

# Precipitation and Snowpack

Colorado, Utah and Wyoming Month to Date Precipitation (in)  
1 - 23 January 2011

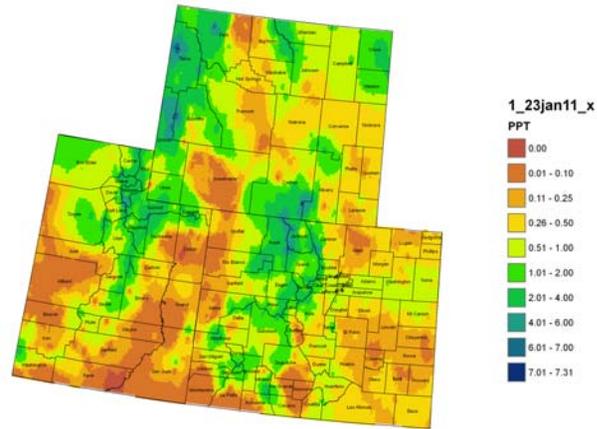


Figure 1: Month to Date Precipitation (1-23 January 2011).

Colorado, Utah and Wyoming 7 Day Precipitation (in)  
17 - 23 January 2011

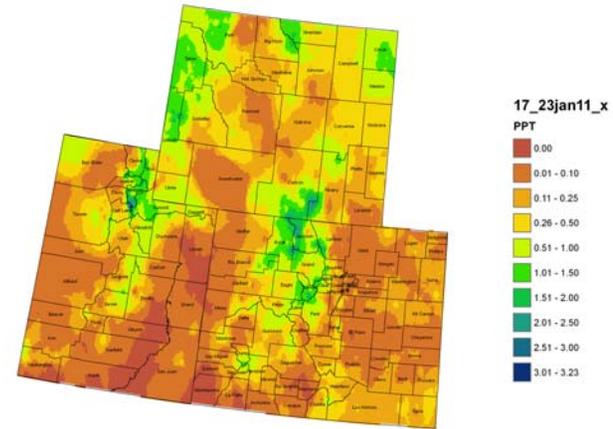


Figure 2: 7 Day Precipitation (17-23 January 11).

Much of the high country in the Upper Colorado River Basin (UCRB) has received good moisture for the month of January to date (Figure 1). Some of the moisture spilled over into eastern Colorado where Adams, Arapahoe, Washington and Yuma counties totaled 0.51 – 1.00” for January to date (Figure 1). Over the past seven days, however (Figure 2), precipitation has been concentrated over the northern mountains of Colorado (Grand, Summit, Routt and Jackson counties) and northeastern Utah (Weber, Cache, Rich, Morgan and Summit counties). These areas received 1-3” over the past week.

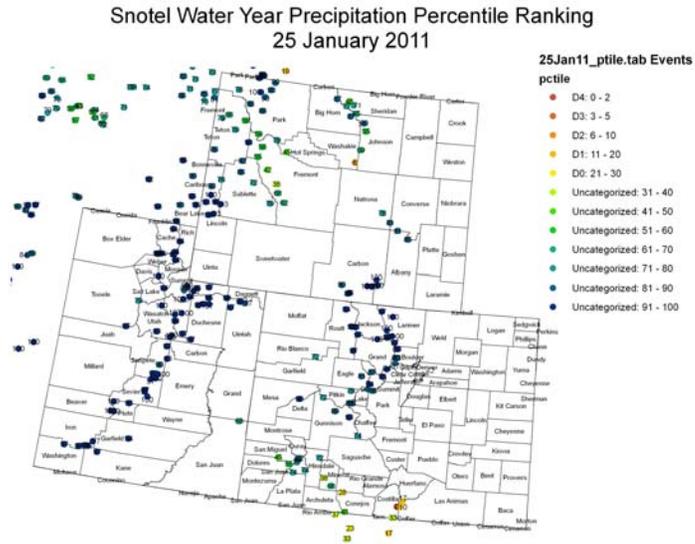


Figure 3: Snotel Water Year Precipitation Percentile Ranking.

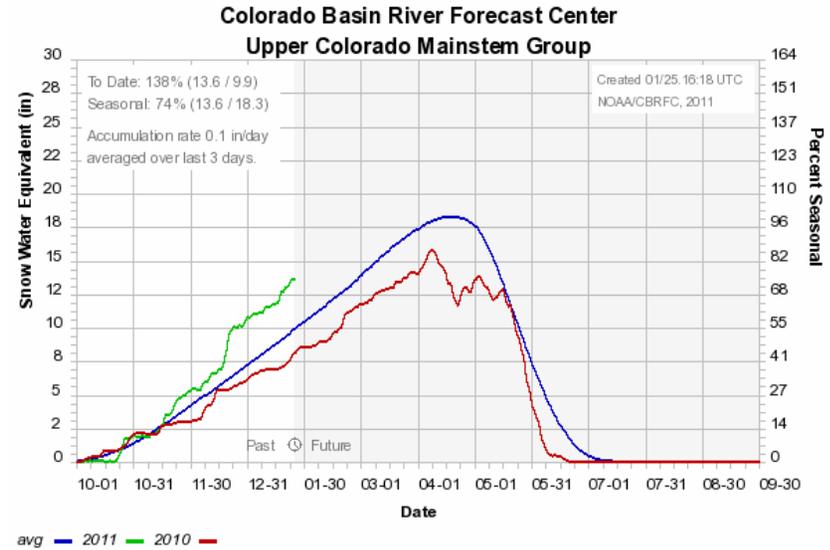


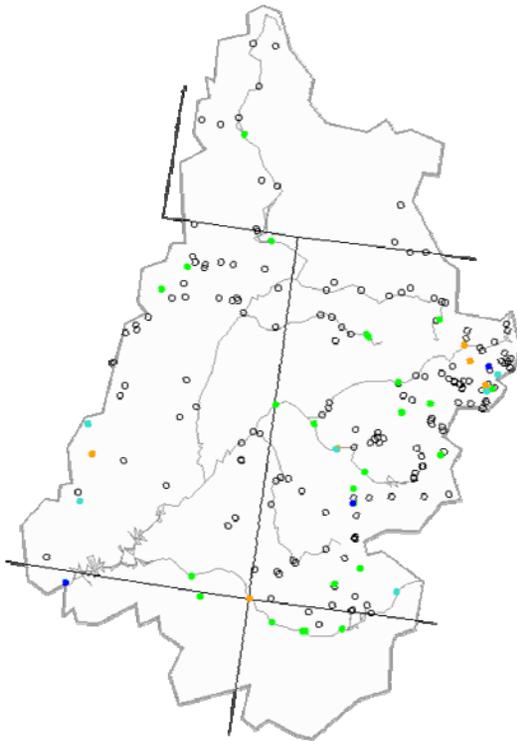
Figure 4: Upper Colorado Mainstem Group Snow Water Equivalent Plot (Green = 2011, Red – 2010, Blue = Average)

SnoTel water year precipitation percentile rankings (Figure 3) are favorable over the majority of the UCRB. The Sangre de Cristo mountains are showing the worst rankings which range from 10-33 in the area where D1 is currently present. The San Juan stations are also seeing percentile rankings deteriorate due to lack of moisture over the past week. These stations are being closely monitored.

Figure 4 shows the snow water equivalent (SWE) evolution plot for the Colorado mainstem station grouping. This group of stations is showing SWE to date of 138% of average and 74% of the average peak SWE for the season.

# Streamflow

Sunday, January 23, 2011



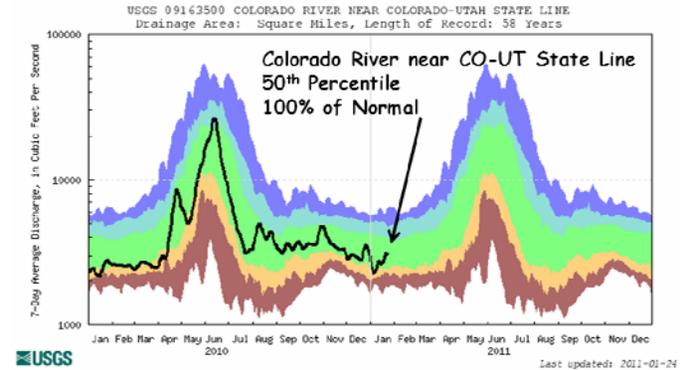
USGS Explanation - Percentile classes							
Low	≤10	10-24	25-75	76-90	≥90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

Figure 5: 7-day average discharge compared to historical discharge for January 17<sup>th</sup>.

Seven day average discharge conditions across the UCRB are showing good percentile rankings (Figure 5). Approximately 64% of the gages are reporting normal or better conditions (percentile ranking of 25 or greater). Note many gages are not reporting due to ice.

Figure 6 shows time series for key sites in the UCRB. The Colorado River at the CO-UT state line is 100% of normal (50<sup>th</sup> percentile) and the San Juan River near Bluff, UT is 96% of normal (47<sup>th</sup> percentile). Both gages saw increases from last week, however the Colorado River gage has been rising since the beginning of January while the San Juan gage has been more steady.

Overall, streamflow conditions are normal for this time of year.



Green River at Green River, UT  
Ice Affected

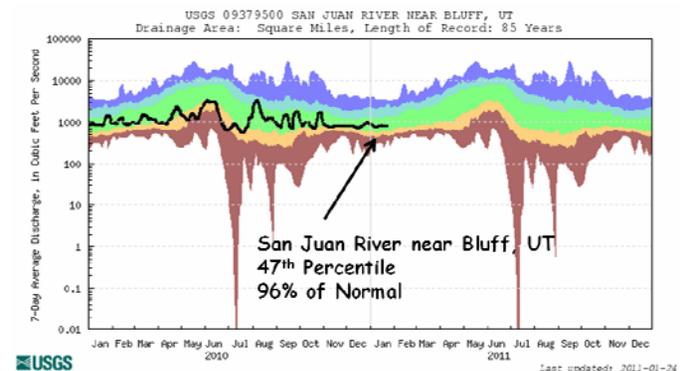


Figure 6: USGS 7 - day average discharge time series at the CO - UT state line (top), Green River, UT (middle) and Bluff, UT (bottom). Note Green River is ice affected.

# Water Supply and Demand

## Temperatures:

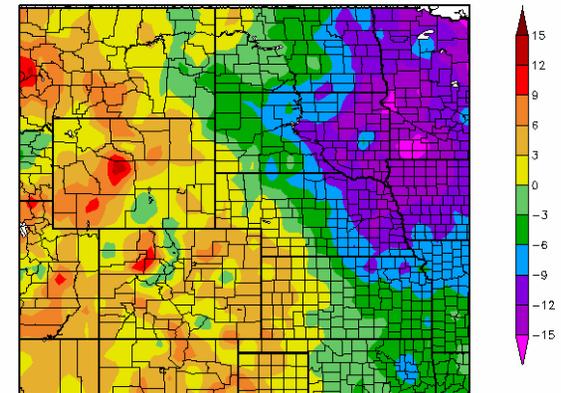
Over the past week (Figure 7), temperature departures have been slightly to much above average in the UCRB. The coldest areas were in the north and central mountains of Colorado with temperature ranging from 0 – 3 degrees below normal. The warmest areas were in the Yampa/White basin in northwest Colorado and the Green River basin in southwest Wyoming where temperatures were 3 – 12 degrees F above average. Figure 8 shows current VIC soil moisture product. Since last week improvements have been seen on the northeastern plains of Colorado, the northern mountains of Colorado and NE Utah.

## Reservoirs:

Only small changes occurred in many of the reservoirs this past week with Dillon, Flaming Gorge and Blue Mesa seeing levels rise. Lake Granby storage went down 5,000 acre feet this past week and down 17,000 acre feet for the month. This drop is needed to help ensure it doesn't spill this summer. Green Mountain and McPhee reservoirs are both slightly below average. The other reservoirs are at or above average levels.

Powell is at 76% of average (58% capacity). Powell storage has decreased by almost half million acre feet since January 1 (-469,000 ac-ft). January inflows into Powell were very near what was projected, but end of January levels will be slightly below what was projected. With above average snowpack, it is still possible that releases from Glen Canyon Dam will be greater this spring/summer and equalization will occur.

Departure from Normal Temperature (F)  
1/18/2011 – 1/24/2011



Generated 1/25/2011 at HPRCC using provisional data.

Regional Climate Centers

Figure 7: Temperature departure from average at NWS Cooperative stations from 18-24 January 2011.

VIC Total Moisture Storage Percentiles (wrt/ 1916-2004)  
20110123

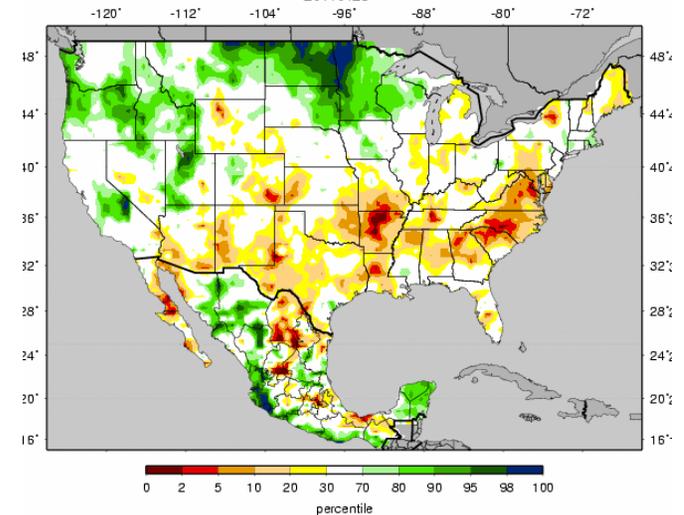


Figure 8: VIC soil moisture model for 23 January 2011.

# Precipitation Forecast

Main focus for the short term will be a quick moving disturbance forecast to move across the Upper Colorado River Basin on Tuesday night/ Wednesday morning. Expect to see snow shower activity increasing through the morning along the north face of the Uintas in northern Utah, with activity spreading southeastward onto the western slope of Colorado through the afternoon. The fast movement and lack of decent moisture associated with this system will generally limit widespread precipitation amounts to less than 0.10 inches, except under a few of the heavier snow showers where amounts may slightly exceed this. By Wednesday this disturbance will be out of the region with high pressure building over most of the western US through Friday. The next chance for substantial precipitation does not show up until early next week, with plenty of uncertainty about the timing and track of the developing trough. At this time it appears that the best chances will be focused over eastern parts of the basin and along the continental divide.

## Recommendations

Taking into consideration current conditions of snowpack, streamflow, soil moisture, reservoir storage and precipitation, status quo is recommended for the region again this week. Areas of concern do exist, mainly the San Juan and Sangre de Cristo mountains in Colorado, as well as the Arkansas basin in eastern Colorado. These areas continue to be closely monitored for deteriorating conditions.