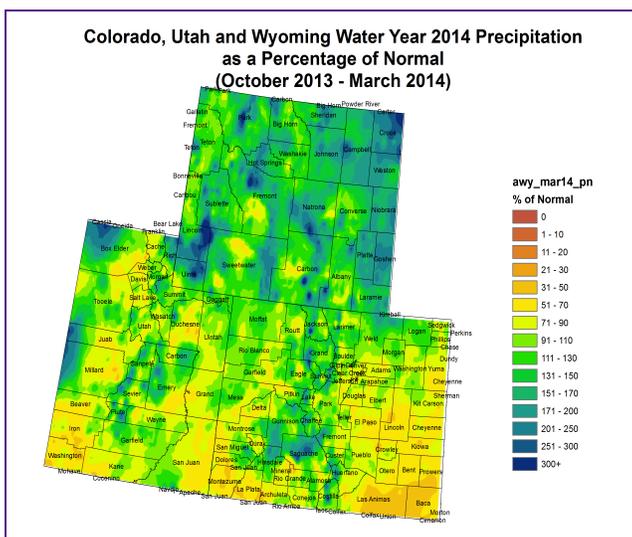
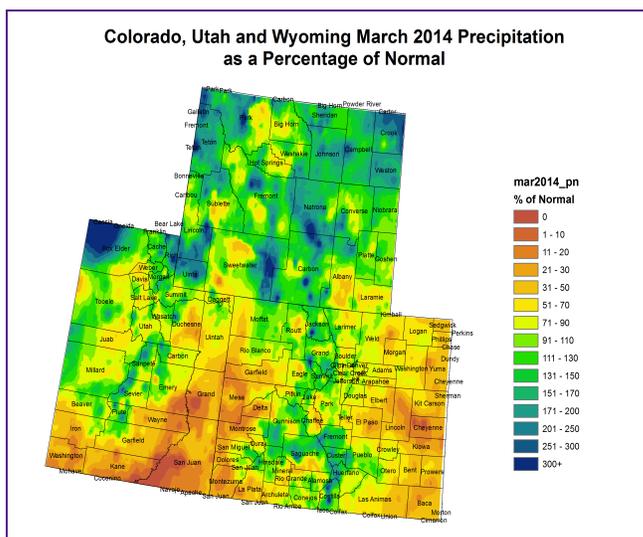
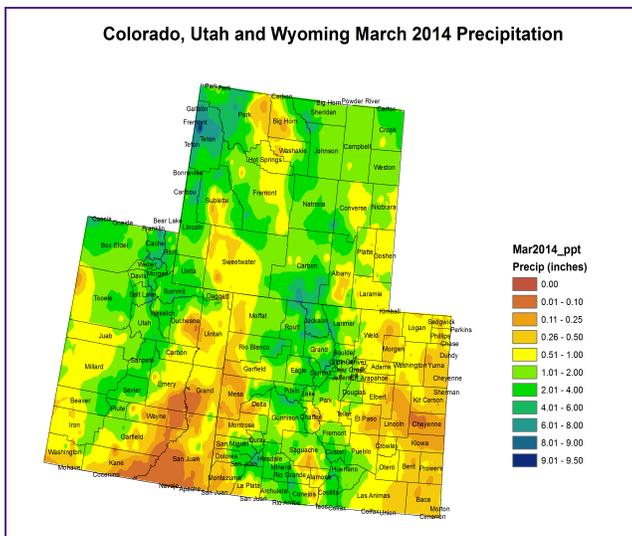
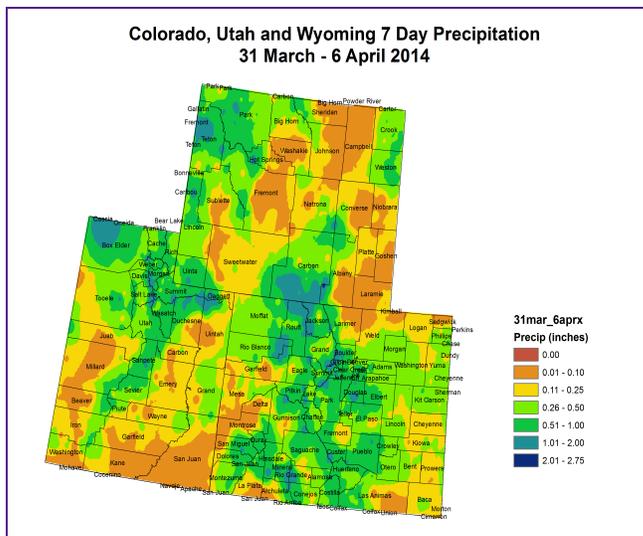


# PRECIPITATION



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 river basin continued to receive precipitation over the past week in the range of 0.26-1.00", the lower elevations saw less precipitation mainly less than 0.25".
- The Wasatch and Uintah ranges also picked up good moisture over the past week. The Wasatch received 0.26-1.00" while the Duchesne got slightly more in the 0.51-2.00" range.

- The lower elevations of the Colorado river basin in Western Colorado and Eastern Utah were drier with those areas picking up mainly between 0.01-0.25" with Grand county Utah getting slightly more in the 0.26-0.50" range.
- The Four Corners in Utah was dry (<0.10") while in Colorado the area picked up 0.26" in the lower elevations up to 2" at the higher elevations. Southern La Plata and Archuleta counties picked up less than 0.25" over the past week.
- The northern and central mountains of Colorado continued to receive moisture, mainly in the range of 0.26-2.00" with isolated areas receiving up to 2.75".
- East of the divide, the Front Range from Boulder county south to the New Mexico border received 0.26-1.00" over the past week but those amounts decreased to the east.
- The lower Arkansas valley did pick up much needed moisture in the range of 0.26-1.00" with the highest amounts in Pueblo county. Farther east into Cheyenne, Kiowa, Prowers, Baca and Las Animas counties only received up to 0.50" but mainly less than 0.25" over the week. This storm was good for the Sangre De Cristo mountains which received 0.26" up to 2.00" in isolated areas in Custer county.
- The northeastern plains in Larimer, Weld, Logan and Sedgwick received less than 0.25" over the past week.

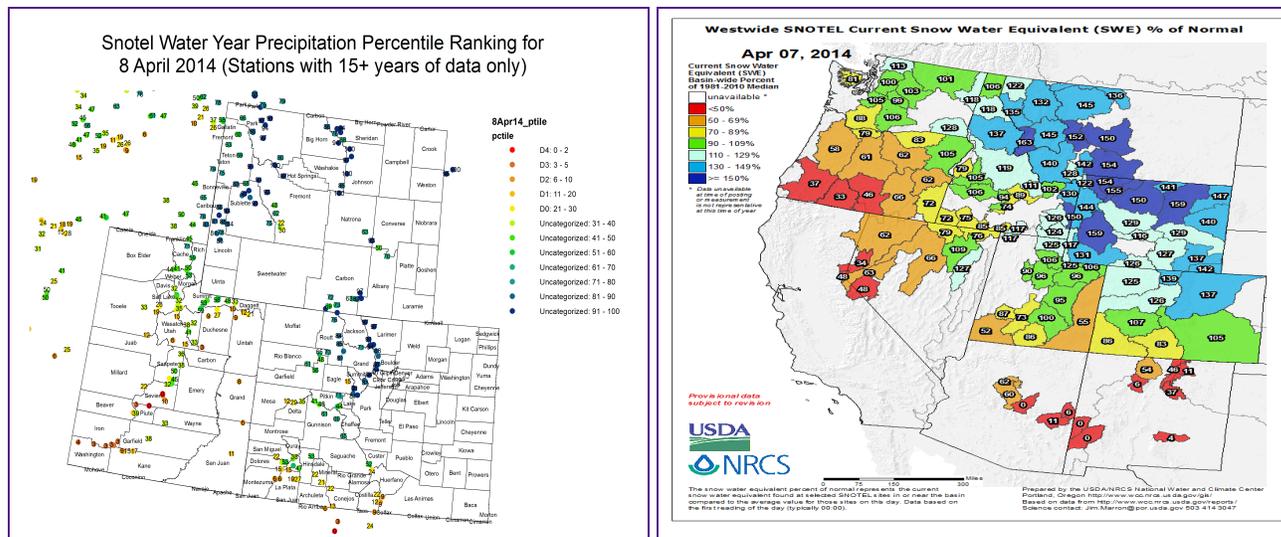
### **March Precipitation:**

- The Upper Green River basin saw above normal moisture in March while lower elevations in Sweetwater received less than 70% of normal.
- The Wasatch and Uintah ranges in Utah were at or above their March averages with the wettest areas in Rich county Utah and Uinta and Lincoln counties in Wyoming.
- The low elevations of eastern Utah and western Colorado received below normal precipitation for the month of March. Widespread areas saw less than 70% of normal.
- The higher elevations in Colorado saw near to above normal conditions across the high country.
- East of the divide in Colorado was fairly dry for what would normally ramp up the wet season. Widespread areas of less than 50% of normal predominated the Eastern plains of Colorado with the driest areas centered over the already drought devastated areas in Lincoln, Cheyenne and Kiowa counties.
- The southern basins of the Arkansas headwaters received much needed above normal moisture for the month of March.
- Areas near the Front Range fared slightly better than the Eastern plains with more near normal (70-110%) moisture falling in March.

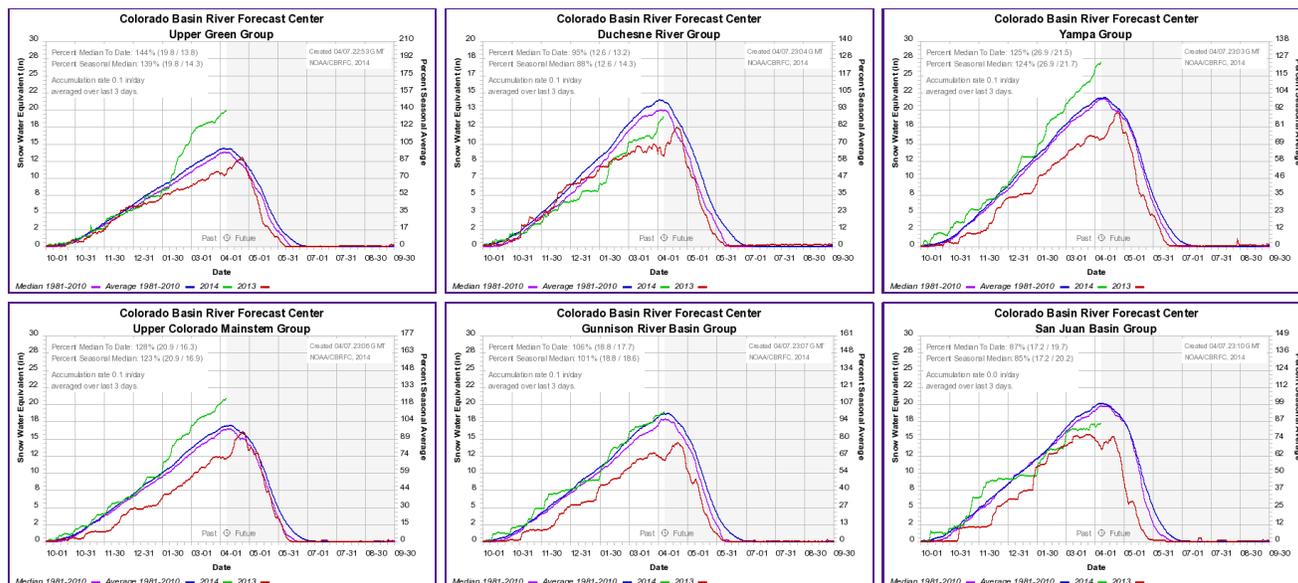
### **Water Year Precipitation (Oct-Mar):**

- Much of the UCRB is showing normal to above conditions for the water year through March. The driest areas are the lower elevations of eastern Utah and western Colorado (particularly the Four Corners) where WYTD precipitation is less than 70% of normal.
- The Yampa, White and Colorado basins are all showing above normal conditions for the water year through March. Lower elevation areas (Routt, Rio Blanco, Garfield) did not fair quite as good with water year precipitation in the 50-90% of normal ranges.
- East of the divide, the driest areas are mainly south of I70 and east of I25 with the entire area receiving less than 90% of normal for the water year through March. Las Animas and Baca counties are reporting WYTD precipitation less than 50% of normal.
- The northern tier of the eastern plains has gotten much better moisture (as did much of eastern Wyoming) with above normal conditions for the water year. Conditions in Yuma county are slightly drier for the water year and fall in the 50-90% of normal range.

## 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 (50th percentile) 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 mainly 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 70th percentile.
- The Wasatch range in northern Utah is near the median. While in the Uintah range in northeast UT is drier with percentiles ranging from 9th to 56th with the lowest values on the southern flank of the range.
- Percentiles in the San Juans range from teens in the lower elevations of the SW side of the range to near and above median on the NE side of the range.
- In the Rio Grande Basin, percentiles are mainly below the 25th percentile.

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

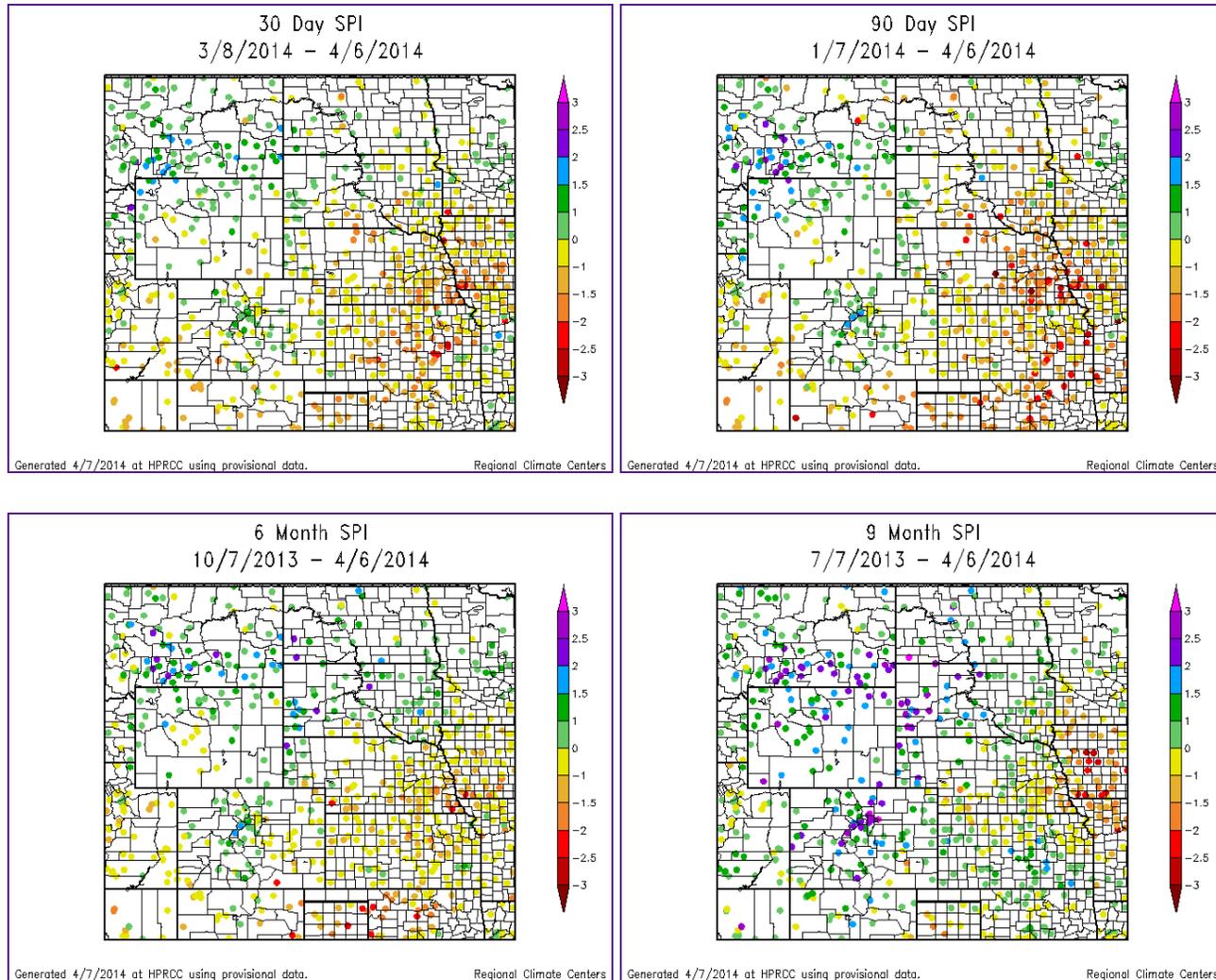
- The eastern and northern sub-basins in the UCRB currently have above normal snowpack, with the highest values in the Upper Green river basin in western WY
- Snowpack in eastern UT is mostly below average, between 55% and 125% of normal. The northern basins are reporting the highest snowpack.
- Snowpack in southwest CO is reporting below normal at 86%.
- East of the basin, snowpack is above normal, with the exception of the Rio Grande Basin at 83% 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 Green is reporting snowpack at 144%, the Yampa-White is at 125% and the Upper Colorado is at 128% of normal for the season to date.
- The Duchesne basin saw large accumulations over the past week and is now reporting at 95% of normal.
- The Gunnison basin is recording SWE at 106% of the median for this date.

- The San Juan basin remains below the median (87%). The basin saw only minor accumulations over the past week.

## 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):

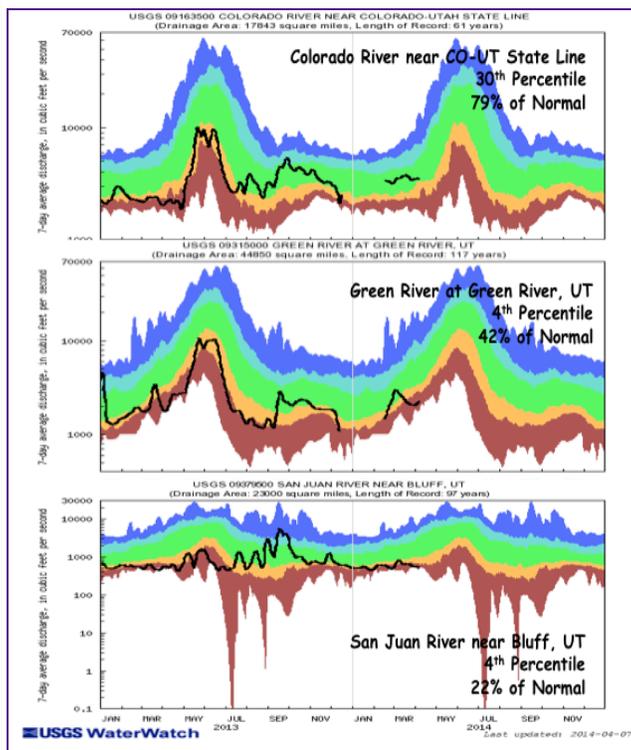
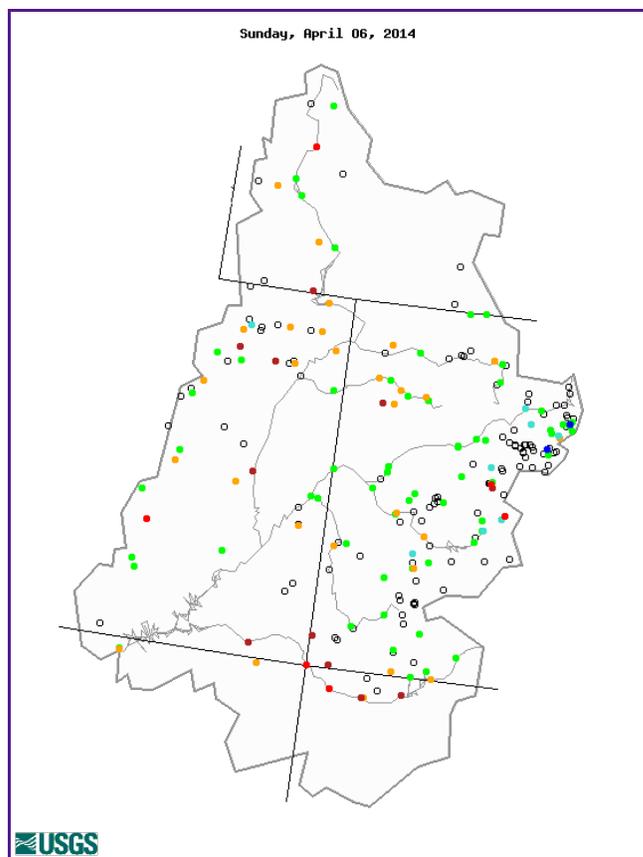
- Most of the UCRB has mixed SPI on the short-term time scale, near normal -1 to +1. SPIs across most of eastern UT, western CO, and the Four Corners region is between 0 and -1 with a few sites down to -1.5.
- SPIs at the lower elevations along the Continental Divide in CO are between -1 and +1.5

- East of the basin, most of NE Wyoming shows wet SPIs while eastern CO SPIs are between +1 and -1.5
- The San Luis Valley is reporting SPIs ranging from 0 to +1 on the short time scale.

**Long Term (6-month):**

- Most of the northern and eastern portions of the UCRB shows wetter long-term SPIs, 0 to +2.
- Eastern Utah and the Four Corners are drier with SPI's between 0 and -1.5
- Eastern CO is now showing slightly dry SPIs, +1 to -1.
- The driest areas on the plains remain in the lower Arkansas valley in southeast CO where SPI's range from 0 to -2.5. The Trinidad station is showing the driest SPI in the region.
- The San Luis Valley is showing wet SPI's at this longer time scale.

**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		

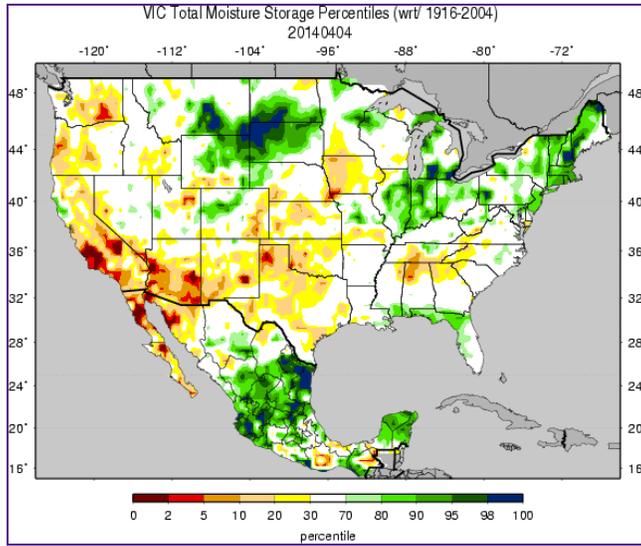
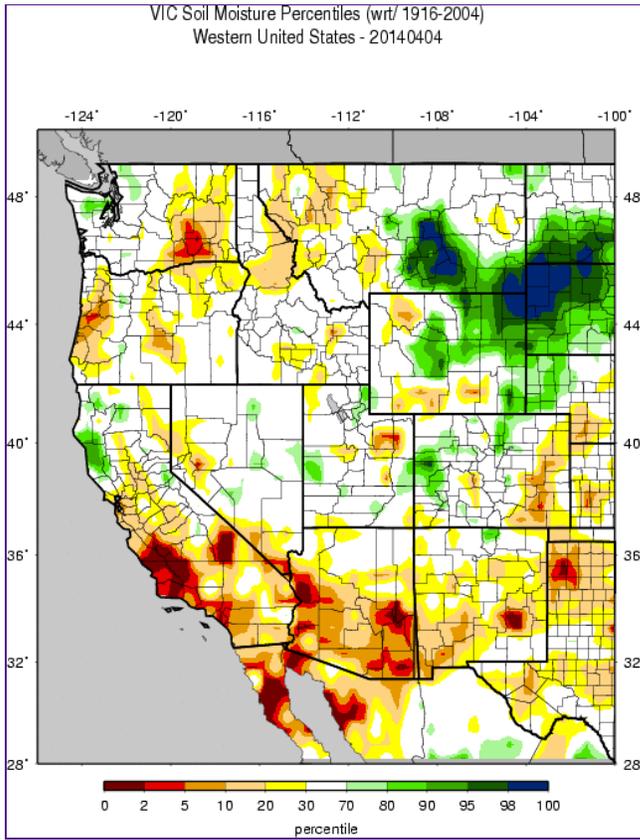
The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff, UT. All streamflow data provided by United States Geological Survey.

**Streamflow Statistics:**

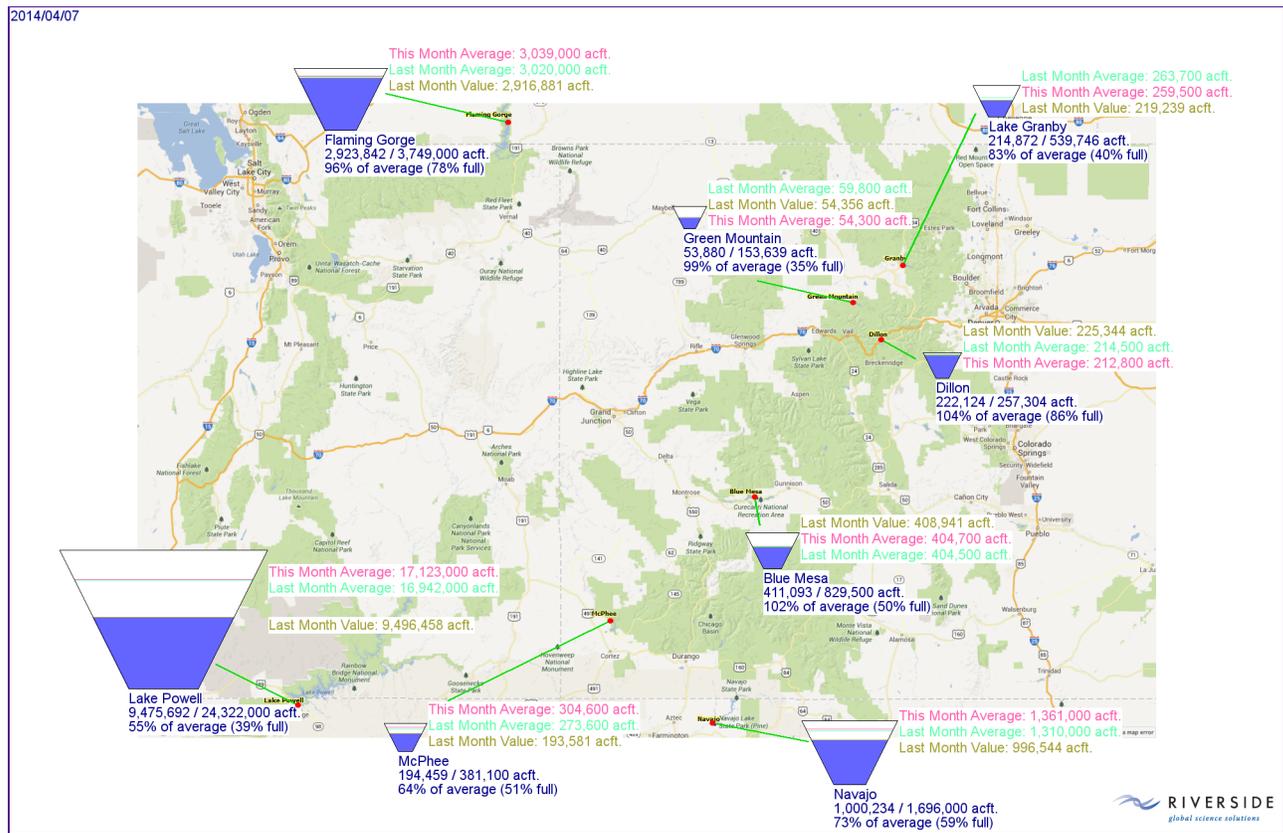
- The number of reporting gages has increased to 115 as gages come back online after being affected by ice.
- 61% of the gages in the UCRB are reporting above the 25th percentile (normal and above) for 7-day average streamflow.
- 39% of the gages are recording below the 25th percentile (below normal) for 7-day average streamflows.
- The driest streams are the San Juan river in SW Colorado, the White river in NW Colorado and the Green and Duchesne rivers in NE Utah.
- Flows on the Colorado River near the CO-UT state line are in the near normal range, currently at the 30th percentile, 79% or normal.
- The Green River at Green River, UT is currently reporting much below normal flows at the 4th percentile (42% of normal).
- Flows on the San Juan River near Bluff, UT are much below normal, currently at the 4th percentile (22% of normal).

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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 normal to wet soil moisture conditions.
- In the UCRB, the driest areas are NE Utah and SW Wyoming. NE Utah soil moisture percentiles range from the 2nd to 30th percentiles south of the Uintah range. In Sweetwater county, WY soil moisture percentiles range from the 5th to 30th percentiles.
- The Four Corners and headwaters of the Gunnison/Arkansas basins are showing slightly dry soil moisture conditions ranging from 10th to 30th but predominately in the 20th to 30th.
- East of the divide has shown degradations over the past few weeks with widespread soil moisture percentiles below the 30th percentiles. The driest soils are present in southern Lincoln, Otero and Bent.
- Adding present Snow Water Equivalent values, the UCRB is wetter while the drier areas are relatively unaffected except for the Gunnison headwaters which improved with SWE added in.

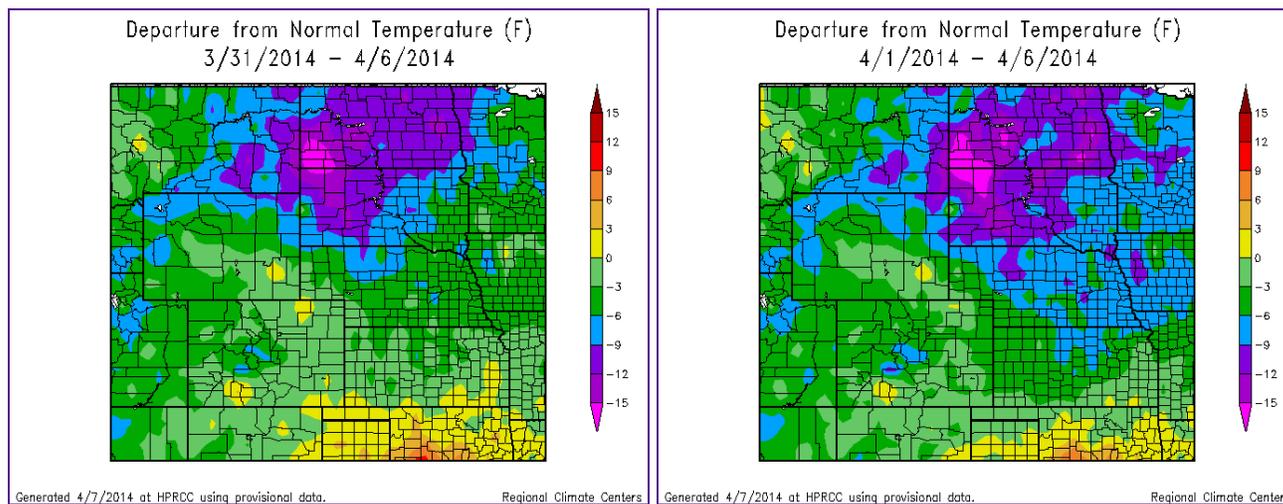
**Reservoirs:**

- All of the major northern reservoirs in the UCRB are near to above

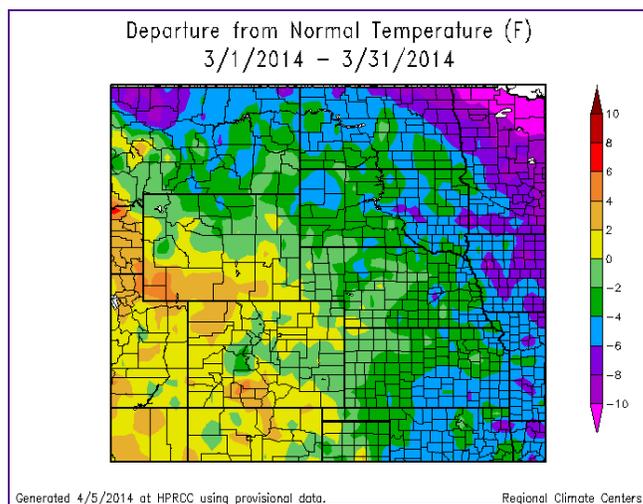
their March averages, ranging between 83% (Lake Granby) and 104% (Dillon Reservoir) of average

- The southern reservoirs are below average, ranging between 55% (Powell) and 73% (Navajo) of average
- Blue Mesa is now at 102% of average after seeing abnormal increases (or smaller releases) during the winter.
- Navajo, McPhee, Blue Mesa and Flaming Gorge have seen slight increases since the end of last month while the remaining reservoirs have seen decreases in preparation for Spring runoff season.

## 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.



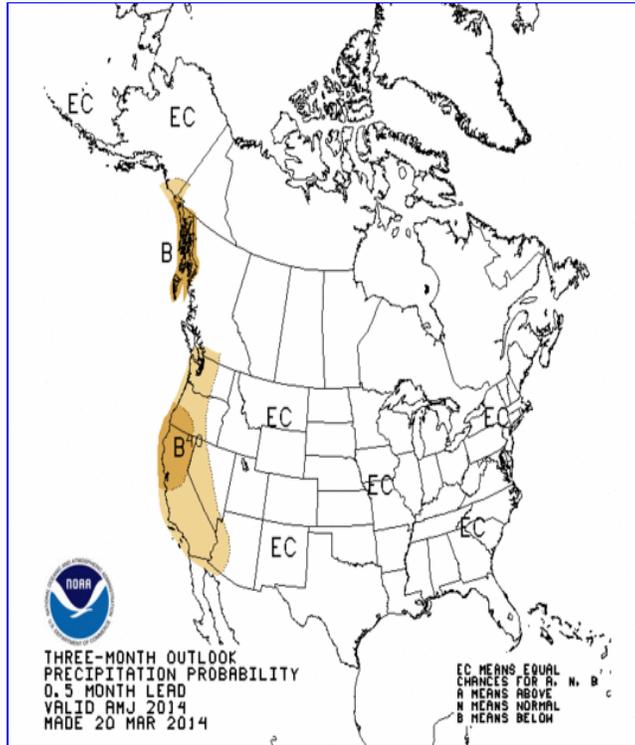
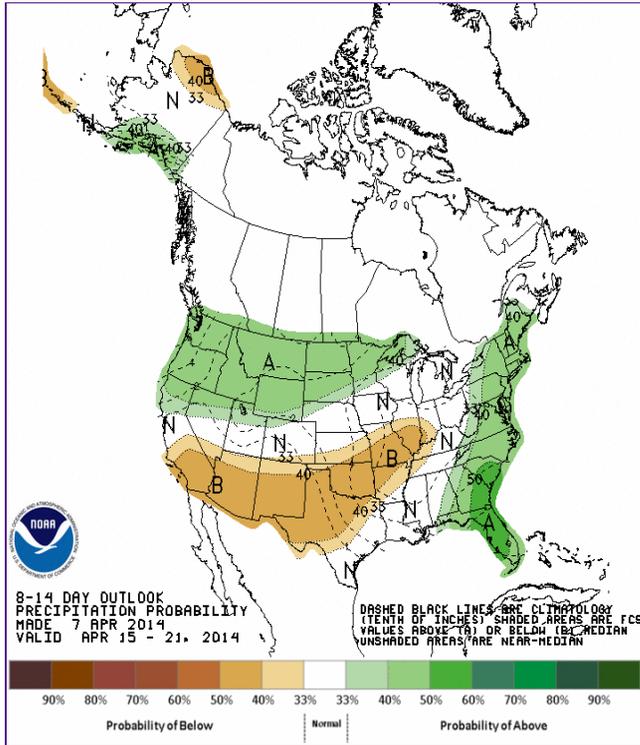
### **Last Week Temperatures:**

- The entire UCRB saw below normal temperatures over the past week. The Upper Green, Duchesne, Yampa/White, Upper Colorado and the majority of eastern Utah were 3 to 9 degrees below normal for the past week.
- The Four Corners area was slightly warmer with temperatures 0 to 3 degrees below normal.
- The headwaters of the Platte, Arkansas and Gunnison basins were 3 to 9 degrees below normal for the week.
- East of the divide in Colorado temperatures ranged from 0 to 3 degrees above normal in portions the NE and SE while the remainder of the area saw temperatures 0 to 3 degrees below normal.

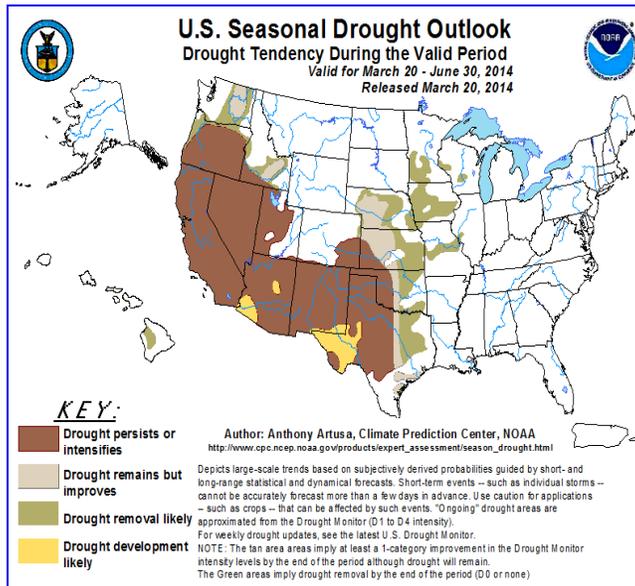
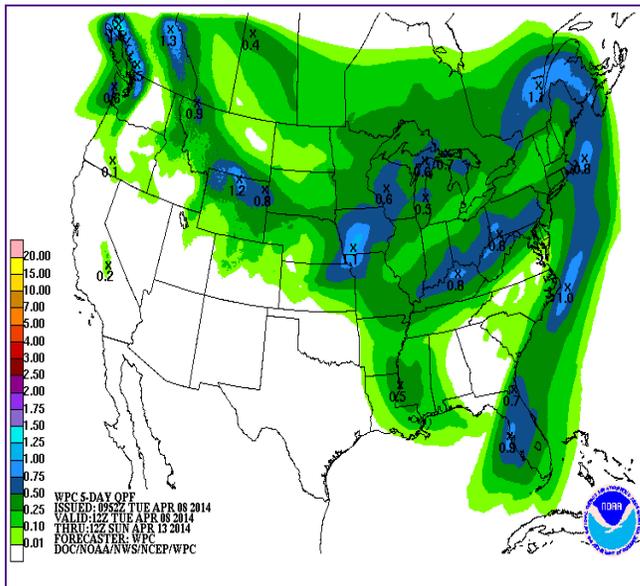
### **Last Month Temperatures:**

- The Upper Green river basin saw temperatures 0 to 6 degrees above normal for March.
  - Eastern Utah and western Colorado saw temperatures 0 to 2 degrees above normal for the month with the Yampa basin slightly warmer in the 2 to 4 degree above normal range.
  - The San Luis Valley was warmer than normal in the range of 2 to 6 degrees above normal.
  - East of the divide was more seasonal to cooler. The NE plains were mainly 0 to 2 degrees above while the SE plains were 0 to 2 degrees below normal. Farther to the south in Las Animas and Huerfano county was 0 to 2 degrees above 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:**

- A warming trend starts today with high pressure building to the west. Warm temperatures and breezy conditions will prevail through Friday.

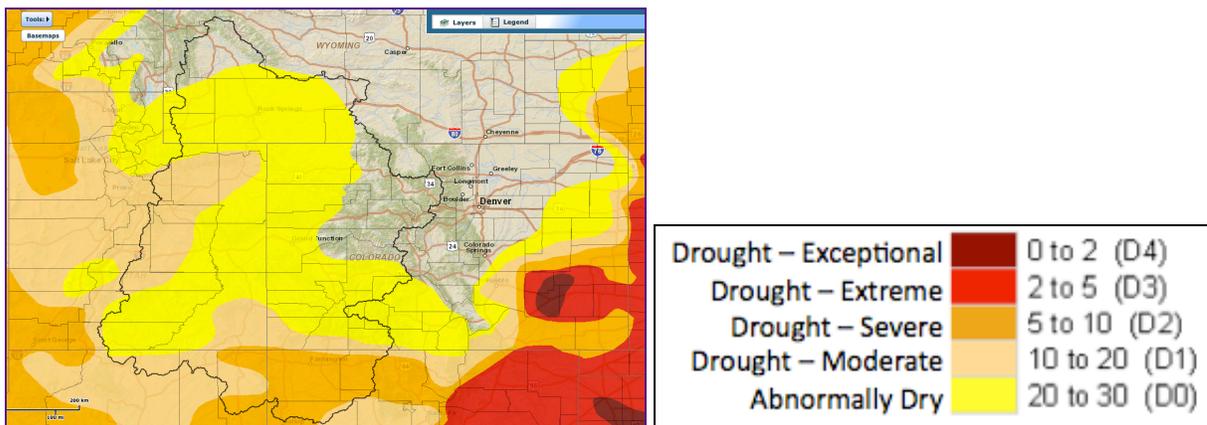
This can increase fire danger in the southern and central valleys.

- A chance of snow returns to the high country this weekend but is mainly forecast for the Northern portion of the basin to receive up to 0.50" over the 5 day period.
- A cold front will move through Sunday returning to more normal temperatures.

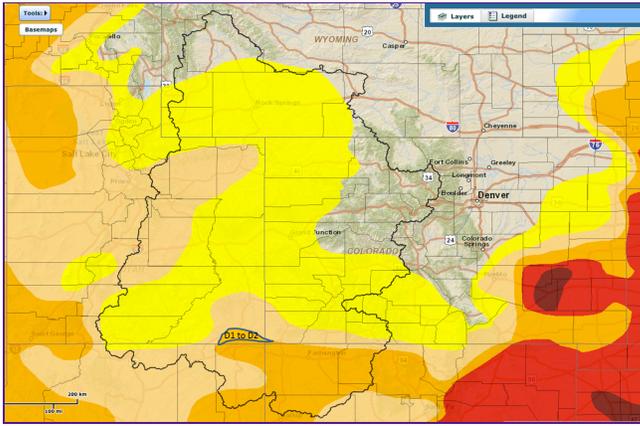
### Longer Term:

- The 8-14 day precipitation outlook shows increased chances of wetter than normal conditions across the northern tier of the UCRB and equal chances of above/below over much of Colorado and Utah. Drier than normal conditions are expected along the southern portion of the UCRB and Colorado.
- The 8-14 day temperature outlook (not pictured) is showing higher probability for warmer than average temperatures across the UCRB. As one moves east, those chances transition to cooler than normal temperatures of eastern 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



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: April 8, 2014

The USDM author suggested expanding D1 into the White River valley in NW CO based on streamflow percentiles in that area. It is the suggestion of this group that the low streamflows are being driven by delayed melt along with little low elevation snow cover. Snow conditions higher up are doing just fine and streamflow percentiles will reflect that once the snowpack becomes isothermal and begins melting.

The USDM author also expanded D2 drought into extreme SW Montezuma county and San Juan county Utah based on low streamflow percentiles and short term conditions. We are in support of this change.

East of the divide there was a nice spring storm that brought much needed moisture to the southern basins of the Arkansas drainage. Some of that moisture made it onto the plains bringing some precipitation to the drought stricken areas in the lower Arkansas valley. In light of this moisture, status quo is recommended for the Eastern plains.

## Recommendations\*\*

### UCRB:

We agree with the USDM authors expansion of D2 into San Juan county Utah and slightly into SW Montezuma county in Colorado. Status quo is recommended for the rest of the UCRB.

### Eastern Colorado:

Status quo is recommended for the Eastern plains of Colorado in response to recent moisture over the past week and lack of SPI support for degradation. This moisture by no means warrants improvements but does hold off degradations for a week.