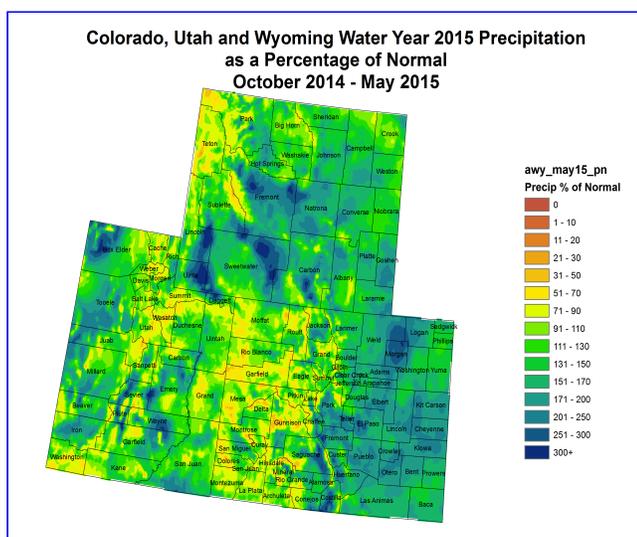
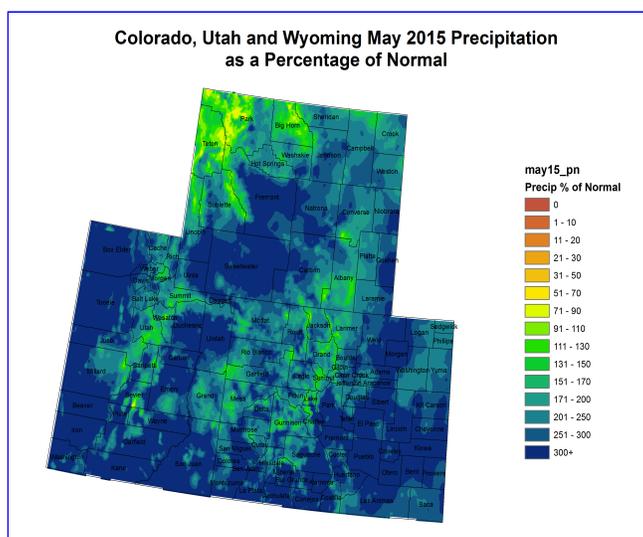
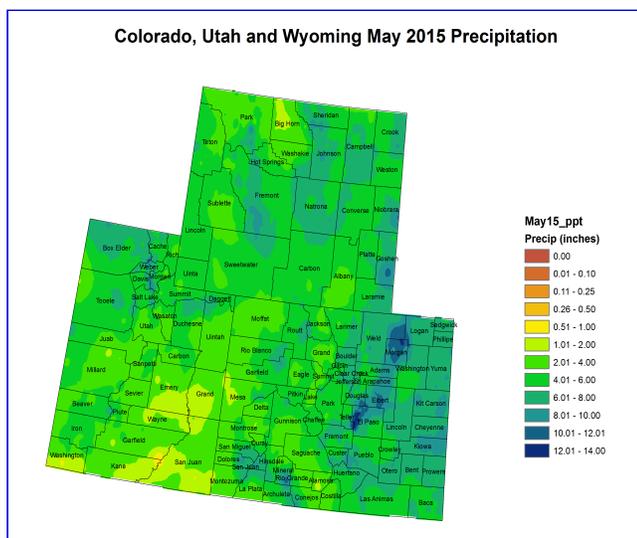
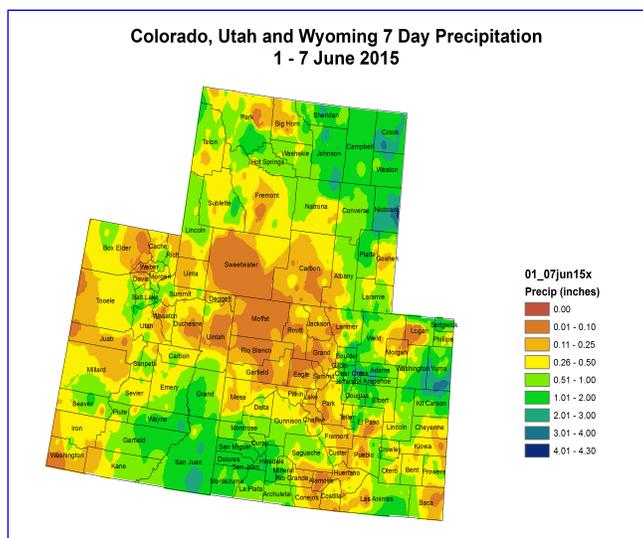


# PRECIPITATION



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 was drier this week, seeing less than 0.50 inches over much of the basin. Sweetwater County saw a large area of no precipitation. Parts of Lincoln and Sublette County did see up to 1.00 inch last week.
- Northeast Utah saw 0.10 to 1.00" of precipitation with the majority in the 0.25 to 0.10 inch range. The driest area was in Duchesne and Uintah Counties, seeing less than 0.10 inches in large areas of the counties.
- Conditions farther south in Utah were wetter last week, with

southeastern Utah receiving between 1.00 to 2.00 inches over much of the area.

- This precipitation also was picked up in southwestern Colorado, seeing between 0.50 to 2.00 inches over the week.
- The San Luis Valley was mostly with precipitation totals mostly under 0.25" for the week. Saguache County was a bit wetter seeing between 0.50 and 1.00 inches.
- The Central Rockies into northwestern Colorado were also dry, seeing less than 0.25 inches in most areas. Moffat and Rio Blanco Counties saw a large area with no precipitation over the last week.
- Northeast Colorado saw a mix of dry and wet conditions as the past week brought a return to the convective thunderstorm season. Much of the area saw at least 0.50 inches, with the highest totals over 2.00 inches in Adams, Arapahoe, Yuma, Washington and Kit Carson areas.
- Southeast Colorado also experienced some convective storms that were hit and miss. The wettest areas were in Las Animas and Pueblo Counties where totals were between 0.50 to 1.00 inches for the week. The rest of the area received less than 0.50 inches.

### **May Precipitation:**

- May was a very wet month across the entirety of Colorado and the Upper Colorado River Basin.
- There was less of an elevation gradient in precipitation than is climatologically normal. The high elevations of the Wasatch, Uintah, and Rocky Mountain Ranges picked up between 90 and 150 percent of their May average places, but lower elevations were above 300 percent of May average precipitation in many areas.
- The Upper Green River Basin in Wyoming received mostly above normal May precipitation. Higher elevations were between 90 and 150 percent of normal. Lower elevations were generally 150-300+ percent of normal for the month.
- Eastern Utah was nearly unanimously way above normal for the month of May. Higher elevations in the Wasatch and Uintah Ranges as well as parts of Grand and Emery County received a smaller fraction of their average precipitation than other areas in eastern Utah, but were still between 90 and 200% of May normals. The bulk of Duchesne, Uintah, and San Juan Counties were over 300 percent of normal for the month of May.
- Western Colorado percents of normal decrease with elevation, and increase from north to south. The San Juans picked up over 300 percent of normal for May across most of the range. In northwest Colorado May percents of average were more typically between 150 and 250 with isolated areas higher or lower.
- The central and north central Rockies received lower percents of May average precipitation than surrounding areas. In Lake and Summit Counties precipitation was between 70 and 200 percent of normal.
- The Rio Grande Basin received by and large over 300% of their average May precipitation.

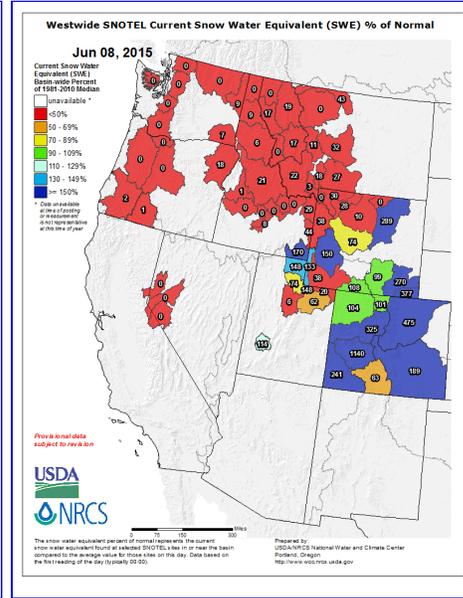
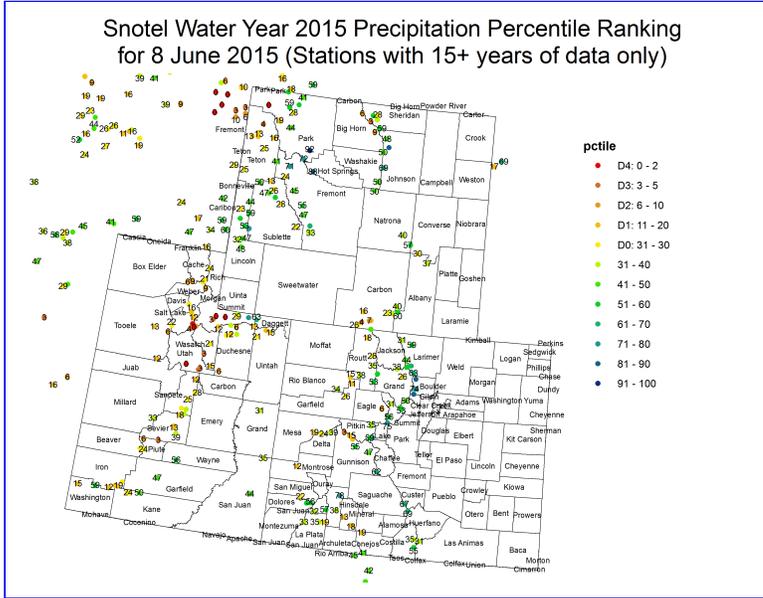
- East of the Divide, precipitation percentages of normal were over 200 pretty much across the board. This is especially impressive as May is one of the wettest months across eastern Colorado, and the wettest month climatologically in some areas. Parts of Douglas, Jefferson, Boulder, and Larimer Counties that are a little higher in elevation only picked up 150-200% of May average precipitation.

### **Water Year 2015 Precipitation (Oct-May):**

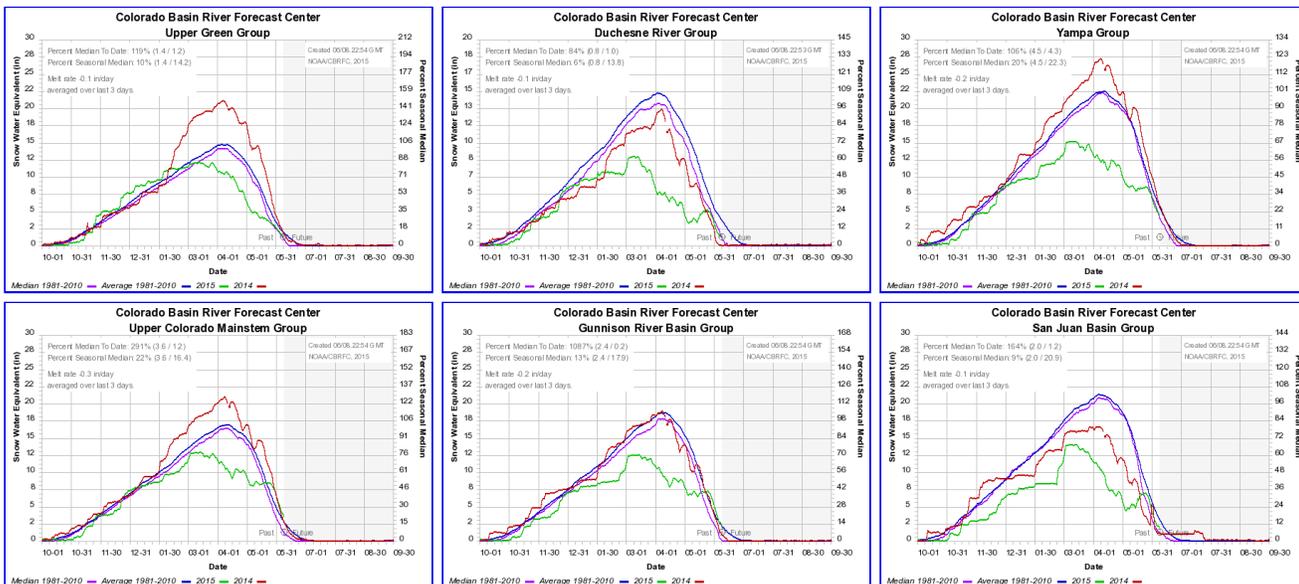
- Following a very wet May in which lower elevations in the UCRB and eastern Colorado picked up lots of precipitation, and following a dry winter, the water year to date precipitation map looks similar to a topography map. This is because, for the most part, higher elevations have not received as high a fraction of their normal precipitation for the water year to date as low elevations.
- The Upper Green river basin shows a very mixed bag of conditions. Eastern Uinta and Lincoln Counties have received over 300% of their normal water year to date precipitation. Northeast Sublette County and northwest Lincoln County, however, have only received 50-70% of their normal water year to date precipitation.
- Over northeastern Utah the Wasatch and Uintah Mountain Ranges have by and large received only 50-90% of their normal water year to date precipitation. Lower elevations of eastern Utah show a wider variety of conditions all the way from western Grand County, which has picked up 70-90% of normal precipitation for the water year to date to southcentral Wayne County, which has picked up over 250% of normal precipitation for the water year to date. The most common percents of normal for the water year to date in eastern Utah are 90-150.
- Much of Western Colorado is still on the dry side with the most area in the 70-90% of normal range. Some of the areas that still show up very dry are in western Gunnison County, northern Delta County, and northern Mineral County where only 30-50% of normal precipitation for the water year to date has been received. There are wet areas as well such as eastern San Miguel County, which has had 170-200% of normal precipitation for the water year to date.
- Much of Western Colorado has seen below normal precipitation, with much of the area in the 50%-70% of normal range, and some spots through the basin seeing less than 50% of normal. Portions of Moffat, Routt, and Rio Blanco counties are near or slightly above normal.
- The Rio Grande Basin is still on the dry side at higher elevations. The Sangre de Cristo Range is hovering in the 50-90% of average ballpark for the water year to date, but the valley in western Costilla County is above 200% of average.
- Eastern Colorado is now above average for the water year to date across the board following a very wet May. Most of the region is between 130 and 200 percent of the normal for the water year to date. Morgan County is at over 250 percent of average for the water year to date following record rains in May. The driest area of

eastern Colorado with respect to average is Phillips, northern Yuma, and eastern Washington Counties where only 110-130 percent of normal precipitation has been received for the water year to date.

# 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:

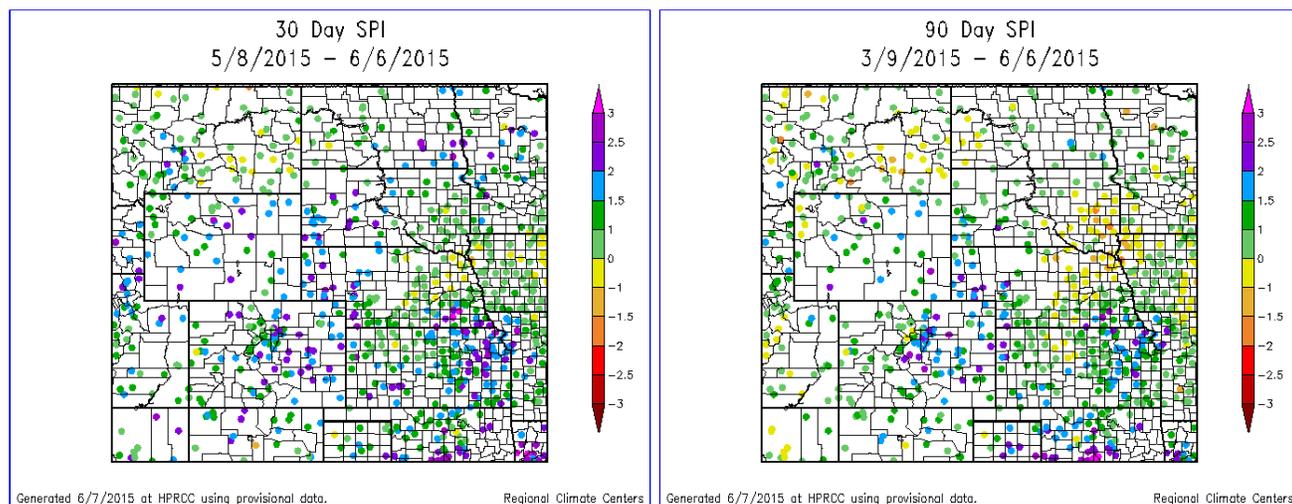
- SNOTEL year to date percentiles across much of the UCRB saw quite a rebound this last week.

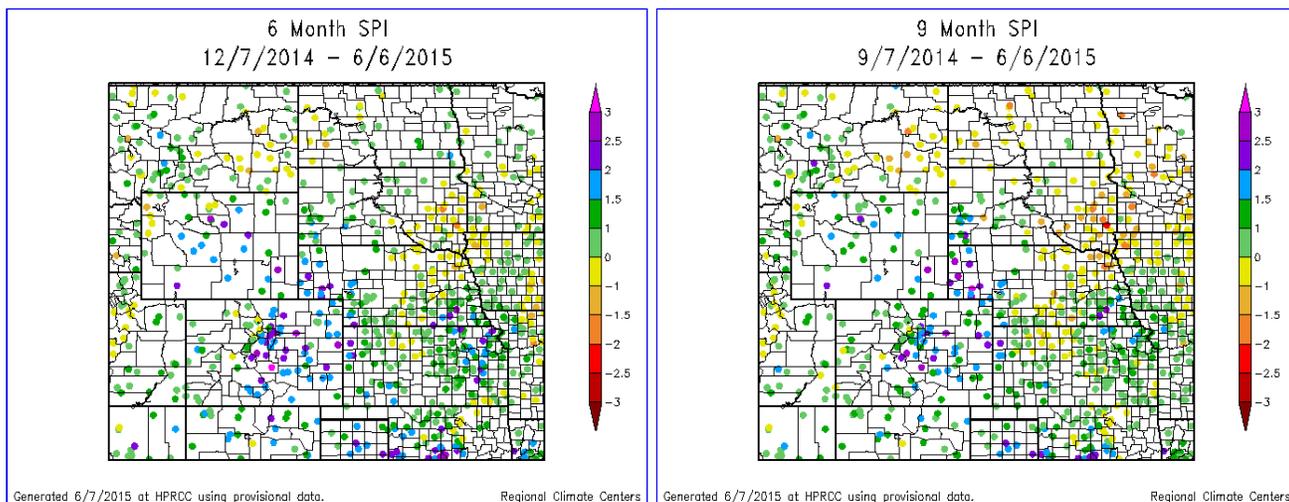
- In the Upper Green the percentiles are mostly in the median range between the 32nd to the 59th. Some Snotel sites in eastern Sublette County area a bit lower, down to the 22nd.
- The Wasatch and Uintahs are still showing drier percentiles ranging from the 0 to 63rd, but mostly in the 0-20 range. Many of the percentiles that were the 0th are now in the single digits and teens.
- The northern mountains in Colorado west of the Continental Divide are showing percentiles between the 11th and the 53rd. The Percentiles in the teens and 20s are mainly in eastern Rio Blanco, Garfield and Routt counties.
- The lower elevations of the Colorado and Gunnison are still seeing percentiles below the 39th percentile, however sites along the divide are in the normal range.
- The San Juans are reporting mostly below the 40th percentile, with a number of snotel sites in the northern San Juans above the 50th percentile.
- The Sangre de Cristo mountains in SE Colorado are near average with percentiles ranging from 35th to 69th.
- The South Platte stations are all mainly at or above the median.

### SWE Timeseries Graphs:

- All sub-basins are well into the melt season.
- The peak snowpack was 85% of normal.
- The peak snowpack was 63% of normal.
- The peak snowpack was 68% of normal.
- The peak snowpack was 79% of normal.
- The peak snowpack was 70% of normal.
- The peak snowpack was 67% of normal.

## 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):

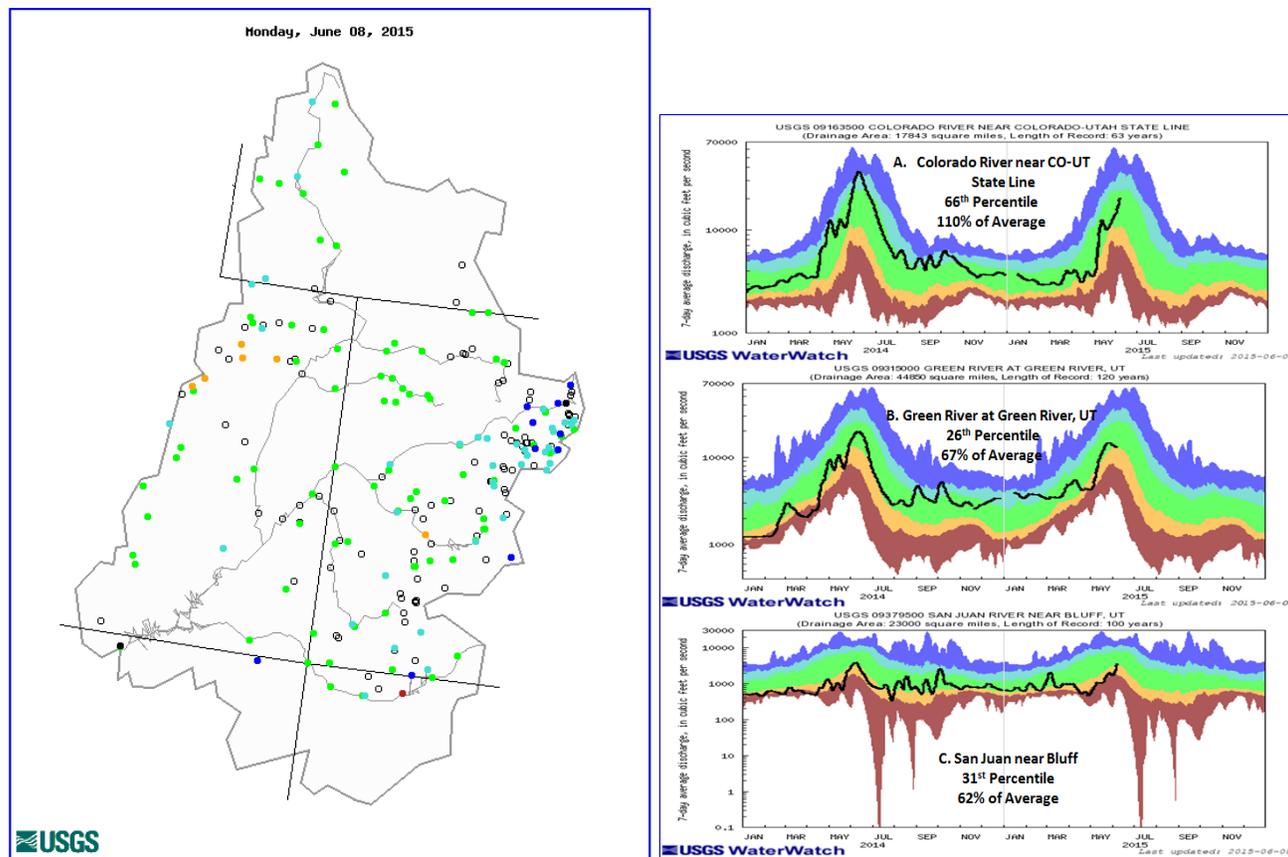
- All SPI's are showing up positive in the UCRB on the 30-day timescale. All SPI's are above normal in eastern Colorado on the 30-day timescale.
- The Upper Green river basin is showing wet SPI's between +1.5 and +2.5
- Northeast Utah is showing wet SPI's between +1 and +2.5
- Southeast Utah is showing wet SPI's between +1 and +2.5
- Northwest Colorado is showing wet SPI's between -1 and +2.5
- Southwest Colorado is showing wet SPI's between +1 and +2.5
- North central Colorado is showing wet SPI's between 0 and +2.5.
- South central Colorado is showing wet SPI's between 0 and +3.
- East of the divide, all SPI's are wet, between 0 and +3 on the 30-day timescale.

### Long Term (6-month):

- On the 6-month timescale SPI's are more of a mixed bag for the UCRB, but generally wet, with some of the higher elevations sites slightly dry.
- The Upper Green has SPI's ranging from 0 to +2.5.
- NE Utah shows some longer term dryness with SPI's ranging from -1 to +1.5
- Southeast Utah has been in the normal range, and is reporting SPI's between 0 and +1.5
- Western Colorado saw some improvement with the majority of SPI's between -1 and +2. The driest are in Routt, Gunnison, Grand and Summit counties.
- In central Colorado SPI's are generally very positive between +1.5 and +3. Fremont County is above +3.

- Eastern Colorado, all SPI's are wet, even on the 6-month timescale. They range from 0 to +2.5.
- The Rio Grande basin is wet for long term SPI's, +1 to +2.5

## 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		

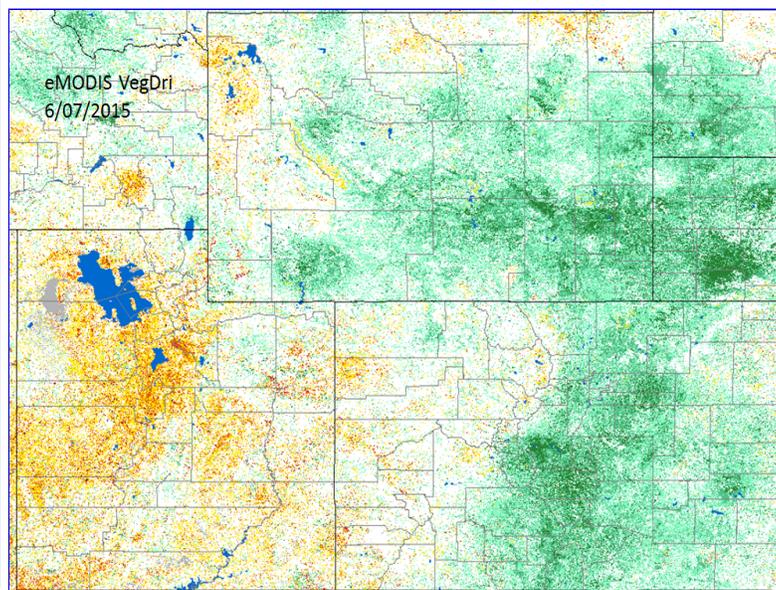
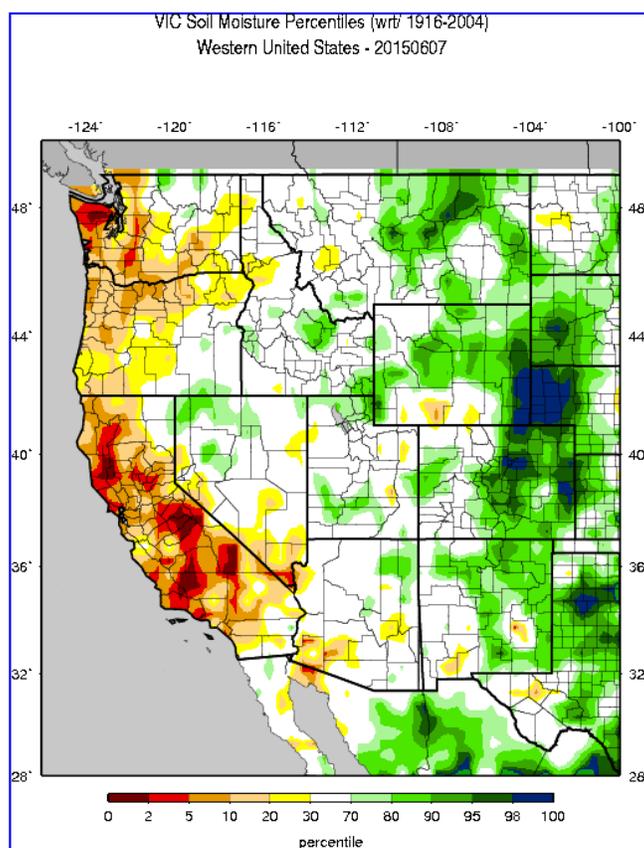
The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff,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

### Streamflow Statistics:

- Following some higher temperatures a greater percentage of gages are back in the normal and above normal ranges.
- 93% of the gages in the UCRB are reporting in the normal to much above normal range for 7-day average streamflow. 1 of the gages in reporting high for 7-day average streamflow.

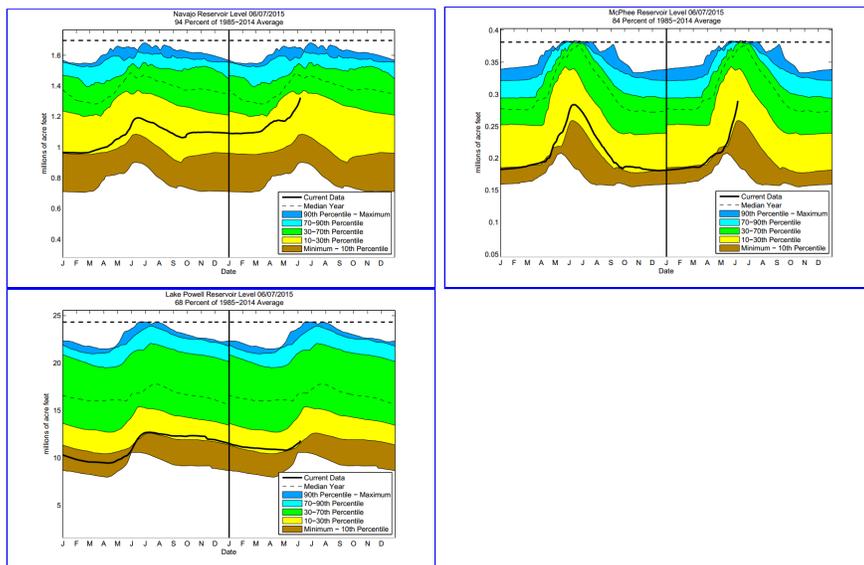
- 6% of the gages are recording below normal for 7-day average streamflow,.
- Streamflow on the Colorado River near the CO-UT state line is now at the 66th percentile, 110% of average.
- The Green River at Green River, UT has shown a slight decrease in flow and now in the below average flow. Currently the river is at the 26th percentile, or 67% of average.
- Flows along the San Juan have increased over the past week, and are just in the normal range at the 31st percentile, 62% of average.

## 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).





## VIC:

- Soils are mostly wetter than average in the Upper Green River Basin. Much of Sublette, Lincoln, and Uinta Counties are above the 70th percentile. A blemish of dry soil in the 5th-30th percentile range still shows up in southeastern Sweetwater County.
- Soils in northeastern UT are mostly in the average range. The southern part of Wasatch range is showing wetter soils, in the 70th to 90th percentile.
- Southeast Utah is also showing soil moisture mostly in the normal range.
- Western CO soils are mainly in the normal to above normal range. Most of Mesa, Garfield, and Rio Blanco Counties are above the 70th percentile.
- The San Juan Mountain region is now completely in the normal range.
- The San Luis Valley is mostly in showing some wet soils, in the 70th to 90th percentile
- Eastern Colorado is showing almost completely wet soil conditions. Much of NE Colorado has soil moisture percentiles above the 80th percentile, with a large area in NE Colorado above the 90th percentile focused in Arapahoe, Adams, Morgan, and Weld Counties. Soils over SE Colorado are now above the 70th percentile, with a small area of normal soil moisture.

## VegDri:

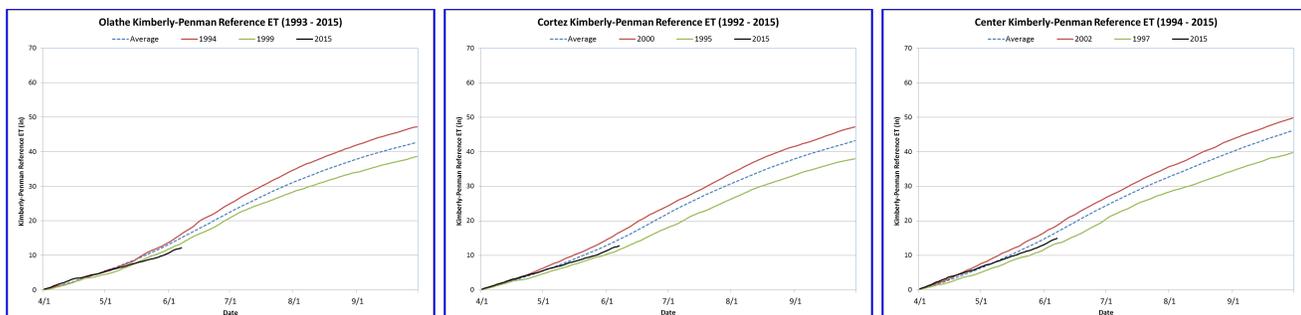
- The VegDri shows moist conditions over central and western Sweetwater County.
- The Upper Green River Basin shows mostly normal vegetative health conditions with some isolated areas of pre to moderate drought.
- The Wasatch Mountains are depicted in pre to moderate drought. The Uintah Mountains are doing better now, and have rebounded mostly into the normal range, with some pre-drought in the

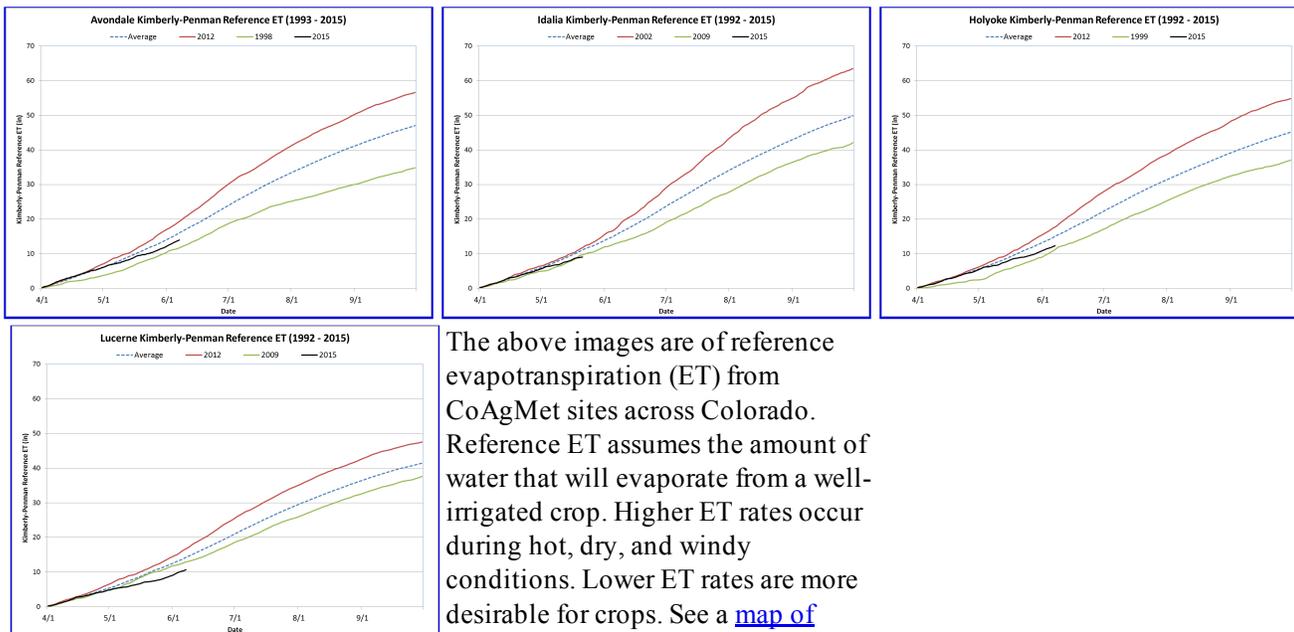
- northwestern part of the range.
- The VegDRI indicates a mixed bag of drought to moist conditions in the Duchesne River Basin.
  - In southeast Utah vegetative health is depicted mostly in pre-drought. This area doesn't have a lot of vegetation.
  - VegDRI is shown in the pre-drought range in most of far western Colorado.
  - In northwest Colorado, vegetative health is primarily depicted in the normal range, but starting to show some pre drought conditions, especially in Moffat and Rio Blanco Counties. There is now some pre and moderate drought showing in small areas of Routt, Grand, Summit and Eagle counties.
  - The high mountain valleys in central Colorado are depicted as especially moist. This includes Chaffee, Park, Teller, Fremont, and Custer Counties. This area of very moist vegetation extends onto the Front Range mainly along the Palmer Divide into El Paso, Elbert, Douglas, Jefferson, Adams, and Arapahoe Counties.
  - East of the Divide, northeastern Colorado is primarily showing moist vegetation with the exception of isolated areas in Sedgwick, Phillips, Yuma and Washington counties where conditions are shown as pre drought to normal.
  - In southeast Colorado conditions are now mostly moist now. Southern Lincoln County is mostly in the normal range with some very spotty pre and moderate drought.

## Reservoirs:

- Flaming Gorge is 101% of the June average.
- Green Mtn is 90% of the June average.
- Lake Granby is 116% of the June average.
- Blue Mesa is 99% of the June average.
- Navajo is 89% of the June average.
- McPhee is 85% of the June average.
- Lake Powell is 60% of the June average and is 48% full, up from 47% full from last week.

## EVAPOTRANSPIRATION



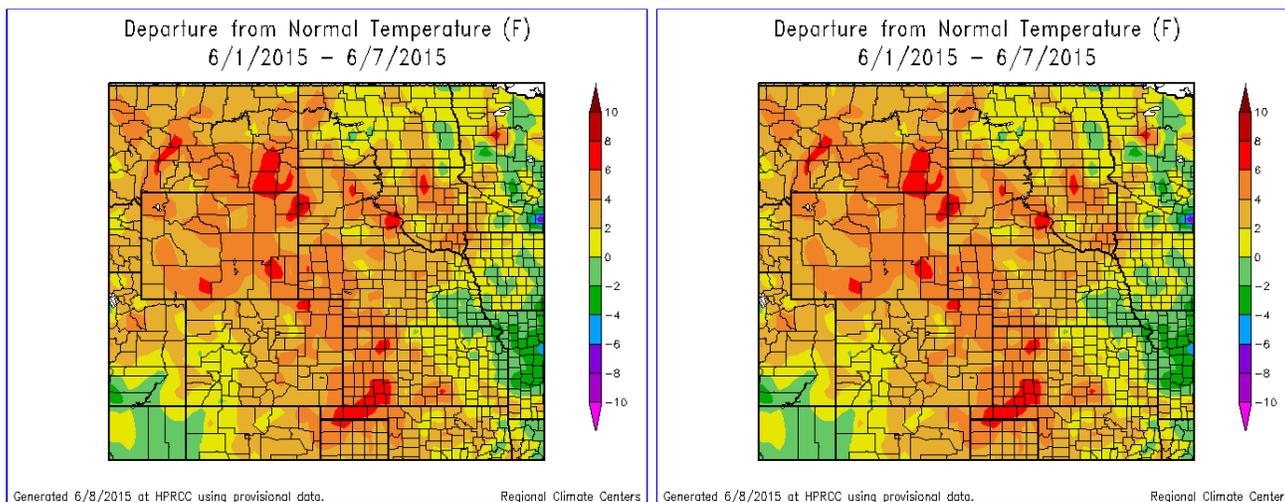


The above images are of reference evapotranspiration (ET) from CoAgMet sites across Colorado. Reference ET assumes the amount of water that will evaporate from a well-irrigated crop. Higher ET rates occur during hot, dry, and windy conditions. Lower ET rates are more desirable for crops. See a [map of locations](#) for the above ET sites.

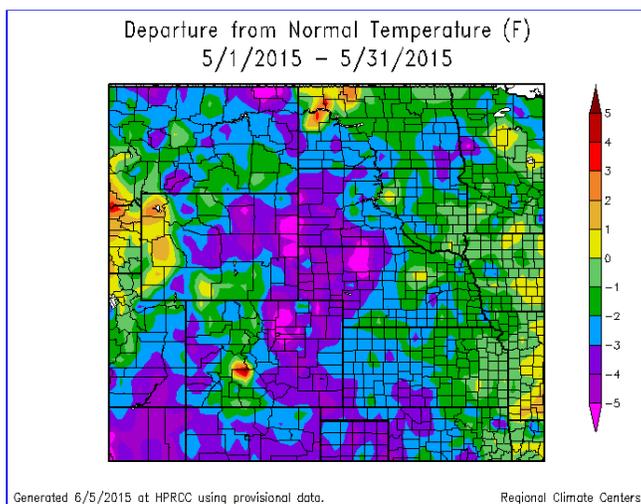
### Reference Evapotranspiration:

- Olathe: ET started the growing season at record levels. It tapered instead of accelerating through late April and early May. Now it is tracking at a record low.
- Cortez: ET began a little above normal, but has been tracking below normal since early May.
- Center: ET started at a record high and has slowed considerably, to near average.
- Avondale: ET began just above average, but has slowed to below normal.
- Idalia: ET started near average, and has fallen below average and approaching the record low year of 2009.
- Holyoke: ET started around normal and has dropped below normal since the second week of May.
- Lucerne: ET has been tracking lower than the previous record low year in 2009 since the second week of May.

## 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.



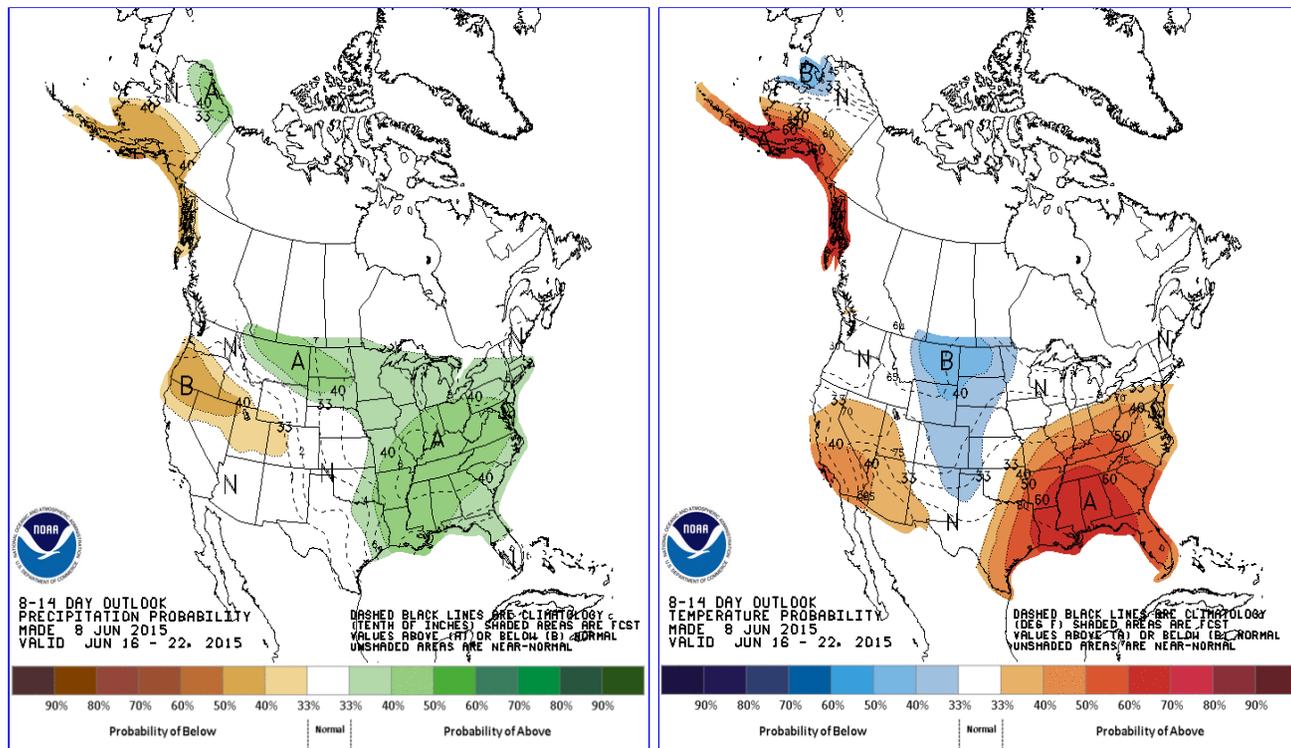
### Last Week Temperatures:

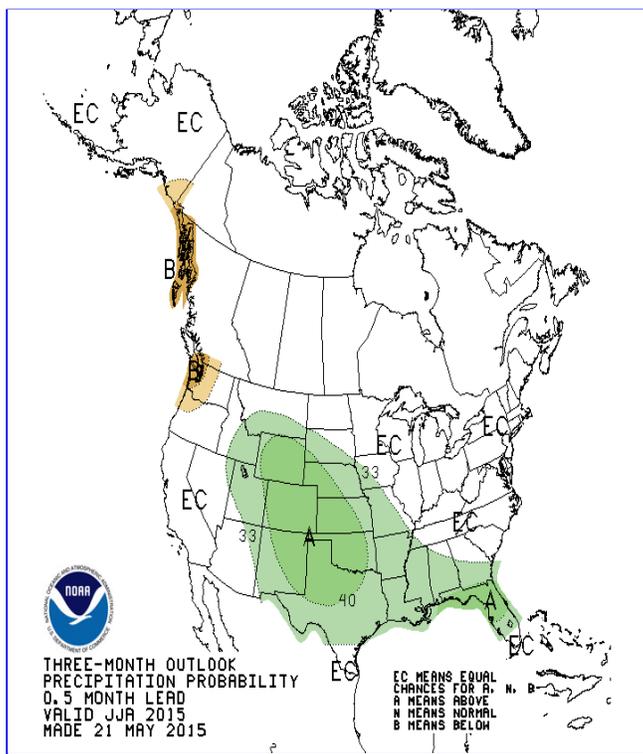
- The majority of the UCRB had above normal temperatures over the past week.
- The Upper Green Basin saw temperatures 2 to 6 degrees above normal. The warmest temperature anomaly was in Sweetwater and Sublette Counties.
- Eastern Utah was mostly 2 to 4 degrees above normal for the week, with the Four Corners area near normal.
- Western Colorado was 0 to 4 degrees above normal for the last week. The northern portion and along the divide saw 2 to 4 degrees warmer, while much of southeastern Colorado was 0 to 2 degrees warmer than normal.
- East of the divide temperatures were also mostly 2 to 4 degrees above normal. Northeastern Colorado was warmer seeing 4 to 6 degrees above normal.

### May Temperatures:

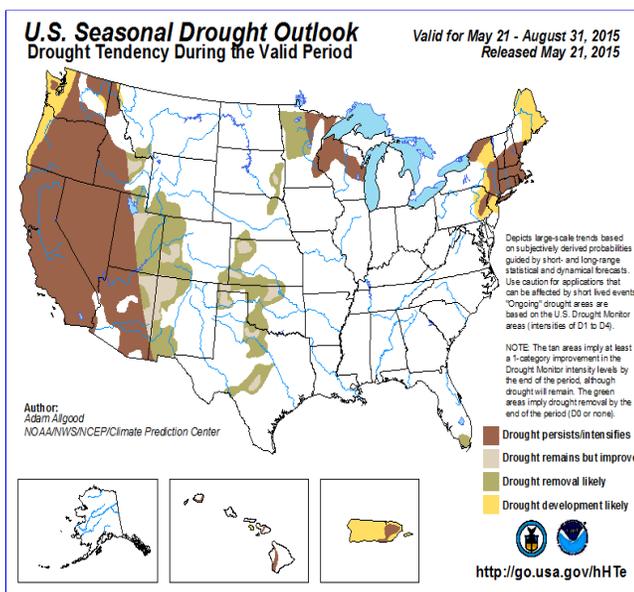
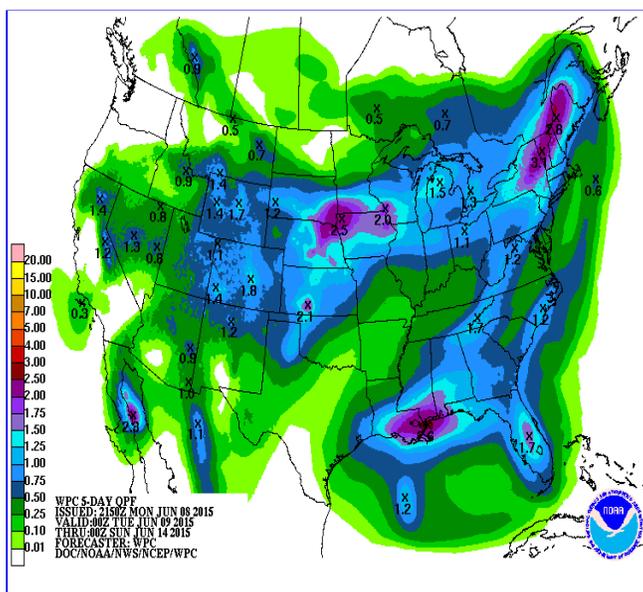
- The month of April saw mostly below normal temperatures across the UCRB. Sublette County, and northern Lincoln County were 0 to 2 degrees above normal, but the rest of the basin was below normal.
- Eastern Utah experienced temperatures 0 to 4 degrees below normal for the month of May. Temperatures were closest to normal in the far west of the basin along the Wasatch Range. A small area of eastern Utah near Lake Powell was 4-6 degrees below normal for the month.
- Western Colorado was 0-4 degrees below normal for the month of May with temperatures close to normal close to the continental divide.
- East of the Divide temperatures for the month of May were 2-6 degrees below normal. The coolest temperature anomalies were along the northern Front Range and in Crowley and Otero Counties in southeastern Colorado.
- There is one area in southern Gunnison and northern Saguache Counties that is showing above average temperatures for the month of May. This is believed to be caused by a malfunctioning weather station.

## FORECAST AND OUTLOOK





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: (6/9)**

- Currently most of the UCRB and Colorado east of the divide are experiencing warm, dry conditions. This is changing starting tonight for southeast Utah and southwest Colorado as a weak low pressure disturbance moves into the region and forces some ascent. Over the next three days this low will track across the basin and

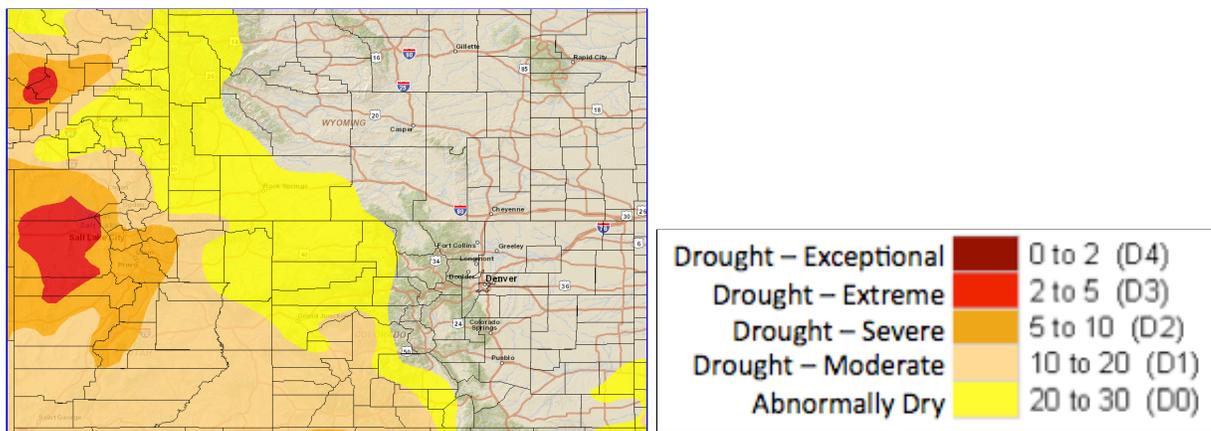
eject onto the plains. Much of the UCRB, and Colorado east of the divide, are forecast to receive over half an inch of rainfall over this time frame. The driest area will likely be the San Luis Valley. The wettest areas are forecast to be the San Juan Mountains, southeast Colorado close to the wet mountains and Sangre De Cristos, and the northern Rockies. Here over an inch may fall over the next three days.

- Moving into this weekend conditions dry out across the basin in the wake of this low pressure, but temperatures should be a little below average. There is a bit of reintensification forecast along the southwest flank of the surface low, which may keep south and central Colorado wet over the Friday and Saturday time frame. Areas in the southern Rockies and Sangre de Cristos may receive over half an inch of additional accumulation. On the eastern plains afternoon showers will still be possible, especially in southeast Colorado.
- Sunday into Monday temperatures are forecast to make a bit of a comeback across the basin. Conditions are forecast to be mostly dry west of the divide, especially in the lower elevations, which is normal for this time of year. The wettest areas Sunday into Monday will be east of the divide in south and south-central Colorado. Widespread precipitation totals over a quarter of an inch are expected with isolated areas receiving over half an inch.

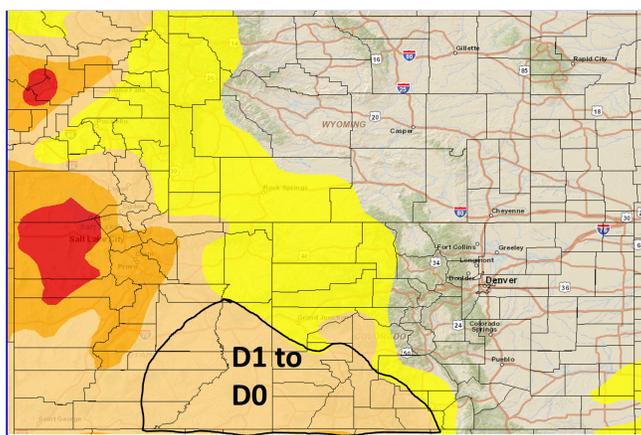
### **Longer Term:**

- The 8-14 day precipitation outlook shows increased chances for below average precipitation for the central Upper Colorado River Basin. The rest of the UCRB, and Colorado east of the divide, are forecast equal chances of above and below average precipitation.
- The 8-14 day temperature outlook shows increased chances of above average temperatures for the extreme southwest portion of the UCRB, and increased chances for below average temperatures for the northeast portion of the UCRB. The rest of the basin has equal chances of above and below average precipitation. East of the divide the CPC is showing increased chances for below average temperatures on the 8-14 day timescale.
- The Climate Prediction Center 3-month precipitation outlook shows increased chances for above normal precipitation for the entirety of the UCRB, and the area in Colorado east of the divide for the June to August period. These chances are forecast above 40% for all of Colorado except the four corners, extreme northeast Utah, and the eastern portion of the Upper Green River Basin.
- The seasonal drought outlook indicates that drought removal is likely for the areas of the UCRB in a current drought category of D1 or D0. Areas currently in D2, or that were only removed from D2 two weeks ago, are forecast to see improvement. Drought removal is also forecast as likely where D0 remains over southeastern Colorado.

# 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 for June 9, 2015:

The last week brought warmer temperatures over most of the Upper Colorado River Basin (UCRB). The week was also drier with spotty precipitation. The exception was the southern portion of the basin where widespread precipitation up to 2.00 inches fell. This area also saw closer to average temperatures. With the increase in temperature over the, snowmelt once again picked up and most of the rivers are seeing increased streamflow. Reference Evapotranspiration rates through Colorado continue to be below average or the lowest year on record.

Eastern Colorado saw a return to the convective season, bringing spottier precipitation from what was seen through May. Temperatures were also on the increase the last week for eastern Colorado.

## Recommendations:

**UCRB:** An improvement from D1 to D0 in southwestern Colorado and southeastern Utah is recommended. After a week of beneficial, above average precipitation in the area, this improvement is justified. We are recommending the area of D1 in Delta, Mesa, Gunnison, and the small

portion in Pitkin counties to remain. This area did not see the same beneficial precipitation.

**Eastern CO:** Status Quo. There is still a patch of D0 in southeaster Colorado. This area was dry the last week, however looking ahead to the forecast, the possibility to remove the D0 next week is there.