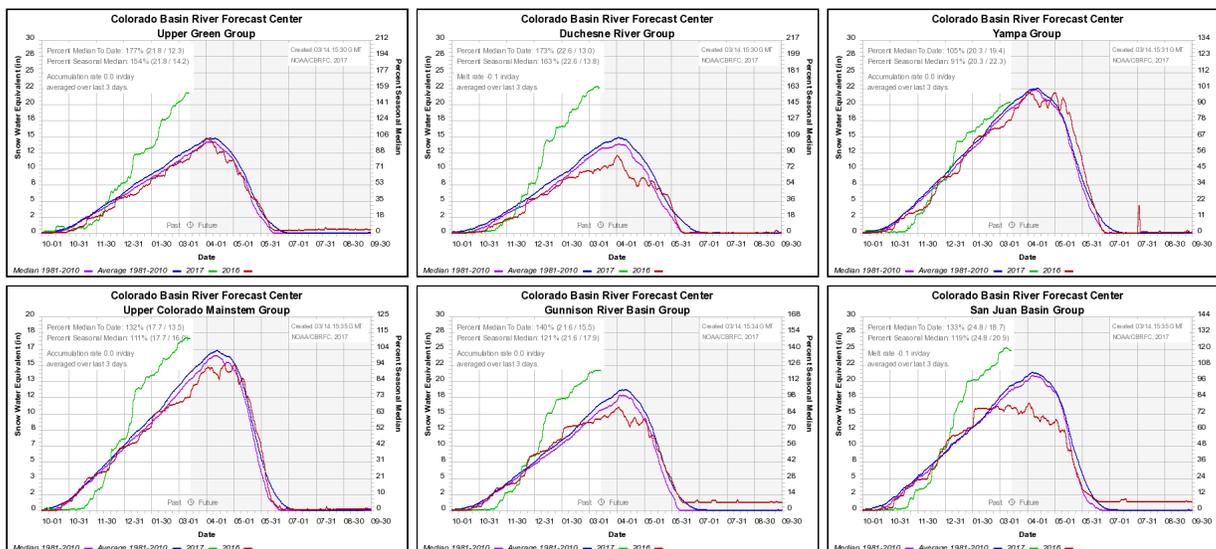
Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions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

Snotel and Snowpack

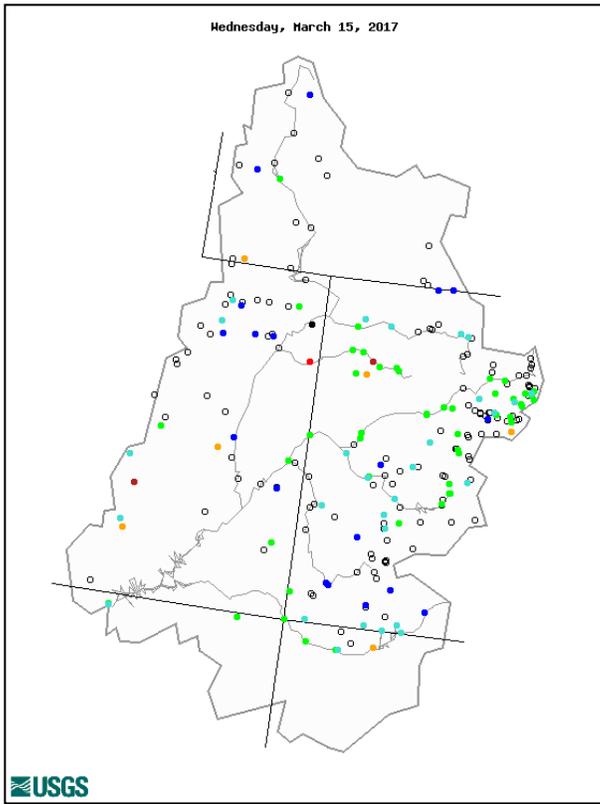


The top left image shows the Natural Resources Conservation Service's SNOTEL water-year-to-date precipitation percentile rankings. The top right image shows sub-basin averaged snow water equivalent accumulations as a percent of average. The images below show accumulated snow water equivalent in inches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

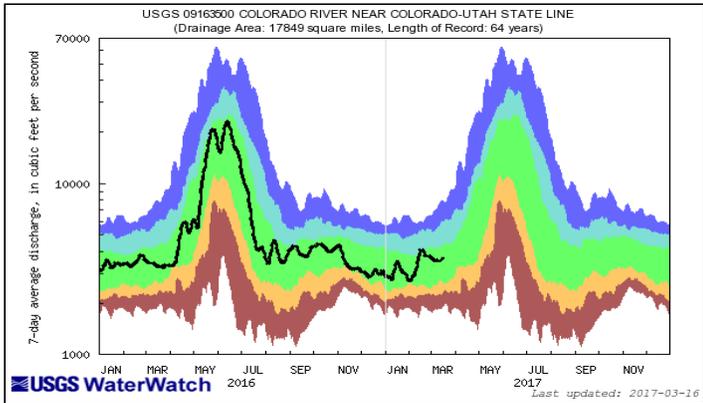


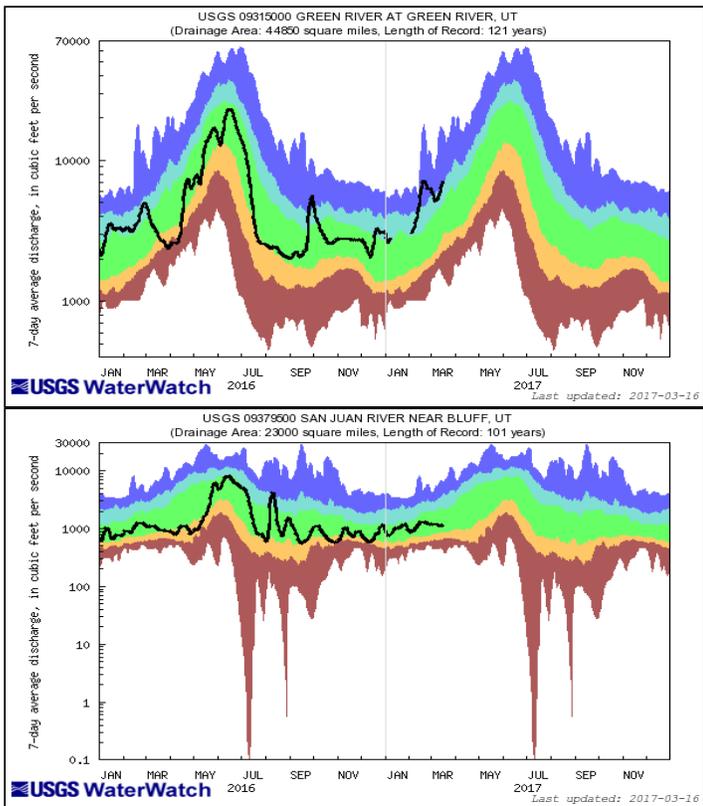
Streamflow



Explanation - Percentile classes

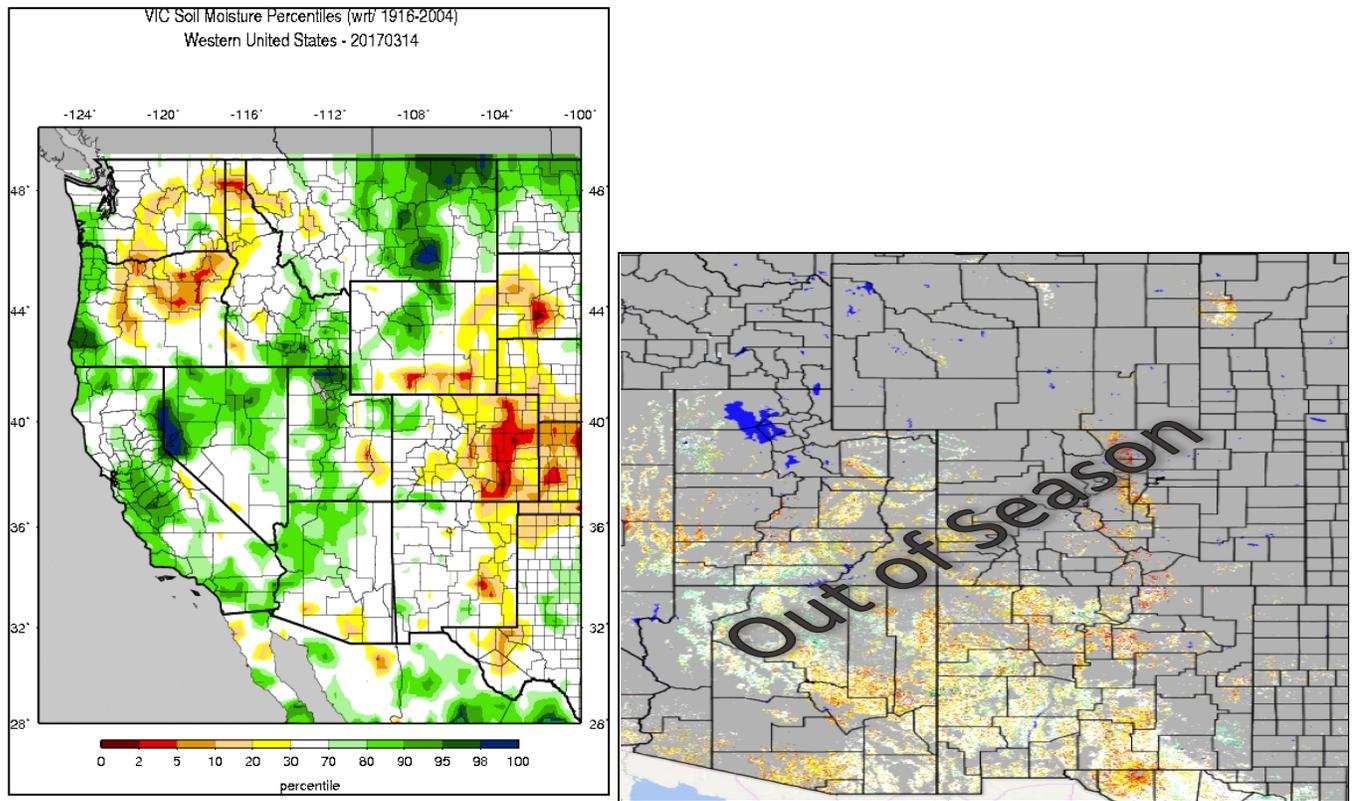
●	●	●	●	●	●	
Low	<10 Much below normal	10-24 Below normal	25-75 Normal	76-90 Above normal	>90 Much above normal	High
						Not-ranked





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.

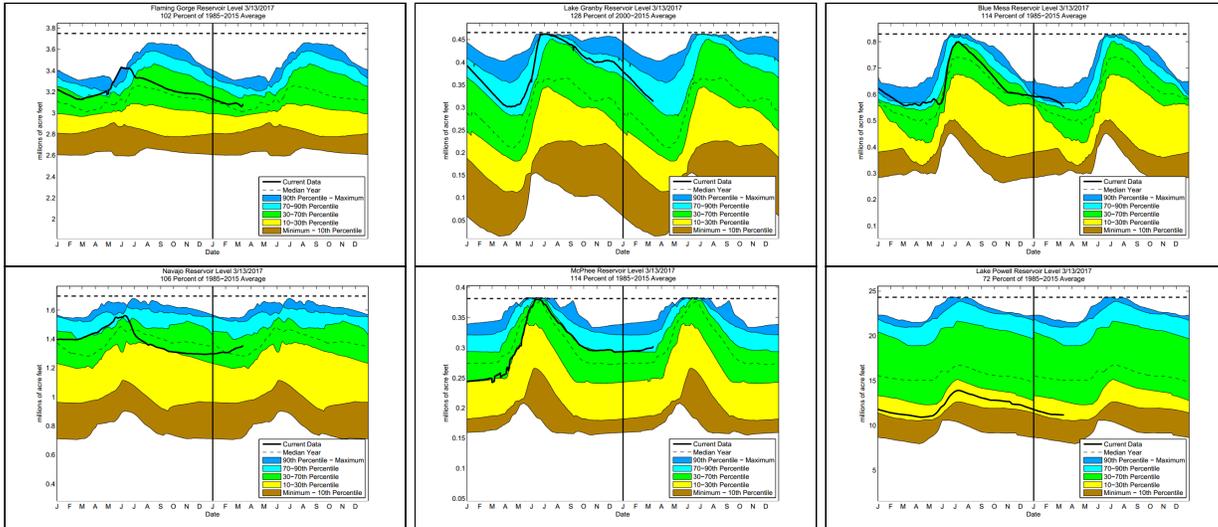
Surface Water



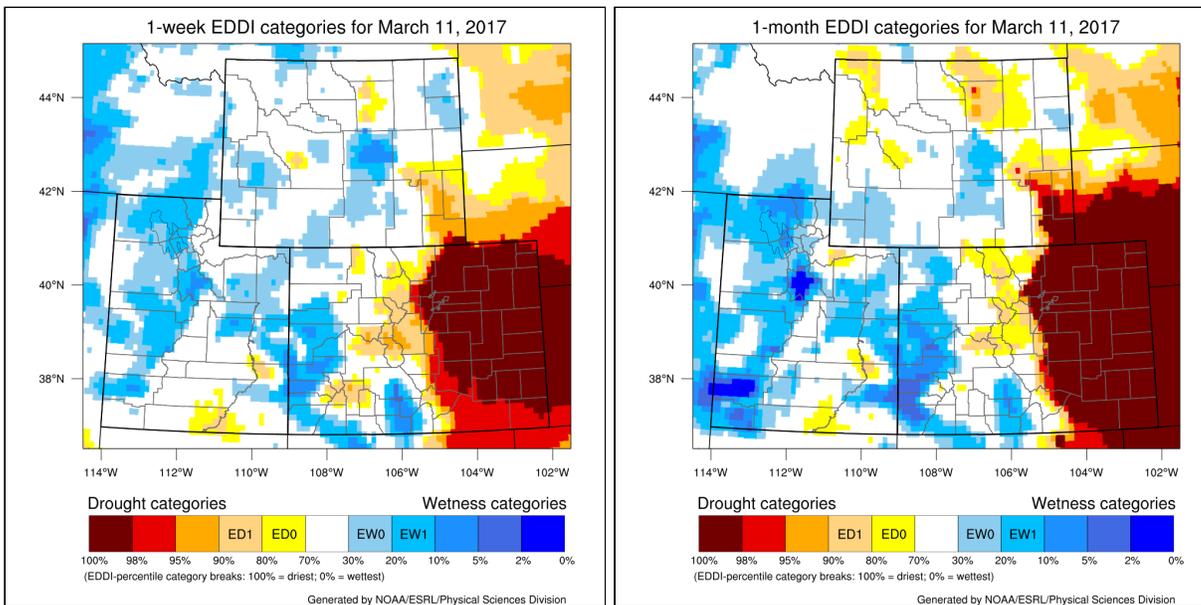
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right

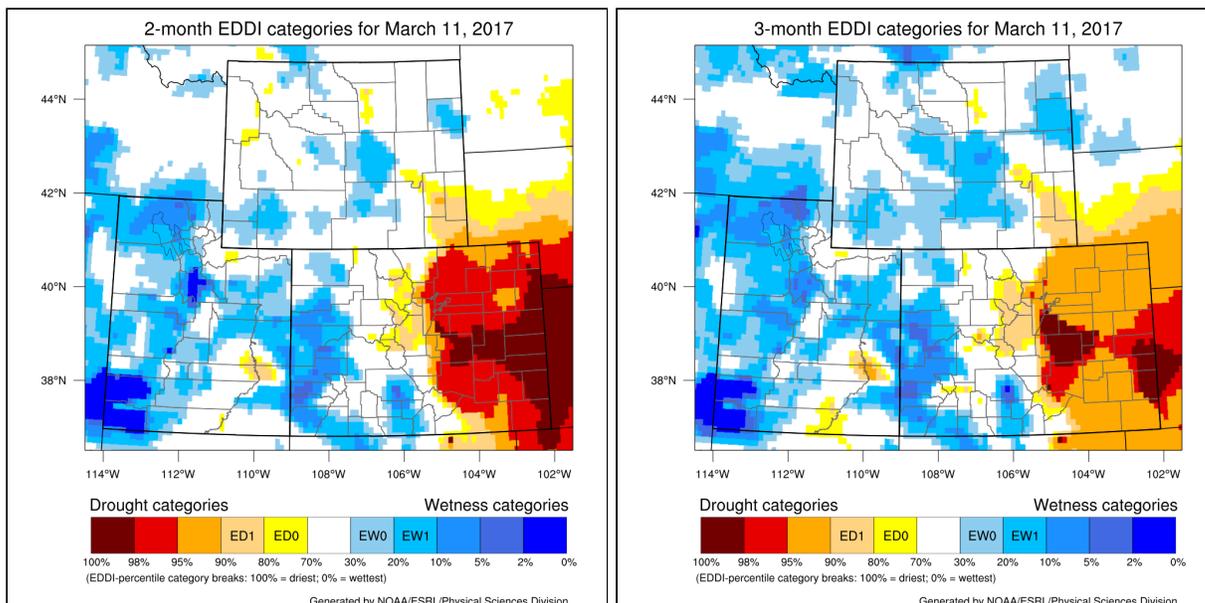
image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

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.



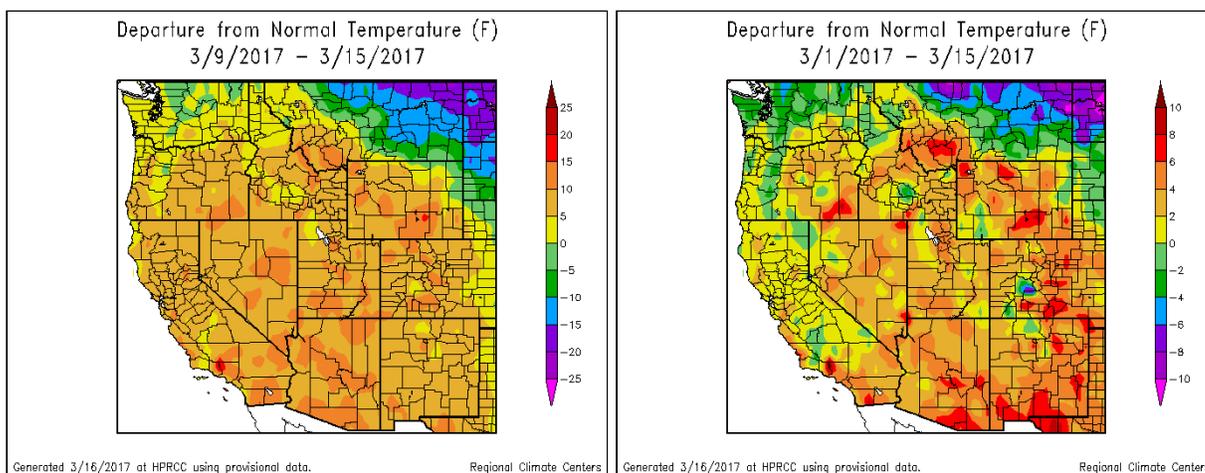
Evaporative Demand



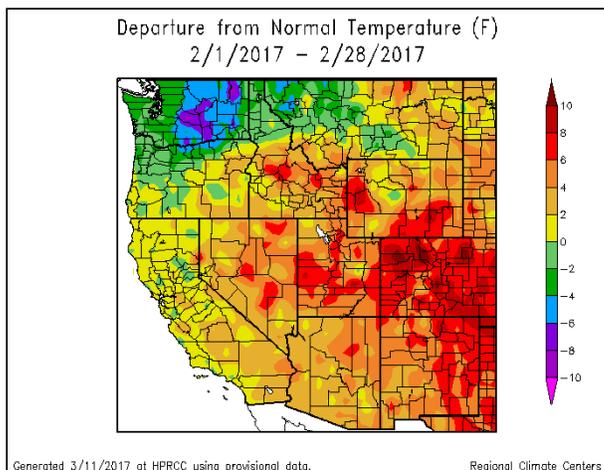


The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are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

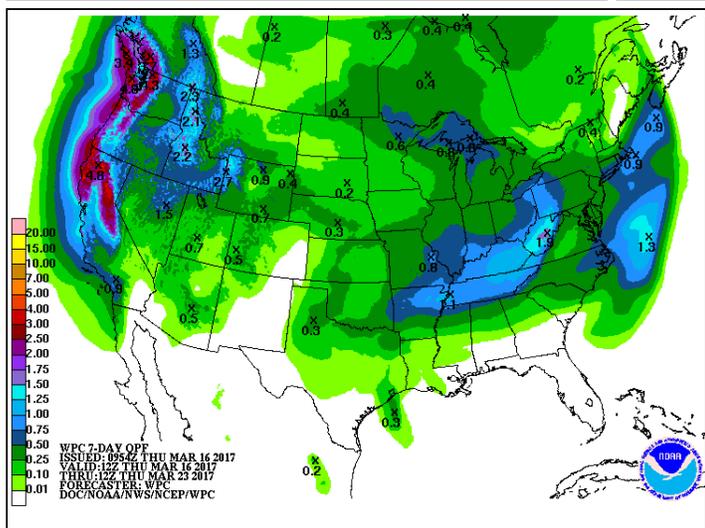
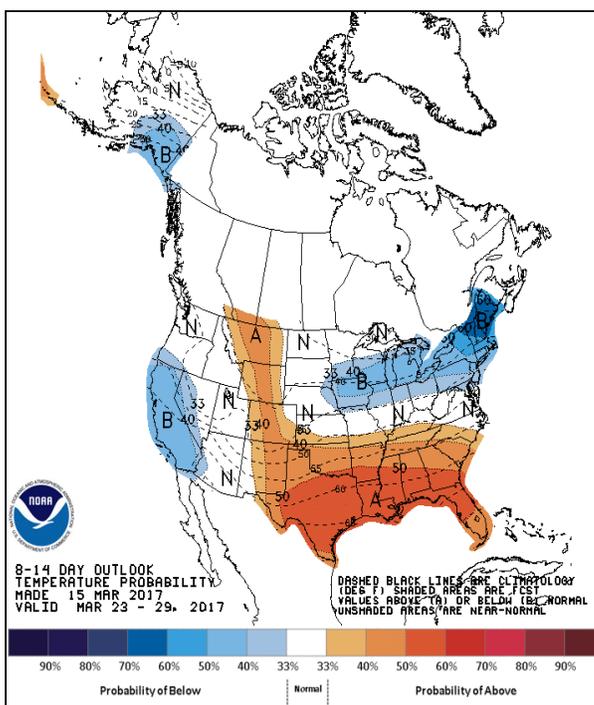
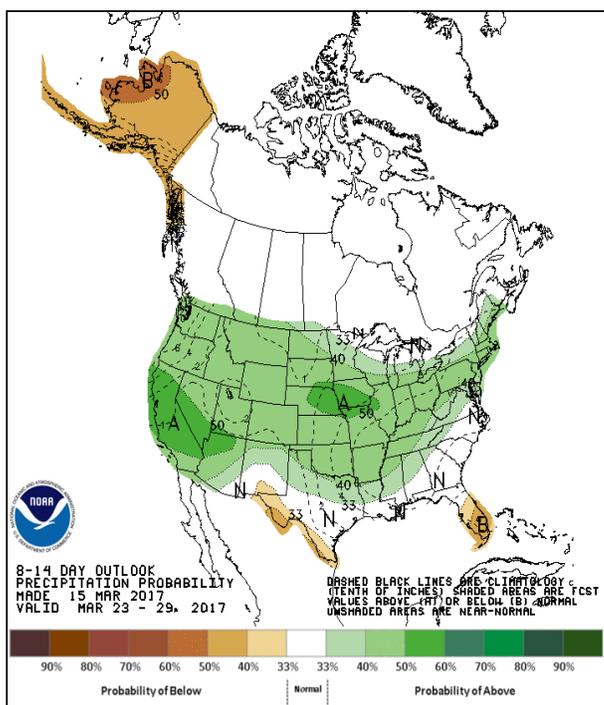
Temperature



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.

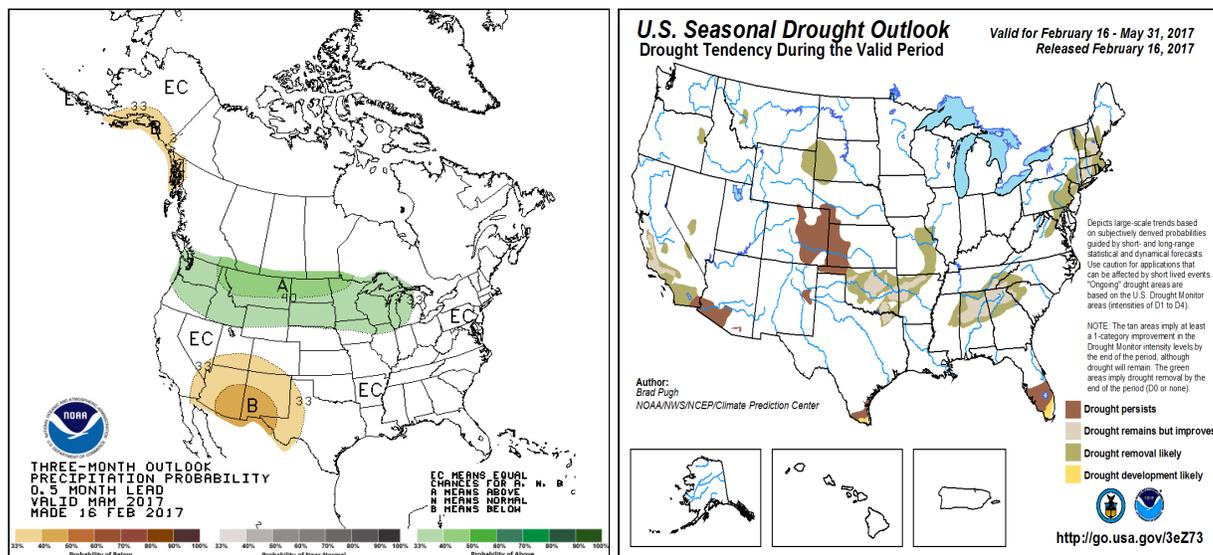


Outlook

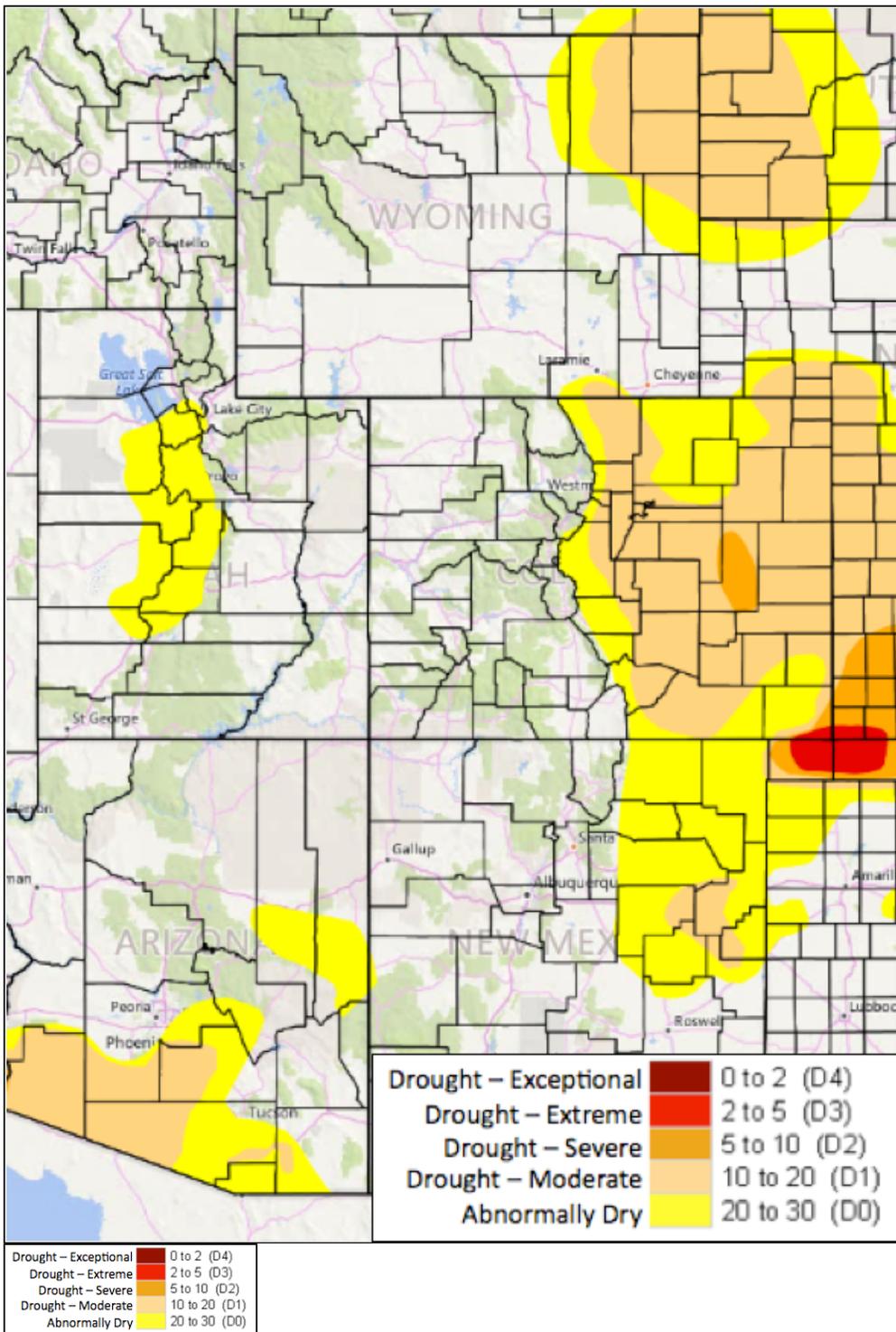


The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for seven days. The bottom left image shows the 3-month

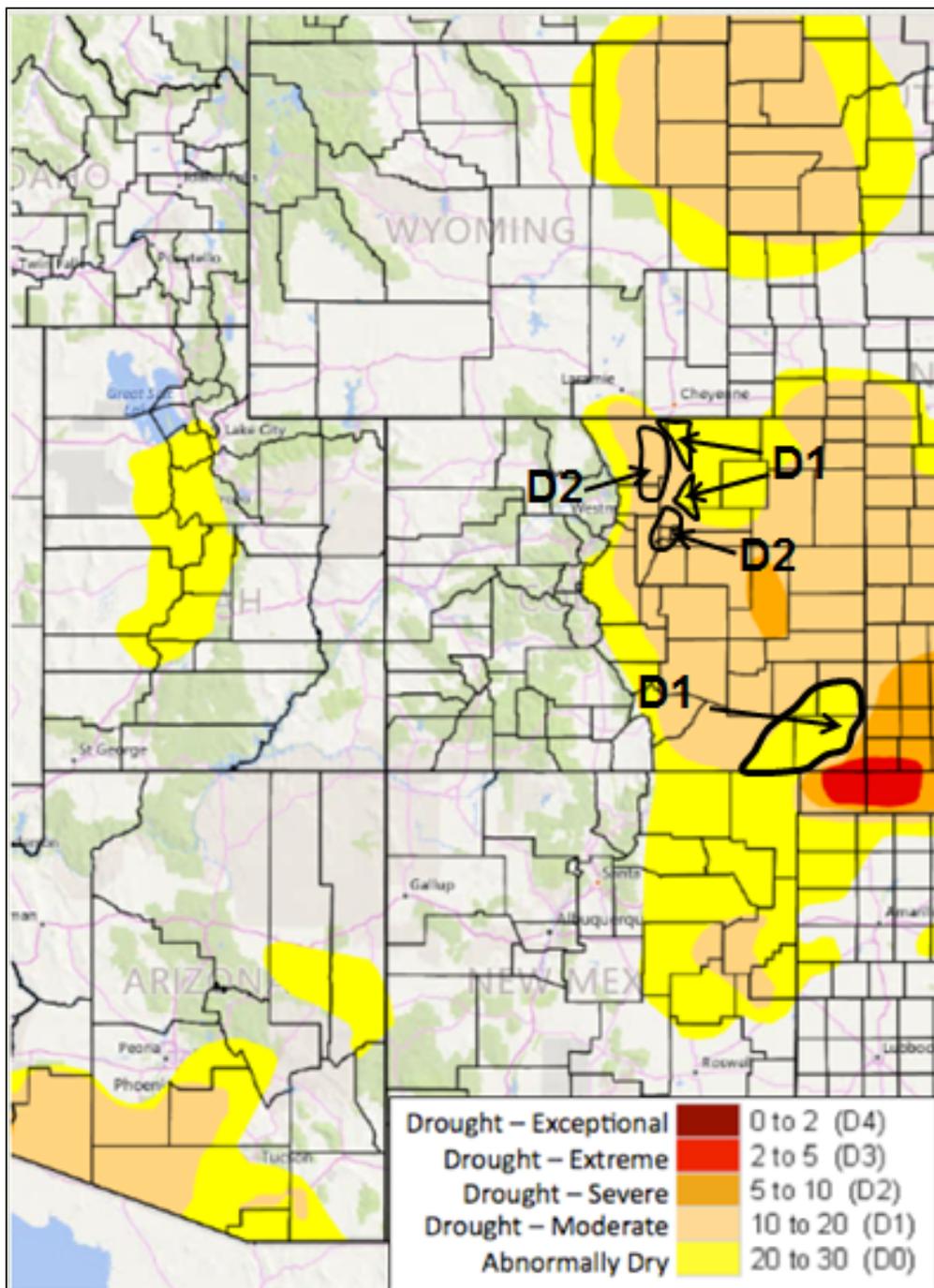
precipitation outlook from Climate Prediction Center, and the bottom right image shows the Climate Prediction Center's most recent release of the U.S. Seasonal Drought Outlook.



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: March 14, 2017

It was a warmer, dryer than average week across the Upper Colorado River Basin and eastern Colorado, and, in many places, was quite windy as well. Over half an inch of precipitation fell on the Upper Green River Basin and on the northern Rockies (around and north of Rabbit Ears Pass.) Most areas received less than one tenth of an inch of precipitation, or were shut out entirely for the week. The warm, dry, windy conditions have made for much above normal evaporative demand across eastern Colorado, and have created fire weather. Currently, the main fire weather concern is in El Paso County and Fremont County, but with most of eastern Colorado now being primed for fires, the main focus of concern will shift as the wind does.

High elevation snowpack is near-average to much above average across the Upper Colorado River Basin. The Yampa and White River subbasins are showing near normal snowpack for this time of year after a below average

February. It is worth note, however, that snowpack is measured from well-positioned, high-elevation SNOTEL stations, and at lower elevations snowpack melted off more quickly than usual. Precipitation was much above average in February in the Upper Green Basin and Duchesne Basin, so these subbasins are well above their seasonal expected snowpack peaks. Net ablation is now occurring in the Duchesne and San Juan Basins. Because these basins have received well above normal snowpack, a little bit of early melt is likely a good thing.

Streamflows are above average for most of the Upper Colorado River Basin and eastern Colorado. Major Reservoirs are releasing water in preparation for the upcoming runoff from snowpack.

Soil moisture levels continue to fall in eastern Colorado with respect to average. The VIC soil moisture model now shows a large swath of root zone soil moisture below the 5th percentile across eastern Colorado from Logan County down all the way to Las Animas County (nearly border to border).

Winter wheat isn't coming up in some places, such as Lincoln County. According to the National Phenology Network, vegetation is coming out of dormancy two-to-three weeks ahead of schedule across eastern Colorado. This creates a lose-lose scenario wherein either already an already depleted root zone must sustain a longer growing season, or the growing season must be impacted by large killing frosts.

Recommendations

UCRB: Status Quo. No Drought here.

Eastern Colorado: It is recommended that D1 be added to eastern Las Animas County, northwest Baca County, southeast Bent County, and southern Prowers County in eastern Colorado. Recent weather has been anomalously dry, hot, and windy. While these areas were left D0 due to receiving more precipitation that surrounding areas in late summer and early fall, soil conditions are deteriorating.

It is recommended that D1 be added to western Weld County both northwest and southwest of Greeley. This will include extreme northeast Larimer County and a sliver of north-central Adams County.

It is recommended that D2 be added to Denver County, the western nose of Adams County, western Arapahoe County, extreme northwest Douglas County, and extreme eastern Jefferson County. Denver Metro area 9-month SPIs are now below -2, similar to Lincoln County, which is already D2. Recent weather has been much hotter and drier than normal.

It is recommended that D2 be added to southeast Larimer County to include the Urban Corridor from Wellington down to Berthoud. Between a much drier than average summer and fall in 2016, a second half of winter and a delayed ramp up in precipitation with the onset of meteorologic spring, this area is now reporting SPEIs below -1.5, or below the 7th percentile.

It is generally recognized that conditions across eastern Colorado have been deteriorating in recent weeks, and if conditions stay dry more degradations will follow. This week the forecast is for more above average temperatures, windy weather, and almost no precipitation. However, if your area of interest was not yet demoted to D2 please note that appraising conditions as below the 10th percentile is a serious and usually difficult decision. It generally requires both substantial recent and longer-term dryness. 9-month and 12-month precipitation accumulations for most areas of Colorado are below average, but not yet in the bottom 10 percentile range.