

NIDIS Weekly Climate, Water and Drought Assessment Summary

Upper Colorado River Basin

November 2, 2010

Precipitation and Snowpack

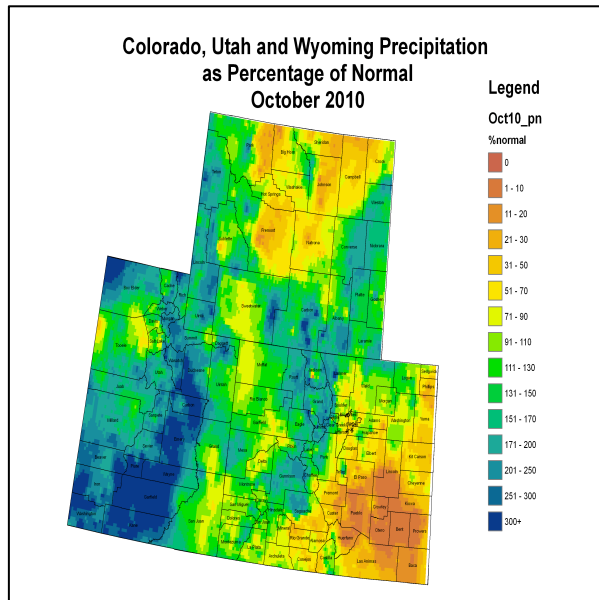


Fig. 1: October precip as percent of ave

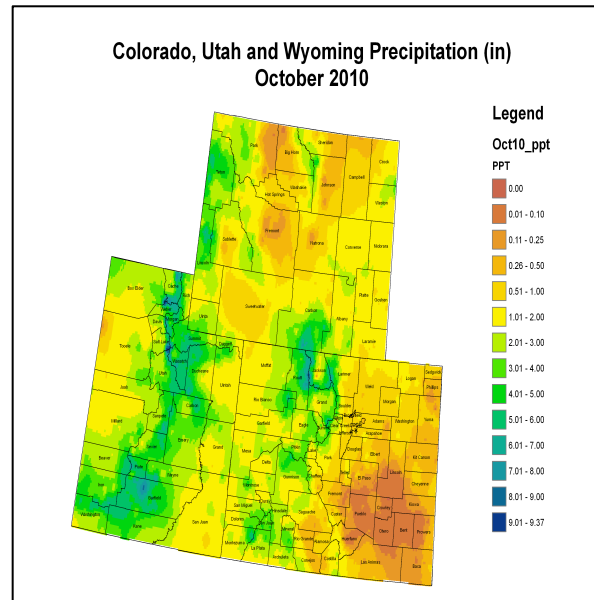


Fig. 2: October precip in inches

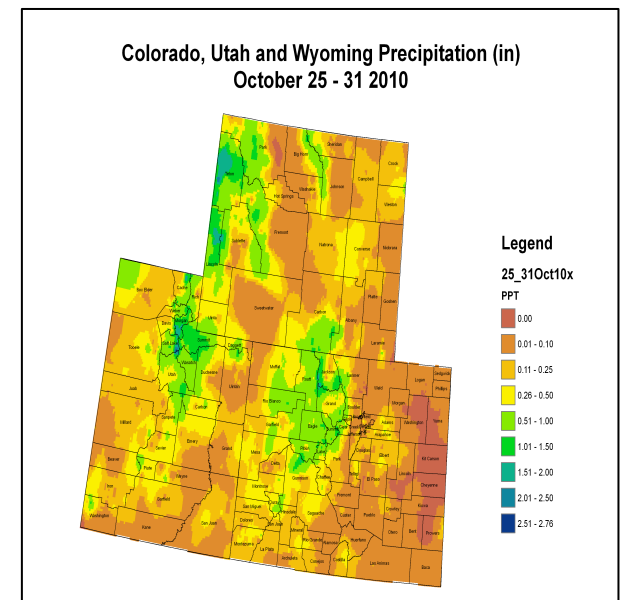


Fig. 3: October 25 – 31 precip in inches

Most of the Upper Colorado River Basin (UCRB) received near or above average precipitation for the month of October (Fig. 1). The driest regions were areas of Moffat County, CO, Sweetwater County, WY and San Juan County, UT. The heaviest amounts of precipitation for the month were in the northern mountains of Colorado and the Lower Green and Dirty Devil basins in Utah (Fig. 2). Outside of the UCRB, northern Wyoming and southeastern Colorado were very dry for the month, receiving less than a quarter of an inch of precipitation.

Last week, the Wyoming-Utah border and the northern mountains of Colorado received around an inch or more of precipitation (Fig. 3). Much of the rest of the UCRB received very minor amounts of precipitation of around a tenth of an inch or less. The particularly dry areas along the eastern plains received very little to no relief over the past week.

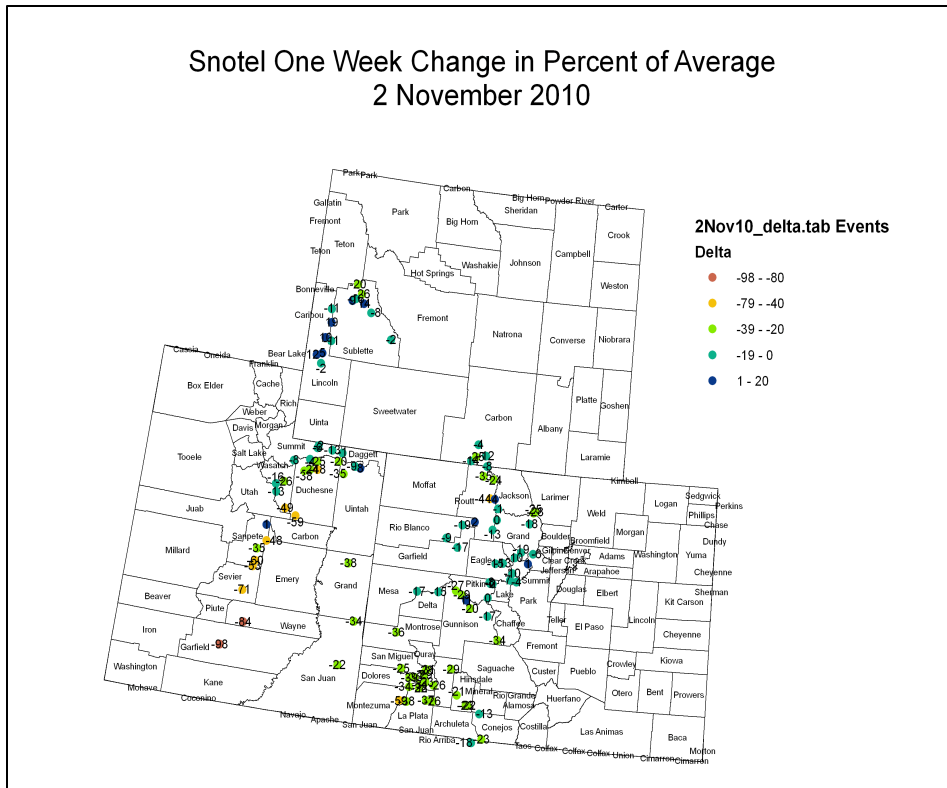


Fig. 4: SNOTEL WYTD precipitation percent of average change from last week.

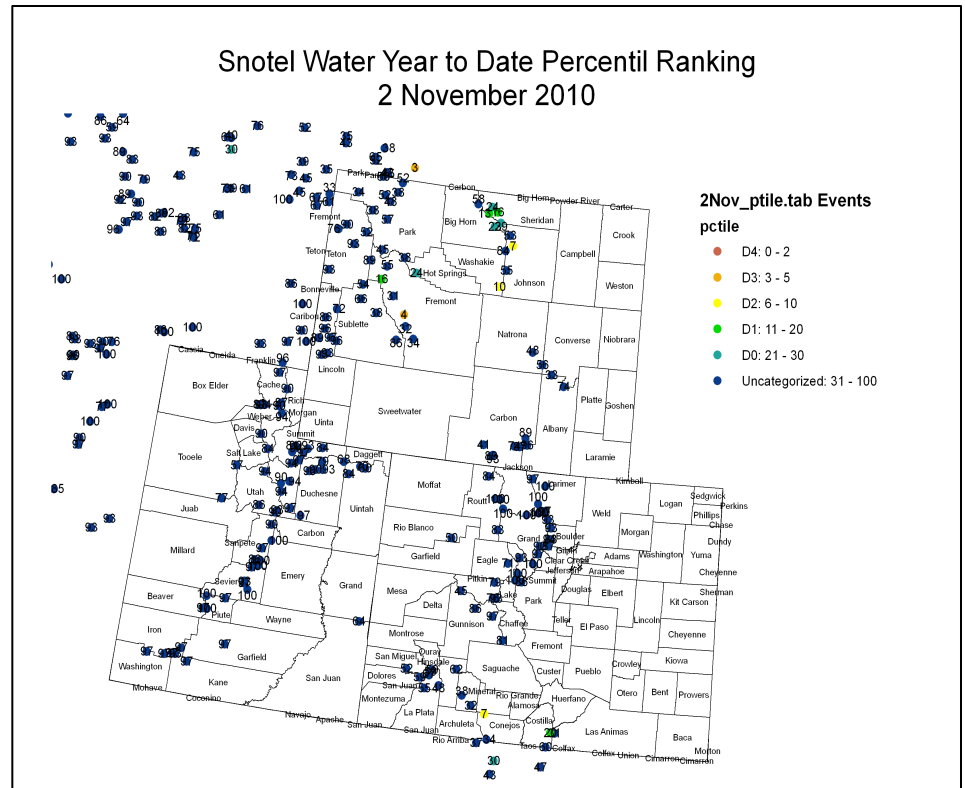


Fig. 5: SNOTEL WYTD precipitation percentiles (50% is median, 21-30% is Drought Monitor's D0 category).

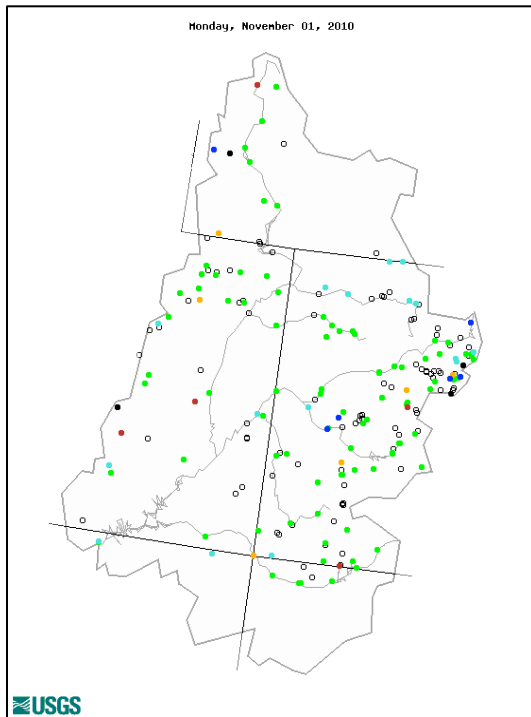
Though some areas received around an inch of moisture over the past week, it was not enough to maintain or improve the SNOTEL water-year-to-date (WYTD) percents of average from last week (Fig. 4). Areas which received little to no precipitation saw very large drops in their percents of average. Only the Upper Green River basin in Wyoming showed increases in WYTD percents of average from last week.

Percentile rankings for the SNOTEL stations around the UCRB show most stations ranked very high (Fig. 5). This, as well as the large changes in percents of average, are partly due to the early time of the water year. A couple of stations in the Rio Grande basin to the south, and some stations along the boundary of the Upper Green River basin to the north, remain dry and are showing low percentiles.

Streamflow

As of November 1st, over 90% of the USGS streamgages in the UCRB recorded normal (25th – 75th percentile) or above normal 7-day average streamflows (Fig. 6). The last time this many stations reported normal or above normal flows was during the monsoon season in late July/early August when the surge of moisture into the region resulted in a large influx of water into the areas rivers. Only a few stations scattered across the basin are recording below normal flows.

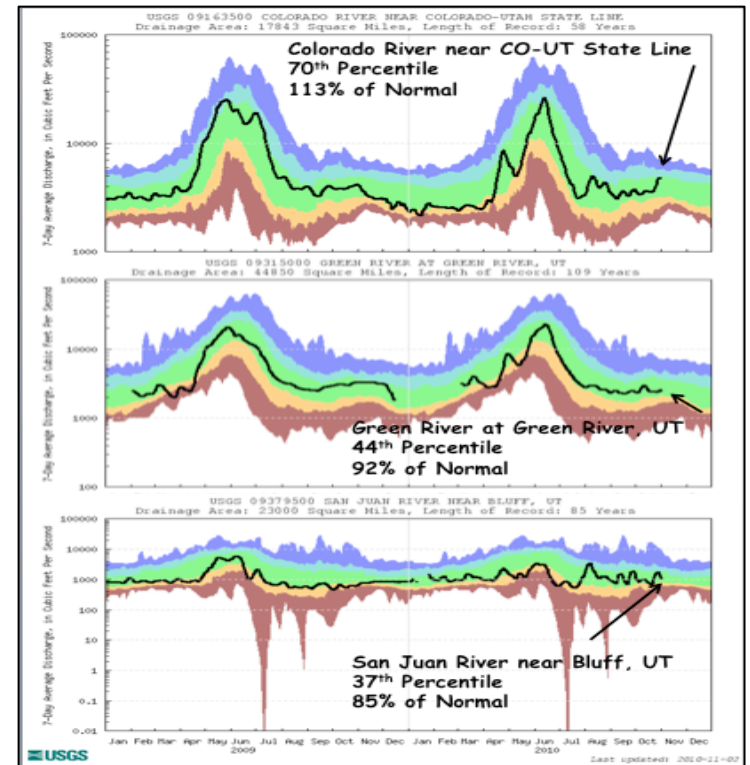
Looking at hydrographs from several sites around the UCRB, continued improvement can be seen on the Colorado River which is now at 113% of normal (Fig. 7). The Green River at Green River, UT is currently at 92% of normal and the San Juan River near Bluff, UT is at 85% of normal. Though 7-day average discharges are in fairly good condition, the cumulative runoff for the calendar year at all three sites remains well below normal—77%, 75% and 50% of normal, respectively, for each streamgage.



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		

Fig. 6: USGS 7-day average streamflow compared to historical streamflow for November 1st in the UCRB.

Fig. 7: USGS 7-day average discharge over time at the CO-UT state line (top), Green River, UT (middle) and Bluff, UT (bottom).



Water Supply and Demand

For the first time in over a month, the weekly temperature departure over the UCRB was below average. The CO eastern plains still saw above average temperatures over the past week. For the entire month of October, temperatures over the UCRB and surrounding areas were 2 – 6°F above average. There have been some minor improvements in soil moisture over the UCRB in the past couple of weeks, though soil conditions are still deteriorating over the eastern plains of CO and southeastern WY (Fig. 8).

Reservoir releases for the month of October were actually less than the average. Lakes Granby and Powell both saw increases in their levels from October 1 to November 1. Flaming Gorge's elevation drop for October was about half of the average drop for this time of year. Both Blue Mesa and Navajo saw near average drops. Green Mountain saw the biggest changes over the month, dropping around 29,000 acre feet when the drop between the October and November averages is only 8,000 acre feet. Green Mountain, Blue Mesa and Lake Powell are below average for this time of year, while the others remain above average.

Precipitation Forecast

A strong ridge, currently building over the Great Basin, will bring warm temperatures and little to no precipitation in the coming days. This pattern is reflected in the quantitative precipitation fields, with zero accumulation predicted for most of the interior west through Saturday. Forecast models are in good agreement on having the ridge linger over the UCRB through Friday before a weak Pacific system moves into the region for the weekend. While this fast moving feature does not look like it will do much for precipitation, aside from some minor showers in the north, it should help push the ridge east of the UCRB and open the door for other storm systems to begin moving into the area. Looking into next week, current model trends are leaning towards a more unsettled pattern developing with the arrival of a much stronger trough. Since this is more than a week in the future and models are still showing a good deal of uncertainty on the pattern evolution, will stick with the expectation of cooler temperatures and increased chances of precipitation beginning sometime early next week.

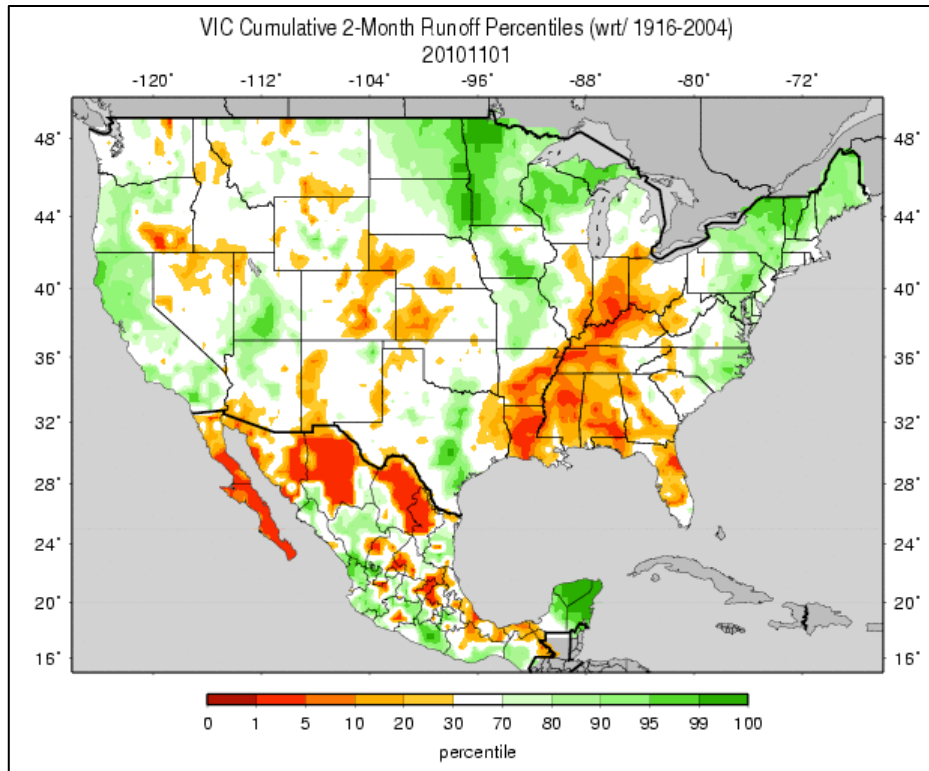


Fig. 8: VIC soil moisture percentiles as of November 1.

Drought and Water Discussion

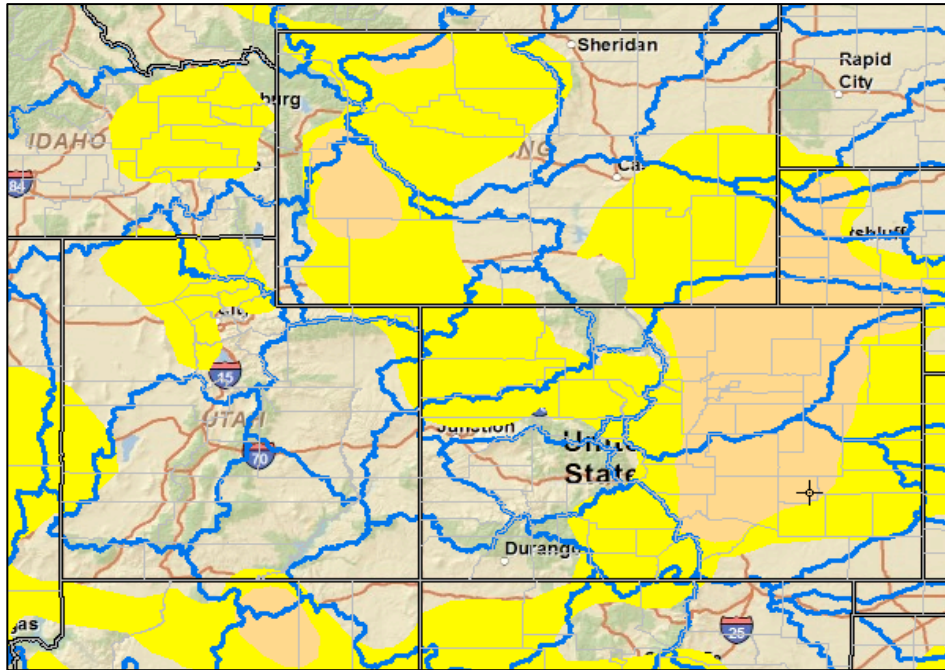


Fig. 9: October 26 release of U.S. Drought Monitor for the UCRB

There have been no suggestions for changes in the UCRB to the current U.S. Drought Monitor map this week (Fig. 9).

Though conditions remain dry along the eastern plains, it does not seem as though this would warrant any further deterioration in drought categories or expansion of any of the current lines. Beneficial moisture did fall in D0 areas in the mountains, but again, this did not seem enough to warrant any category improvements at this time. Therefore, status quo is recommended for the region.