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.

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).

http://climate.colostate.edu/~drought/current_assessment.php
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 of reference evapotranspiration (ET) from CoAgMET sites across Colorado. Reference ET assumes the amount of water that will evaporate from a well-irrigated crop. Higher ET rates occur during hot, dry, and windy conditions. Lower ET rates are more desirable for crops. See a map of locations for the above ET sites.

http://climate.colostate.edu/~drought/current_assessment.php
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.

**Utah**

Governor Gary Herbert declares drought emergency for all of Utah.

**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: October 30, 2018

Much of the Intermountain West reverted back to a warmer and drier than normal pattern over the past week. The notable exception was central and eastern New Mexico, and the southeast plains of Colorado. This area received anywhere from 0.50 to over 2.00" of precipitation, much of which fell in a gentle, soaking manner conducive to infiltration.

Streamflows across the Upper Colorado River Basin are still on the lower side, but have made a little bit of a comeback over the past month with some cooler and wetter conditions in the beginning and middle of October. The proportion of stream gages reporting record low or much below normal is now at 29%. Blue Mesa Reservoir on the Gunnison River channel is now storing record low levels of water. Lake Dillon, Denver's main water source is now below 10th percentile storage according to the NRCS.

In most areas, surface conditions are still better off than they were to begin Water Year 2019 despite the warm and dry conditions seen over the last week. One possible exception is western Wyoming, which has been much drier than average since mid-summer, and does show some areas around Yellowstone where even October precipitation was below normal. This is an area to watch moving forward, particularly with an El Nino developing.

In general, changes to drought slow down this time of year for the Intermountain West. Crops have been harvested, winter wheat planted, and we
brace ourselves to see what kind of a snowpack the new water year will bring us.

The outlook for the next week shows some decent moisture (0.50+”) for the northern Colorado Rockies, Tetons, and Sangre de Cristos with lower totals in the San Juans of southwest Colorado, and the Wasatch and Uintah Ranges in Utah. Generally, expect moisture totals in the valleys and on the plains to become low for the next four months.

With El Nino developing, the Climate Prediction Center is optimistic that we have better chances of above normal precipitation in Arizona, New Mexico, and Southern Colorado this year. However, this winter is more likely to be on the warm side than the cold side, which is largely attributable to the overall long-term temperature changes we are seeing. If both above average temperatures and precipitation verify, the high elevations will still build a solid snowpack, but middle elevations will likely lose their water more quickly.

**Recommendations:**

**Upper Colorado River Basin:** Status quo. It is worth keeping a close eye on western Wyoming as short-term SPIs are startlingly low. The good snowpack last winter, and decent early summer moisture were enough to keep the surface hydrology in decent shape despite the recent dryness.

**Eastern Colorado:** It is recommended that D3 be improved to D2 in eastern Pueblo County, and that the eastern fringe of D3 in southern Colorado be trimmed in Custer, central Huerfano, and central Las Animas Counties. Following another decent week of rainfall accumulations, these areas no longer show D3-level SPIs on any timescales.

It is recommended that D2 be improved to D1 in central Lincoln County, Otero County, and northern Crowley County. The recent gentle, soaking rains have been a blessing for newly-planted winter wheat and rangeland. 12-month SPIs in this area have reverted to D0-D1 level.

It is recommended that D1 be improved to D0 in south-central Kiowa County, northwest Prowers County, and northern Bent County. This area has had several gentle soakers over the last month, which occurred at a favorable time for winter wheat planting, and has been on the mend since July.