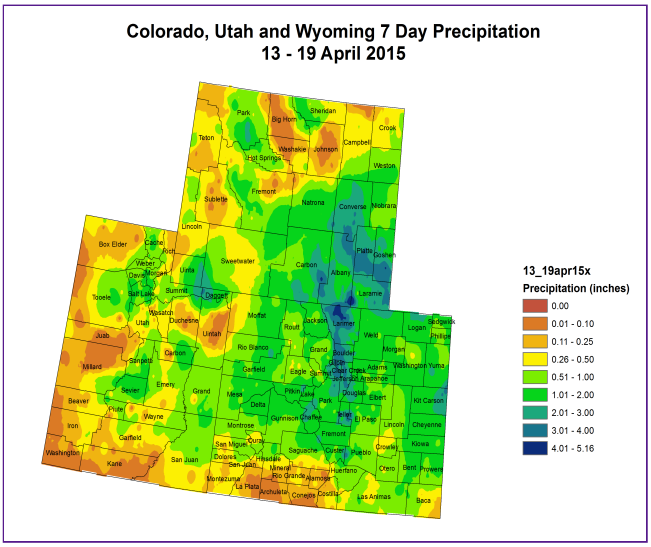
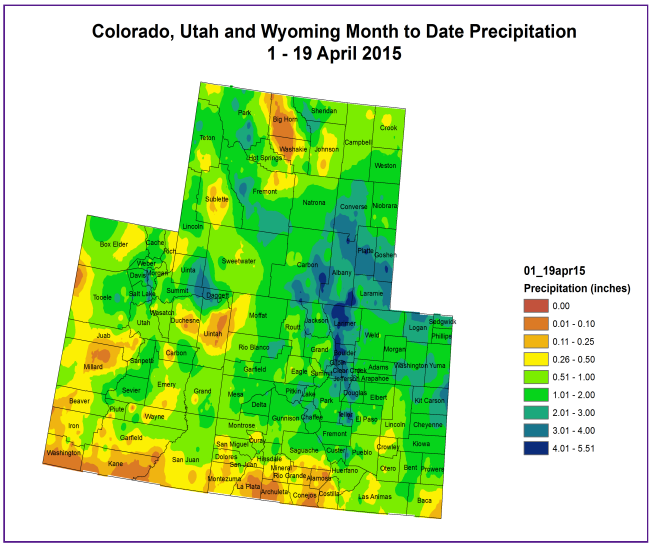
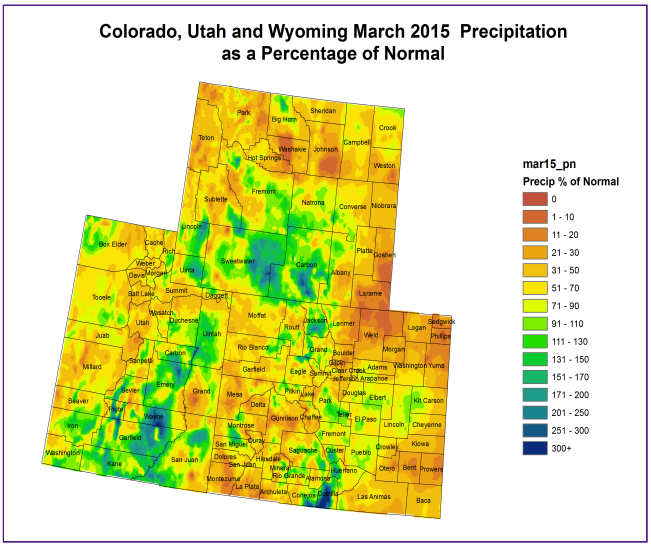
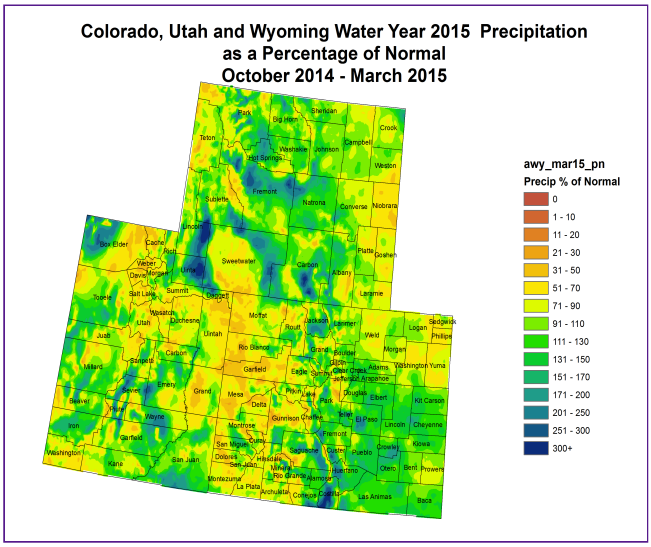
PRECIPITATION









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:

- Widespread precipitation fell over much of the region over the past week.
- The Upper Green River basin mainly saw precipitation on the border of Fremont/Sublette counties and over Uinta/Sweetwater county where over an 0.50" up to 3" of precipitation fell.
- Over the Wasatch range, 0.5-1.00" of precipitation fell and the Uintah mountains saw 0.50-4" with a bullet of 3-4" between Summit and Daggett counties.
- Eastern Utah from southern Duchesne county south to northern San

Juan county saw 0.5-2.0" of precipitation over the week.
- In Colorado, widespread precipitation fell. 0.5-3" fell from Moffat county south to Montrose county and east to the divide. The highest amounts were observed in Rio Blanco and Chaffee counties.
- From the divide east to the foothills saw the highest amount of precipitation. Larimer county south to Teller county saw 1-5.16" with the highest amounts in the foothills of Larmier county.
- The Eastern Plains also saw widespread precipitation of 0.26-3.00". Kit Carson saw the highest amounts fon the plains where up to 4" fell near the Kansas border.
- Areas that recieved very little precipitation were south of the Uintahs in Utah (Duchesne/Uintah counties) and from the Four Corners east to Costilla county. Those areas saw less than 0.50" over the week.

March Precipitation:

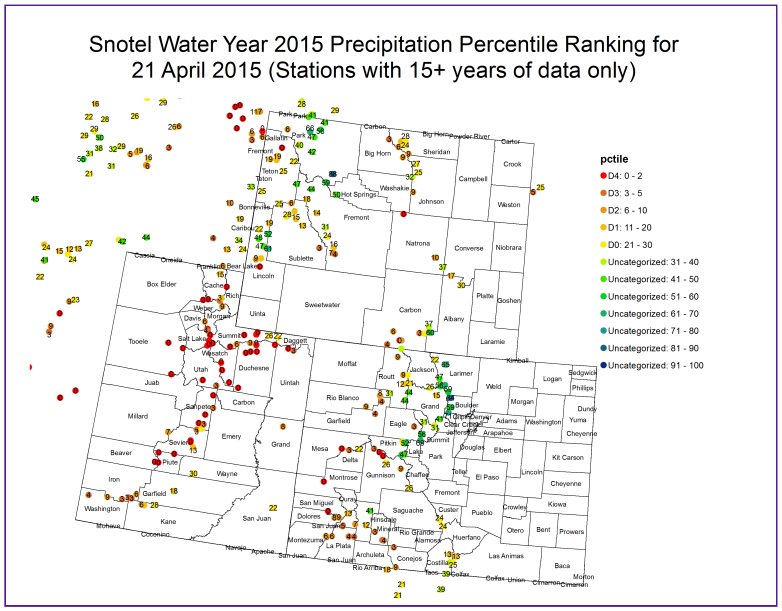
- The headwaters of the Upper Green River received below normal precipitation in most areas with a couple areas above normal in Uintah and Lincoln Counties with up to 150% of normal.
- The Duchesne Basin also received a mixed bag of above and below normal March precipitation. Most of the areas above normal are at lower elevations and do not expect as much precipitation in March. The Uintah Mountain Range only received 30-50% of normal March precipitation.
- The Western Slopes of Colorado were well below average for the month of March. In general, areas received between 30 and 70% of normal March precipitation. There were some spotty exceptions including fractions of Routt, Rio Blanco, Eagle, and Pitkin Counties. South central Montrose County and north central San Miguel County received as much as 170% of normal precipitation for the month of March. The driest areas along the western slopes of Colorado with respect to average were in the Gunnison River Basin, and right near the Four Corners.
- Much like in Utah, the central Colorado Rockies experienced a smaller than average elevational precipitation gradient for the month of march. Valley areas such as the San Luis Valley, the high plains between Cameron and Rabbit Ears Passes, and the high plains between Hoosier and Kenosha Passes experienced above average precipitation for March. In south central Costilla County over 300% of normal precipitation was realized. The higher elevations, however, averaged between 30 and 70% of average precipitation for the month of March.
- Northeast Colorado was dry for the month of March. Areas along the Palmer Divide in Douglas, Elbert, Lincoln, and Kit Carson Counties receieved near normal March totals at 70-110% of average. Farther north conditions were drier. Much of Weld and Larimer Counties received less than 30% of normal March precipitation.
- In southeast Colorado El Paso and Pueblo Counties received at or near average March precipitation, but farther east where areas are

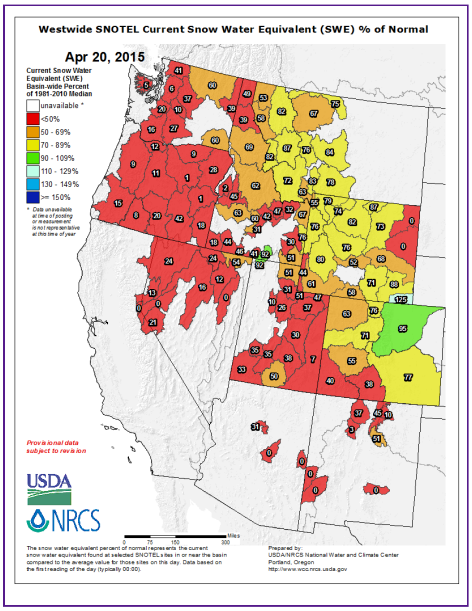
still struggling to come out of drought conditions were drier. Prowers, Bent, and Otero Counties were mostly below 30% of average March precipitation.

Water Year 2015 Precipitation:

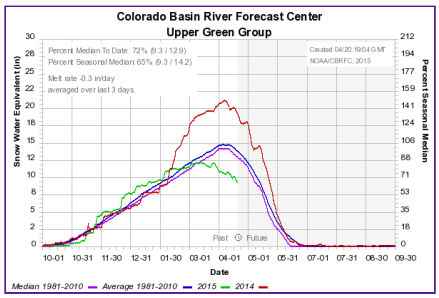
- The Water Year percents of normal have fallen below average for much of the UCRB following a warm, dry winter.
- The Upper Green river basin has seen above normal moisture for the water year through with the exception of south central Sweetwater County which saw 30-90% of normal precipitation.
- Much of Colorado and the UCRB had above average moisture in the mountain valleys, and below average precipitation in the mountains over the month of March.
- The Duchesne River Basin is still near normal for the water year to date in most areas, but parts of northeast Uintah County have seen as little as 30-50% of normal precipitation for the water year to date.
- The headwaters of the Yampa/White have below normal moisture for the water year. Some areas of central Routt County are still holding on to normal precipitation for the water year to date.
- The Upper Colorado has near normal precipitation through Grand/Summit/western Eagle Couties, but dries out considerably west of the headwaters. From Central Eagle down to Mesa County, 30-110% of normal precipitation has fell for the water year through March.
- The San Juan Mountains have seen below normal precipitation for much of the water year. Some areas are near to above normal in Montrose and San Miguel Counties, but the rest of the area is below normal for the water year, mainly 50-90% of normal.
- San Juan County, Utah saw near to above normal moisture with the exception of the northern portion of the county where 50-90% of normal fell.
- The San Luis valley has had well above normal precipitation for the water year to date in some locations. Southern Costilla County has experience over 300% of normal precipitation for the water year to date.
- Much of the Eastern plains are at or above normal for the water year. The driest area is in portions of NE Colorado in Washington/Yuma/Sedgwick and Phillips County which saw 50-90% of normal for the water year.
- The SE plains have seen above normal moisture for the water year, which is much needed and welcomed considering that region has been in drought since September 2010.

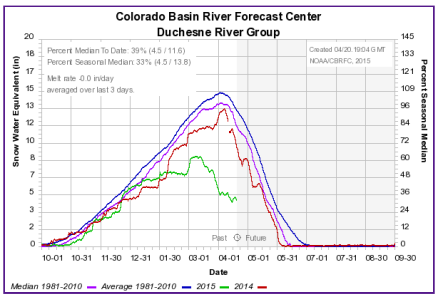
SNOTEL AND SNOWPACK

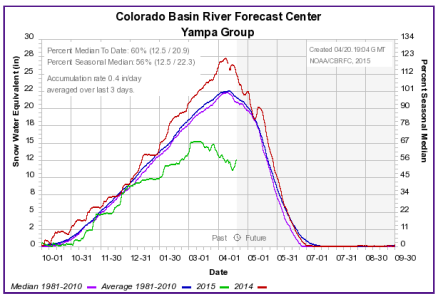


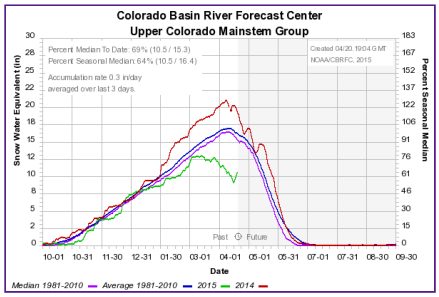


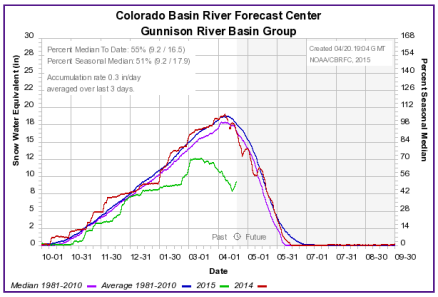
The top left image shows the Natural Resources Conservation Service's SNOTEL water-year-to-date precipitation percentile rankings. The top right image shows sub-basin averaged snow water equivalent accumulations as a percent of average. The images below show accumulated snow water equivalent in inches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

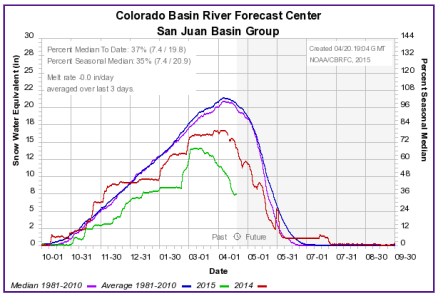












SNOTEL Precipitation Percentiles:

- Even after a good week of moisture, snotel water year precipitation percentile rankings are still lagging over much of the UCRB.
- In the Upper Green the percentiles range from 3rd to 61st with the highest (near the median) in northern Lincoln county, WY.
- The Wasatch and Uintahs are still very dry with percentiles ranging from the 0 to 22nd.
- The northern mountains in Colorado continue to struggle west of the continental divide where percentiles range from 4th to 21st. The two stations on the border of Routt and Grand counties saw improvement to the 44th percentile. Percentiles along and east of the divide in Colorado are near the median.

- The lower elevations of the Colorado and Gunnison are still seeing percentiles bleow the 26th percentile, however sites along the divide are more near normal.
- The San Juans are still reporting percentiles from the 0-13th percentile with one site in Hinsdale county at the 41st (that station has been reporting higher for much of the season).
- The Sangre de Cristo mountains in SE Colorado are slightly better with percentiles ranging from 13th to 25th.
- The South Platte stations are all mainly at or above the median.

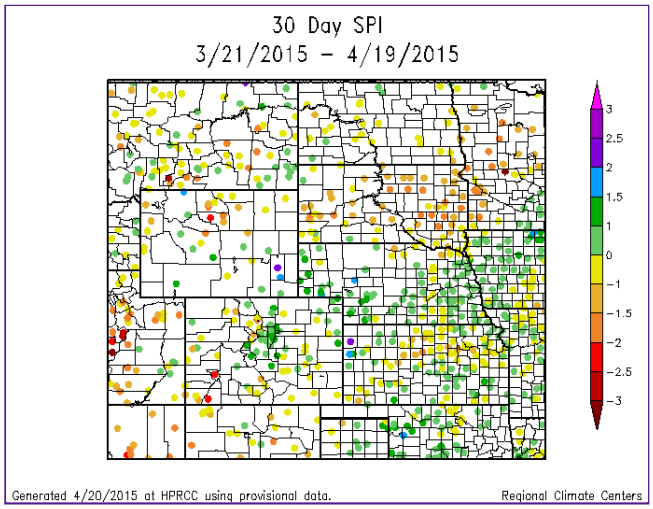
Westwide Snow Water Equivalent (SWE) Percent of Normal:

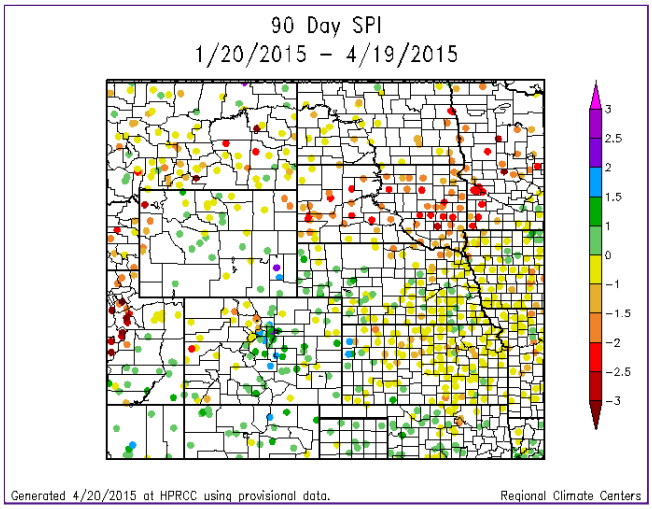
- Snowpack percent of median in the UCRB is now below normal or much below normal in almost all basins even with the widespread moisture over the past week.
- Snowpack in the Upper Green River basin ranges from 44 to 80 percent of median.
- All basins in eastern Utah are much below normal. This area ranges from 7 to 51 percent of normal. Many SNOTEL sites in Utah have seen the earliest melt out of snow on record.
- Western Colorado ranges from 40 to 71% of the median snowpack for the date. The lowest percent of median is along the San Juan, and the highest is in the headwaters of the Colorado River, still driven by the highest elevations.
- The Rio Grande basin is at 38% of median, the Arkansas is at 77% and South Platte is at 95% of median. The Platte, Colorado and Arkansas basins saw the best increases from the storm this past week.

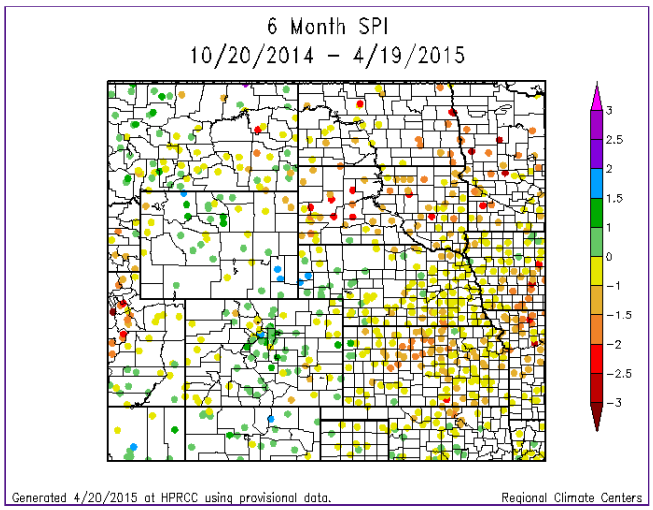
SWE Timeseries Graphs:

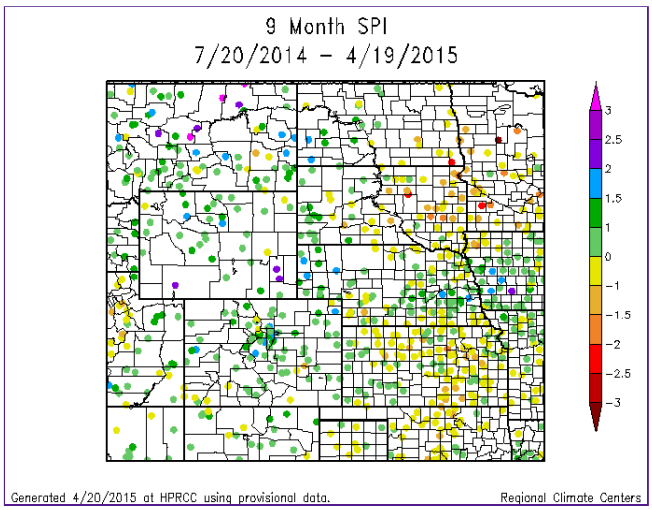
- All sub-basins appear to have begun their melt off, but some have some additional accumulation from the past week. Now that normal SWE is on the recession limb, snowpack percentages should be looked at carefully (i.e. current SWE slighlty increasing as normal SWE is decreasing)
- The Upper Green basin is at 72% of median snowpack for the date. The peak snowpack was 85% of normal.
- The Duchesne basin is at 39% of median snowpack for the date. The peak snowpack was 63% of normal.
- The Yampa-White basin is at 60% of median snowpack for the date. The peak snowpack was 68% of normal.
- The Upper Colorado basin is at 69% of median snowpack for the date. The peak snowpack was 79% of normal.
- The Gunnison basin is at 55% of median snowpack for the date. The peak snowpack was 70% of normal.
- The San Juan basin is only at 37% of median snowpack for the date. 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):

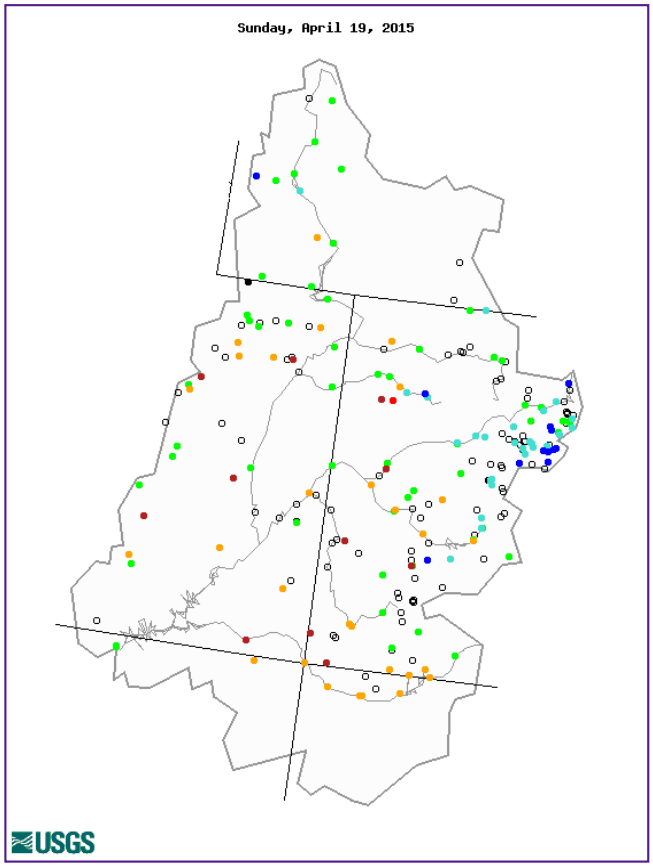
- The Upper Green river basin is showing mostly negative SPI's down to -1. One SPI in Sweetwater County is showing +1.5.
- Eastern Utah is a mixed bag with a few wet SPI's in San Juan, Wayne and Grand counties. The rest of eastern Utah continues to show dry SPI's from 0 to -2. The driest stations are just south of the Uintah mountains.
- Western Colorado is also still mainly dry. Two stations (Rio Blanco and Mesa counties) are positive, while the rest of western Colorado is showing dry SPI's from 0 to -2.5. The driest stations are in the San Juan basin.
- The San Luis Valley is slightly dry for the short term with SPI's ranging from +1 to -1.5.
- NE Colorado saw the most precipitation and many of the SPI's reflect that moisture, however from Weld county south to Lincoln county and east to Logan county is still reporting slightly dry with

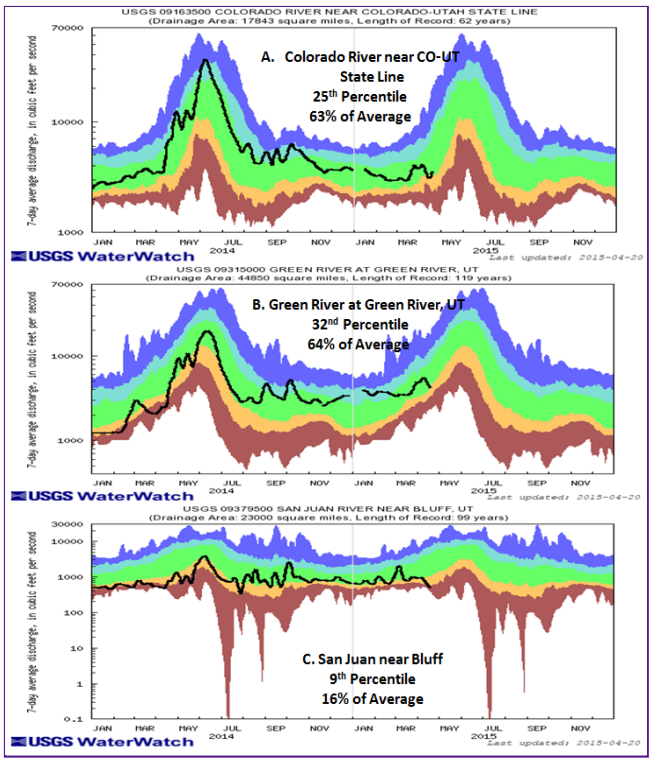
many SPI's between 0 and -1.
- The SE plains are mainly dry from 0 to -1. Two wet SPI's are in western Crowley and southern Lincoln county.

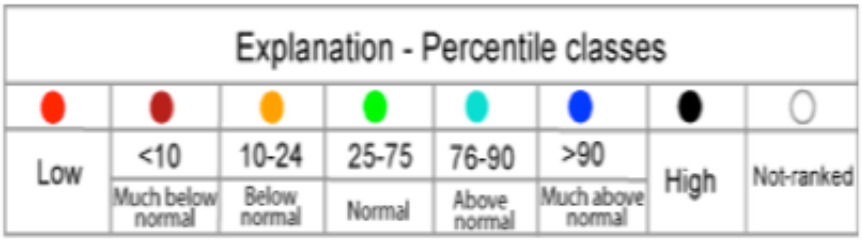
Long Term (6-month):

- The Upper Green, which has been wet on the 6 month timescale, has become dry. SPI's are between 0 and -1 in this region. The +1 SPI still shows up in Sweetwater County.
- NE Utah dries out even more with SPI's in the Wasatch between 0 and -2.5, and the Duchesne reporting 0 to -1 SPI.
- Western Colorado is showing dry SPI's through most of the counties, between 0 and -1. SPI's in Summit and Lake Counties are still wetter, 0 to +1.5.
- East of the divide, northeastern and southeastern Colorado are showing variable SPI's with the recent moisture. The driest areas are still over NE Colorado (Phillips, Sedgwick, Washington and Yuma counties) as well as southern Lincoln county south into Las Animas county.
- The Rio Grande basin is wet for long term SPI's, 0 to +1.

STREAMFLOW





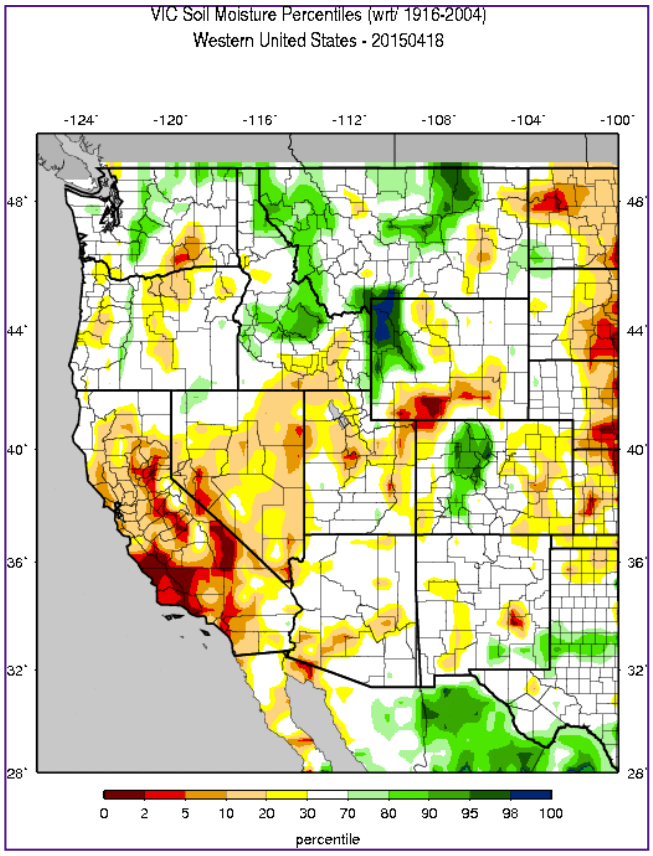


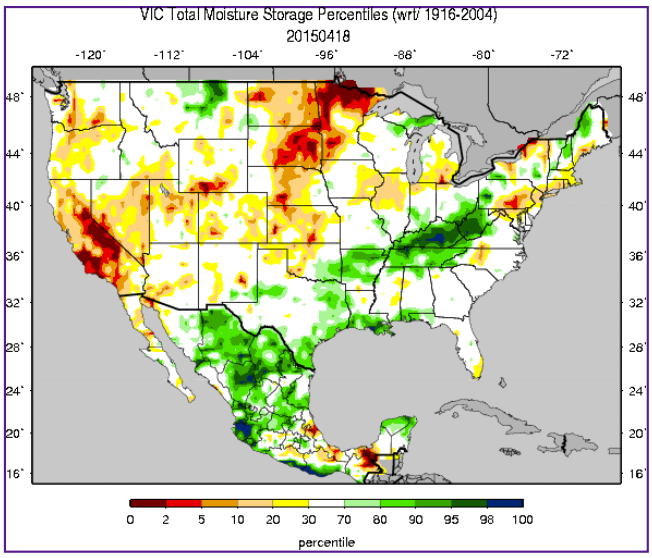
The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff,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

Streamflow Statistics:

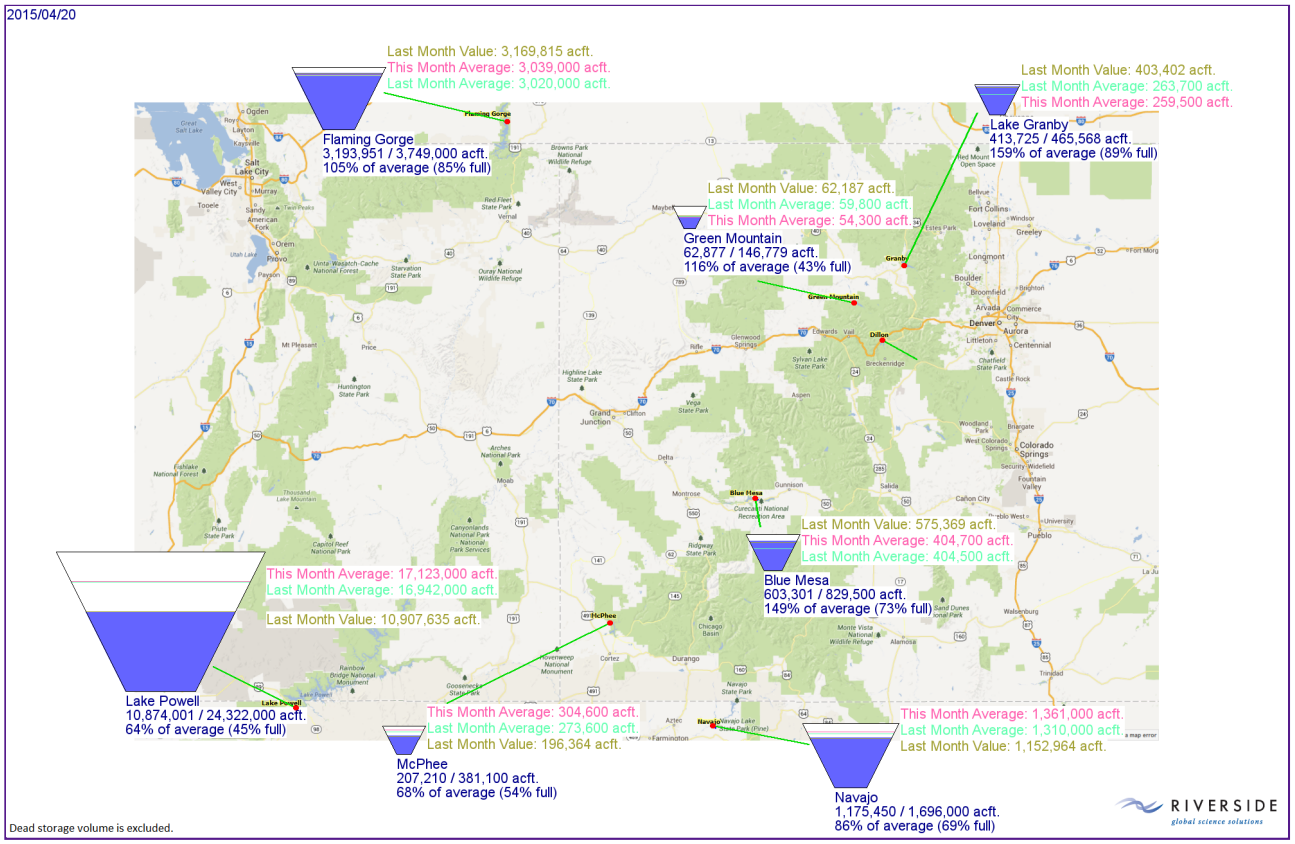
- 134 of the 140 gages in the UCRB are now reporting.
- 70% of the gages in the UCRB are reporting in the normal and above range for 7-day average streamflow. gages in the Colorado River Headwaters are reporting the highest 7-day average flow on record.
- 22% of the gages are recording below normal for 7-day average streamflow, 8% in the much below normal and 1% of gages are the lowest 7-day average streamflow.
- Headwater area streamflow is looking good for now (but early), while lower elevation gages in most basins are below normal flows.
- Streamflow on the Colorado River near the CO-UT state line is just hanging on in the normal range, currently at the 25th percentile, 63% of average.
- The Green River at Green River, UT has increased to the 32nd percentile, 64% of average.
- The San Juan River near Bluff, UT has dropped to below normal flows, at the 9th percentile (16% of average).

SURFACE WATER





The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows VIC plus SWE total soil moisture storage.



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.

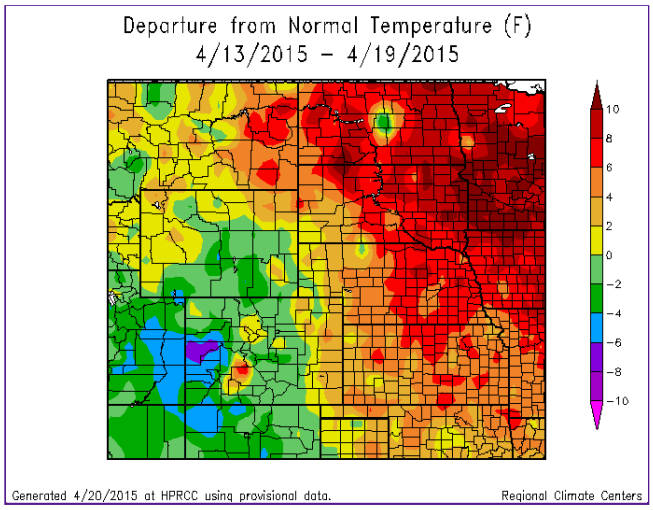
VIC:

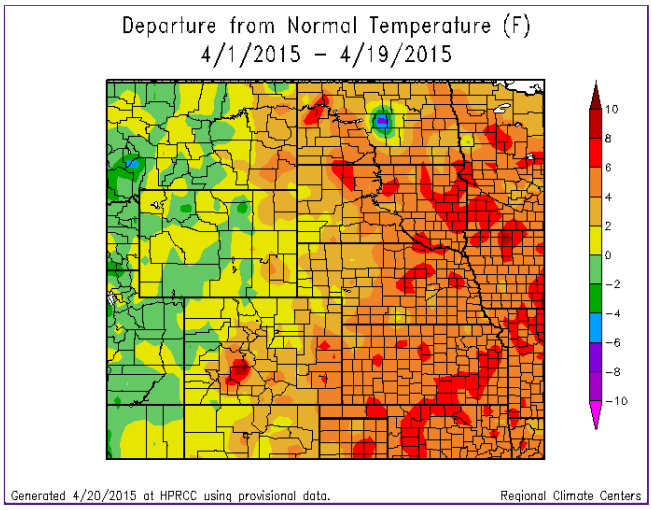
- Sweetwater County, WY has been shown as dry by the VIC for a considerable amount of time and continues to depict soils in the 0-30th percentile range over much of the south and eastern part of the county.
- There are some very wet soils in the Upper Green River Basin. Near the Wyoming-Utah state line soil moisture is in the 70-100th percentile range. However, when snowpack is taken into consideration, that area dries out to normal.
- Northeastern UT is now showing drying soils over much of Uintah and Duchesne counties, in the 2nd-30th percentile range.
- Western CO is still showing a large area of above average soil moisture over the 70th percentile. The highest percentiles are in Routt County. This area dries out conisderably when the below normal snowpack is taken into account.
- The San Juan Mountain region is mostly in the normal range with some isolated areas above the 90th percentile in Ouray county but again, this area dries out when snowpack is considered and percentiles drop from the 2nd to 30th over much of the San Juans.
- The San Luis Valley is in the normal range.
- The eastern plains are now showing drying soils over much of eastern Colorado, in the 10th to 30th percentile range. Southern Lincoln county is drier with percentiles in the 5th to 10th.
- Areas closer to the foothills and continental divide are showing normal to wet soil conditions.

Reservoirs:

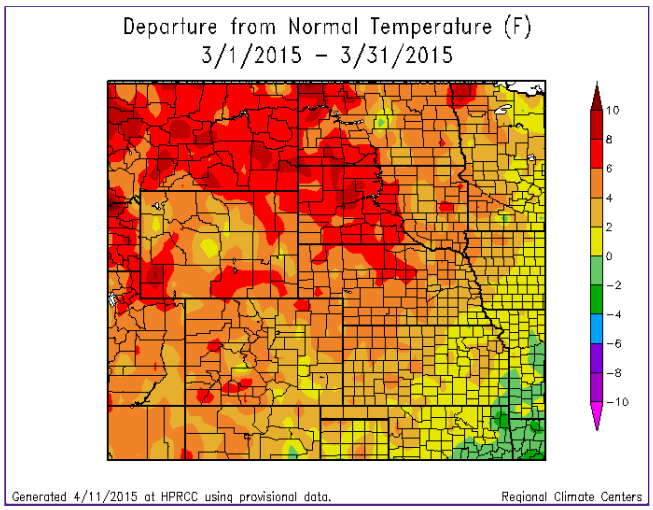
- Flaming Gorge is 105% of the April average.
- Green Mtn is 116% of the April average.
- Lake Granby is 159% of the April average.
- Blue Mesa is 149% of the April average.
- Navajo is 86% of the April average.
- McPhee is 68% of the April average.
- Lake Powell is 64% of the April average and is only 45% full.

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:

- Much of the UCRB saw below normal temperatures associated with the wet conditions over the past week, with the exception of the Upper Green where temperatures were 0 to 2 degrees above normal. Farther south was cooler than average with temperatures 0-8 degrees below normal. The largest temperature anomalies were in Mesa county.
- A warmer than normal bullseye was observed over SE Gunnison and Saguache counties where temperatures were 0 to 8 degrees above normal for the week.
- East of the divide was cooler than normal near the foothills but warmed up farther to the east. Near the foothills and urban corridor, temperatures were 0 to 4 degrees below normal while farther to the east temperatures were 0 to 4 degrees above normal.

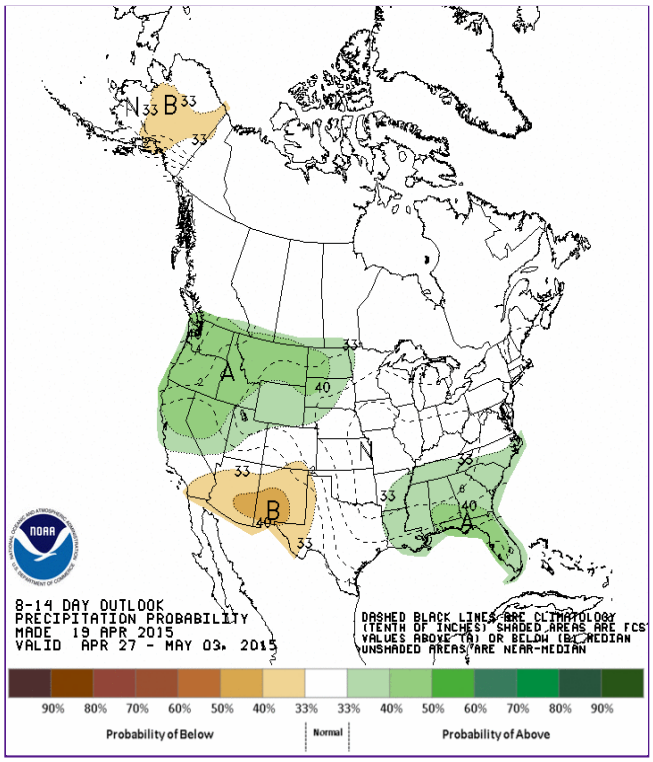
March Temperatures:

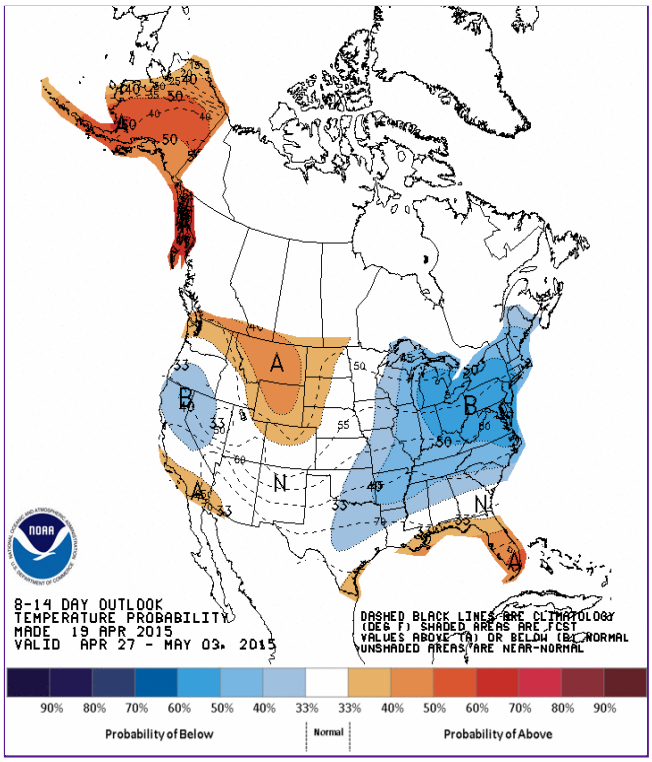
- The month of March yielded above average temperatures for the

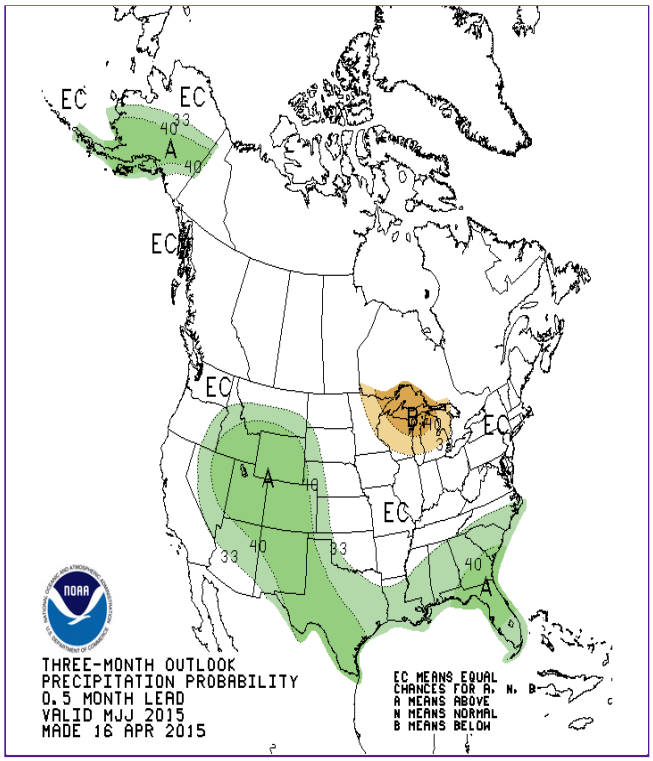
entirety of the UCRB and eastern Colorado.

- The Upper Green basin was 4-10 degrees above normal for the month. These were the highest temperature anomalies in the region.
- The Wasatch and Uintah ranges were as well as the Duchesne Basin were 4-6 degrees above average for the month of March.
- The Yampa/White/Colorado/Gunnison basins were 4-8 degrees above normal.
- Southeast Colorado was 4-8 degrees above average for the month of March. The highest temperature anomalies were in the Rio Grande Basin in Hinsdale, Mineral, and Rio Grande Counties.
- The San Luis valley was also warm with temperatures 2-6 degrees above normal for the month.
- East of the divide temperature departures from normal weren't quite as high as west of the divide. Temperatures were 0 to 8 degrees above normal. The highest anomalies east of the divide were in northeast Weld County, and the nearest to normal conditions were in Lincoln, Crowley, and Otero Counties.

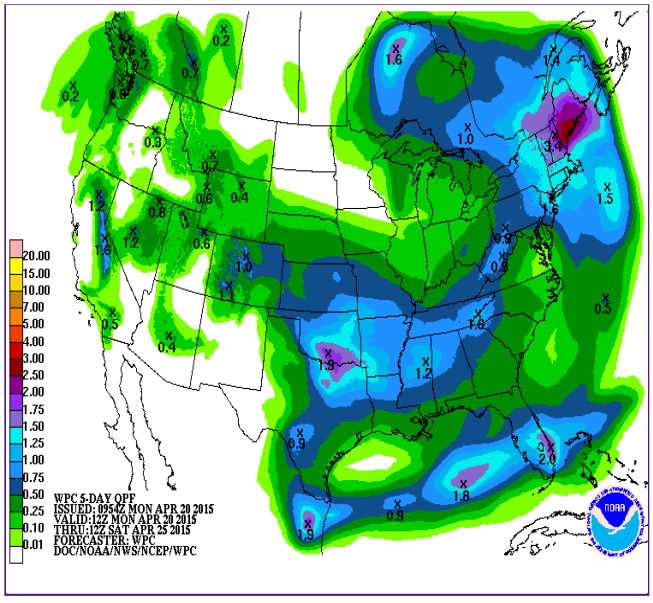
FORECAST AND OUTLOOK

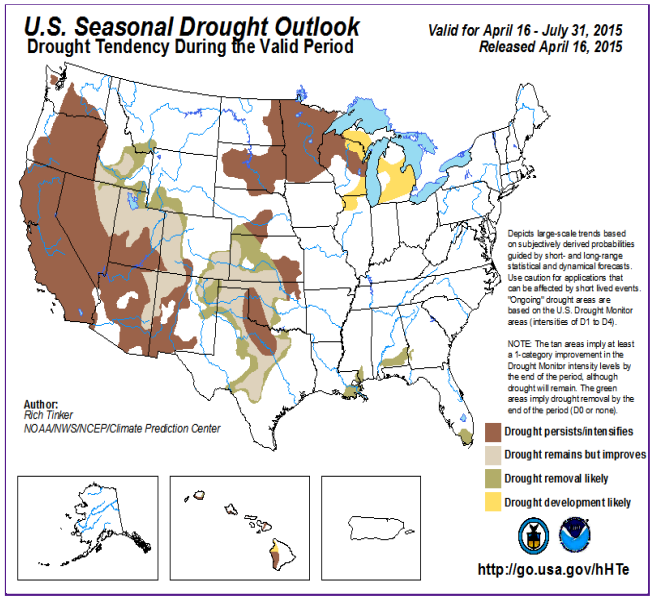






The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the 3 months Precipitation outlook. The bottom left image shows the Hydrologic Prediction Center's Quantitative Precipitation Forecast accumulation for the five days between 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: (4/21)

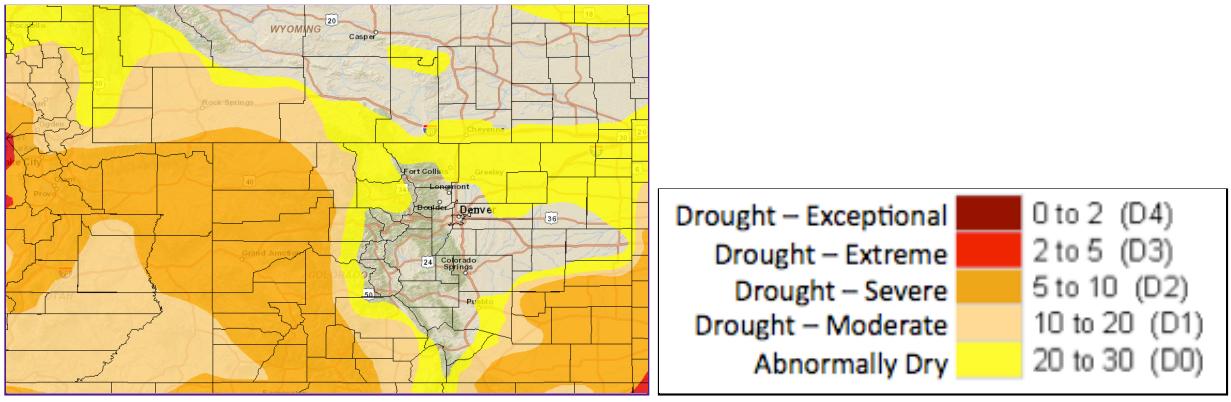
- Weak high pressure will build over the area today, but lingering moisture could trigger some thunderstorms.
- Another low pressure system moves into the area on Thursday and will bring chances for showers/tstorms along with a cooling trend. That pattern will linger through Sunday then move out of the

region.
- East of the divide will see chances for thunderstorms linger through the weekend with temperatures remaining more near normal.

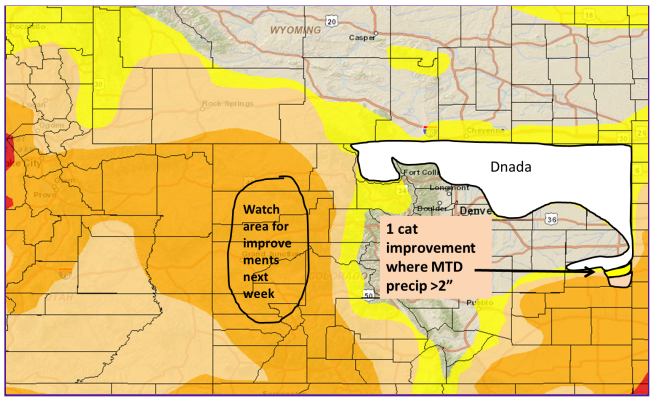
Longer Term:

- The 8-14 day precipitation outlook shows increased chances for above average precipitation for the entirety of Colorado and the UCRB. These chances are most highly enhanced in southeast Utah and southern Colorado.
- The 8-14 day temperature outlook shows increased chances of above average temperatures for eastern Utah and southwest Wyoming, but increased chances for below average temperatures in southeast Colorado.
- 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 April to June period with the exception of the northeast corner of Colorado. These chances are highest in southern and western Colorado. This forecast has been made more conservative following a dry March.
- The seasonal drought outlook indicates that drought is expected to persist or intensify in western Colorado and eastern Utah. Drought improvement and removal is forecast as likely for southeast 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 April 21 2015:

Much needed moisture fell over much of the region over the past week, but was not enough to greatly improve snowpack or streamflow conditions. East of the divide also received much needed moisture over the past week and improvements are warranted for the shorter term drought over NE Colorado. Another area in Cheyenne county has received 2-3" month to date, and that area is also warranting improvements.

Recommendations:

UCRB: The highlighted area is being watched for improvements. Forecasts are for showers across that area for the next week. If that pans out, the area will warrant improvements.

Eastern CO: Removal of much of the D0 over NE Colorado where 1-3" has fallen since the beginning of the month. This D0 is fairly short lived, so improvements are suggested at this time. There is a drier pocket near Akron, CO. That area will be monitored in upcoming weeks if precipitation shuts off and temperatures heat up.

A one category improvement is suggested over eastern Cheyenne county where 2-3" has fallen since the beginning of the month. Conditions quickly dry out west and south of this area where winter wheat is struggling and subsoil moisture has not yet recovered after several years of drought.