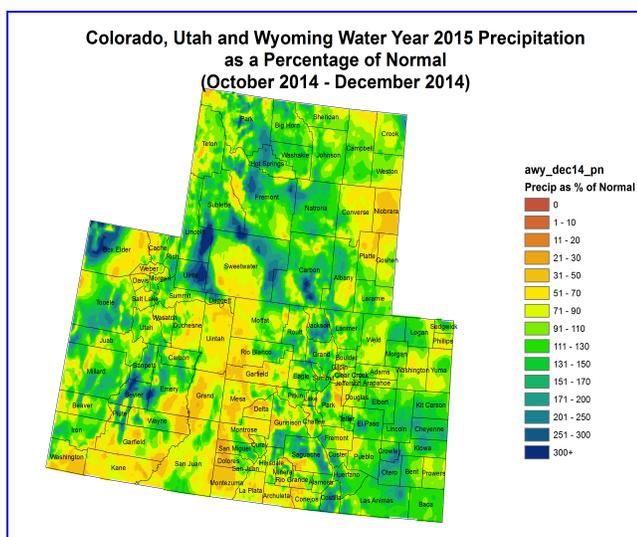
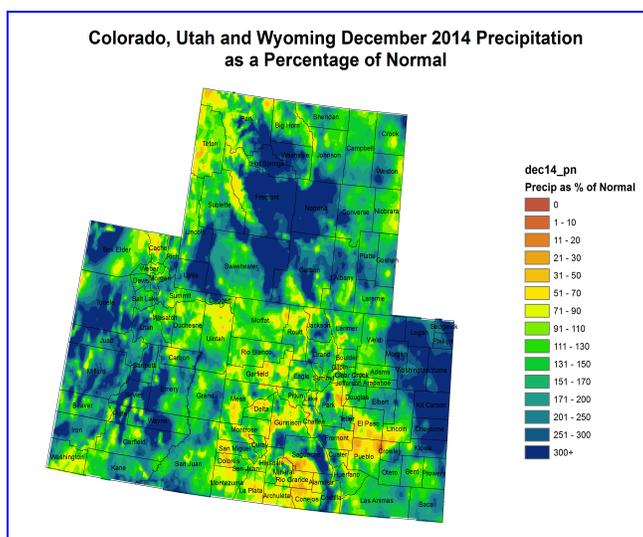
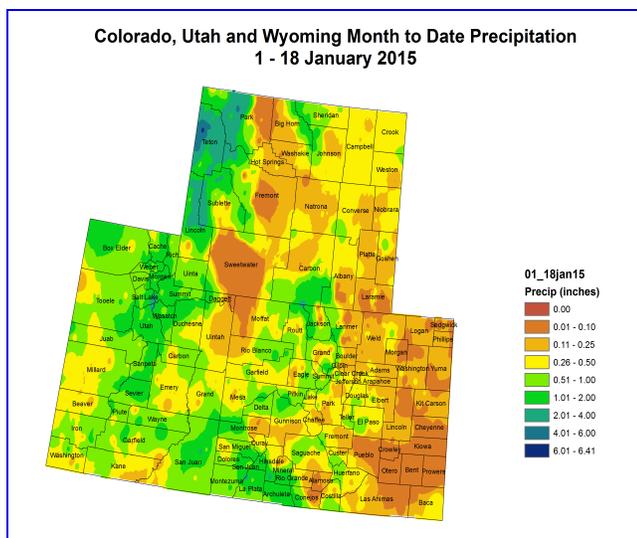
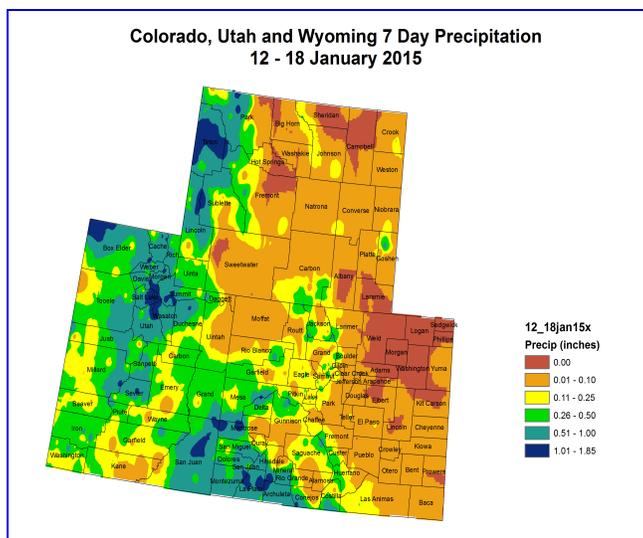


# PRECIPITATION



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 largest precipitation totals in the drought monitor region over the past week were in the San Juan and Wasatch mountains where precipitation totals exceeded one inch over some areas of the high terrain.
- The northernmost portions of the Upper Green River Basin also experienced over an inch of precipitation. The rest of southwest Wyoming varied from having no precipitation in Sweetwater County to up to an inch of precipitation in Lincoln County.
- The Duchesne basin received only 0.11-0.25" of precipitation at

lower elevation with much of the higher terrain experiencing 0.50-1.00".

- The Yampa/White basin received only 0.01-0.10" of precipitation in most areas. The high terrain over Rabbit Ears and Buffalo Passes experienced 0.25-0.50".
- The Central and Southern mountains in Colorado received less than 0.50" over the past week with the exception of a bull's-eye over the Mesa-Delta County border. The majority of the area was between 0.11" and 0.25".
- East of the divide conditions were dry over the past week. Much of northeast Colorado had no precipitation. Most of the area east of the divide received 0.01-0.10" of precipitation. Nearing the continental divide in the high terrain totals were in the 0.11-0.25" range.

### **December Precipitation:**

- The month of December brought good moisture to the high country of the UCRB following.
- The Upper Green River Basin saw greater than 100% of normal for the month. Most of Uinta County, eastern Sweetwater County and southern Sublette County in Wyoming saw better than 200% of average for the month.
- The Wasatch and Uintah ranges in Utah were near to slightly above normal for the month, with the exception of northern Uintah County, which saw 50 - 90% of normal precipitation.
- Much of the higher elevations in western Colorado saw above normal moisture for December. The lower elevations were drier reporting less than 90% of normal precipitation.
- The Four Corners area and the San Juan Mountains in southwest CO saw near to above normal precipitation. South of the San Juan Mountains were below normal however.
- The Rio Grande basin saw below normal precipitation in the San Luis Valley, and above normal precipitation in the mountains surrounding the valley. The Sangre de Cristo mountains received over 300% or normal.
- East of the divide saw near to above normal precipitation through much of eastern Colorado and Wyoming. the northeastern counties in Colorado saw greater than 300%. El Paso, eastern Fremont, Pueblo and parts of Crowley and Lincoln counties were quite a bit drier for the month, seeing less than 70% or normal.

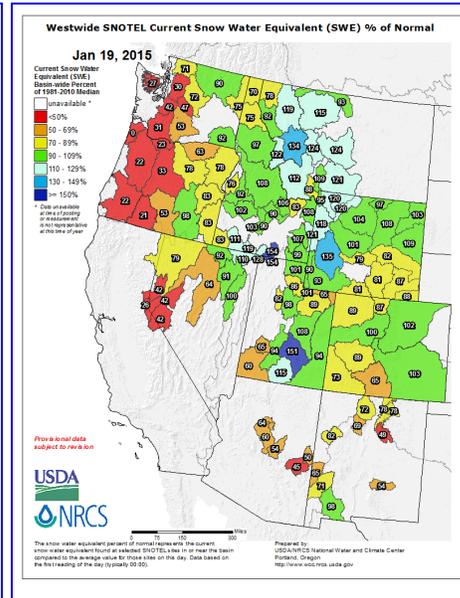
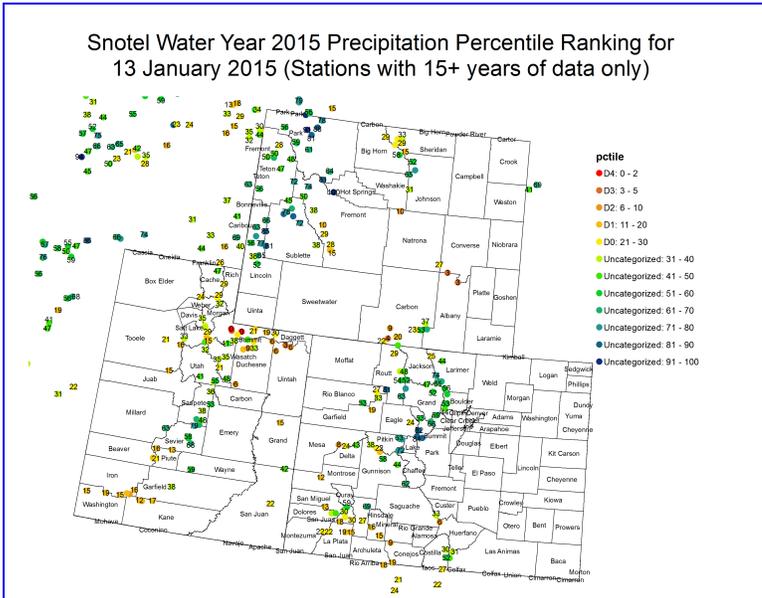
### **Water Year 2015 Precipitation:**

- Three months into the water year, much of the higher terrain of the UCRB is at or above normal precipitation.
- The Upper Green River basin in Sublette, Lincoln and Uinta counties are above normal, while much of Sweetwater County is drier, receiving less than 90% of normal for the Water Year to date.
- The Uintah Range in Utah are drier, reporting less than 90% of

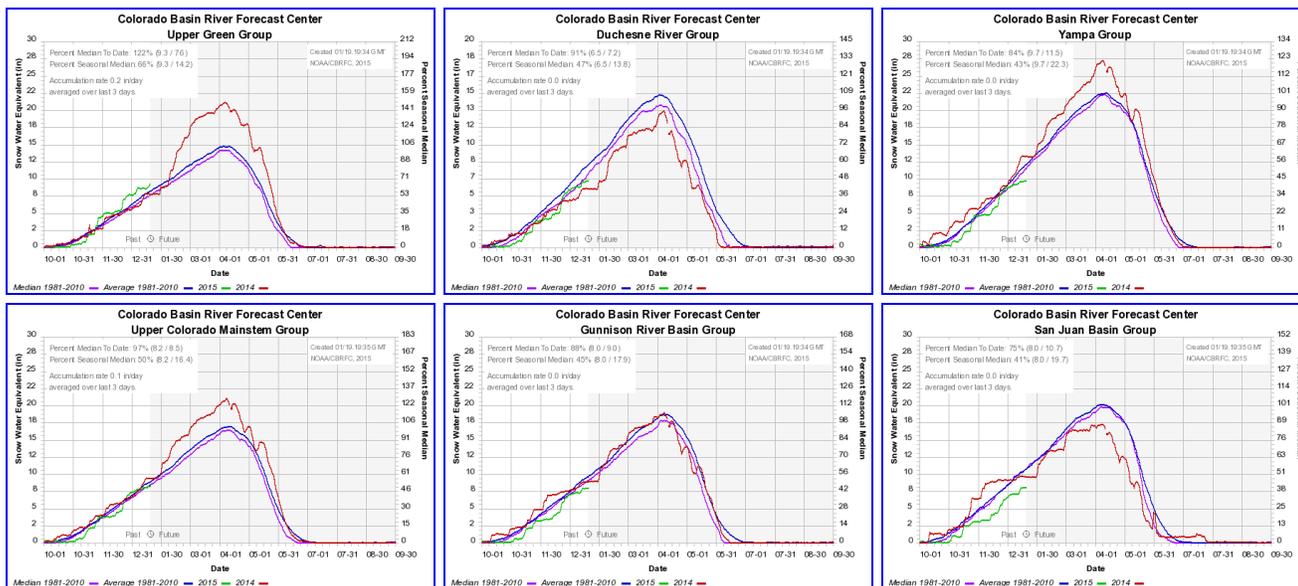
normal, with much of the southern side of the range less than 70% of normal.

- The southern portion of the basin is drier, with much of the lower elevations seeing less than 70% of normal precipitation for the water year to date.
- The San Juan Mountains and headwaters of the Gunnison River are at or above normal.
- The Rio Grande basin is showing better percent of normal, with the higher elevations surrounding the San Louis Valley at or above normal. The Valley is drier, but still near normal (70% and above).
- East of the divide in Colorado, the eastern plains recovered nicely in December, now reporting at or above normal precipitation for the water year. Portions of Weld, Washington, Phillips and Yuma counties are slightly drier, with areas between 70% - 90% of normal.
- Portions of Otero, Crowley, Bent and Las Animas counties, where drought has been the worst, have seen better than 150% of normal 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:

- In the Green River Basin, precipitation percentiles are mainly above the median at most locations.
- The Duchesne basin is showing low precipitation percentiles rankings through the Uintah range where percentiles vary from 0 to 41st.
- The Wasatch Range is having an above average year farther south in Sevier and Sanpete Counties where SNOTEL precipitation percentiles are ranging from 36-79. Farther north conditions have been drier, and percentiles are between 15 and 55.
- The northern mountains of Colorado (Yampa, White, Upper Colorado) are showing a very mixed bag of percentiles. Some of the lower totals are in Garfield and Rio Blanco Counties, and in Carbon County up in southern Wyoming. The wettest area with respect to normal in the northern Rockies so far this water year has been the very high terrain in Lake, Summit, and Park Counties. Here SNOTEL precipitation percentiles are above 80.
- The Central Colorado mountains (Grand Mesa, Gunnison) are showing percentiles above the median in the headwaters, but farther downstream percentiles drop into the 8th to 58th percentile. The lowest are on the Grand Mesa in Delta county, however they are quite variable.
- The San Juan mountains in SW Colorado are reporting percentiles above the median through the northern edge of the range (Ouray, San Juan, Hinsdale) however farther south and west percentiles dry out to the 15th to 22nd.
- The Rio Grande Basin is dry on the western side of the basin where percentiles range from 9th to 19th, on the eastern side of the basin, percentiles are mainly above the 30th.

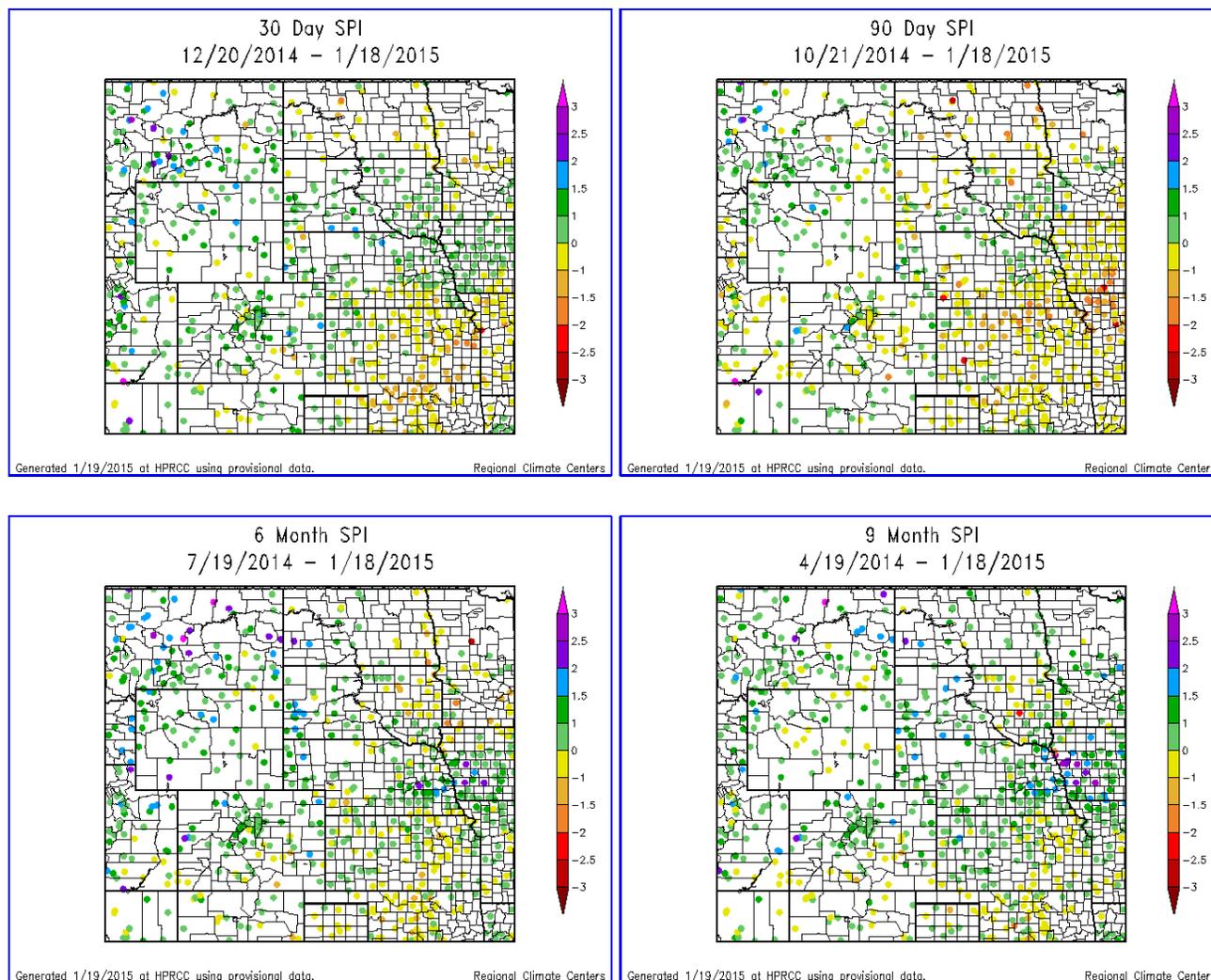
### Basin-wide Snow Water Equivalent (SWE) Percent of Normal:

- Most basins in the UCRB have been dry recently, but are still in the average range thanks to some good storms in December.
- The Upper Green is seeing the highest snowpack in the UCRB ranging from 90 - 135% of normal.
- The Wasatch and Uintah ranges are reporting SWE from 69 - 101% of normal.
- The Northern and Central Mountains in Colorado are reporting SWE from 87 - 100% of normal.
- The Southern basins in the UCRB range from 73 - 89% of normal.
- East of the divide SWE is now ranging from 65% in the Rio Grande basin to 102-103% of median in both the South Platte and Arkansas basins.

### SWE Timeseries Graphs:

- The Upper Green basin is at 122% of median snowpack to date, a slight increase from last week.
- The Duchesne basin is at 91% of median snowpack to date, which is down from 99% of median snowpack last week.
- The Yampa-White basin is at 84% of median snowpack to date, down 7% from last week.
- The Upper Colorado basin is at 97% of median snowpack to date, down 5% from last week.
- The Gunnison basin is at 88% of median snowpack to date, down 4% from last week.
- The San Juan basin is only at 75% of median snowpack to date, down 1% from last week despite some good moisture in parts of the basin.

## 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 Green River Basin is showing SPI's in the normal range between -1 and +1.
- The Wasatch range is showing SPI's mostly above normal. There

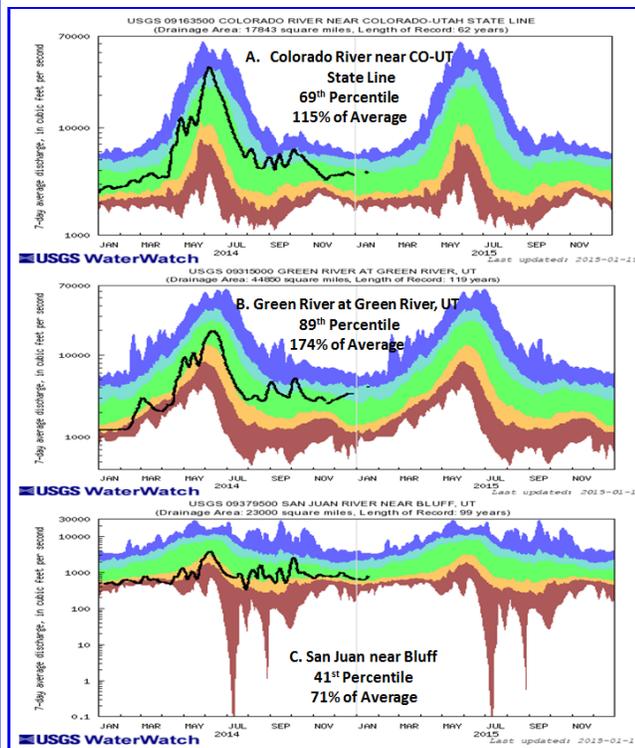
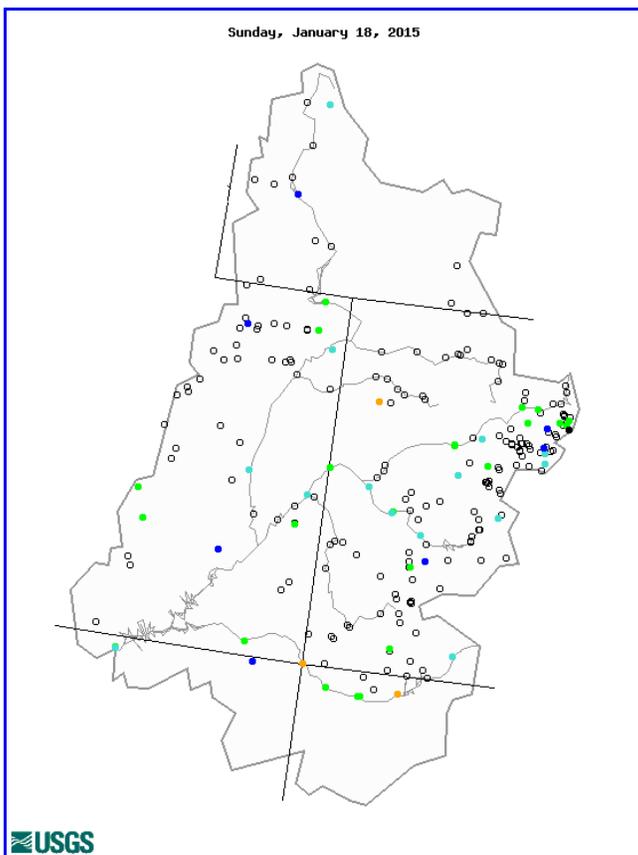
are a couple SPI's between -1 and 0, but most are between 0 and +2.5.

- The majority of western Colorado stations in the Yampa, Colorado, and Gunnison are reporting SPI's above zero and up to +1.5. There are some SPI's in Summit, Gilpin, and Routt Counties between -1 and 0.
- The four corners stations are mainly reporting SPI's between -1 and +1.
- East of the Continental Divide and north of the Palmer Divide, most stations are reporting SPI's above zero. South of the Palmer Divide SPI's are a little less favorable. There are SPI's between -1 and -1.5 in Otero and Crowley Counties as well as SPI's between 0 and -1 in Las Animas and Pueblo Counties.
- The San Luis Valley is average SPI's for the short time scale between -1 and +1.

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

- For the longer term, much of the UCRB continues to report wet SPI's. The Four Corners is the driest area, reporting SPI's from 0 to -1.
  - The San Luis Valley is reporting slightly dry to slightly wet (-1 to +1) SPI's.
  - East of the divide, most of Eastern Colorado is reporting mainly wet SPI's between 0 and +2. There are a number of exceptions to this mainly south of the Palmer Divide, but also including Sedgewick County, reporting between -1 and 0. A couple SPI's in Southern Colorado have slipped back below -1 on the six month timescale in Crowley and Las Animas Counties.
- 

## **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		

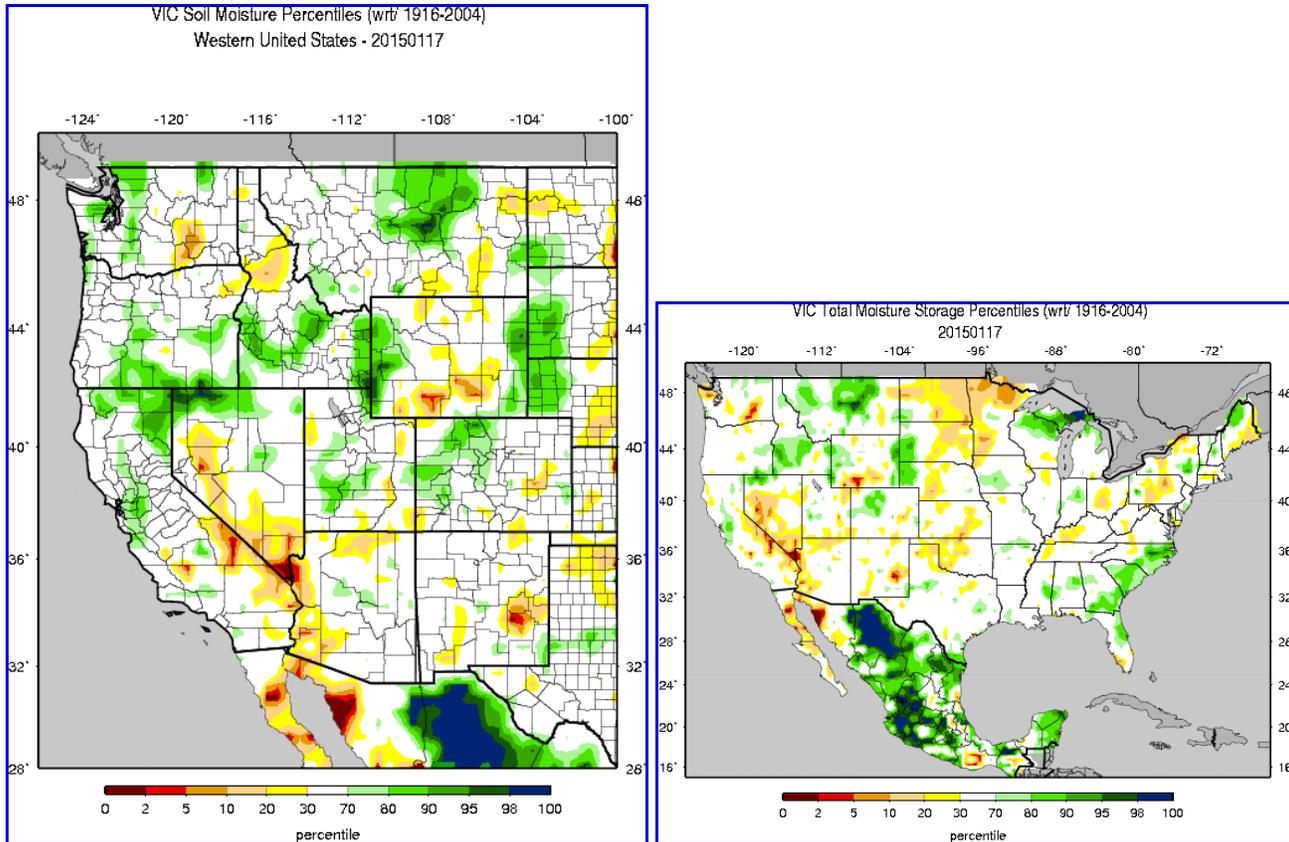
The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff,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

**Streamflow Statistics:**

- Only 47 of the 140 stream gages in the UCRB are reporting. Most, or all others are ice affected.
- 41% of the reporting gages are in the above to high range for 7-day average streamflow, but none are at a record high.
- 53% of gages in the UCRB are reporting 7-day streamflow in the normal range of 25-75th percentile (none are record low).
- 6% of the gages are reporting below normal and no gages are in the much below or record low categories.
- The Green River at Green River, UT is reporting in the 89th percentile at 174% of average for this time of year.
- Streamflow on the Colorado River near the CO-UT state line is no longer ice affected and is reporting in the 69th percentile at 115% of average.

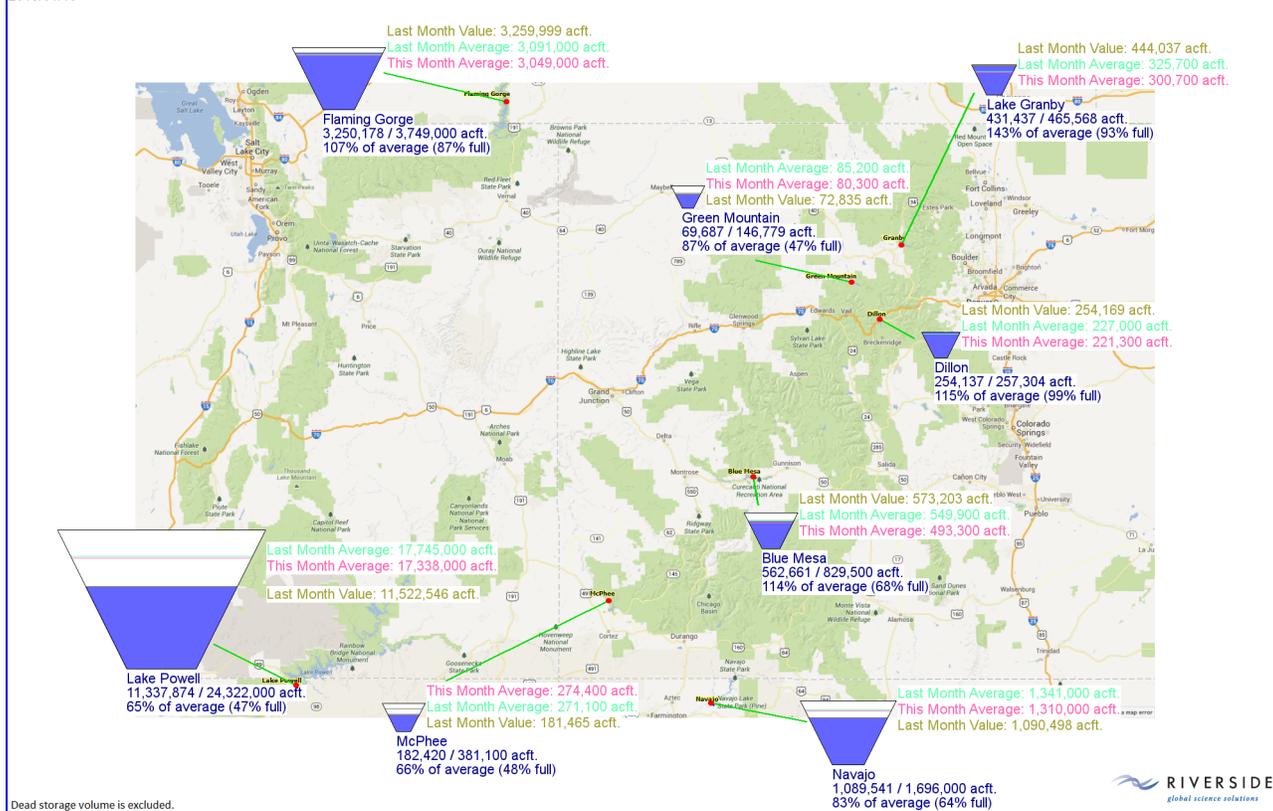
- The San Juan River near Bluff, UT took a bit of an upturn over the past week, and is at the 41st percentile (71% of average).

## 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.

2015/01/19



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.

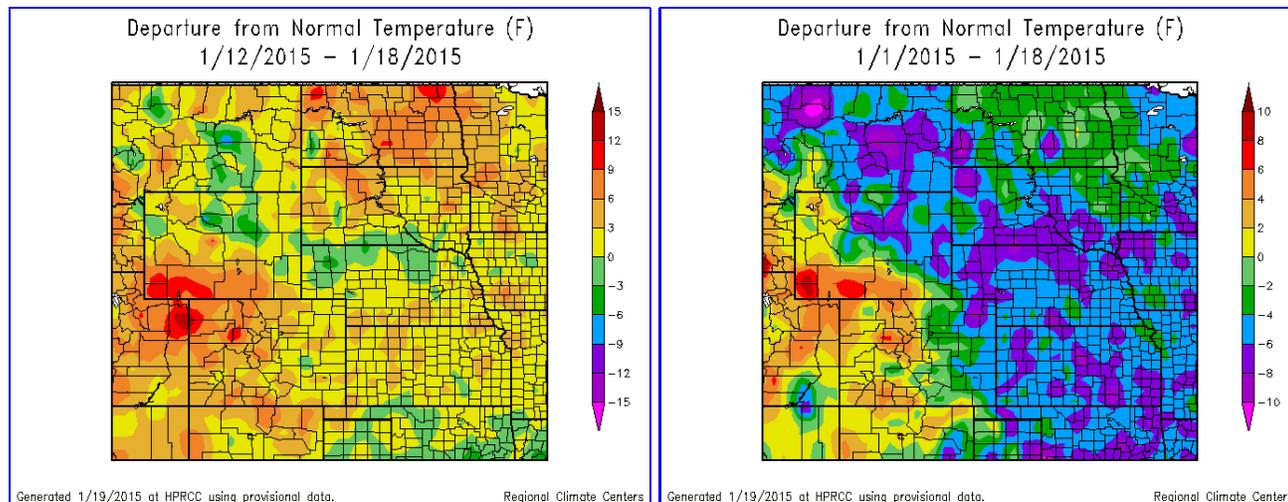
## VIC:

- Sweetwater County, WY has been shown as dry by the VIC for a considerable amount of time and continues to depict soils in the 2-30th percentile range over much of the eastern part of the county.
- Northeastern UT is showing normal to wet soils, with the exception of Uintah County, which is showing dry soils between the 10th and 30th percentile in some areas.
- Western CO is still showing a large area of above average soil moisture over the 70th percentile. The highest percentiles are in Grand County.
- Soil moisture in the Four Corners region continues to show drier soils between the 10th and 30th percentiles.
- The San Luis Valley is mostly in the normal range, with a pocket in the 20-30th percentile range.
- East of the divide, much of the eastern plains are showing normal soil moisture, the exception is southern Lincoln county where soil moisture percentiles range from the 5th to 30th. This area also extends into Crowley and Kit Carson counties.
- The southern edge of Las Animas County is also a bit drier, in the 20-30th percentile range.

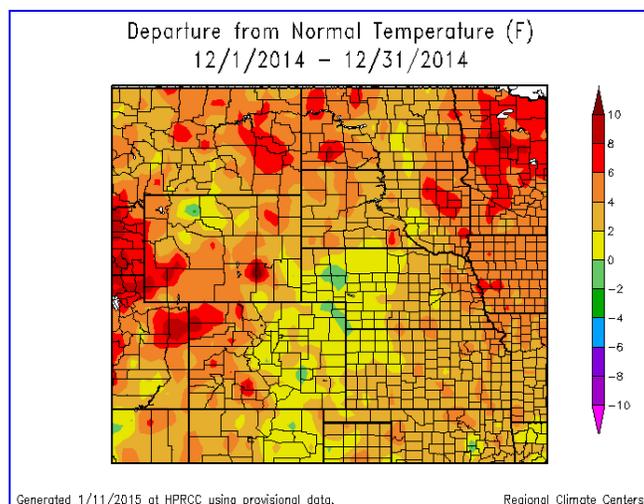
## Reservoirs:

- Flaming Gorge is 107% of the January average.
- Green Mtn is 87% of the January average.
- Lake Granby is 143% of the January average, 93% full.
- Lake Dillon is at 115% of the January average, 99% full.
- Blue Mesa is 114% of the January average.
- Navajo is 83% of the January average.
- McPhee is 66% of the January average.
- Lake Powell is 65% of the January average and is only 47% 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 experienced above normal temperatures last week with the largest departures from normal being realized in northeast Utah.
- The Green River Basin was very warm with temperatures 6-12

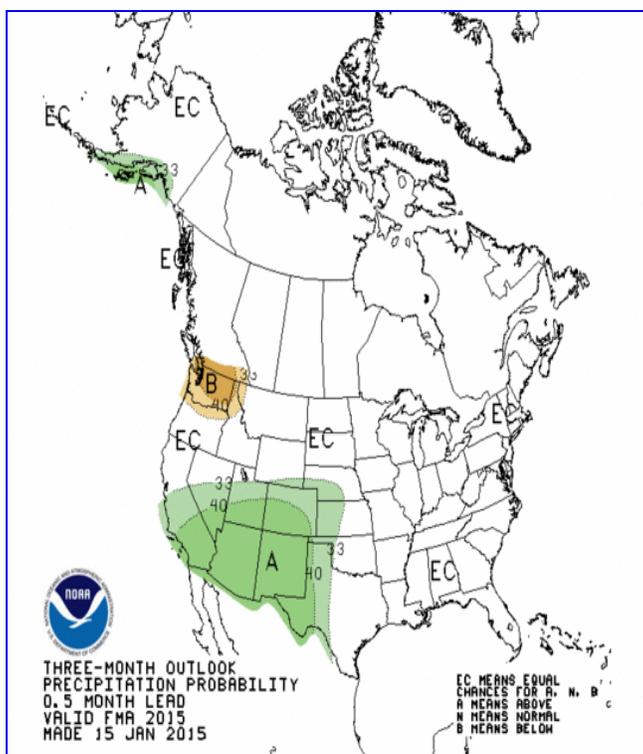
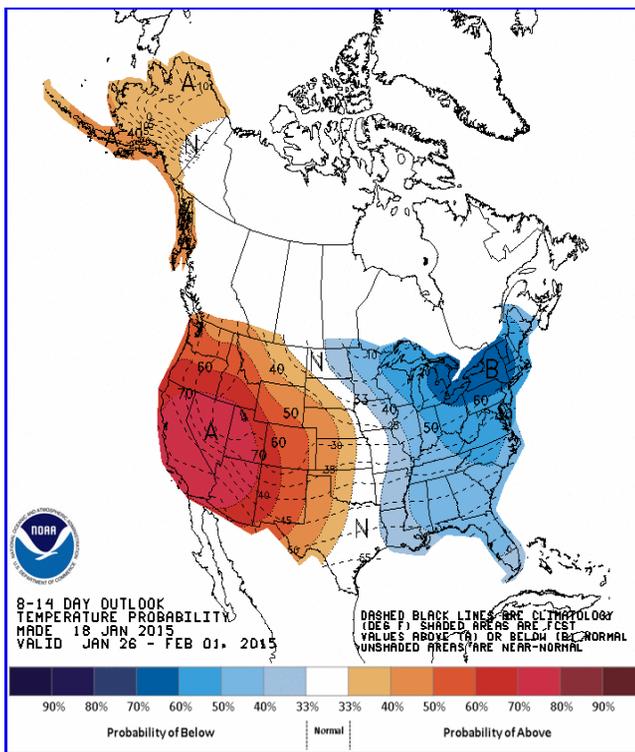
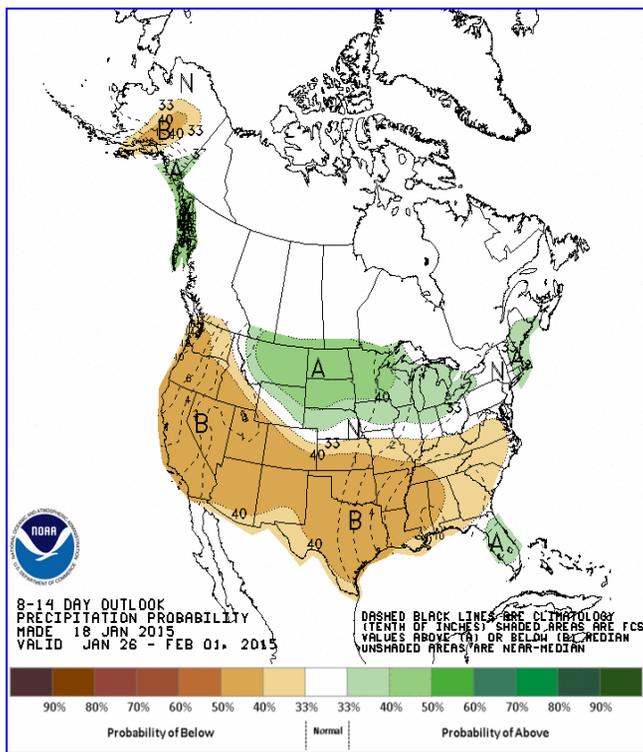
- degrees above normal for the week.
- The Duschesne River Basin realized temperatures 6-15 degrees above normal.
  - The northern Rockies of Colorado were 3-9 degrees above normal over the past week with one spot in western Eagle County in the 9-12 degree above normal range.
  - The Gunnison and San Juan basins were not quite as warm, temperatures were 3-6 degrees above normal for the week.
  - The Rio Grande basin was mostly 0-6 degrees above normal with a pocket in Conejos and Costilla Counties ups to 6-9 degrees above normal.
  - East of the divide temperatures were predominantly 0-3 degrees above normal. Across Larimer and Weld Counties temperatures tended to be 3-6 degrees above normal. Parts of northern Lincoln County and western Kit Carson and Yuma Counties were also 3-6 degrees above normal.
  - Part of south Lincoln County was 0-3 degrees below normal. This was the only spot in the drought monitor region reporting below normal temperatures over the past week.

### **Last Month Temperatures:**

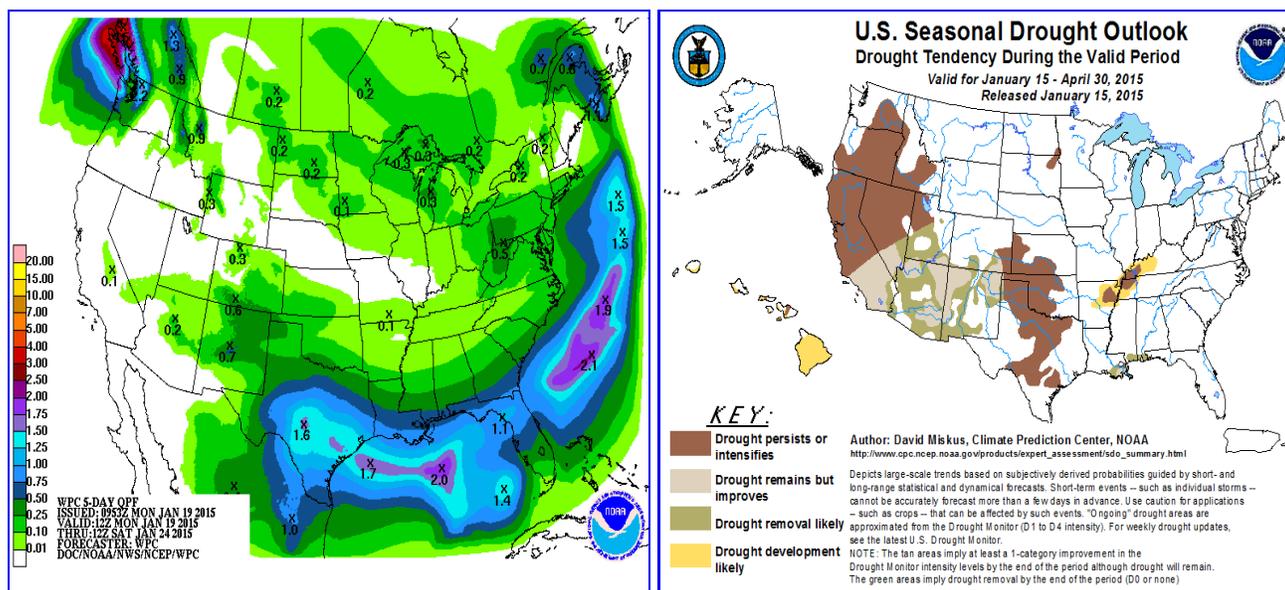
- Despite the cold temperatures the last week of December, the UCRB and eastern Colorado saw a warmer than normal month of December.
- December temperatures in the UCRB were 2 to 10 degrees warmer than normal. Southwestern WY, northeastern UT and northwestern CO saw the most above normal temperatures, 8 to 10 degrees warmer than normal.
- Western Colorado was 4 to 6 degrees warmer than normal, with areas along the Divide were 2 to 4 degrees warmer.
- The San Luis Valley saw temperatures 4 to 10 degrees warmer than normal.
- East of the divide, thanks to the last December freeze, Eastern Colorado was only 0 to 2 degrees above normal for the month. Northeastern Colorado and a small pocket in eastern Pueblo and Crowley counties were 0 to 2 degrees cooler than normal.

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## **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:

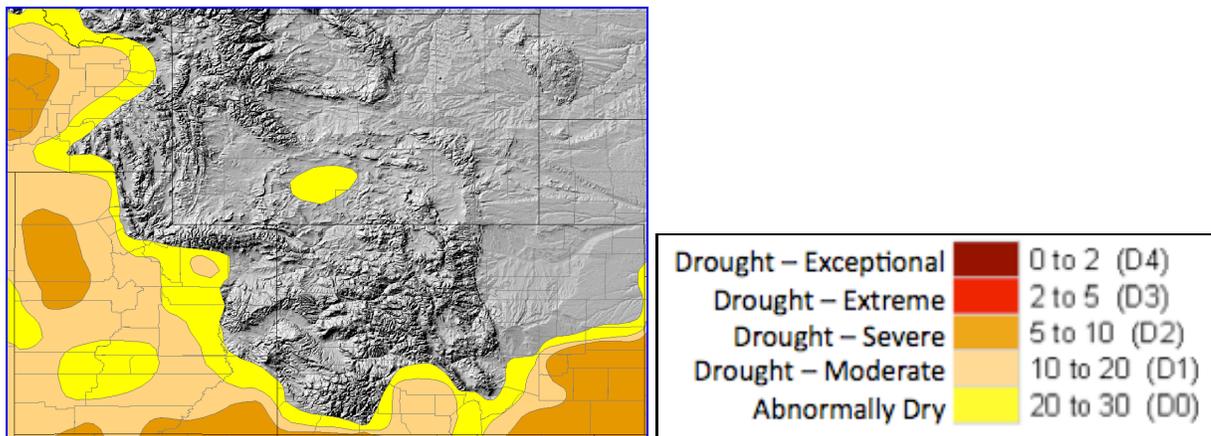
- Warmer temperatures are expected to return to eastern Utah, western Colorado, and the Upper Green River Basin after yesterday's frontal passage. Conditions will be dry. Some gusty winds are possible in the region today and Wednesday, with conditions becoming calmer as a high pressure ridge settles in by Thursday.
- A low pressure disturbance and cold frontal passage will impact southern Colorado tonight into Wednesday. Some snow is expected for the southeast San Juans, the San Luis Valley, Sangre De Christos, and the i25 corridor from Colorado Springs down to the Colorado-New Mexico state line. The brunt of this storm will miss the drought monitor region to the south. Less than half an inch of precipitation is expected.
- Models indicate that the high pressure ridge currently moving into the the western portion of the drought monitor region will cross the divide by Friday morning and be prevalent across the entrie drought monitor region by this weekend. It will take a little longer for temperatures to rebound following cold frontal passage east of the divide, but this ridge will have a predominant warming and drying effect.

## Longer Term:

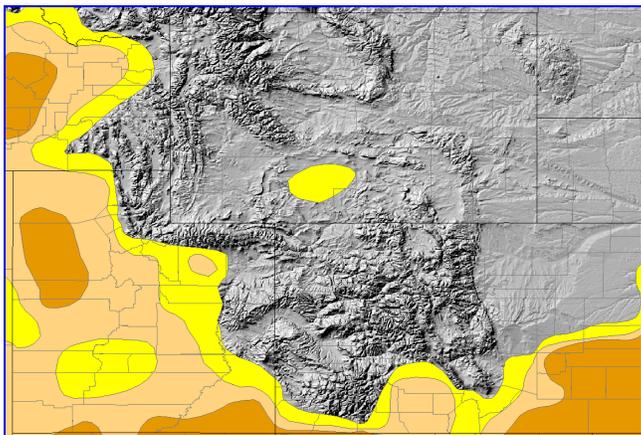
- The 8-14 day precipitation outlook shows increased chances for below average precipitation across the UCRB. These chances are minimized in Northwest Colorado and the Upper Green River Basin where shortwave disturbances are more likely to yield some precipitation.
- East of the divide the 8-14 day precipitation outlook shows increased chances for below normal precipitation in southeast Colorado and equal chances of above and below average precipitation in the northeast corner of the state.

- The 8-14 day temperature outlook shows increased chances for above average temperature across the drought monitor region. This chance is maximized in eastern Utah and minimized on the eastern Colorado border.
- The Climate Prediction Center 3-month precipitation outlook shows increased chances for above normal precipitation for the drought monitor region for the February to April period with the exception of the Upper Green River Basin. Here there are equal chances of above and below normal precipitation. Chances for above average precipitation are maximized in the four corners region.
- The seasonal drought outlook indicates that drought is expected to persist or intensify in southeast Colorado and northeast Utah. The Four Corners Region, and the San Luis Valley are more likely to see improvement or removal.

## 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 January 20, 2015:

Recent precipitation patterns in the Upper Colorado River Basin have been a bit unsettling. Sub basin snowpack percentiles for the season to date are down nearly across the board after a light week of precipitation.

The forecast calls for mostly warm, dry air for the UCRB over the next two weeks with a couple shortwave disturbances holding only modest potential for precipitation in the northern Rockies and Upper Green River Basin. The good news is snowpack numbers are still at or near average in the UCRB following a productive second half of December, and there is plenty of time left in the cold season to recover from a mid-season lull.

### **Recommendations:**

**UCRB:** Status quo is recommended. The largest current drought concerns in the Upper Colorado River Basin are the Four Corners Region, and the Duchesne River Basin and Uintah Mountains area. Both of these areas are well behind on precipitation this water year to date, and are reporting below average snowpack. It is not an appropriate week to make degradations in the San Juans as they received a good round of beneficial moisture over the past week. It is a little early for degrading northeast Utah as well. This will be reassessed carefully next week.

**Eastern Plains:** Status quo is recommended as this region is in their dry season. One of the potential changes discussed in this week's drought webinar was an extension of D0 northward from Huerfano County into western Pueblo County and Fremont County. We are waiting to see what tonight's frontal passage for the area brings before recommending degradations.