

NIDIS Weekly Climate, Water
and
Drought Assessment Summary
Upper Colorado River Basin
February 1, 2011

Precipitation and Snowpack

Colorado, Utah and Wyoming 7 Day Precipitation (in)
24 - 30 January 2011

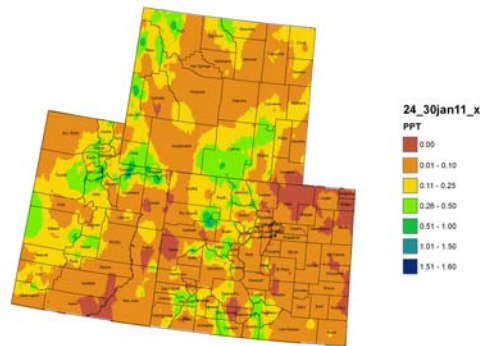


Figure 1: 7 day precipitation (24-30 January 2011).

Colorado, Utah and Wyoming Month to Date Precipitation (in)
1 - 30 January 2011

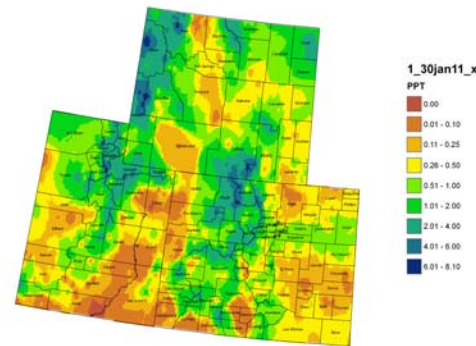


Figure 2: Month to Date Precipitation (1-30 January 2011).

Colorado, Utah and Wyoming January 2011 Precipitation as Percentage of Normal (Preliminary through Jan 30th)

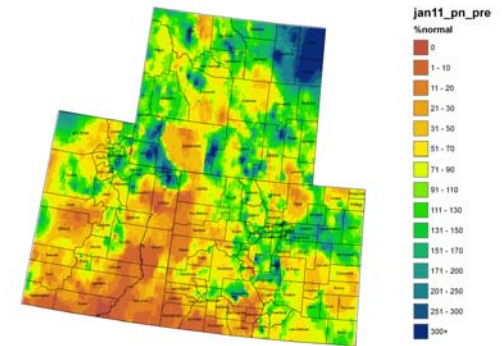


Figure 3: Preliminary January 2011 precipitation as percentage of average.

Over the past week (figure 1), the mountainous areas of Colorado and Utah received precipitation in the range of 0.26 – 1.60 inches. The most precipitation fell in Summit and Duchesne counties in Utah and Uinta county in Wyoming. The majority of the low elevation valleys and plains of Colorado received less than 0.10” over the past week.

Figure 2 shows the month to date precipitation and figure 3 shows January precipitation as a percentage of average. Overall, the Green River basin in SW Wyoming and NE Utah received the highest percentage of average, ranging from 71 to greater than 300 percent of normal. The northern and central mountains of Colorado received near to above average precipitation, but the San Juan and Sangre de Cristo mountains received below to near average precipitation, ranging from 51 – 110 percent of normal. The northern plains of Colorado received beneficial moisture that ranged from 90 - 170 percent of normal and the southern plains in the Arkansas basin ranged from 71- 130 percent of normal.

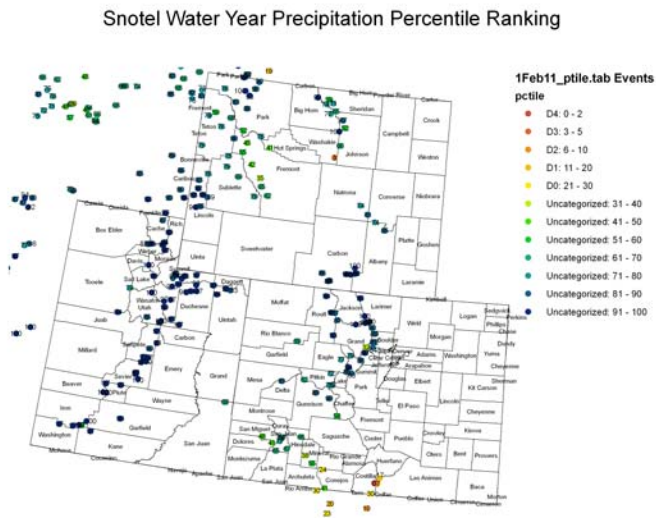


Figure 4: Snotel Water Year Precipitation Percentile Ranking.

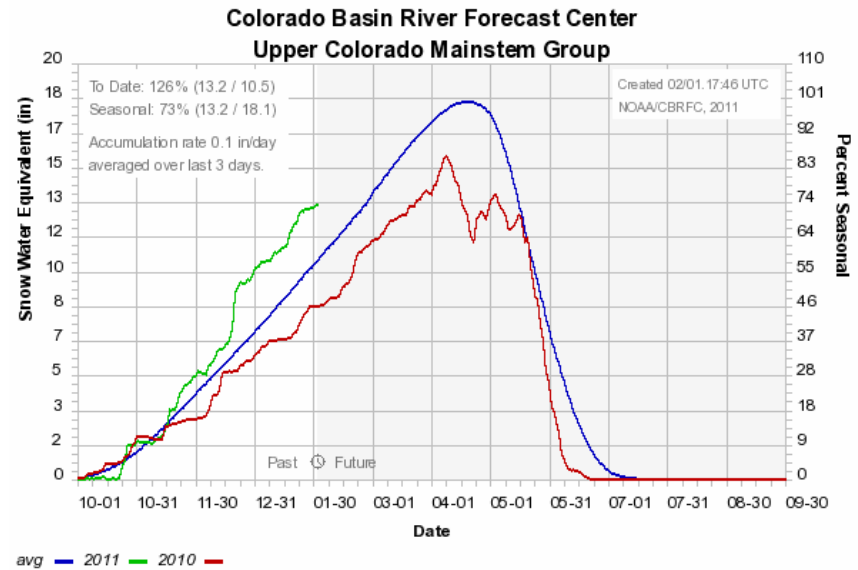


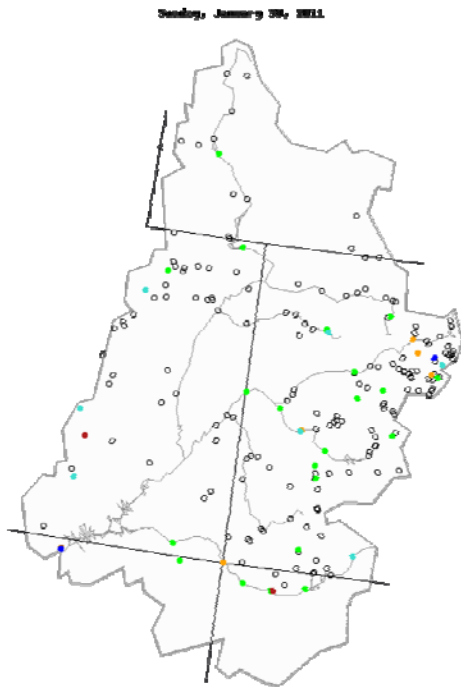
Figure 5: Upper Colorado Mainstem Group Snow Water Equivalent Plot (Green = 2011, Red – 2010, Blue = Average)

SnoTel water year precipitation percentile rankings (Figure 4) are favorable over the majority of the UCRB. The Sangre de Cristo mountains are showing the worst rankings which range from 7-30 in the area where D1 is currently present. The San Juan and Rio Grande stations continue to see percentile rankings deteriorate. Even though these areas received some moisture over the past week, it was only in the range of 0.11” – 0.50”, which is still low for this time of year.

Figure 5 shows the snow water equivalent (SWE) evolution plot for the Colorado mainstem station grouping. This group of stations is showing SWE to date of 126% (down 12% from last week) of average and 73% of the average peak SWE for the season.

Streamflow

Seven day average discharge conditions across the UCRB are showing good percentile rankings (Figure 6). Approximately 63% of the gages are reporting normal or better conditions (percentile ranking of 25 or greater). Note many gages are not reporting due to ice.



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 6: 7-day average discharge compared to historical discharge for January 30th.

Figure 7 shows time series for key sites in the UCRB. The Colorado River at the CO-UT state line is 88% of normal, down 12 % from last week (32nd percentile). The San Juan River near Bluff, UT is 87% of normal, down 9% from last week (41st percentile). Both gages saw decreases from last week, but remain in the normal conditions range.

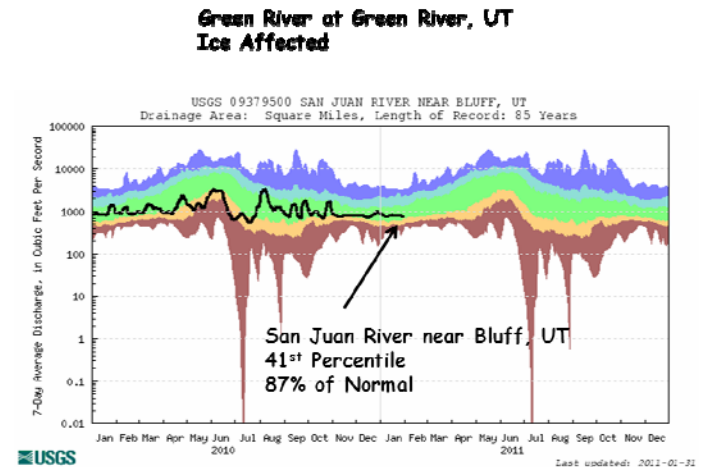
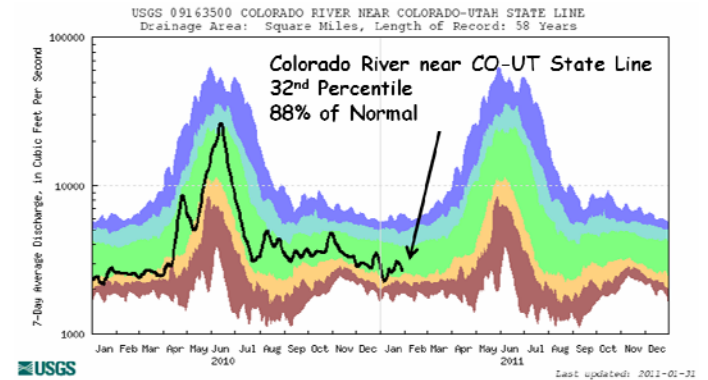


Figure 7: USGS 7 - day average discharge time series at the CO - UT state line (top), Green River, UT (middle) and Bluff, UT (bottom). Note Green River is ice affected.

Water Supply and Demand

Temperatures:

Over the past week (Figure 8), the mountainous areas of Colorado have been normal to below normal, ranging from 0 – 6 degrees below normal. The Green River basin in Wyoming, and the plains of Colorado were all well above average, ranging from 2 – 10 degrees above normal. The four corners area was also warm, in the range of 2-8 degrees above normal.

For the month of January (Figure 9), the majority of the UCRB ended up with temperatures below average. The Yampa/White basin ranged from 0-10 degrees below average. The plains of Colorado, Green River basin in SW Wyoming and the 4 corners area ended up slightly above average for January.

Figure 10 shows the VIC soil moisture model, which from last week has improved in the northern mountains of Colorado, the Green River basin in Wyoming and the Wasatch range of Utah.

Reservoirs:

All reservoirs in the UCRB saw decreases over the past week, except for Lake Dillon. Dillon volume slightly increased for month of January to bring its levels back to above average. Lake Granby volume decreased by nearly 25,000 ac-ft for the month of January, which is likely to keep it from spilling this summer. Most reservoirs have above average levels for this time of year, with the exception of McPhee and Green Mountain which are slightly below average. This is a normal time of year for reservoir decreases, except for McPhee. McPhee storage has decreased this past month, but usually its levels are increasing during this time of year. Lake Powell has decreased a total volume of 604,000 ac-ft for the month of January and is 75% of average and 57% of capacity. No new information has been provided about Lake Powell since the last summary.

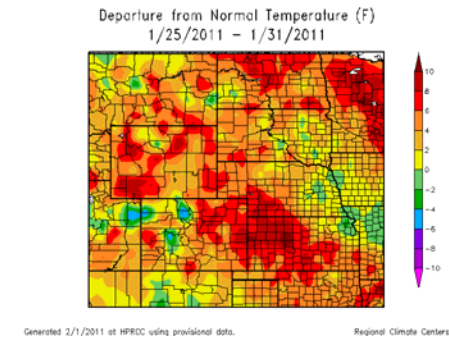


Figure 8: Temperature departure from average 1/25 – 1/31.

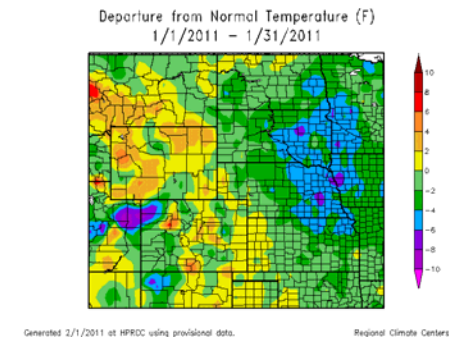


Figure 9: Temperature departure for January 2011.

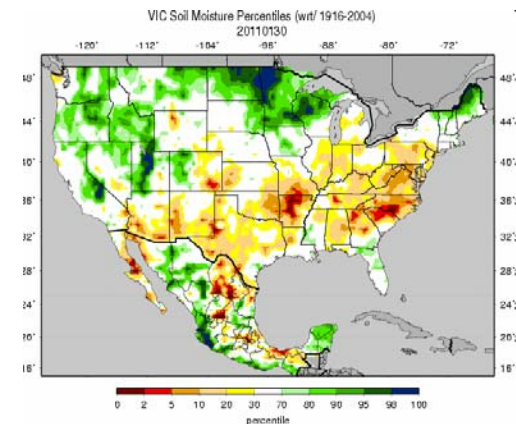


Figure 10: VIC soil moisture model for 30 January 2011.

Precipitation Forecast

Arctic storm system will continue to push south and east through the Upper Colorado River Basin today bringing light snowfall and cold temperatures. Due to the lack of moisture carried in this cold airmass liquid water content will remain low, so don't expect to see much more in the way of accumulation despite continued flurries/snow showers over the next 12 hours. The exception to this will be closer to the departing low pressure in the south, where better moisture will allow for the San Juan mountains to pick up 0.25 to 0.5 inches of liquid equivalent through today. The next significant disturbance is not expected to arrive until Friday, and will bring a return to unsettled conditions through the weekend. Quantitative Precipitation Forecasts paint accumulations of 0.1 to 0.25 inches over northern Utah and southern Wyoming, with the northern Colorado mountains approaching 0.35 inches of liquid accumulation by Saturday. Forecast uncertainty increases with a stronger system expected to arrive sometime on Sunday. Currently this storm looks like it will favor the northern and eastern ranges in the basin with the four corners area remaining mostly dry into next week.

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.

Note: There seems to be some bad data in the HPRCC generated SPI maps. On 13 Jan 11, Walsenburg, Rush and Monument reported 3.00", Trinidad Lake reported 2.00". It has been verified with NWS that these data were bad, some seem to have remedied themselves, but Rush and Walsenburg are still seemingly carrying this bad data.