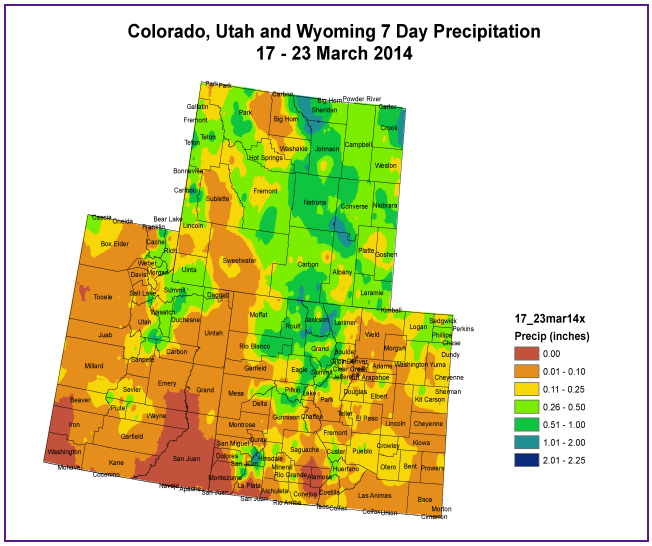
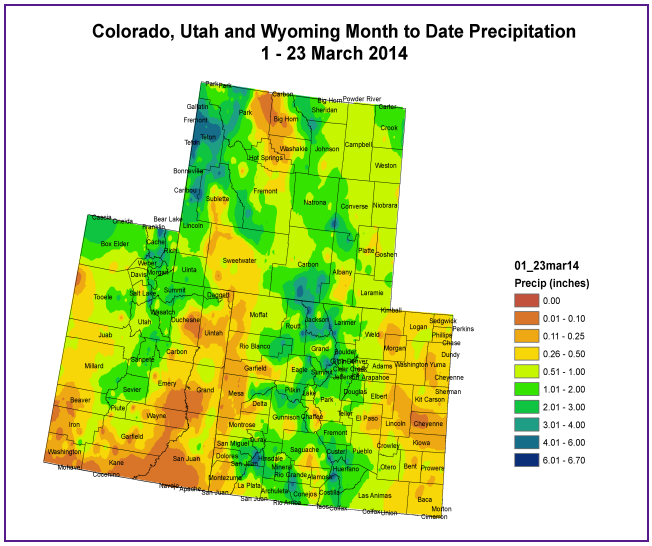
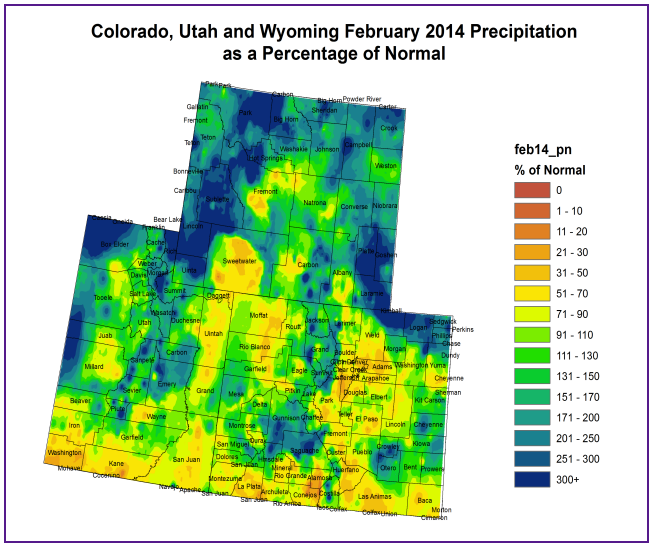
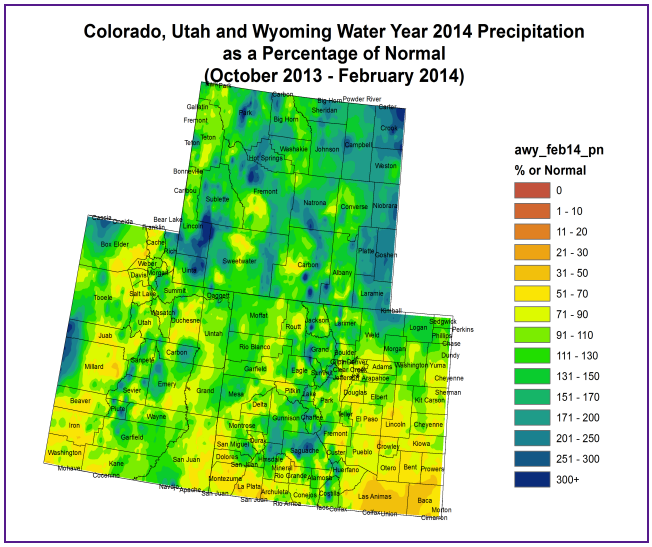
PRECIPITATION









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.

Last Week Precipitation:

- The Upper Green basin in SW Wyoming saw 0.26-1.00 inches of precipitation at higher elevations, lower elevations saw less than 0.25"
- The Wasatch and Uintahs in NE Utah saw widespread moisture of 0.26-0.50 with isolated areas up to 1.00".
- The lower elevation of eastern Utah and western Colorado saw less than 0.10" over the past week.

- The northern mountains of Colorado saw widespread precipitation ranging from 0.26-2.00" with the highest amounts along the Jackson/Larmier county lines. The central and southern mountains saw slightly less precipitation ranging from 0.26-1.00" with isolated ares in San Juan county reporting up to 2.00" over the past week.
- The four corners and San Luis valley were dry over the past week with less than 0.10" of preciptiation falling.
- The eastern plains of Colorado saw spotty precipitation with the highest amounts along the I25 urban corridor and the NE plains. The SE plains saw less than 0.25" over the past week, however the drought stricken areas of Crowley and Otero counties did see up to 0.25" with drier condtions to the north, east and south of that area.
- The eastern portion of Wyoming saw widespread precipitation over much of the area ranging from 0.26-2.00" with the highest amounts along the Converse/Albany county lines.

February Precipitation:

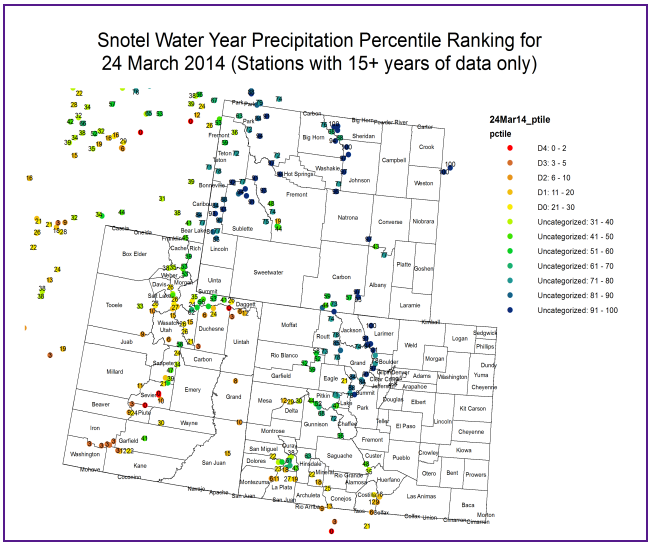
- The Upper Green River basin and Wasatch mountains saw much above normal precipitation in February. Large areas of 300% or more are present in Western Wyoming and NE Utah.
- The lower Yampa basin and eastern Utah saw below normal precipitation in February.
- The northern, central and southern mountains in Colorado saw near normal to above normal precipitation in February.
- The four corners area was dry in February receiving less than 70% of normal precipitation for the month.
- East of the divide saw above normal precipitation for February farther east (SE Wyoming and NE Colorado were >300% of normal) on the plains while areas closer to the Front Range saw below average moisture in February.
- The Crowley/Otero area saw near normal to above normal moisture in February, which was very much needed. That moisture also made it farther east into Cheyenne, Kiowa, Bent and Powers counties bringing normal to above conditions in February.
- The I-25 corridor was dry for February, but February is normally dry along the Front Range.
- The San Luis Valley saw below normal moisture through much of the valley bottom in February.

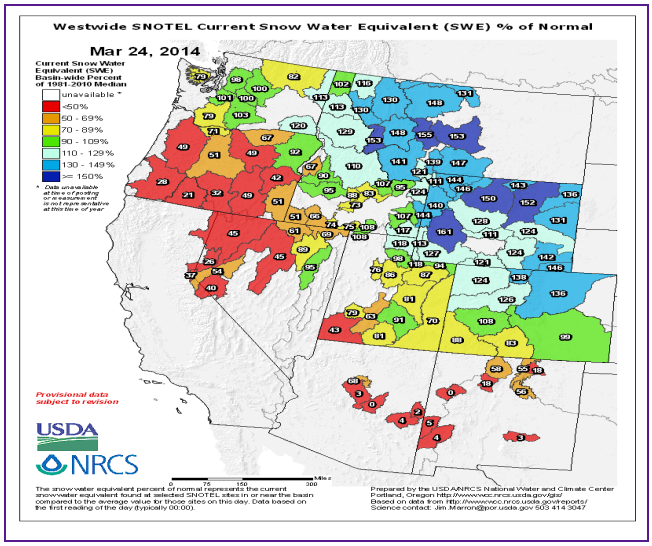
Water Year Precipitation (Oct-Feb):

- Much of the UCRB is showing normal to above conditions for the water year through February.
- The driest areas are present in eastern Utah and the four corners area. Those areas saw less than 90% of normal.
- Much of the mountainous areas of the UCRB are reporting above normal conditions, particularly in the Green River basin.

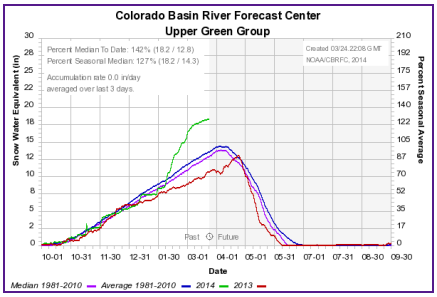
- Much of the state of Wyoming has seen normal to above normal precipitation since the start of the water year.
- East of the divide in CO, conditions for the water year are above normal over the NE plains and deteriorate to the South, particularly south of I-70 and east of I-25.
- Las Animas and Baca counties saw less than 50% of their normal water year precipitation through February. Below normal water year precipitation predominates much of the lower Arkansas valley.

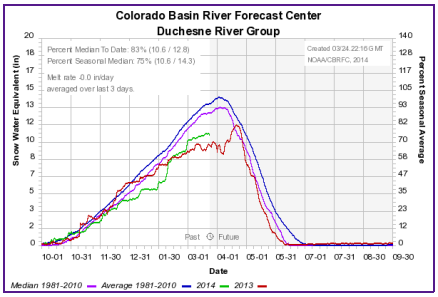
SNOTEL AND SNOWPACK

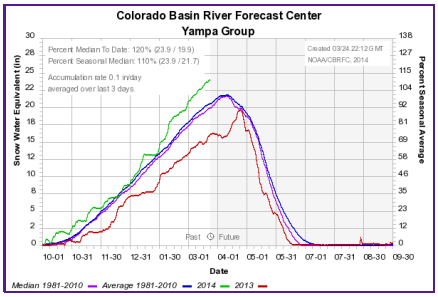


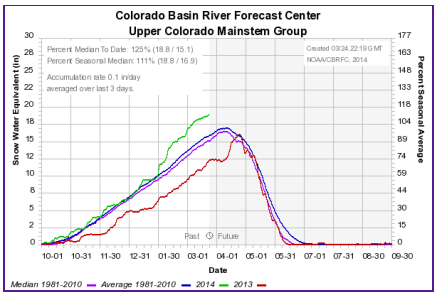


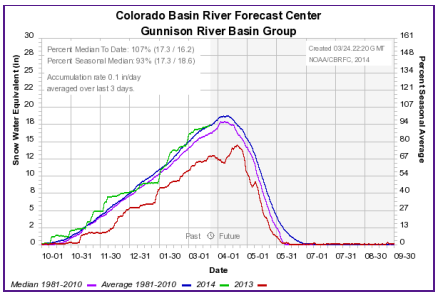
The top left image shows the Natural Resources Conservation Service's SNOTEL water-year-to-date precipitation percentile rankings. The top right image shows sub-basin averaged snow water equivalent accumulations as a percent of average. The images below show accumulated snow water equivalent in inches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

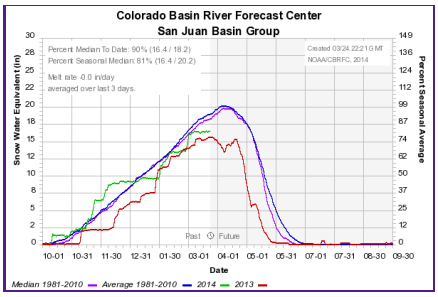












SNOTEL Precipitation Percentiles:

- SNOTEL precipitation is at or above the median for the northern and eastern part of the UCRB with drier percentiles along the western and southern portions
- Percentiles in the Upper Green region are mostly above the 75th percentile.
- In the northern and central CO mountains percentiles are at or above the median percentile, with most SNOTEL sites along the continental divide above the 80th percentile, lower to the west.
- The Wasatch and Uintah ranges are showing mixed precipitation percentiles ranging from single digits to near the median.
- Percentiles in the San Juans range from teens in the lower elevations to near to above the median farther to the North in San Juan and Hinsdale counties.

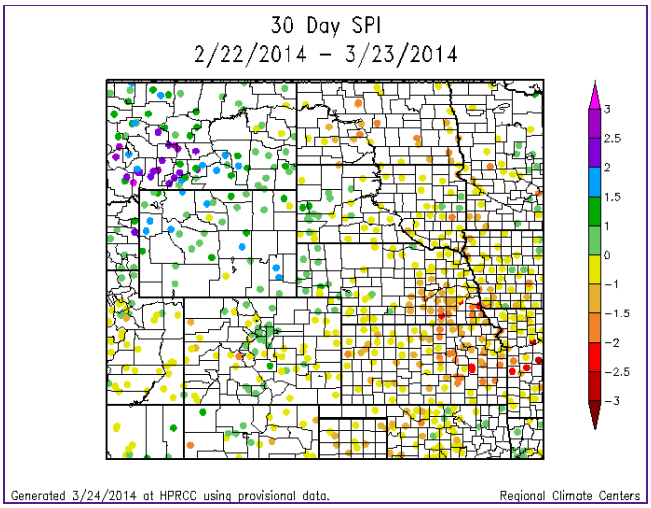
Basin-wide Snow Water Equivalent (SWE) Percent of Normal:

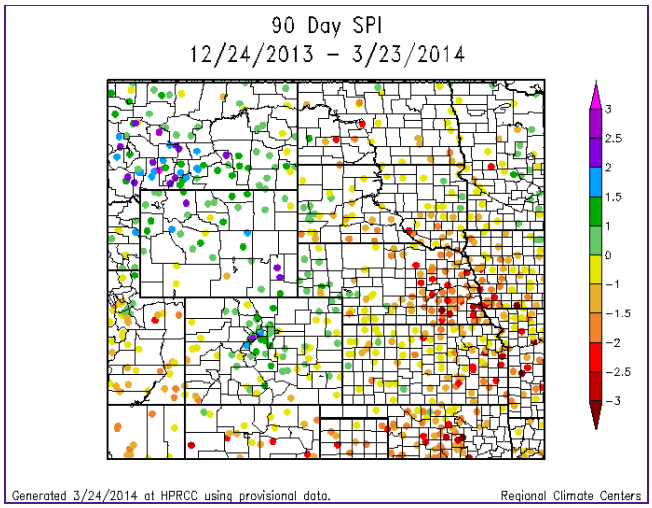
- The eastern and northern sub-basins in the UCRB currently have near to above normal snowpack, with the highest values in the Upper Green river basin in western WY
- Snowpack in eastern UT is mostly below average, between 70% and 118% of normal
- Snowpack in southwest CO is also slightly below normal at 88%
- East of the basin, snowpack is above normal, with the exception of the Rio Grande Basin at 83% and the Arkansas basin at 99% of normal.

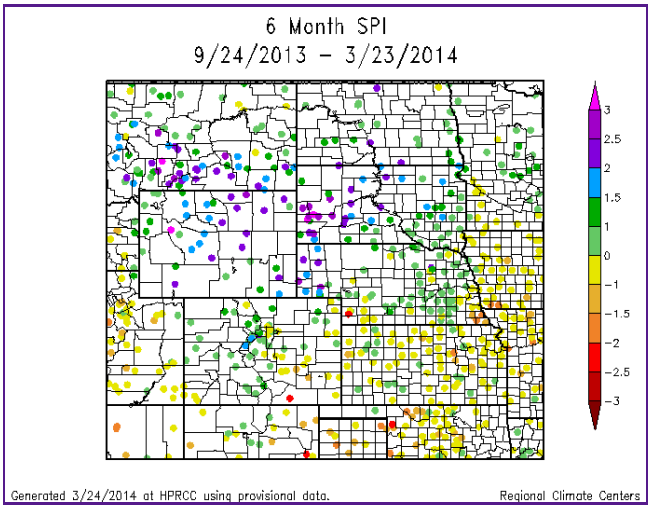
SWE Timeseries Graphs:

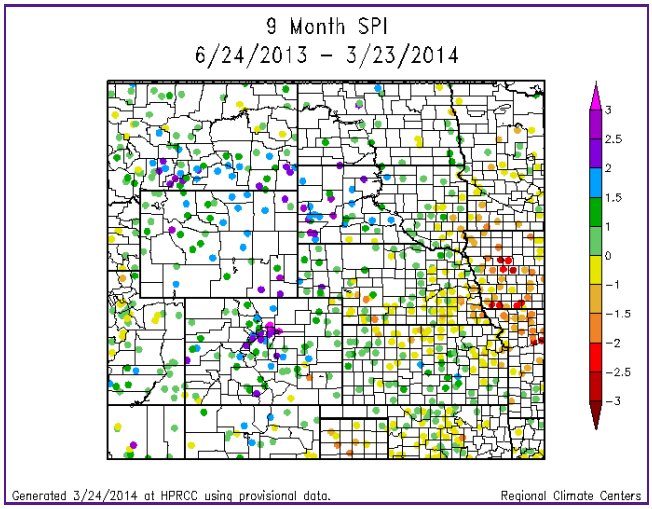
- The Upper Green, Yampa-White, and Upper Colorado sub-basins continue to see snowpack accumulations and are well above average, and have also surpassed the normal seasonal SWE peak.
- The Duchesne basin is currently the driest region, with 83% of the median accumulation, and saw little accumulation over the past week.
- The Gunnison basin is recording SWE at 107% of the median for this date.
- The San Juan basin is slightly below the median (90%), and has not seen any increases in snowpack since late February.

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.

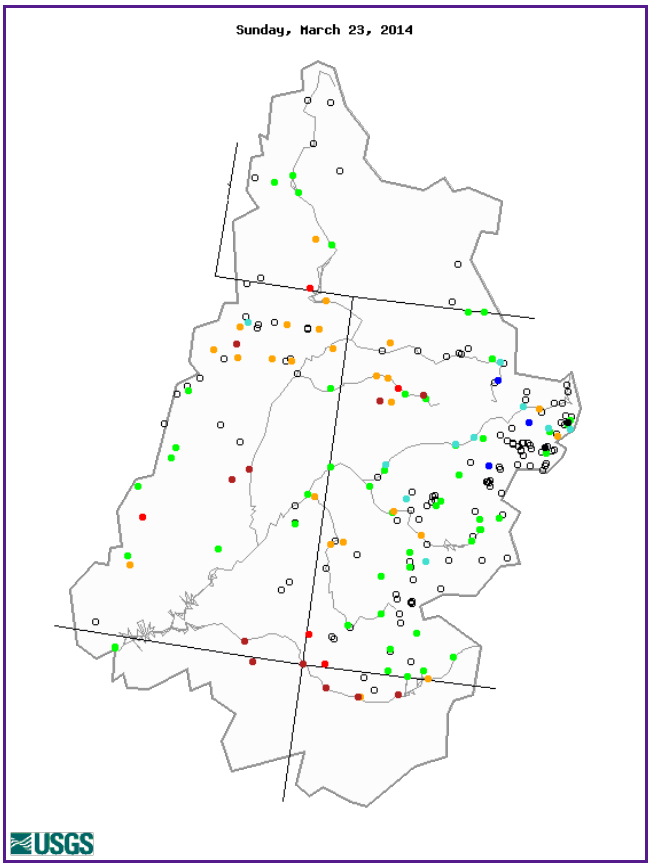
Short Term (30-day):

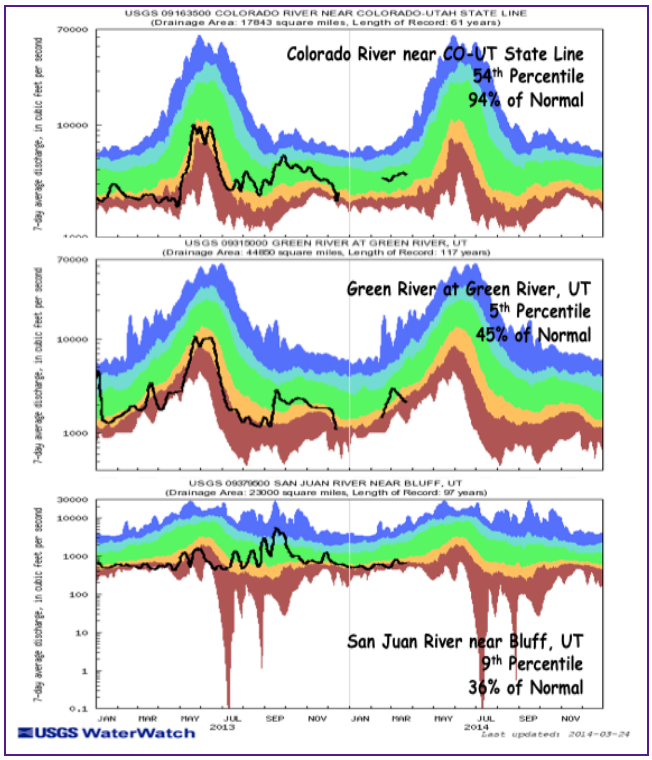
- Most of the UCRB is slightly dry on the short-term time scale. SPIs across most of eastern UT, western CO, and the Four Corners region is between 0 and -1 with a few sites down to -1.5. (Taylor Park -2 in Gunnison county has many days missing in ACIS).
- SPIs are wet for western WY
- SPIs along the Continental Divide in CO are between -1 and +1
- East of the basin, most of eastern WY shows wet SPIs while eastern CO SPIs are between +1 and -1

Long Term (6-month):

- Most of the UCRB shows wetter long-term SPIs with the exception of the eastern Utah and the four corners where SPI's range from -1.5 to +1.5.
- The driest area of the UCRB on the longer term is northern Utah near the Wasatch range where SPIs range from -1.5 to +1.
- The Four Corners area is slightly dry on the longer term with SPI's from -1 to +1
- The rest of the UCRB indicates wet conditions, with SPIs ranging from 0 to +2.
- The driest areas on the plains remain in the lower Arkansas valley in southeast CO where SPI's range from -1 to -2.5 (Trindad).

STREAMFLOW





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		

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.

Streamflow Statistics:

- The number of reporting gages has increased to 104 as gages come back online after being affected by ice.
- 62% of the gages in the UCRB are reporting above the 25th percentile for 7-day average streamflow.
- 39% of the gages are recording below the 25th percentile for 7-day average streamflows with 5% recording record low flow.
- The driest streams are the San Juan river in SW Colorado and the White river in NW Colorado. The Green and Duchesne rivers in NE Utah are also recording below normal flows over a large area.
- Flows on the Colorado River near the CO-UT state line are in the near normal range, currently at the 54th percentile
- The Green River at Green River, UT is currently reporting much below normal flows at the 5th percentile
- Flows on the San Juan River near Bluff, UT are much below normal, currently at the 9th percentile

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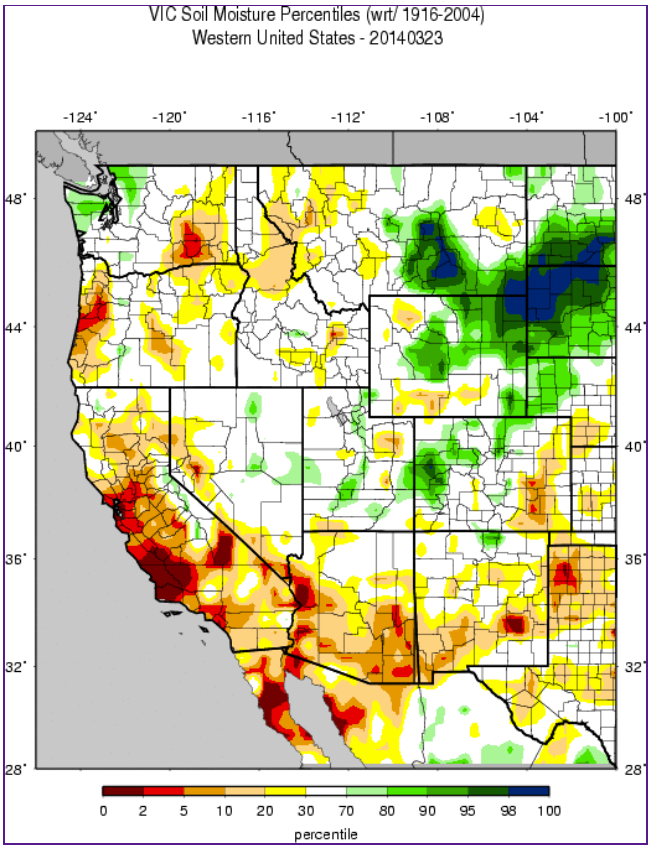
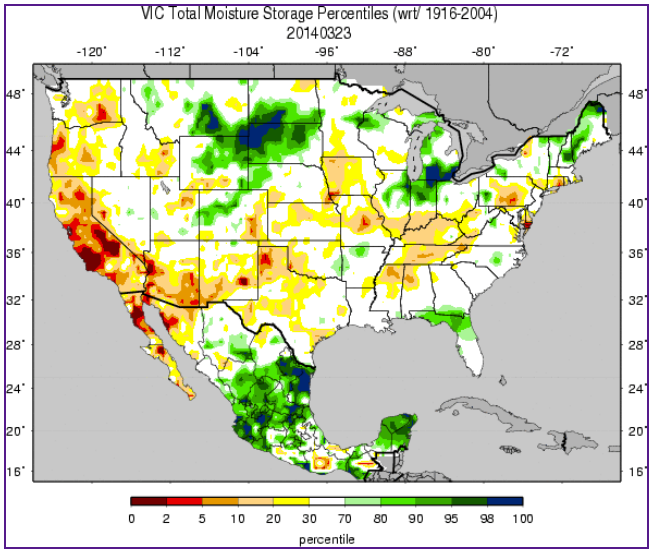
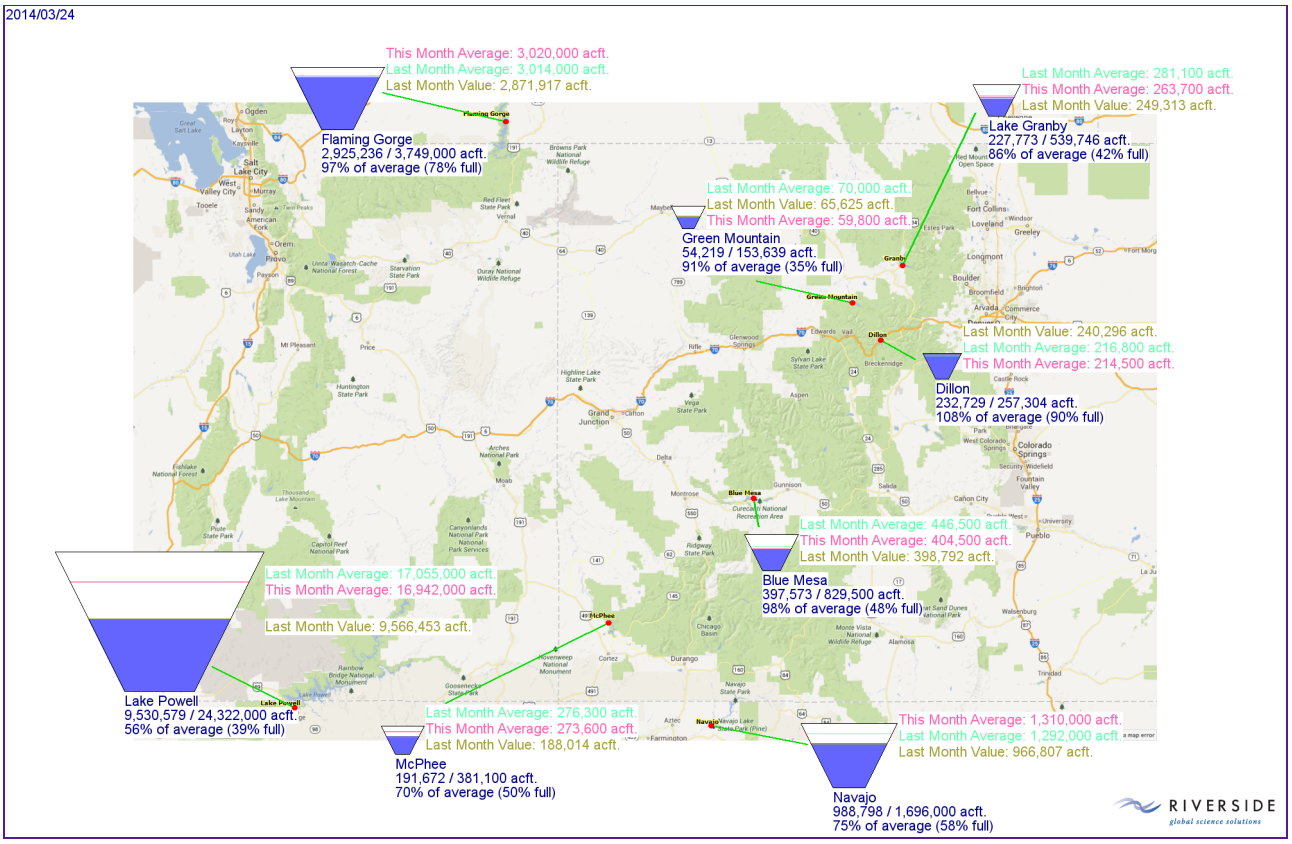
SURFACE WATER





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 above image shows last month's and this month's current volumes of the major reservoirs in the UCRB, with percent of average and percent of capacity.

VIC:

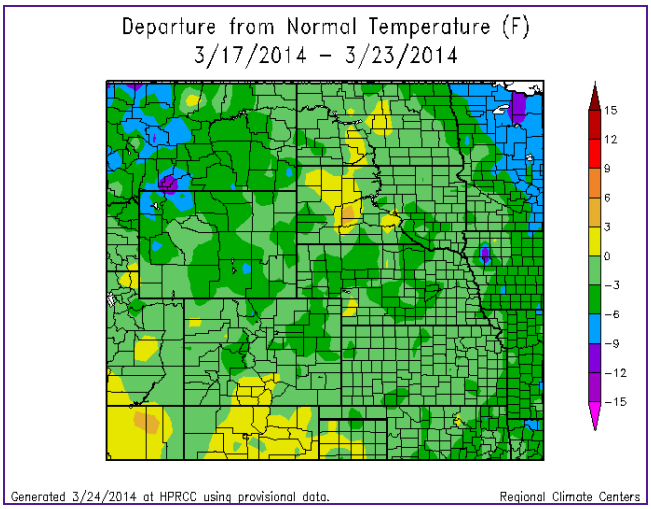
- Most of the UCRB is showing near average to wet soil moisture conditions.
- Soil moisture across most of western CO and parts of eastern UT are between the 70th and 95th percentiles.
- Some spots of southern WY and northern UT are slightly drier, with soil moisture percentiles between the 5th and 30th percentiles.
- Most of eastern WY is showing wet soil moisture.
- The lower Arkansas valley, east of the divide, is reporting dry soil moisture conditions with percentiles in the 2nd to 30th percentile range. The driest area is centered over southern Lincoln and Otero counties.
- Adding in SWE for total moisture storage, conditions are even drier for northern UT with the below normal snowpack conditions.

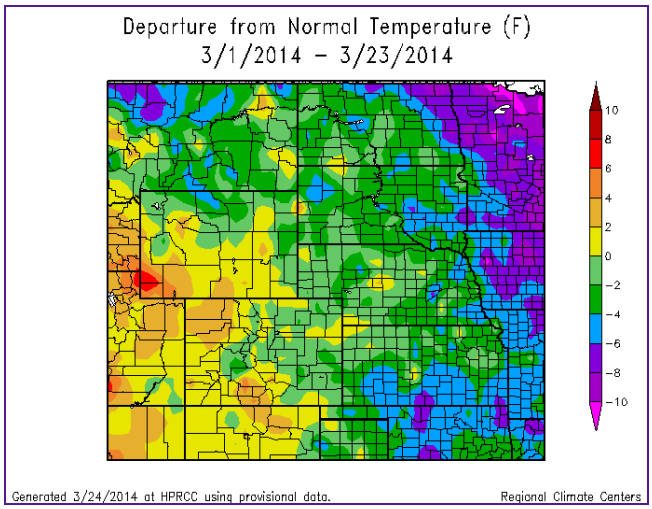
Reservoirs:

- All of the major northern reservoirs in the UCRB are near to above their March averages, ranging between 86% (Lake Granby) and 108% (Dillon Reservoir) of average

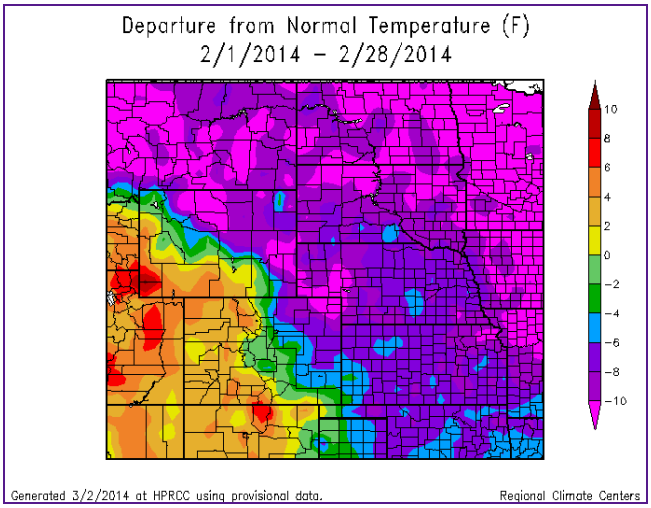
- The southern reservoirs are below average, ranging between 56% (Powell) and 75% (Navajo) of average
- Blue Mesa is now at 98% of average after seeing abnormal increases during the winter.
- Navajo, McPhee, and Flaming Gorge have seen slight increases since the end of last month while the remaining reservoirs have seen slight decreases.

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.



Last Week Temperatures:

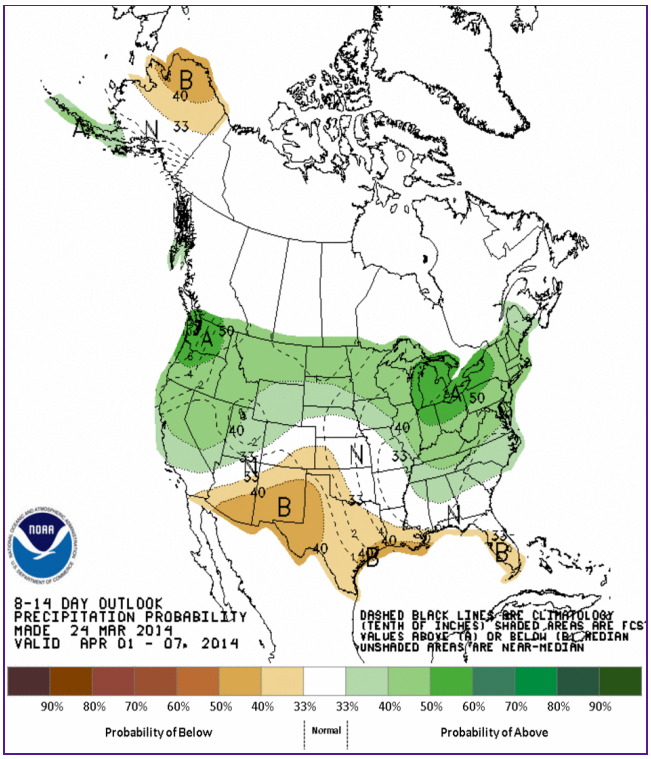
- Temperatures over much of the UCRB were 0 to 6 degrees below

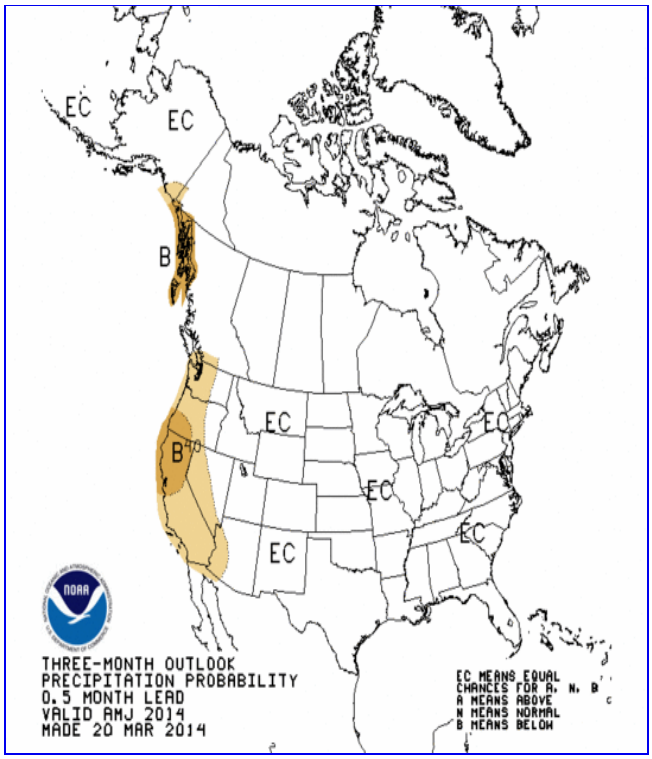
normal over the past week. Temperatures were slightly warmer in southern Utah and ranged from 0 - 3 degrees above normal.
- East of the divide saw similar temperature departures ranging from 0 to 6 degrees below normal.
- The San Luis valley was slightly warmer with temperatures 0 to 3 degrees above normal for the past week.

Last Month Temperatures:

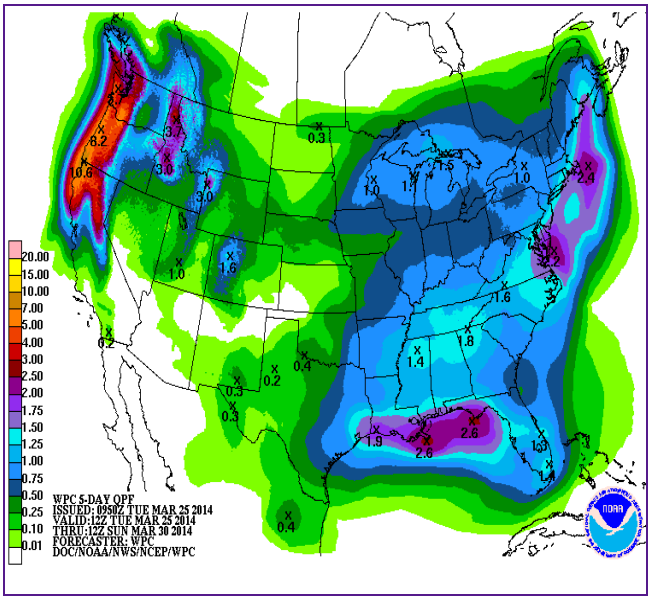
- The UCRB mainly saw above normal temperatures in February ranging from near normal along the divide to 10 degrees above normal.
- The warmest areas were in Utah and SW Wyoming with temperatures near normal to 10 degrees above normal for the month.
- Western Colorado was mainly in the 2-4 degrees above normal range for February.
- The Rio Grande basin was also warm with temperatures 2-8 degrees above normal.
- East of the divide was a completely opposite situation with temperatures ranging from near normal at the divide to more than ten degrees below normal farther to the east. The effects of these cold temperatures on the plains winter wheat crop can only be assessed once it emerges from dormancy.
- The coldest areas were in north central and eastern Wyoming as well as the NE corner of Colorado. Temperature departures moderated slightly on the SE plains of Colorado but remained 2 to 8 degrees below the February normal.

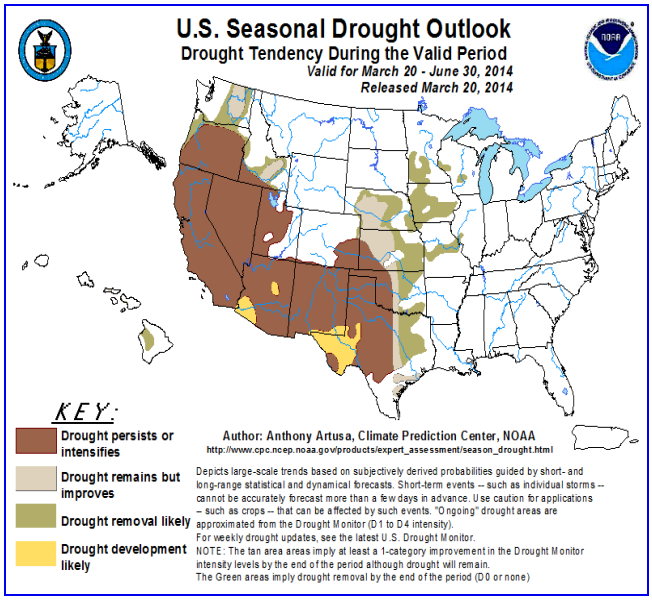
FORECAST AND OUTLOOK





The top two images show Climate Prediction Center's Precipitation outlooks for 8 - 14 days (top left) and 3 months (top right). The bottom left image shows the Hydrologic Prediction Center's Quantitative Precipitation Forecast accumulation for the five days between Tuesday 12Z and ending Sunday 12Z. The bottom right image shows the Climate Prediction Center's most recent release of the U.S. Seasonal Drought Outlook.





Short Term:

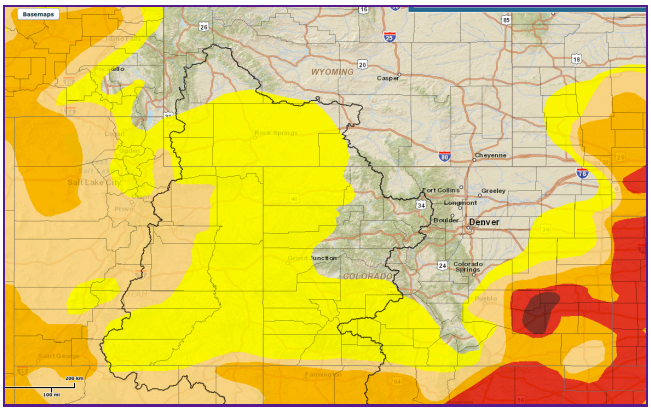
- Sunny and warmer conditions will be experienced through Wednesday ahead of the next cold front passage on Wednesday evening with a

secondary push Thursday evening. That cold front will bring mountain snow and valley rain with isolated thunderstorms.
- High pressure returns to the area this weekend with warm and sunny conditions prevailing.

Longer Term:

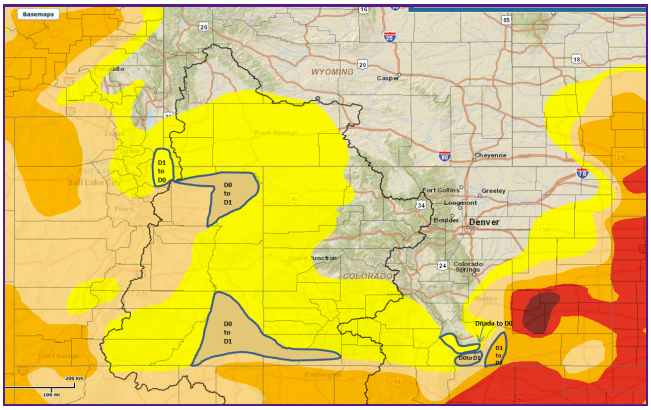
- The 8-14 day precipitation outlook shows increased chances of wetter than normal conditions across the northern portion of the UCRB and equal chances of above/below over central Colorado. Farther to the south has increased chances for below normal precipitation over the already drought stricken areas of SE Colorado.
- The CPC 3-month outlook shows equal chances for wet, dry, or near normal conditions across the entire basin for April-May-June
- The seasonal drought outlook shows a probability of drought persisting across the western portion of the basin and across southeast CO and northern UT

U.S. DROUGHT MONITOR



Drought – Exceptional		0 to 2 (D4)
Drought – Extreme		2 to 5 (D3)
Drought – Severe		5 to 10 (D2)
Drought – Moderate		10 to 20 (D1)
Abnormally Dry		20 to 30 (D0)

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 25, 2014

Precipitation was mainly confined to the high country. Several changes are recommended for the UCRB and Eastern Colorado.

Recommendations**

UCRB:

In NE Utah, improvement of D1 to D0 along the Wasatch based on snotel WYTD precipitation percentiles and SPI in that area. Further to the east of that area is looking much drier and should be downgraded to D1 based on 10th-24th percentile streamflow, 90 day SPI below -1.5 and WYTD Snotel precipitation percentiles below the 15th percentile.

Around the four corners, the USDM author has already expanded D1 into San Juan county Utah, conditions in Montezuma county and southern La Plata counties are not much different. Expansion of D1 through that area is recommended based on 7 day average streamflow below the 10th percentile and with several gages reporting record low flow. 90 day SPI's in that area are below -1.

Eastern Colorado:

Changes are focused in southern Colorado. Slight addition of D0 in southern Huerfano/northern Costilla county is recommended as well as tweaking of the D1 and D2 lines. The Dnada to D0 is supported by snotel WYTD precipitation percentile rankings and VIC soil moisture. The D1 addition lines up with low Snotel WYTD precipitation percentiles in the Sangre De Cristo mountains along the Costilla/Las Animas county line that are reporting below the 16th percentile. The D2 line is recommended to be moved westward to capture the Trinidad station which has an SPI of -2 at 6 month time scale and -1 to -1.5 at 90 days.

The USDM author has also degraded the Baca county D1 to D2 based on recent precipitation deficits and damage to wheat from recent dust storms.