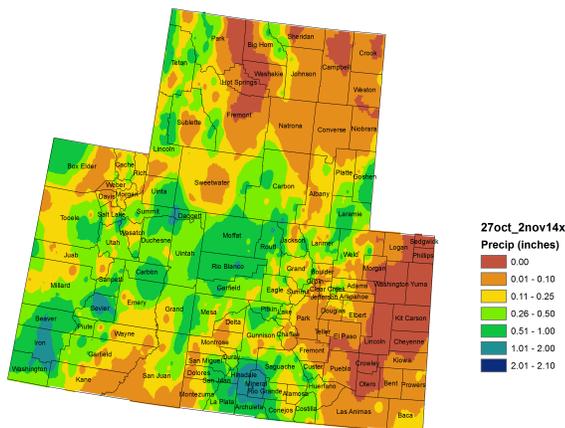


NIDIS Upper Colorado River Regional Drought Early Warning System November 4, 2014

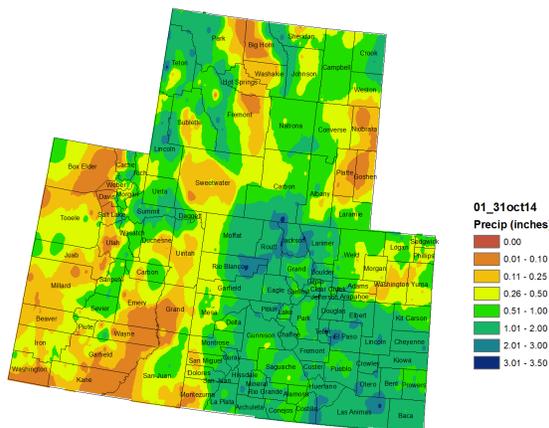


- Precipitation Discussion
- SNOTEL
- SPI
- Streamflow
- Surface Water
- Temperature
- Outlook
- USDM

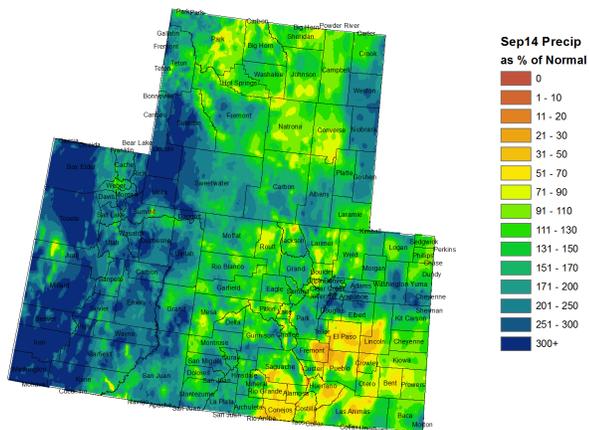
Colorado, Utah and Wyoming 7 Day Precipitation
27 Oct - 2 Nov 2014



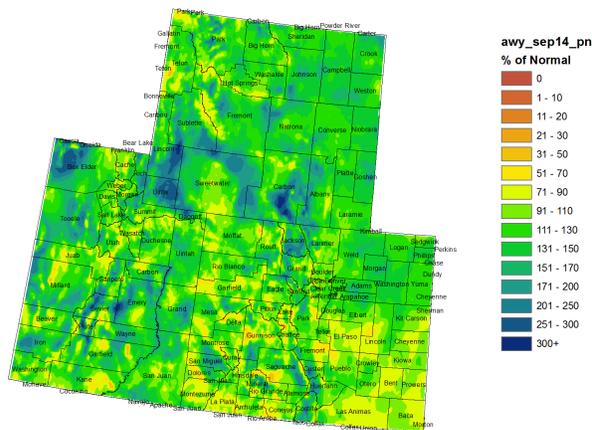
Colorado, Utah and Wyoming October 2014 Precipitation



Colorado, Utah and Wyoming September 2014 Precipitation
as a Percentage of Normal



Colorado, Utah and Wyoming Water Year 2014 Precipitation
as a Percentage of Normal



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 majority of the northern portion of the UCRB in southwest WY was dry this week, seeing less than 0.25", with areas of less than 0.10".
- Northeastern UT and northwestern CO saw some decent moisture, most of the area between 0.25" to 0.50" with larger areas seeing up to 1.00" over the last week.
- The San Juan Mountains in southeastern CO also saw some very beneficial precipitation over the last week. Most of the area saw liquid amounts between 0.50" to 2.00". Some of this precipitation spilled over into the western and northern portions of the Rio Grande basin.
- The San Luis Valley also saw some precipitation, however was less than 0.25". The mountains surrounding

the valley saw up to 0.50" over the last week. Some beneficial precipitation did fall through the area on Monday, that does not appear on the map above.

- East of the divide was mostly dry, with northern CO and southeastern WY seeing most of the precipitation. This area saw between 0.25 - 0.50" with some areas seeing between 0.50" and 1.00". The rest of eastern CO saw less than 0.1".
- The precipitation that fell Monday (not on the map), did benefit the Front Range as well, with precipitation amounts up to 0.50".

October Precipitation:

- The majority of the UCRB had a well below average October for precipitation. The headwaters of the Green River in WY saw less than 50% of normal precipitation, with the exception of eastern Lincoln and northern Sweetwater counties seeing normal to slightly above normal precipitation.
- Eastern UT saw less than 50% of normal precipitation for October with areas seeing less than 30% of normal.
- Western CO was a bit better, however much of the area is 50-70% below average. The exceptions are parts of Moffat, Rio Blanco and Routt counties, which saw slightly above average precipitation.
- The San Luis Valley, in Alamosa, Rio Grande and Costilla counties saw above average precipitation for October.
- East of the divide, southeastern CO saw above average precipitation for the month. Much of the area south of the Palmer Divide saw at or above normal precipitation. Prowers and Kiowa counties were slightly below average.
- Northeastern CO saw below average precipitation, mainly less than 50% of normal. The Front Range, especially Jackson, Larimer and Boulder counties were at or slightly above average for the month.

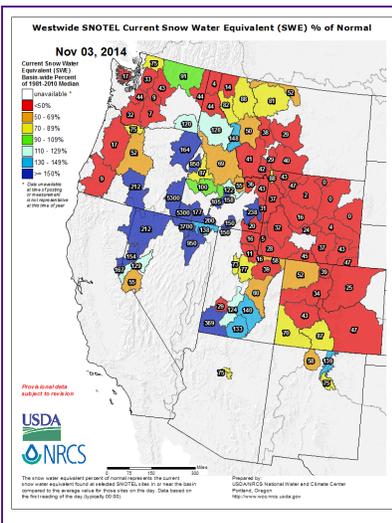
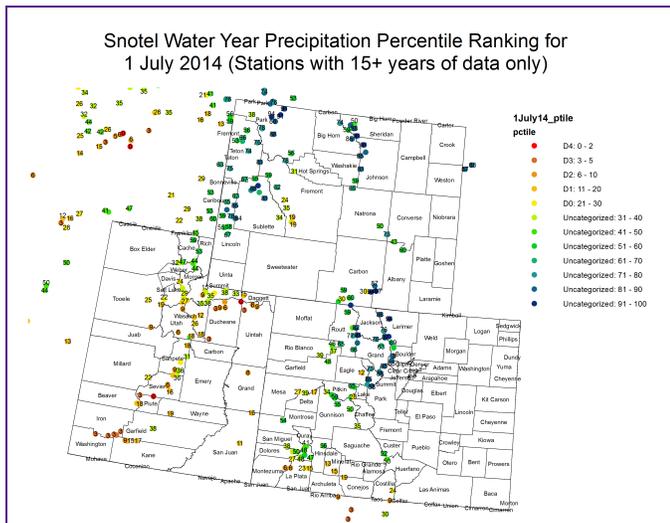
Water Year 2014 Precipitation:

- Much of the UCRB is now near or above average for the Water Year through August, with spotty areas below average.
- Most of the northern portion of the basin in Wyoming is above average, with portions of Lincoln, Uinta, and southern Sublette counties 200% to 250% of average.
- Much of eastern UT is now near average, with no widespread areas clearly above or below normal. The distinction between above areas with above and below a normal water year here is very spotty.
- Western Colorado is a bit spottier than Utah with precipitation as a percent of average, however much of the area is near average for the Water Year. Most of the western slopes are between 70 and 110% of average for the water year. Some spotty areas including parts of San Miguel, Mineral, and Mesa Counties were over 200% of average for the water year.
- The northern portion of the Colorado River headwaters area is still much above average, mainly greater than 130% of average.
- East of the Divide a north-south gradient exists in water year precipitation as a % of average. The north-south gradients in soil moisture and vegetative health echo this gradient quite clearly.
- Almost all of the northeastern plains were above average for the 2014 water year. Percents of average were between 90 and 150.
- Most of the Front Range was between 90 and 130% of average for the water year.
- Southeastern CO has improved, but still came in below normal for the 2014 water year across the majority of the region. Totals were mainly between 70 and 110% of average.
- A strip in the southern Colorado Rockies extending through Costilla, Huerfano, and Custer Counties had an above average water year. Totals were between 150 and 250% of average.

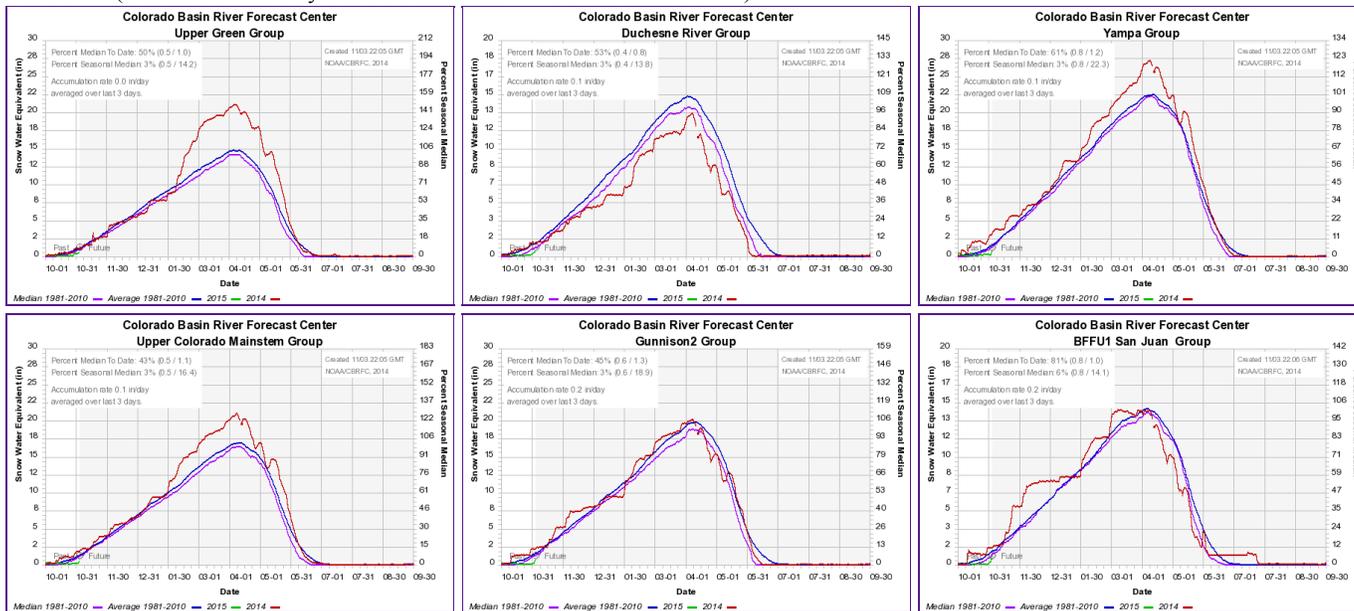
Additional Precipitation Links: (will take you to an outside website)

 [AHPS Precipitation](#)

 [High Plains Regional Climate Center's ACIS Maps](#)



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:

- In the headwaters of the Green River in Lincoln and Sublette Counties in Wyoming percentiles range from the single digits and teens (very dry), up to the lower 30s (lower end of normal).
- The Uintah and Wasatch Mountains have also seen lower precipitation to kick off the water year, and are between the 0th and 18th percentile.
- Western CO has been a little better, however percentiles are still in the teens and 20s, with a few SNOTEL sites in the northern mountains with percentiles in the 30s and 40s.
- Percentiles in the San Juans range from the 11th percentile on the south side of the range to the 41st percentile in Hinsdale County on the northeast side of the range.
- In the Rio Grande Basin, percentiles are mainly below the 25th percentile.
- Along the divide percentiles are also dry, most percentiles showing up in the 20s with a few on the east side up to the 44th percentile.

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

- Most of the UCRB has started the water year well below normal in terms of snowpack, with most basins below 50% of average snowpack.
- The Green River in southwest WY snowpack numbers are between 5 and 45% of average.

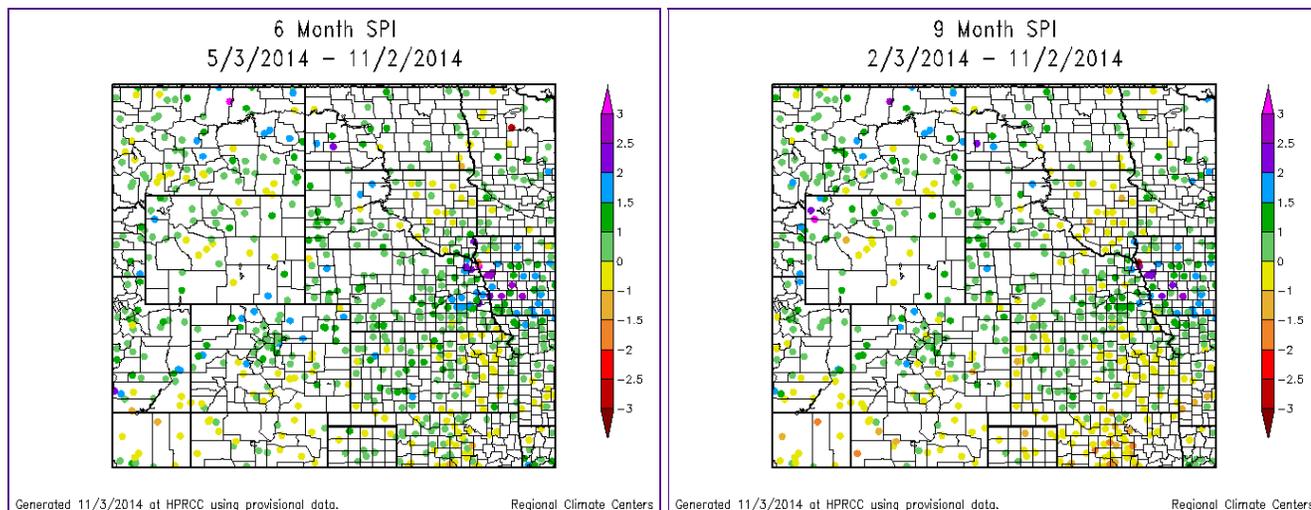
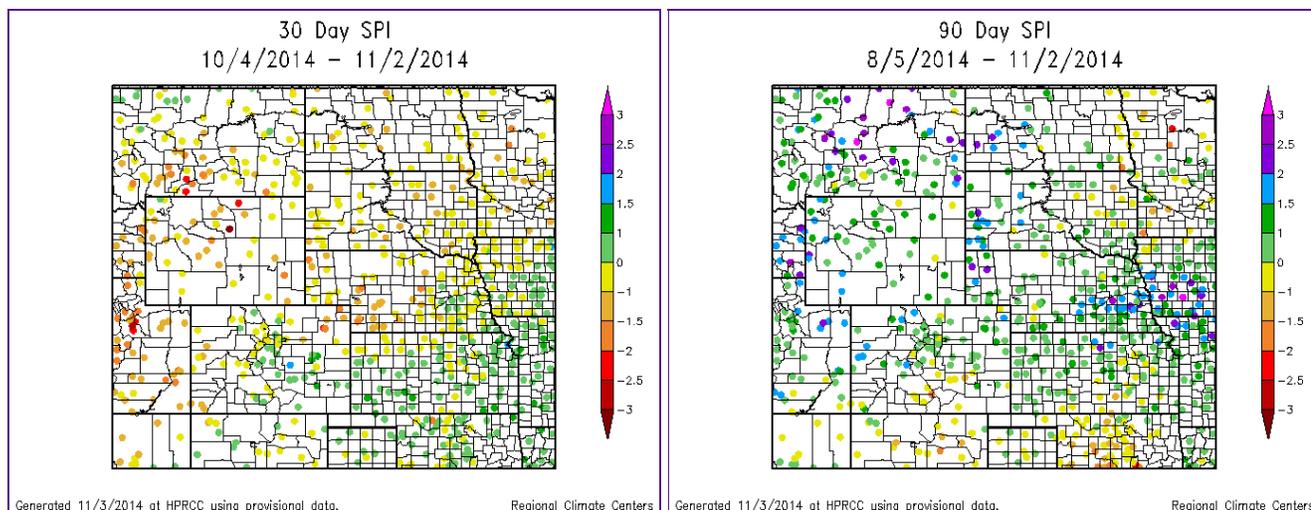
- The Western slope of Colorado is also way behind for snowpack, ranging from 34% to 52% of normal.
- The San Juan Mountains (70%) and Rio Grande basin (87%) snowpack are the best in the state.
- East of the divide snowpack is at 25% of normal for the South Platte and 47% for the Arkansas, and increase from last week.

SWE Timeseries Graphs:

- All river basins are off to a slow start to the snow season, however they did see an increase from last week's percent to date.
- The Upper Green Group is at 50% of median snowpack to date.
- The Duchesne is at 53% of median snowpack to date.
- The Yampa-White is at 61% of median snowpack to date, and increase from 43% last week.
- The Upper Colorado Mainstem Group is at 43% of median snowpack to date.
- The Gunnison Group is at 45% of median snowpack to date.
- The San Juan Group is at 81% of median snowpack to date, an increase from 10% of median last week.

Additional SNOTEL and Snowpack Links: (will take you to an outside website)

- [CBRFC Snow Conditions Map](#)
- [NOHRSC Regional Snow Analyses: Central Rockies](#)



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):

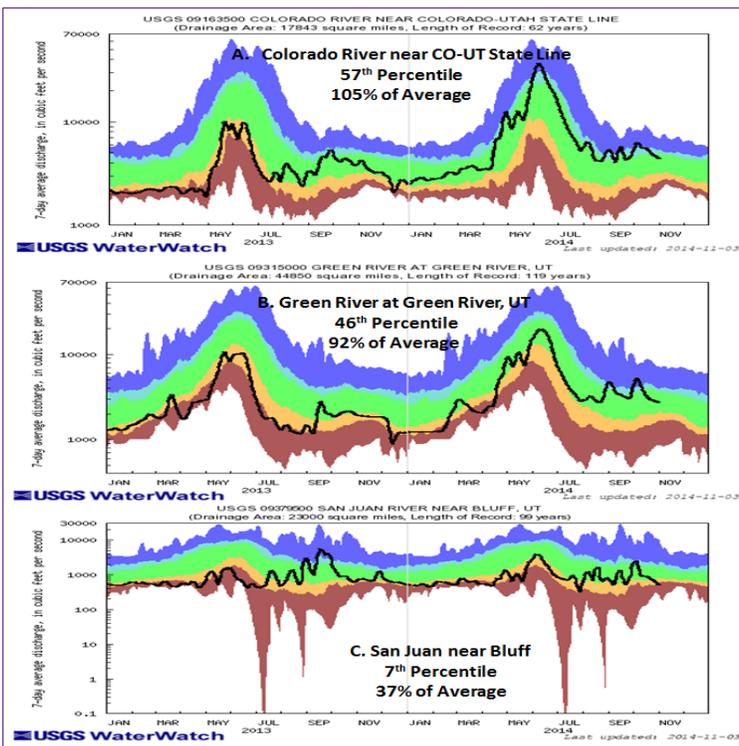
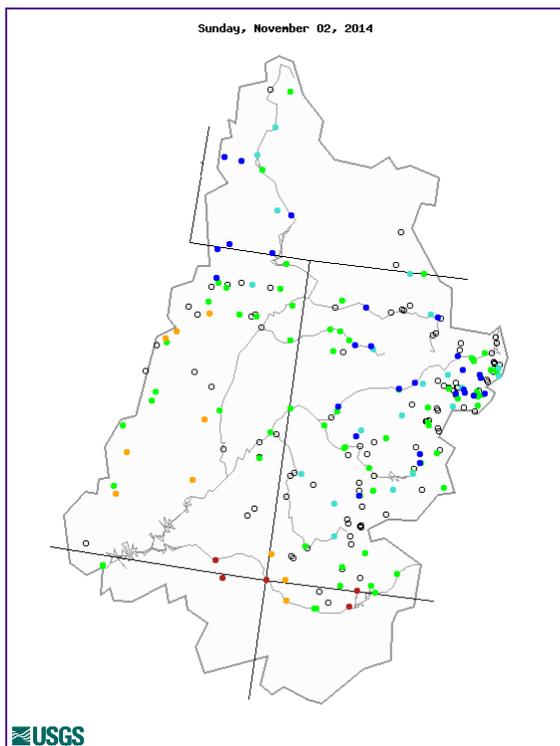
- SPIs are for the past 30 days have all turned dry in UCRB. Most SPI in the southwestern WY and western CO are in the 0 to -1 range.
- Eastern UT is showing SPI in the -1 to -1.5 range, with a few farther south down to -2.
- The Four Corners area has dried out to the -1 to -1.5 SPI.
- The San Luis Valley has near average SPIs that range from -1 to +1.
- East of the divide, in northern CO, most SPIs are showing up on the dry side, between -1 and -2. Closer to the divide show SPIs between 0 and -1.
- Southeastern CO, SPIs are on the wetter side, between 0 and +1.5, with an SPI in El Paso County up to the +2 SPI.

Long Term (6-month):

- For the longer term, much of the UCRB continues to report wet SPIs. There are a few dry areas reported around the Four Corners and in Gunnison County. These are between 0 and -1. The rest of the area is reporting SPIs between 0 and +2. The wettest areas are in Routt County, CO and along the mainstem of the Colorado River.
- The San Luis Valley in Colorado is fairly dry with the majority of valley stations reporting SPIs between 0 and -1. There are a couple SPIs here above the 0 mark in Saguache, Alamosa, and Conejos Counties.
- East of the divide, a north/south gradient still remains. The Arkansas basin is reporting drier SPIs along with a few wetter SPIs between -1 and +1. The northeast plains are wetter with the majority of stations reporting between 0 and +2. The dry SPI in Sedgwick still exists and is again thought to be erroneous due to missing data.

Additional SPI Links: (will take you to an outside website)

- [WestWide Drought Tracker SPI Maps](#)
- [HPRCC's SPI Maps](#)



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

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.

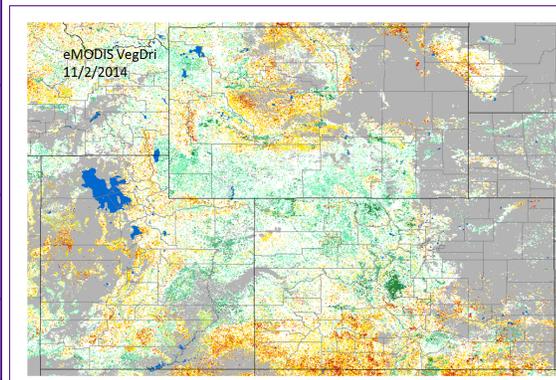
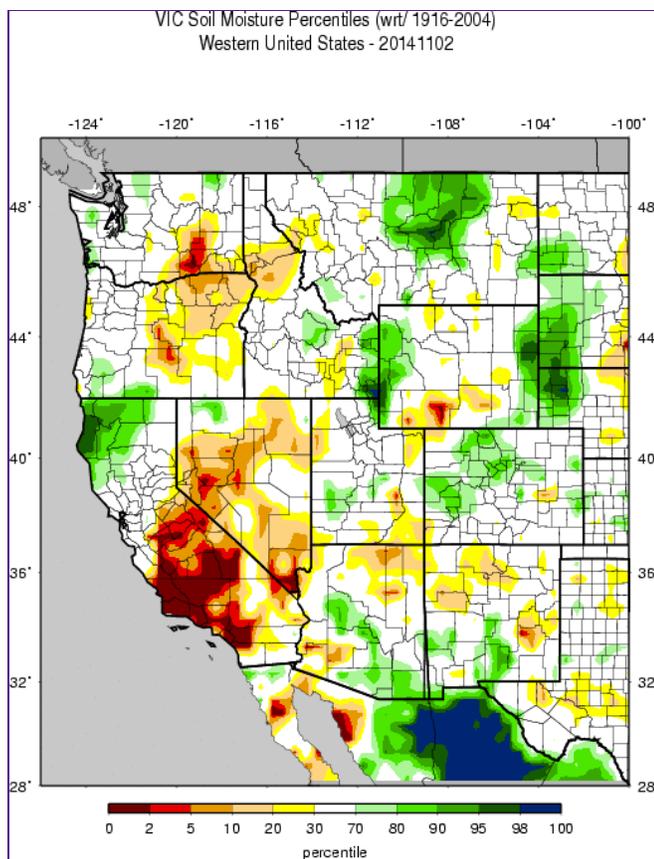
Streamflow Statistics:

- Streamflows over much of the UCRB are still mostly above average, however have decreased the past week.
- 89% of the gages are in the normal and above normal 7-day average streamflow.
- 21% of gages are above to much above normal for 7-day average.
- 12% of gages in the UCRB are reporting 7 day average streamflow in the below and much below average category. These gages are mainly located along the San Juan drainage.
- Streamflow on the Colorado River near the CO-UT state line is on the high end of the average range, reporting in the 57th percentile (105% of average).
- The Green River at Green River, UT is also reporting above average, in the 46th percentile (92% of average).
- The San Juan River near Bluff, UT has fallen once again into the much below normal range. Flows are at the 7th percentile (37% of average).

Additional Streamflow and River Links: (will take you to an outside website)

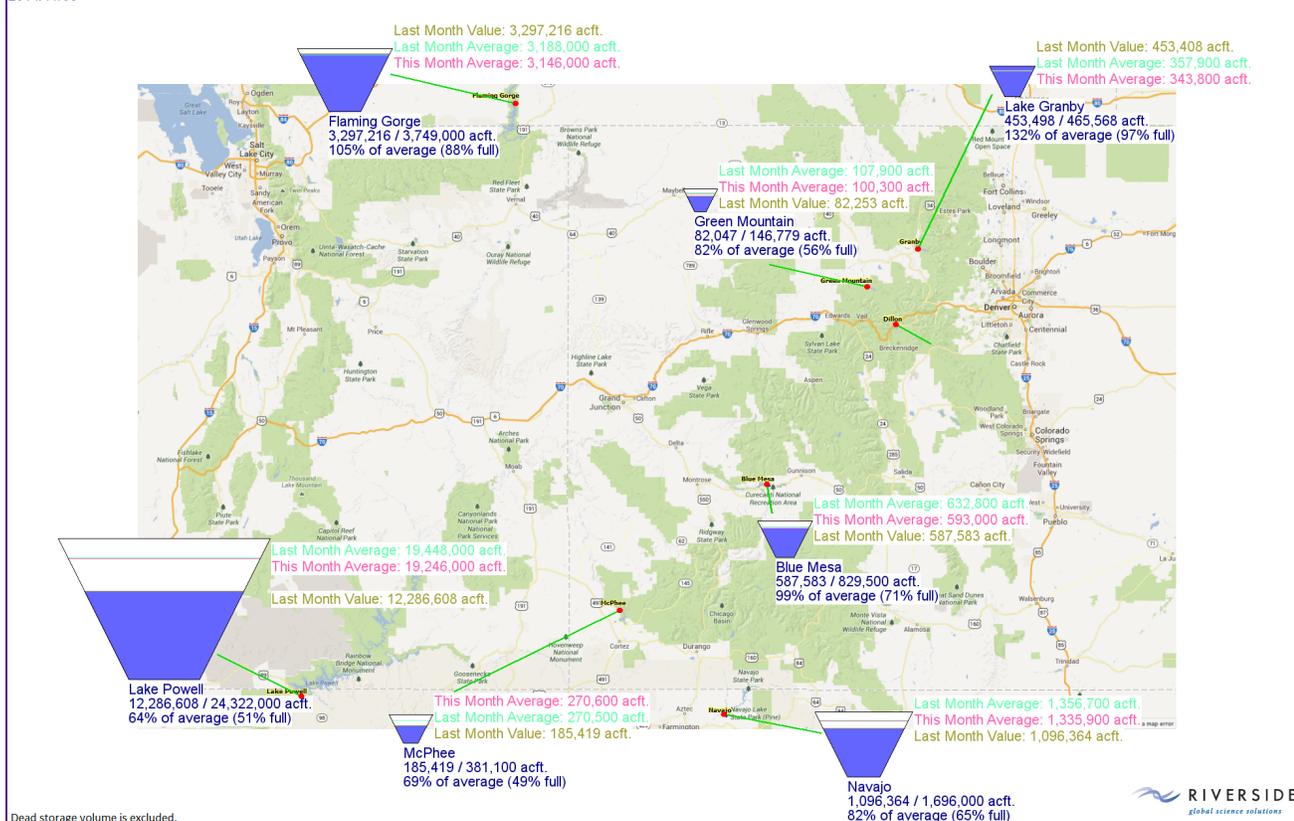
[USGS Streamflow Drought](#)

[CBRFC Peak Flow Forecast Conditions Map](#)



The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows VIC modeled soil moisture combined with SWE as a percentile ranking.

2014/11/03



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:

- Sweetwater County, WY still shows dry soils between the 10th and 30th percentile, with a few pockets showing up that are down to the 5th percentile. This dryness extends into Daggett and Uintah counties in UT.
- Western CO is still showing a large area of above average soil moisture, in the 70th to 80th percentile.
- Soil moisture in the Four Corners area is starting to show drying, with moisture in the 10th to 30th percentile.
- The San Luis valley is showing normal soil moisture conditions.
- East of the divide, the northern plains are showing average to just above average soil moisture conditions in the 30th-80th percentile.
- Soil moisture conditions are in the normal range in southeast Colorado. The exception is southern Lincoln County where soil moisture is between the 10th and 30th percentile, with a small pocket down to the 5th percentile.

VegDRI:

- Now into November the VegDRI product is quickly going out of season.
- Much of the UCRB is showing average to moist vegetation conditions, with the exception of Sublette County, WY and the Uintah and Wasatch Ranges in UT.
- The Four Corners area is still indicating dry vegetation conditions from San Juan county, UT east into the San Luis valley. These areas are mainly in the pre- to moderate drought category.
- The San Luis Valley is indicating drier conditions than areas farther west. This index gets down into the severe drought classification in the valley.
- The Front Range is showing vegetative health conditions in the normal range.
- Most of the eastern plains are now out of season. What shows up in southern CO is in the pre-drought category.

Reservoirs:

- Some of the Reservoirs in the UCRB continue to increase in volume as a consequence of an above average monsoon season in August and early September. Flaming Gorge, Lake Granby, Dillon and Navajo all had

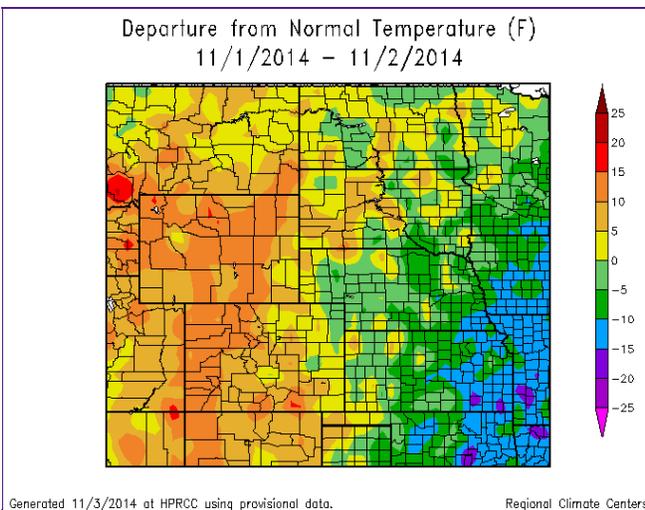
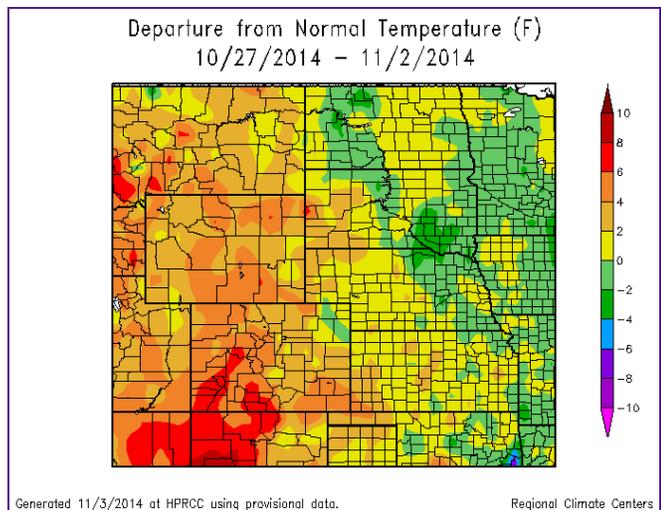
increases last month. Green Mountain, Blue Mesa, McPhee and Lake Powell decreased in volume last month.

- Flaming Gorge is 105% of the November average.
- Green Mtn is 82% of November average.
- Lake Granby is 132% of November average.
- Lake Dillon ended at 109% of the October average.
- Blue Mesa is 99% of the November average.
- Navajo is 82% of the November average.
- McPhee is 69% of the November average.
- Lake Powell is 64% of November average and 51% full.

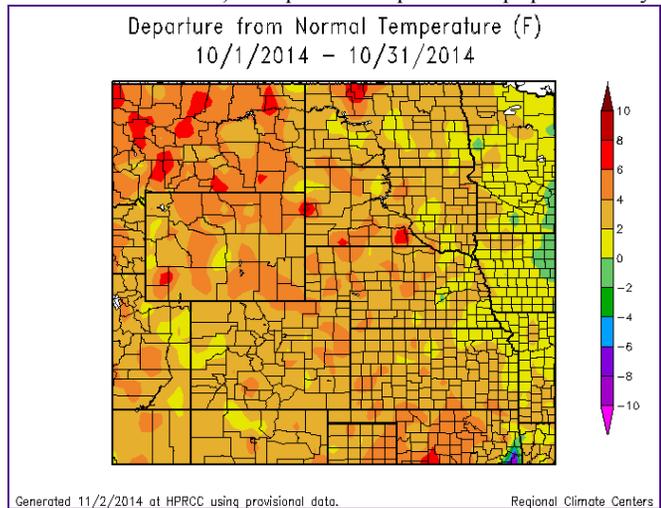
Additional Surface Water Links: (will take you to an outside website)

[NLDAS Drought Monitor](#)

[Bureau of Reclamation Upper Colorado River Basin Teacup Diagrams](#)



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.

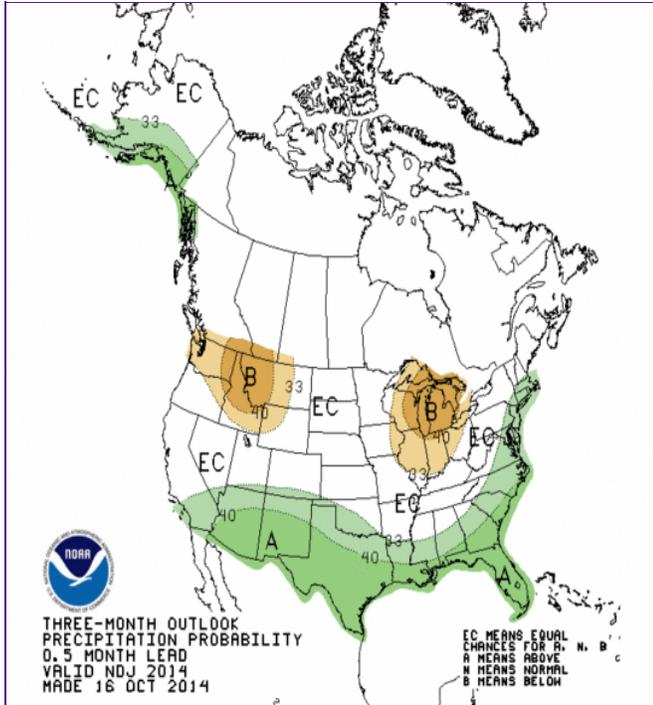
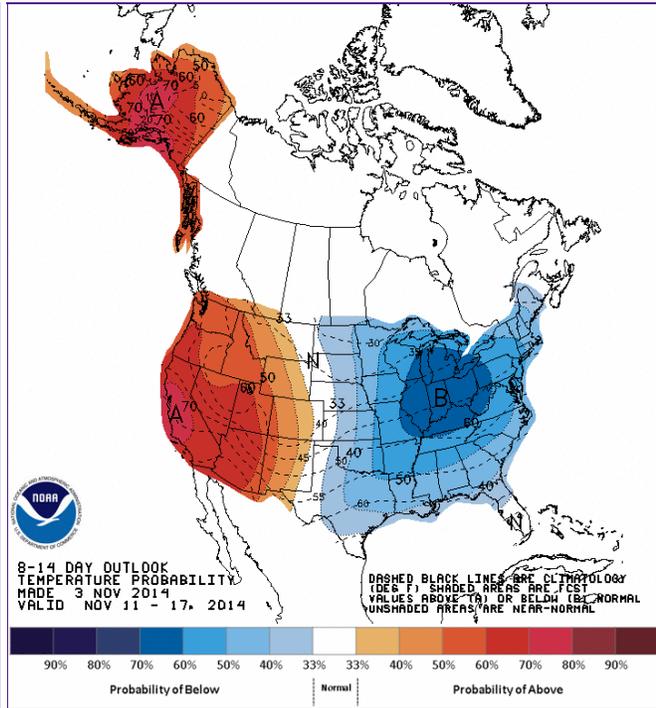
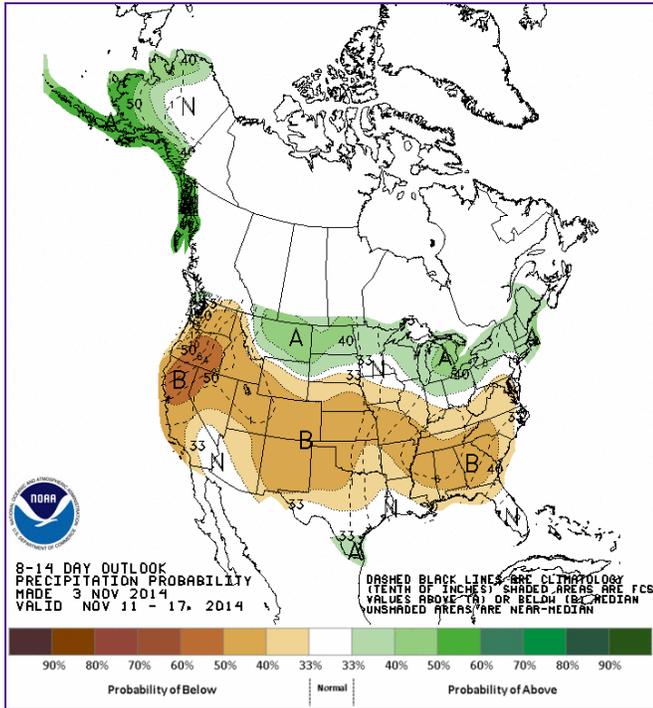


Last Week Temperatures:

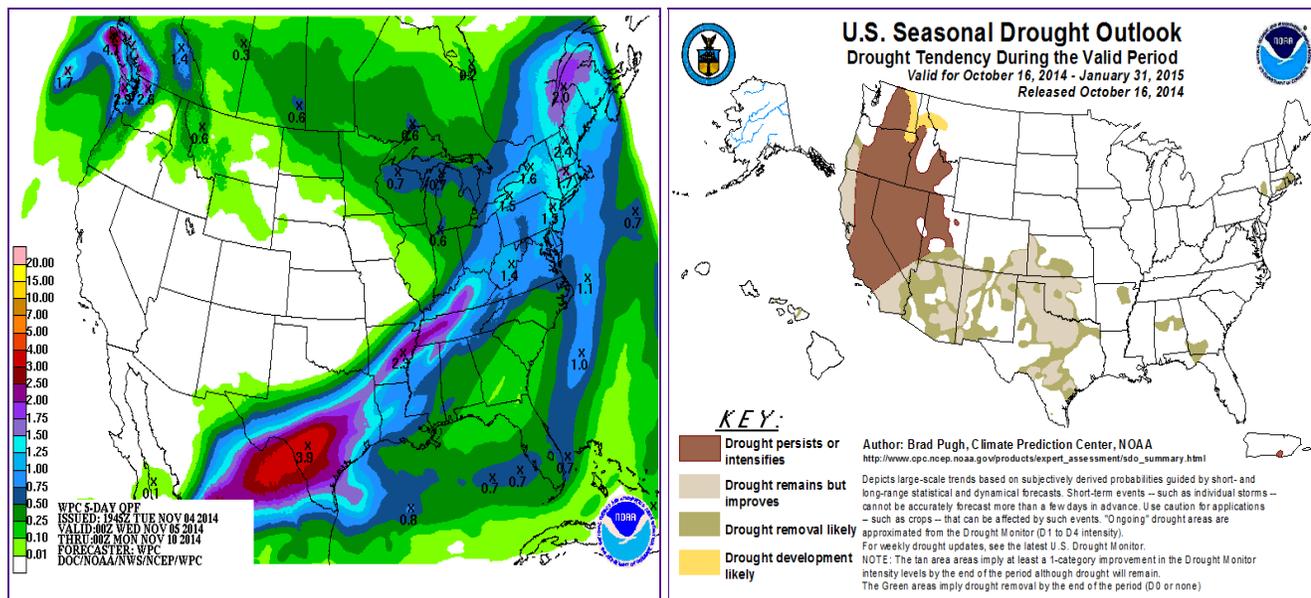
- The UCRB saw above average temperatures last week. Southwestern WY and northeastern UT saw 2 to 4 degrees above average. Much of western CO, along with eastern Sweetwater County, WY and San Juan County, UT were 4 to 6 degrees above average.
- The San Juan Mountains and San Luis Valley saw temperatures 6 to 8 degrees above average.
- East of the divide temperatures were 2 to 4 degrees above normal over most of the areas. Northeastern CO saw temperatures 0 to 2 degrees above average, with an area through Yuma and Logan counties with 0 to 2 degrees below average. Southeastern CO saw temperatures 2 to 4 degrees above average.

Last Month Temperatures:

- October temperatures in the UCRB, Wyoming and Colorado were above average.
- Most of the basin saw temperatures 2 to 4 degrees warmer than average, with southwestern WY up to 8 degrees above average. There was an area of 0 to 2 degrees above average that caught Duchesne, Uintah and Grand counties in UT and Mesa and Garfield counties in CO.
- Eastern CO also saw 2 to 4 degrees above average for October. Southeastern WY and northern CO were warmer up to 6 degrees above average.



The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the 3 months Precipitation outlook. 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.

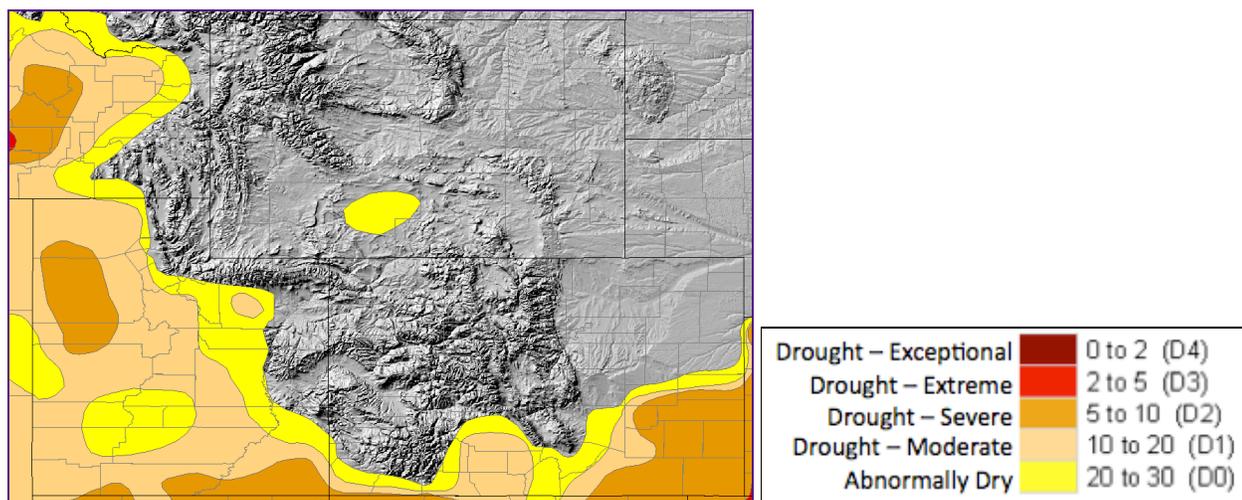


Short Term:

- A weak weather disturbance may come into the north-central Colorado mountains Wednesday morning. This may bring some isolated shows and cloud cover to the area. Other than this disturbance, conditions will be dry for the remainder of the week through the UCRB and Colorado.
- Temperatures in the mountains will return to seasonal averages, and above average for the plains.

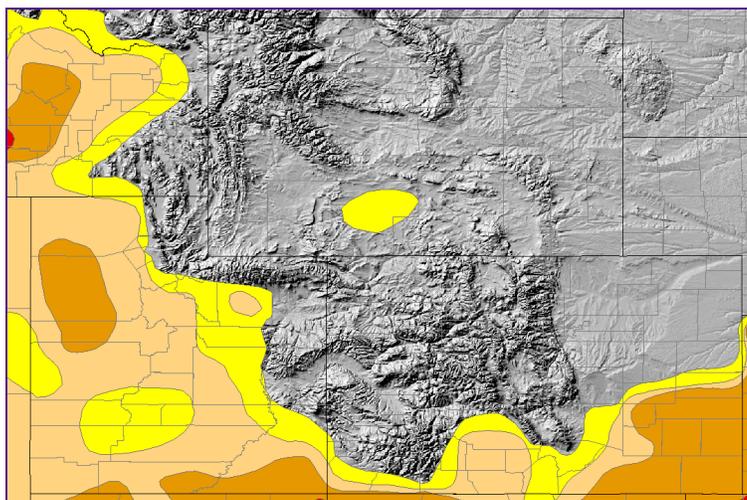
Longer Term:

- The 8-14 day precipitation outlook shows increased chances for below normal precipitation the UCRB and the rest of Colorado.
- The 8-14 day temperature outlook shows increased chances for above normal temperatures in the UCRB and east of the divide. The eastern edge of Colorado is currently showing a chance for normal temperatures.
- The CPC 3-month outlook shows equal chances for wetter or drier than normal conditions over the UCRB in Utah, Colorado, and Wyoming, with chances of above average precipitation over southern UT and CO.
- The seasonal drought outlook indicates that drought is expected improve or be removed in southeast Colorado, the Four Corners Region, and the San Luis Valley. There is now hints that drought may persist or intensify in northeast Utah.



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 for November 4, 2014:

Warm temperatures have persisted over the area the past week. A few disturbances brought beneficial snow to the high county in Colorado and northern Utah, however remained dry over much of Wyoming. The most precipitation fell in the San Juan mountains, bringing much need snow to the area. Snowpack over much of the mountains is still very low with most of the basins below 50%. The Front Range saw the first widespread snow, however there was little to no measurable accumulation.

October saw a dry month for much of the Upper Colorado River Basin and northeastern CO. Southeastern CO saw some much needed normal or above normal precipitation, however much of this precipitation fell early in the month and this area has been drier and warmer for the end of the month.

Recommendations:

UCRB:

Status Quo: The areas of the UCRB that received substantial precipitation over the past week are not currently in drought.

We are still keeping a close eye on the Four Corners Region as it sits in a gradient zone between abnormally dry and severe drought conditions. Should the above average temperature and below average precipitation conditions persist some degradations will be needed.

Eastern CO:

Status Quo: Warm, dry conditions across Eastern Colorado over the last three weeks don't justify making any improvements in southeast Colorado at this time. Ground reports indicate drought persists in this region and the current picture, based on the long duration of the drought, is accurate.

****Disclaimer:** The above recommendations are **recommendations only**, based on data, impacts, and input from local experts. These recommendations are sent to the U.S. Drought Monitor author on Tuesdays. The USDM author has sole discretion on final changes made in the region and can accept, reject, or modify the above recommendations and may have additional modifications. Additionally, any recommendations discussed during the NIDIS webinars that are agreed upon by the local experts and USDM author are **still subject to change**. Changes are final and official as of Thursday morning, and can be viewed on the official [U.S. Drought Monitor](http://www.drought.gov) website.

Additional Drought Index Links: (will take you to an outside website)

- [Palmer Drought Severity Index for Climate Divisions Updated Weekly](#)
- [WestWide Drought Tracker's PDSI Updated Monthly](#)

 [Surface Water Supply Index](#)

 When available, maps and text are updated Tuesday afternoons.

 [View Printer Friendly Version](#) of current Drought and Water Assessment

 [View PDF](#) of current Drought and Water Assessment

 [Summary Archive](#)