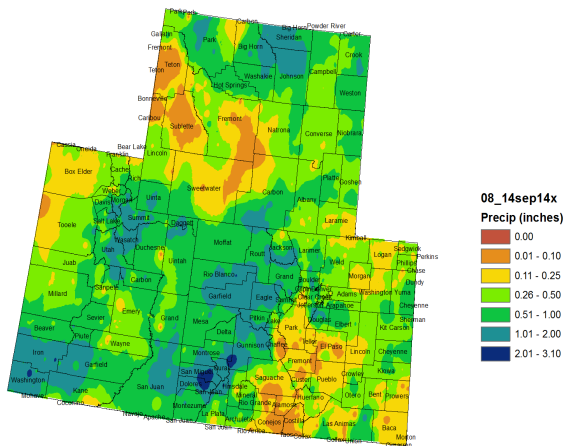
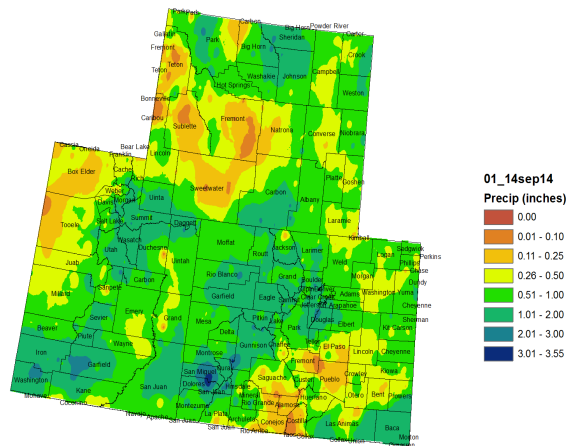


PRECIPITATION

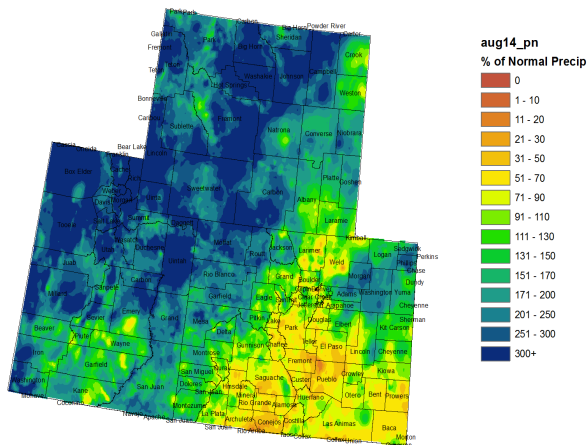
Colorado, Utah and Wyoming 7 Day Precipitation
8 - 14 September 2014



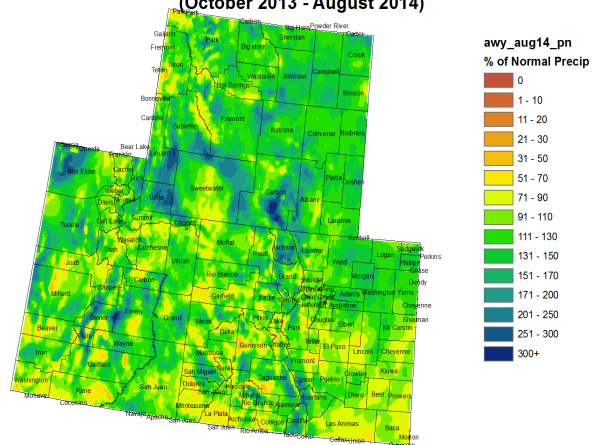
Colorado, Utah and Wyoming Month to Date Precipitation
1 - 14 September 2014



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



Colorado, Utah and Wyoming Water Year 2014 Precipitation
as a Percentage of Normal
(October 2013 - August 2014)



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:

- Most of the UCRB had a fairly productive week of precipitation with widespread totals of over 0.50". There were a few pockets of drier conditions in Grand and Duchesne Counties in UT where totals fell under 0.1". The western Rockies and Wasatch Range saw widespread totals of over 1.00".
- The northeast corner of the Four Corners region received some very beneficial moisture over the past week. More than two inches of precipitation fell in sections of Dolores, San Miguel, and Gunnison Counties.

- The San Luis valley was dry this week with less than 0.25" of precipitation falling, less than 0.1" in many areas.
- East of the divide conditions were drier with the exception of the Urban Corridor. From Fort Collins down to south Denver totals were generally above half an inch with pockets over one inch.
- Farther east out on the plains and south of the Palmer Divide conditions were drier with most areas receiving less than half an inch during the week. El Paso, Fremont, and Pueblo Counties were especially dry.
- Areas of Las Animas Counties as well as Cheyenne, Kit Carson, and Yuma Counties near the Kansas border did manage to pick up over half an inch of precipitation.

August Precipitation :

- In the UCRB most of Western Wyoming Eastern Utah received above average precipitation for the month of August with areas of 300+ percent of average in southwest Wyoming, the Wasatch Range in UT and Uintah County, UT.
- The rest of eastern UT down into the Four Corners area saw above average precipitation, mostly in the 150% to 250% of average range.
- Most of western Colorado also received above average precipitation for August, ranging from 100% of average in the Four Corners area to 300% of average in Moffat County in northwestern CO.
- Along the Divide in central and southern CO, precipitation was less for August, with Lake Chaffee, Saguache, Hinsdale and the eastern San Juan Mountains receiving between 50% to 90% of average, the lower amounts in the valleys.
- East of the divide saw spottier precipitation for August. Much of the northern Front Range saw near average precipitation, with the southern Front Range from Park County south, seeing below average precipitation in the range of 50% to 90% of average with spotty areas seeing less than 50% of average.
- The northeastern CO counties saw much above average precipitation, mainly 150% to 100% of average precipitation for August.
- Southeastern CO once again saw below average precipitation, in the range of 50% to 90% of average with spotty areas in Crowley, Otero and Las Animas counties seeing near average precipitation.
- Most of the Rio Grande basin also saw lower than average precipitation for the month, with the eastern part of the basin seeing near to slightly above average precipitation.

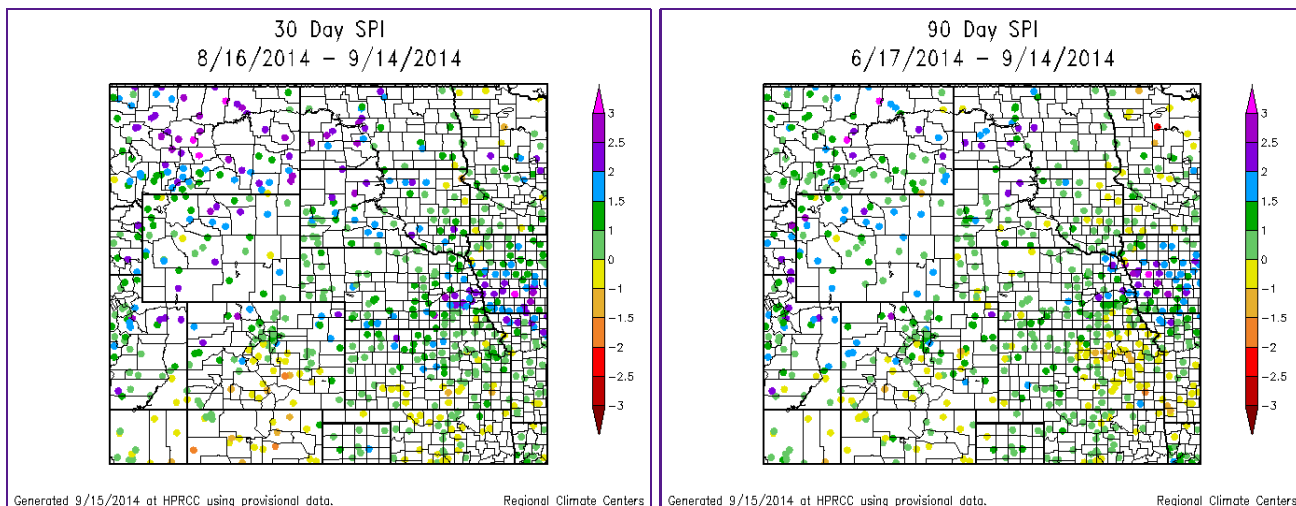
Water Year Precipitation (Oct-Aug):

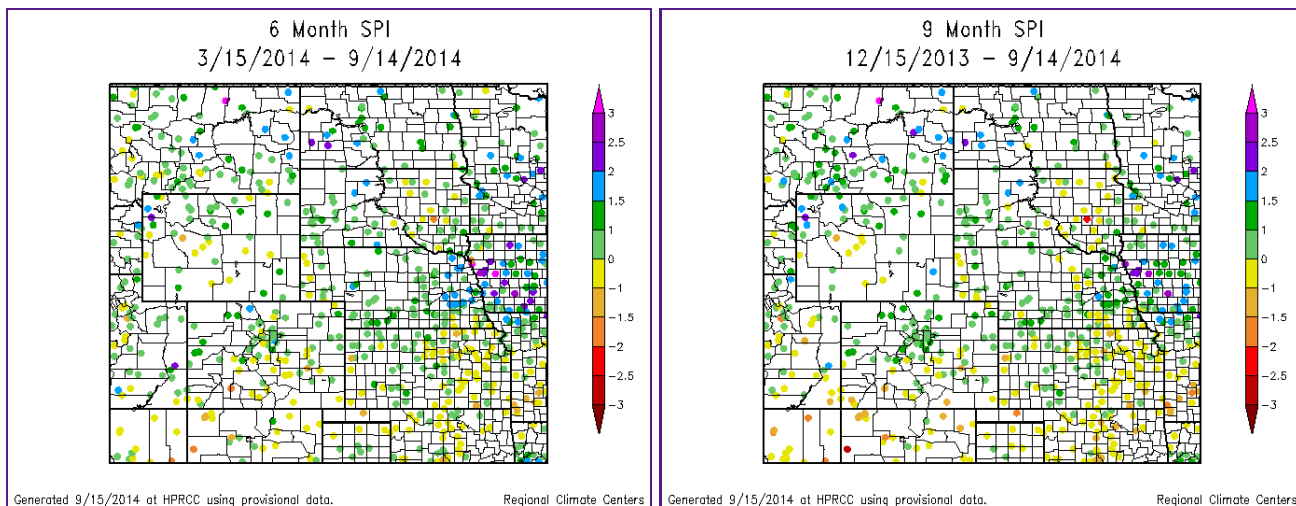
- Much of the UCRB is now near or above average for the Water Year through August, with spotty areas below average.
- Most of the northern portion of the basin in Wyoming is above average, with portions of Lincoln, Uinta and southern Sublette counties 200% to 300% of average. Central Sweetwater and eastern

Sublette counties are 70% to 90% of average.

- Much of eastern UT is now near average, with some areas in the Duchesne River basin a little drier than average of the Water Year (70%-90%).
- Western Colorado is a bit spottier with precipitation, however much of the area is near average for the Water Year. Parts of Moffat, Rio Blanco, Garfield, Delta and Gunnison counties, along with the southern San Juan Mountains in CO are 50%-90% of average.
- The Colorado River headwaters area is still much above average, mainly greater than 150% of average.
- East of the Divide in eastern WY and northeastern CO is mostly above average with percent of average precipitation in the 100-200% range.
- Southeastern CO has improved, seeing near average for the Water Year through August, however large areas in Bent Prowers, Baca and Las Animas counties are still in the 70%-90% of average range.
- The Rio Grande Basin in southern CO has seen above average precipitation in the western and eastern parts of the basin, and below average precipitation in the valley for the Water Year.

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):

- Much of the UCRB has wet SPI's on the short time scale. SPI's in the Green river basin range from -1 to +2.5 and tend to be wetter closer to the headwaters.
- Eastern Utah and western Colorado are reporting SPI's between 0 and +2.5 with the wettest areas in NE Utah and NW Colorado.
- The Four Corners SPI's range from -1 to +1 with the wetter conditions on the Colorado side.
- The San Luis valley is notably drier on the short time scale with SPI's between 0 and -1.5.
- East of the Divide in Colorado, SPI's are generally higher farther to the north. North of the Palmer Divide SPI's generally range from 0 to +2 with one +2.5 SPI in Phillips County in extreme northeast Colorado.
- Further to the south, the headwaters of the Arkansas are reporting dry SPI's from Lake county down through Crowley and Las Animas counties with SPI's between 0 and -2.
- In the southeast portion of the state SPI's are in the normal range showing between -1 and +1.

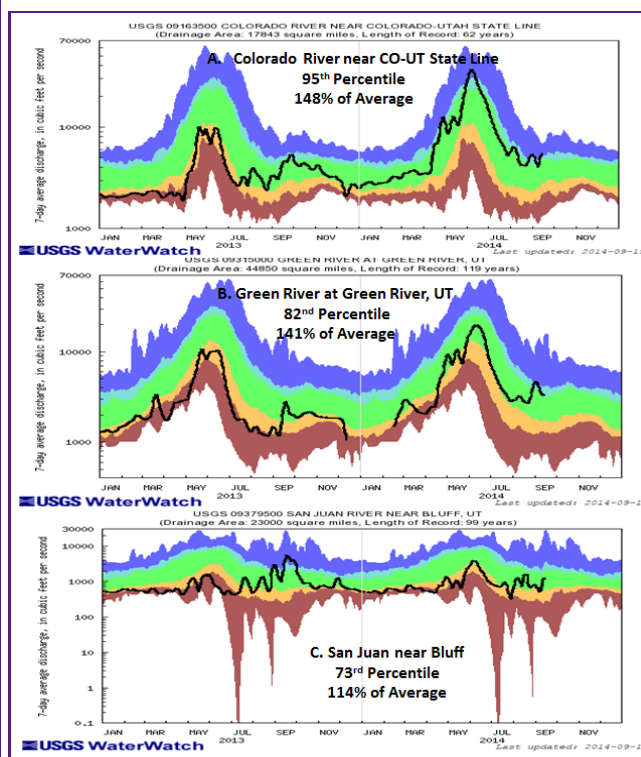
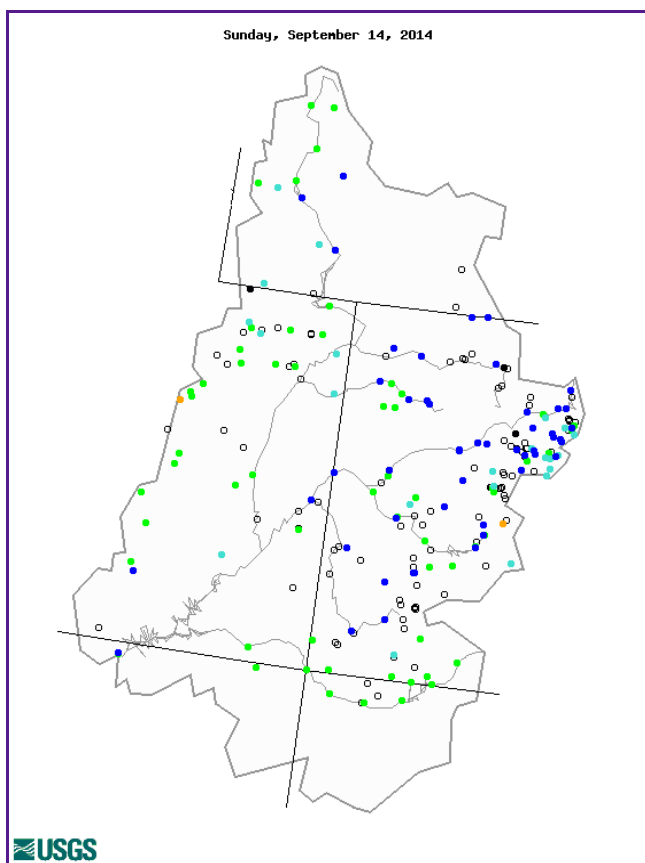
Long Term (6-month):

- The UCRB SPI's are mostly a bit on the wet side with readings mainly in the 0 to +1.5 range. One station in Grand County, UT is reporting a SPI of +2.5.
- The Four Corners show average SPI's at the 6 month timescale. All values in this area are now between -1 and +1.
- The headwaters of the Yampa and Colorado are wet with SPI's between 0 and +1.5.
- The Gunnison basin is slightly drier with SPI's between -1.5 to +1.5

with drier areas to the south.

- The San Luis valley is also moderately dry with SPI's mainly between 0 and -1.
- East of the divide, the NE plains are showing mostly slightly above normal conditions. Here SPI's range from -1 to +1.5 with most stations showing 0 to +1.
- The SE plains are more variable with SPI's between -2 and +1. Most of the precipitation that has fallen in this region has been spotty.

STREAMFLOW



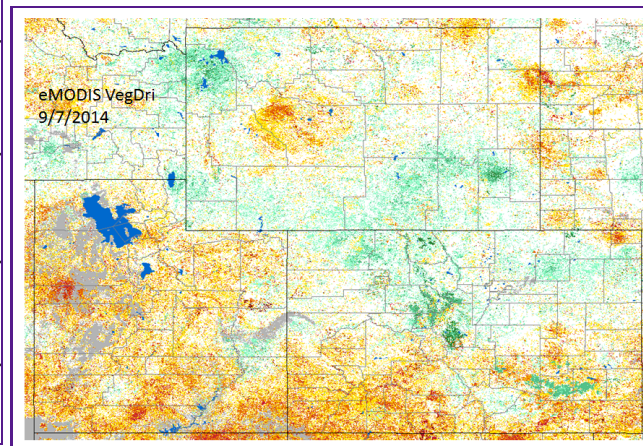
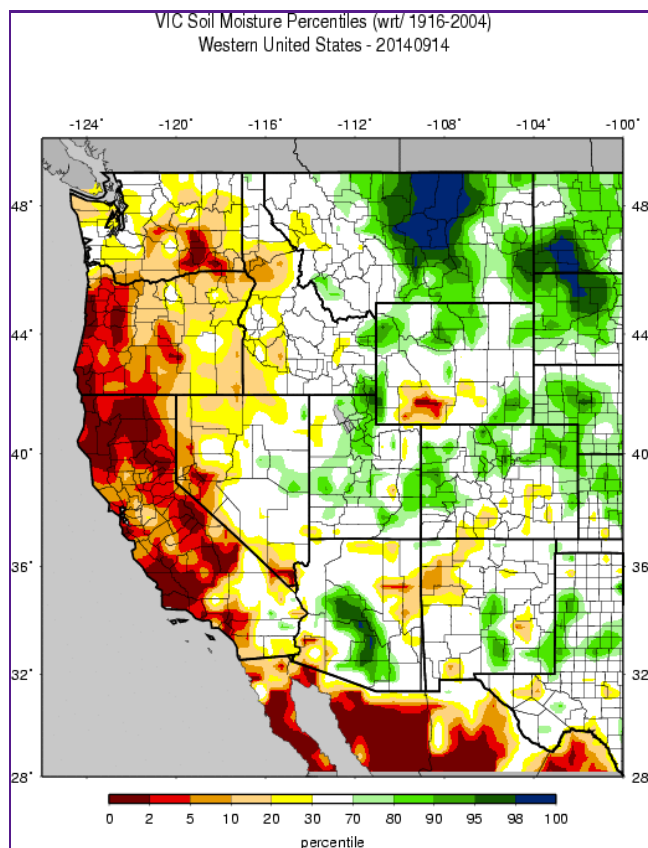
Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

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:

- 98% of the gages in the UCRB are reporting above the 25th percentile for the 7-day average streamflow.
- 38% of the gages are reporting much above normal (90th and greater percentile).
- 2% of the gages are reporting in the below normal (10th-24th percentile) range.
- The highest streamflows are in the Upper Green River Basin, Yampa River Basin, and the Colorado River Headwaters.
- Streamflow on the Colorado River near the CO-UT state line is well above average, reporting in the 95th percentile (148% of average).
- The Green River at Green River, UT is reporting in the 82nd percentile (141% of average).
- The San Juan River near Bluff, UT has come up again after having dropped just recently. Flows are now in the 73rd percentile at 114% of average.

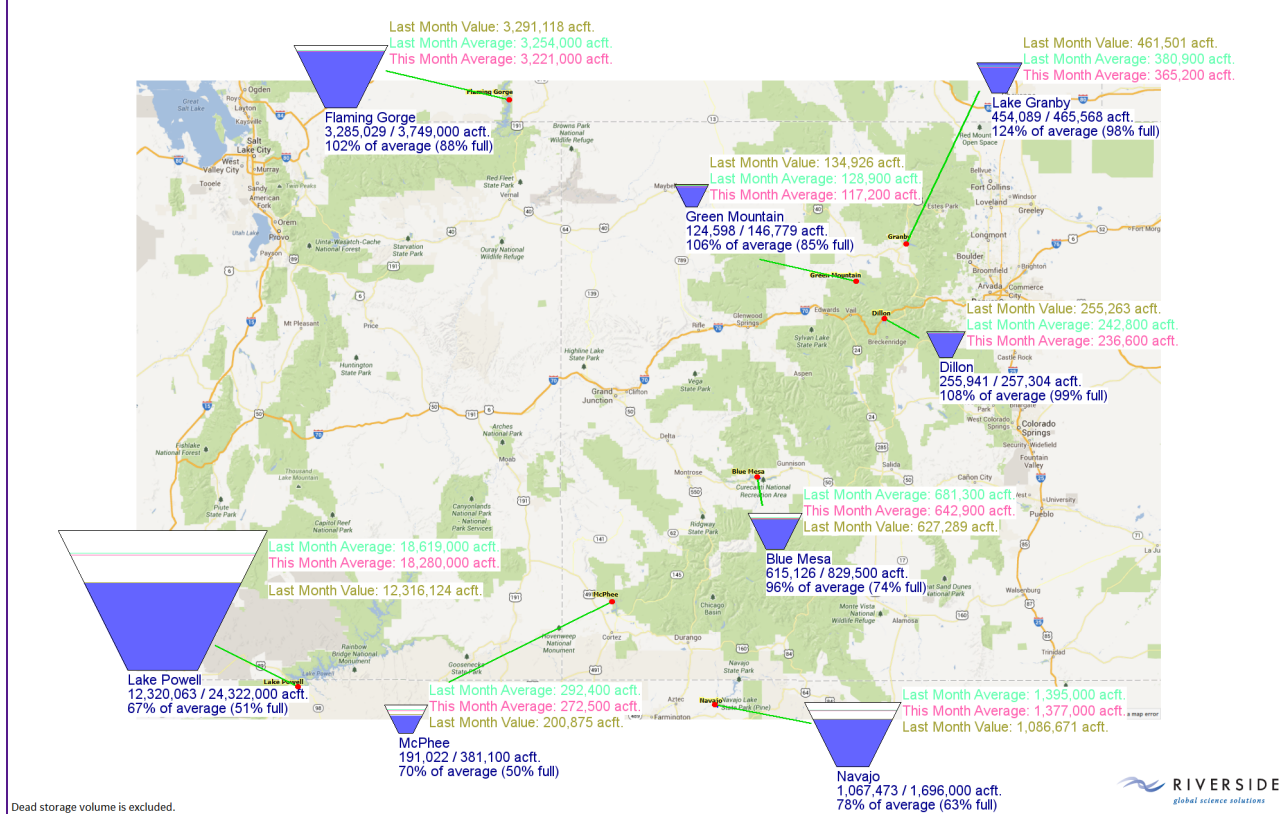
SURFACE WATER



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).

2014/09/15



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:

- There is a large gradient in VIC modeled soil moisture in the headwaters of the Green River. Sweetwater County, WY is showing soil moisture totals generally between the 0th and 30th percentile. Only about 50 miles to the west near the UT, WY state line soil moisture ranges from the 70th to the 98th percentile.
- Further south in the UCRB soil moisture is tracking average to a little above with most areas between the 30th and 80th percentile.
- The Four Corners has also shown improvements recently and now reporting normal soil moisture conditions.
- The San Luis valley is indicating drying soils in the 10th - 30th percentile range.
- East of the divide on the plains, the NE plains are wet with soil moisture above the 70th percentile while farther south is indicating normal to slightly dry conditions. Percentiles near the intersection of El Paso, Pueblo and Lincoln counties are between the 10th and 30th.

VegDRI (9/7 Did not update this week):

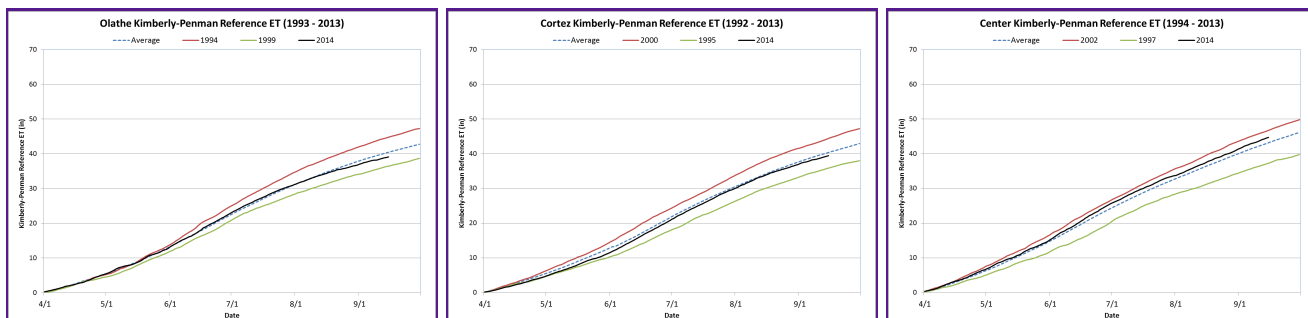
- The VegDRI has shown improvements over southern Wyoming, Eastern Utah and NW Colorado over the past few weeks.

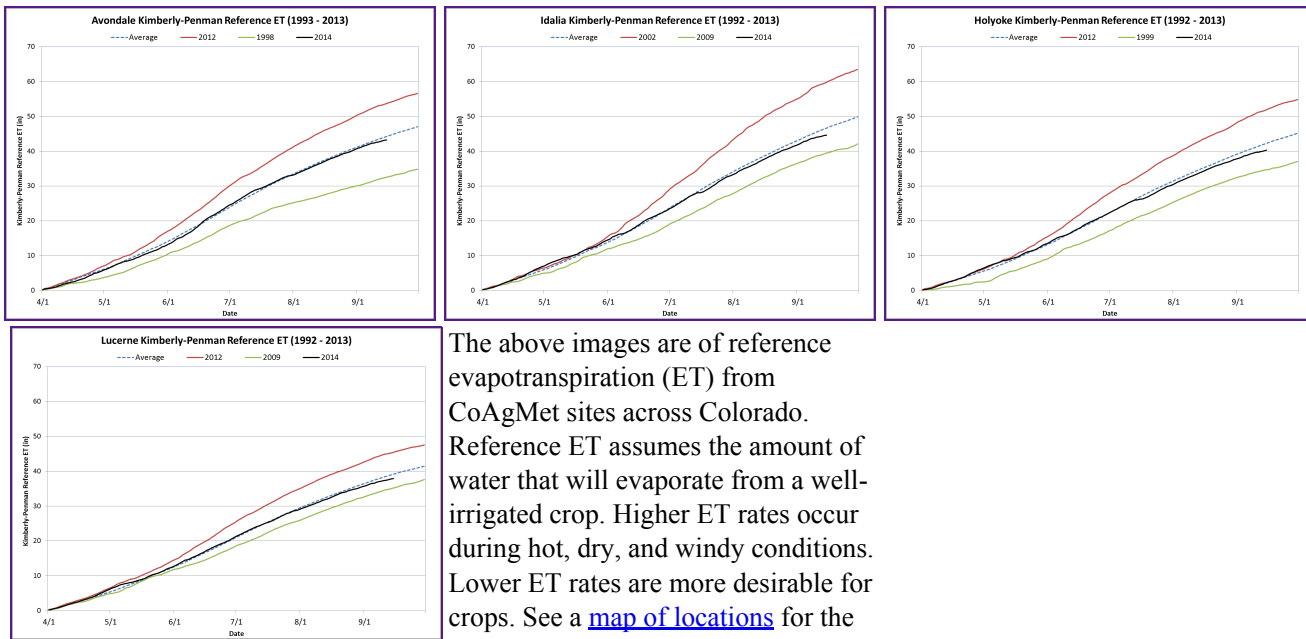
- The Upper Green basin is indicating wet vegetation health across much of the area but dries out as you enter Sublette and Fremont counties.
- Eastern Utah is still mainly indicating dry vegetation health in the pre- to moderate drought categories.
- Western Colorado is showing wet conditions in the Yampa and Colorado basins, but dries out farther to the south in the Gunnison and San Juan basins.
- The Four Corners depiction is still dry in the pre- to severe drought categories.
- The San Luis valley is also dry in the pre- to severe drought categories.
- East of the divide is showing wet vegetation on the NE plains, with the exception of Sedgwick county. Farther to the SE is more variable with wet vegetation along the irrigated Arkansas river valley, but surrounding areas are much drier in the pre- to severe drought categories. The driest areas are in Las Animas and Baca counties.

Reservoirs:

- All reservoirs in the drought monitor region are showing volume decreases, which is normal for this time of year.
- Flaming Gorge is 102% of the September average.
- Green Mtn is 106% of September average.
- Lake Granby is 124% of September average.
- Lake Dillon is at 108% of the September average and continues to see volume increases.
- Blue Mesa is 96% of the September average.
- Navajo is 78% of the September average.
- McPhee is 70% of the September average.
- Lake Powell is 67% of average and 51% full.

EVAPOTRANSPIRATION



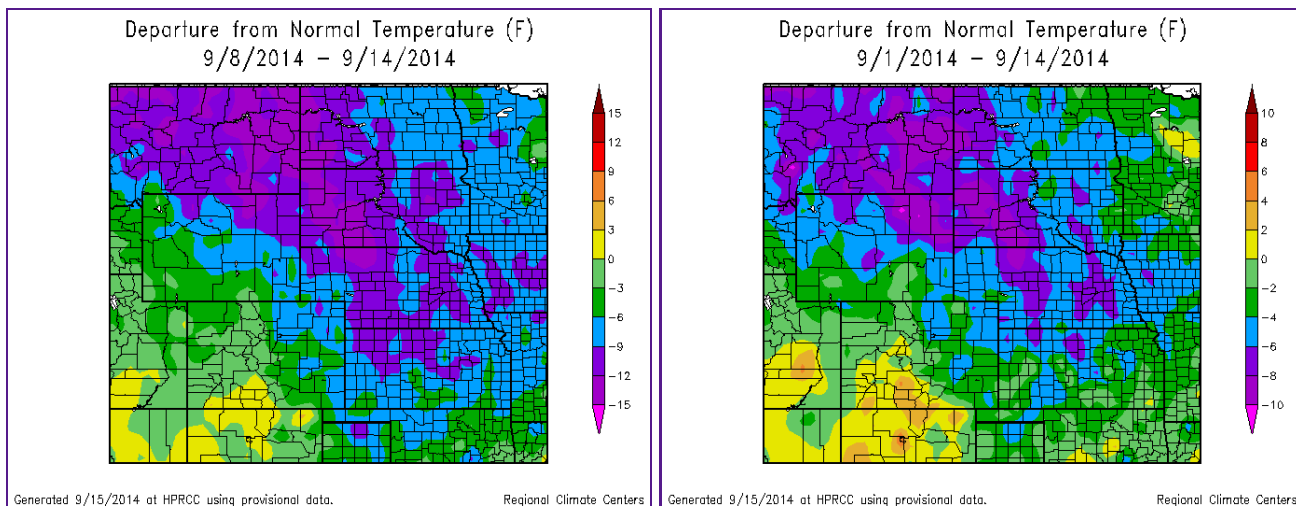


The above images are of reference evapotranspiration (ET) from CoAgMet sites across Colorado. Reference ET assumes the amount of water that will evaporate from a well-irrigated crop. Higher ET rates occur during hot, dry, and windy conditions. Lower ET rates are more desirable for crops. See a [map of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

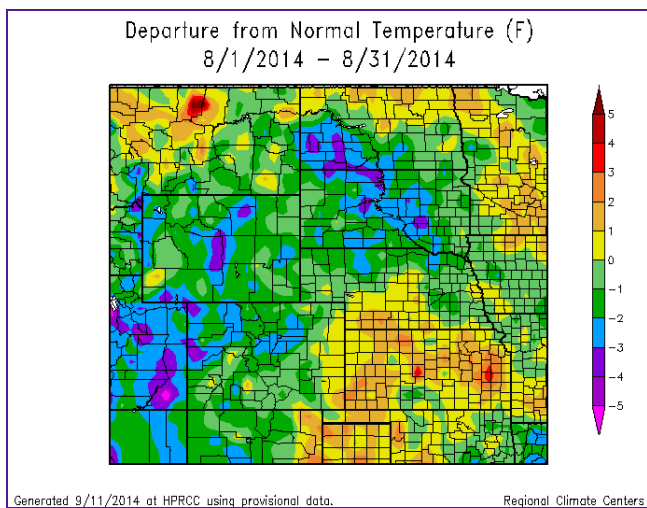
Reference Evapotranspiration:

- Olathe: ET has dropped off since the middle of August and is now tracking below average for the growing season to date.
- Cortez: ET is tracking slightly below normal for the growing season, and has been doing so since the middle of August.
- Center: ET has continued to track above normal since early June, but is still much lower than the highest year of 2002.
- Avondale: ET is tracking just slightly below the growing season average, and has dropped farther below normal over the last week more than any prior week since June.
- Idalia: ET dropped in mid-July with monsoonal moisture coming into the area. ET has tracked slightly below the normal since then. There was a noticeable down-turn in the amount of reference ET experienced over the past week from weeks prior.
- Holyoke: ET dropped off in mid-July and continues to track below average for the growing season.
- Lucerne: ET rates are tracking slightly below average for the growing season since the end of July, and have been slowly departing further from normal since late August.

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.



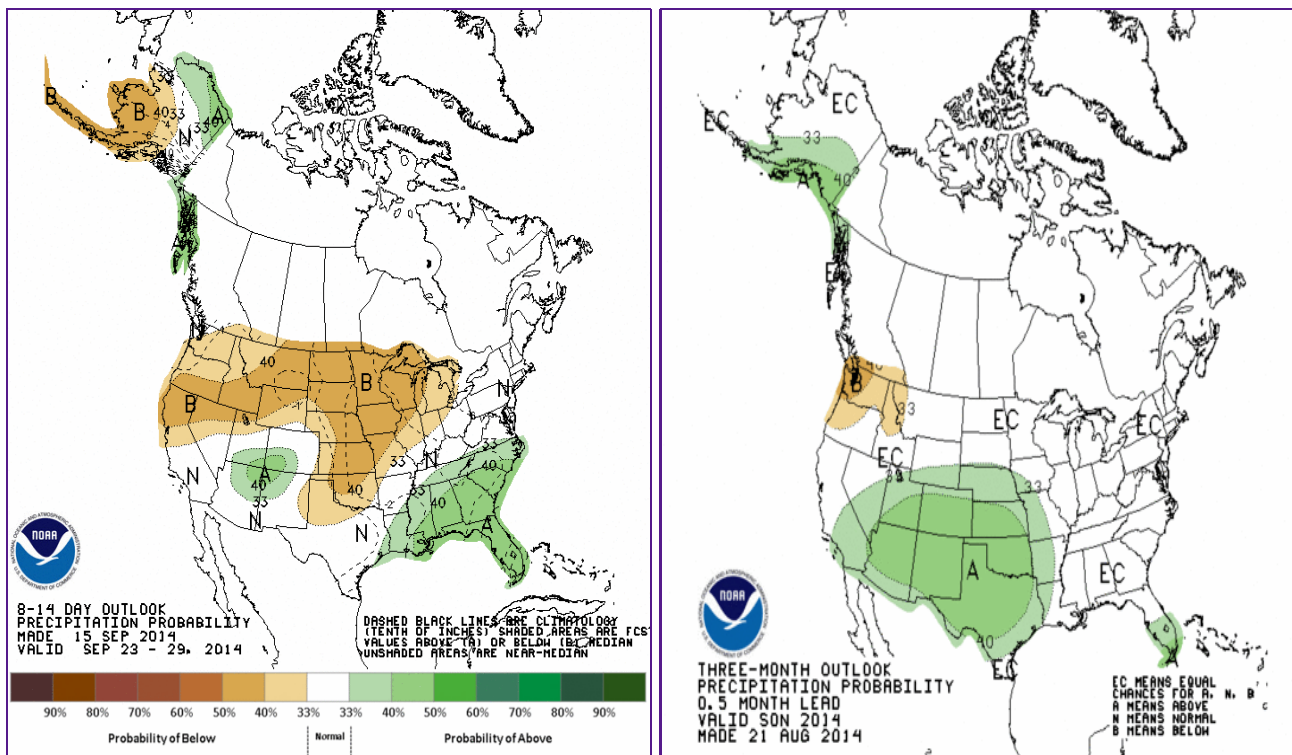
Last Week Temperatures:

- The northern portion of the UCRB saw below normal temperatures in the range of 0 to 6 degrees below normal.
- The southern portion of the UCRB saw more seasonal temperatures. Here temperatures ranged from 3 degrees below normal to 3 degrees above normal.
- The San Luis valley was also in the normal range at -3 to +3 degrees from normal.
- East of the divide saw mainly below normal temperatures over the past week. Temperatures ranged 3 to 9 degrees below normal on the Front Range and from 6 to 12 degrees below normal out on the northeast plains
- The southeast portion of the state saw some much welcomed below average temperatures. Here temps ranged from 3 to 9 degrees below normal.

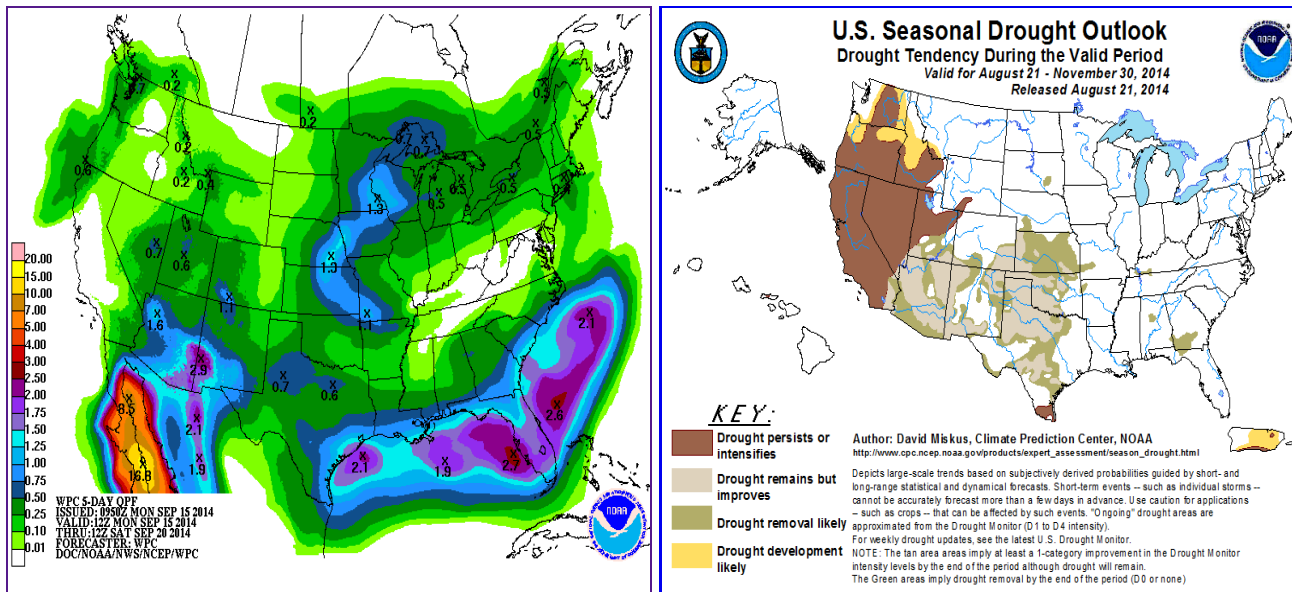
Last Month Temperatures:

- August temperatures in the UCRB, Wyoming and much of Colorado were mostly below average.
- The Upper Green River basin in WY were mostly 0 to 2 degrees below average.
- Eastern and northern UT saw temperatures mainly 3 degrees below average with a few areas 4 degrees cooler than average.
- Western CO also saw temperatures below average. The far western counties saw temperatures 3 degrees below average, while the rest of the Colorado River Basin area in CO saw 2 degrees below average for August.
- East of the divide most of the Front Range was between 0 and 2 degrees below average for August with a few areas 3 degrees below average.
- The eastern plains were a mix of near normal temperatures. Most of the counties along the CO/KS border were 0 to 1 degree above average for the month, while counties further west were slightly cooler than average.
- Crowley and Otero Counties saw temperatures down to 3 degrees below average.

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:

- After a few recent weeks of below average temperatures and above average precipitation warmer, drier conditions are expected to return to Colorado and the UCRB. Though some regions still in drought may benefit from more precipitation this is a welcome change in the short term for areas that have experienced flash flood watches and warnings.
- Some remnant moisture is possible in southern Colorado from Tropical Storm Odile on Friday after it has made landfall, and in all likelihood, morphed into a less threatening MCS. There is still some uncertainty in the track here, and impacts this far inland will be minimal.
- The weekend appears mostly dry with temperatures slightly above average east of the divide and moderately above average in the UCRB. The best chances for thunderstorms will be over the high terrain.
- Next Monday into Tuesday a weak trough is expected to develop over the great basin and bring up some subtropical moisture from the golf out ahead of it. The best chances for precipitation from this will be Tuesday and Wednesday with the largest amounts likely on the eastern plains of Colorado.

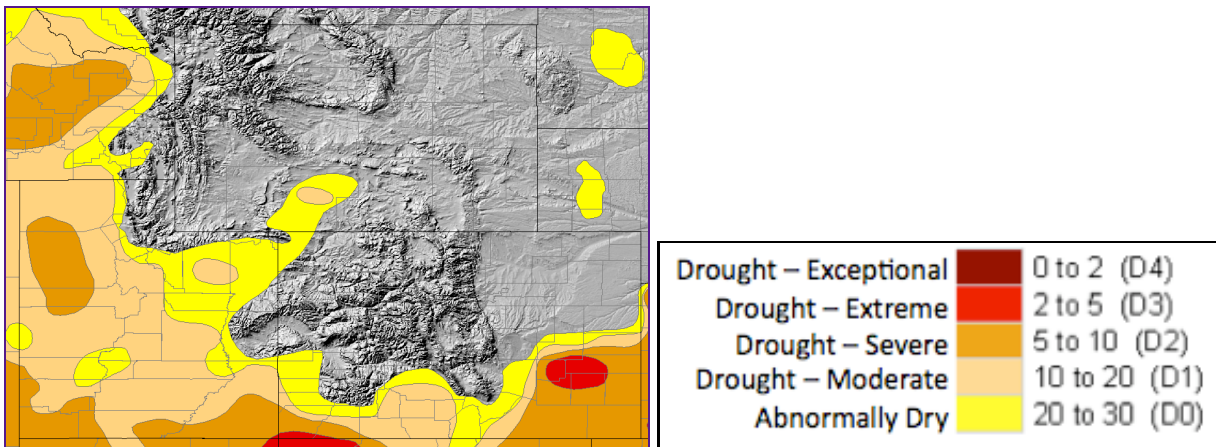
Longer Term:

- The 8-14 day precipitation outlook shows increased chances for below normal precipitation over the headwaters of the Green River Basin in northeast Utah and southwest Wyoming. The Four Corners region shows higher chances for above average precipitation. Most of Colorado is in the normal range.
- The 8-14 day temperature outlook (not pictured) shows very robust chances of above average temperatures across the UCRB, especially near the headwaters of the Green River. East of the divide the outlook is still for at least a 60% chance of above average

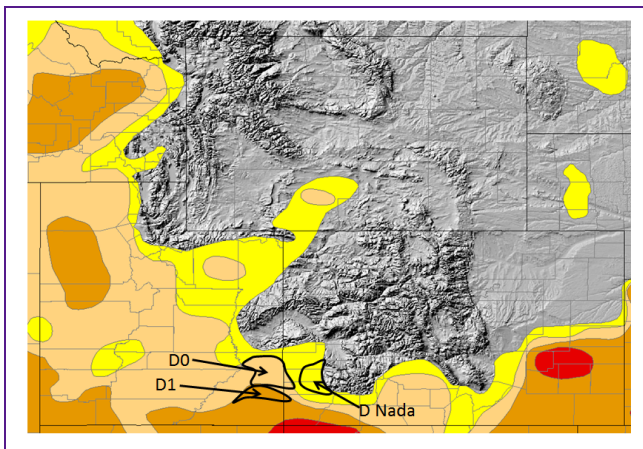
temperatures, but certainty is not as strong as in the UCRB.

- The CPC 3-month outlook shows higher chances for wetter than normal conditions over the UCRB in Utah, Colorado, and Wyoming for the late August-mid November time period.
- The seasonal drought outlook indicates that drought is expected to persist or intensify across northeast Utah and southwest Wyoming.
- Drought in the Four Corners region is anticipated to continue, but improve with some removal likely.
- Drought in the southeast CO is anticipated to continue, but improve. Little to no removal is likely.

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 September 16, 2014:

It was a well below average week temperature-wise across the UCRB and the state of Colorado. Temperatures were in the normal range for the Four Corners region and for the Colorado River watershed near Lake Powell, but other than that widespread temps of < -3 degrees from average were realized. This aided in keeping ET and evaporation rates down. Streamflows in the UCRB are mostly above average, especially in the

headwaters of the Colorado River where flows are above the 90th percentile. The San Juan River has rebounded nicely into the normal range as well where flows are in the normal range. Precipitation totals over the past week have been mostly seasonal. There was a precipitation bull's-eye in southwestern Colorado. Areas of San Miguel, Dolores, and Gunnison Counties received over 2.00" of rainfall with widespread totals over 1.00". The Wasatch Mountain Range and the western slopes of the Rocky Mountains in Colorado also had widespread regions of over an inch of precipitation. The San Luis Valley and areas of southeastern and south-central Colorado experienced the least precipitation in the drought monitor region though there were spotty areas that had beneficial convective precipitation.

Recommendations:

UCRB: With the recent heavier precipitation in San Miguel and Dolores Counties it appears to be appropriate to push the D0 boundary on the eastern edge of those counties westward towards the state line. With widespread totals of over an inch of precipitation over the past week San Juan County in Utah was also hit hard enough that some one-category improvements in the hardest hit areas appear to be justified. This means the D2 and D1 boundaries can be pulled southward in the northeastern and central portions of the county. SPI's are rebounding into the normal range on the 6 month timescale, and both streamflows and modeled soil moisture are indicating values in the normal range in the four corners region as well. Since this is also a long-term drought we will hold off on making other recommendations for now, but this is definitely an areas that needs to be closely monitored for further improvements.

Eastern Plains: Status quo, for now. We are watching SE Colorado (Baca and Las Animas) for improvements, however we are trying to balance long-term impacts with short-term recovery. Local reports are still suggesting deep soil moisture deficits, but recent moisture is causing some green-up and better prospects for planting winter wheat this fall.

Temperatures were below average in the region this week, which certainly aided in drought relief, but the precipitation totals that were forecast for this region in the past week were not realized on a large scale. Most of southeast Colorado received less than half an inch of precipitation with widespread regions of less than a quarter inch.