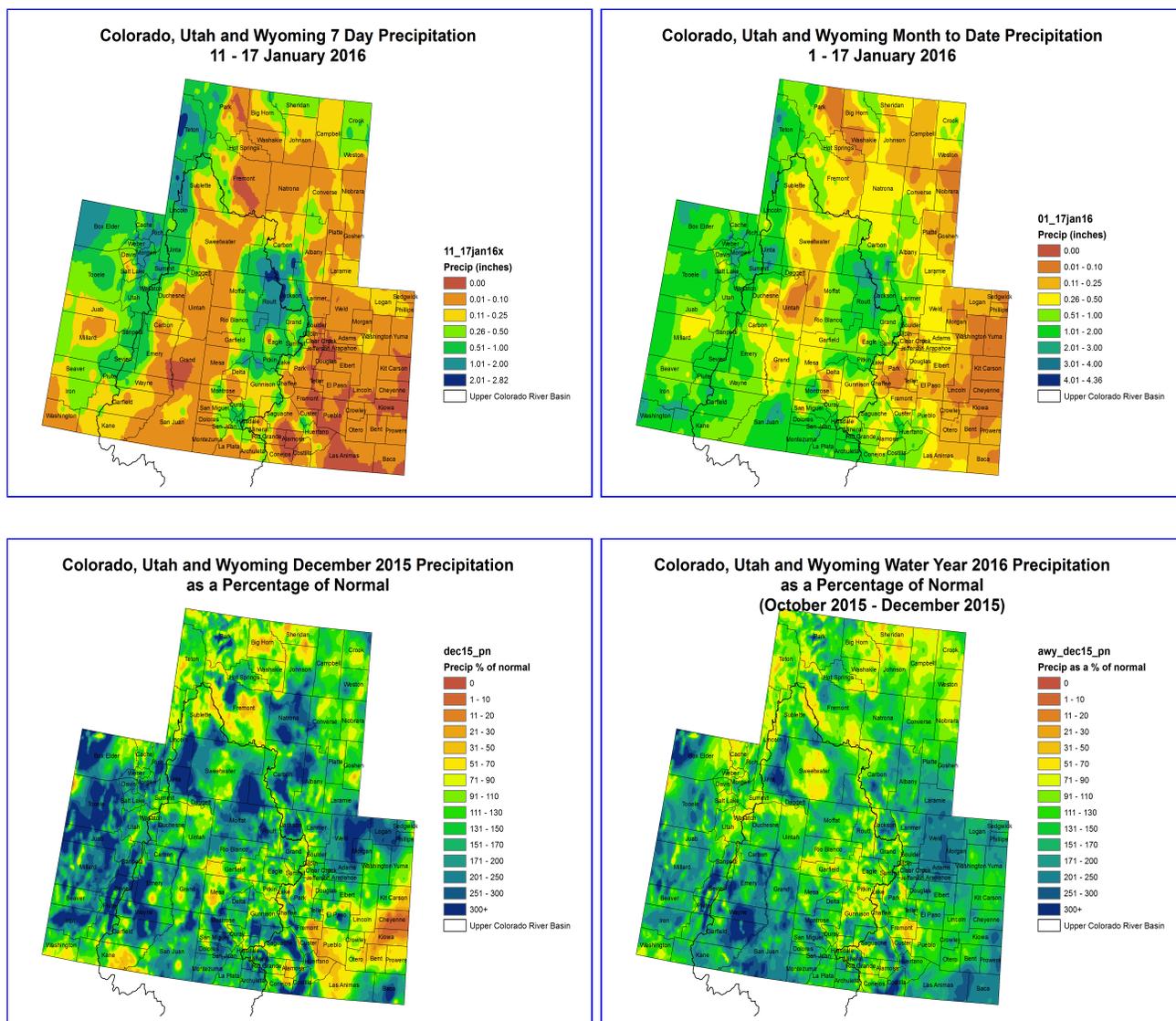


PRECIPITATION



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:

- This week, precipitation was mainly limited to the central Rockies in Colorado and the far western edge of the UCRB.
- The Upper Green River Basin mostly received 0.10-0.25" of precipitation. Uinta and Lincoln counties, WY had a better week with between 0.50"-1.00" falling in much of the area.
- In eastern Utah, the western portion of the Uintah Mountains in Summit, Daggett and Northern Duchesne counties and along the western edge of the basin down into Wayne County saw between 0.25-1.00". The rest

of eastern Utah was drier, seeing less than 0.25".

- Western Colorado was also drier along the CO-UT boarder, with less than 0.25".
- The eastern portions of Moffatt, Rio Blanco, Garfield, Mesa counties, up to the divide saw better precipitation, in the range of 0.25-2.00" last week. The highest areas of Routt County did see over 2.00".
- The San Juan Range only saw precipitation in the higher elevations, mainly in the 0.25-0.50" range.
- The San Luis Valley was dry, with the valley bottom seeing no precipitation last week.
- East of the Divide in Colorado was dry, with much of the region seeing less than 0.10", and some areas seeing no precipitation.

December Precipitation:

- December for the Upper Colorado River Basin was mostly in the normal range at 70-130% of normal. One area in northern Mesa County was over 300% of normal, as was an area in Grand County, Utah. Some portions of western Garfield and Mesa counties, however, were below 50% of normal.
- The Yampa and North Platte river basins both recieved above-average precipitation for the month of December, as did the Green River basin in Wyoming. There were a few areas in central Sweetwater County that only reached into the 70% of normal range.
- December precipitation for eastern Utah was, for the most part, at or above normal. A few standouts were areas in Emery, Grand, Kane, and southwestern San Juan counties that were only in the 20-30% of normal range, while large areas in Emery, Wayne, and Garfield counties were 300+% of normal, as were a couple of spots in Grand and San Juan counties.
- Southwestern Colorado was also at or above normal in terms of precipitation, with a dry spot in the Rio Grande River basin.
- Eastern Colorado was generally above normal for precip in the northeast and southeast corners, and much below normal in east-central Colorado. Areas in Cheyenne and Kiowa counties were as low as the 10% of normal range, while the corners of the state were over 300% of normal.

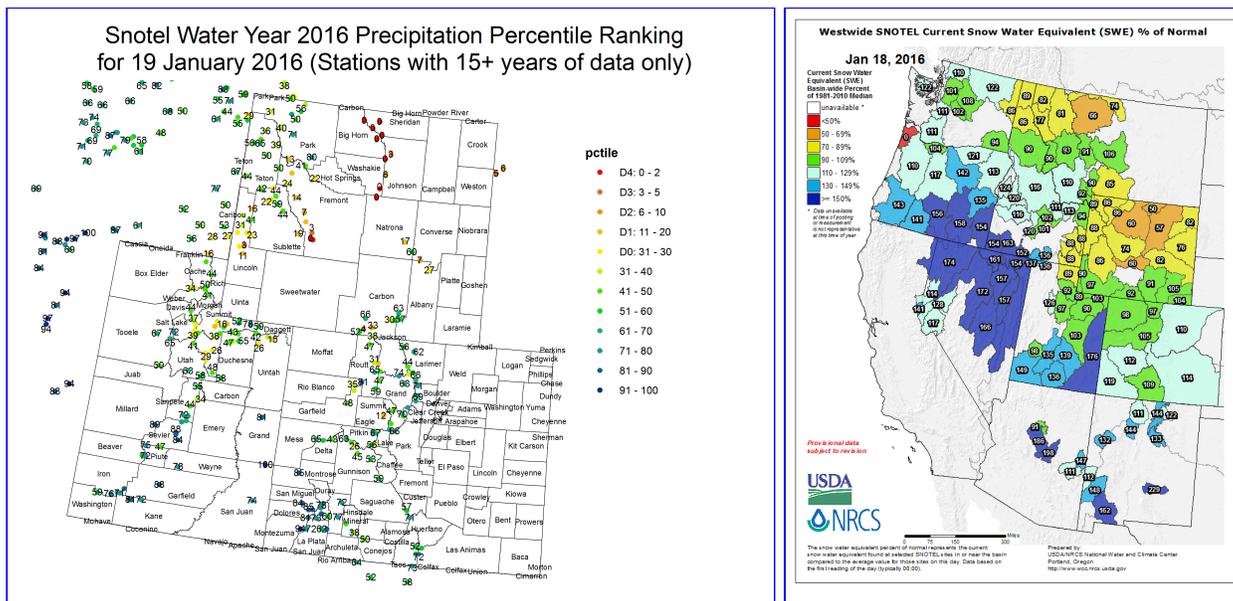
Water Year 2015 Precipitation (Oct-Sep):

- As a result of a very wet Spring, Colorado east of the divide is still above average across the board for the water year to date with a few small exceptions. Isolated areas of Custer and Huerfano Counties are showing below 100% of average.
- The UCRB is mostly close to, but a little below normal for the water year to date.
- Most of the Upper Green River Basin is between 50 and 90% of normal

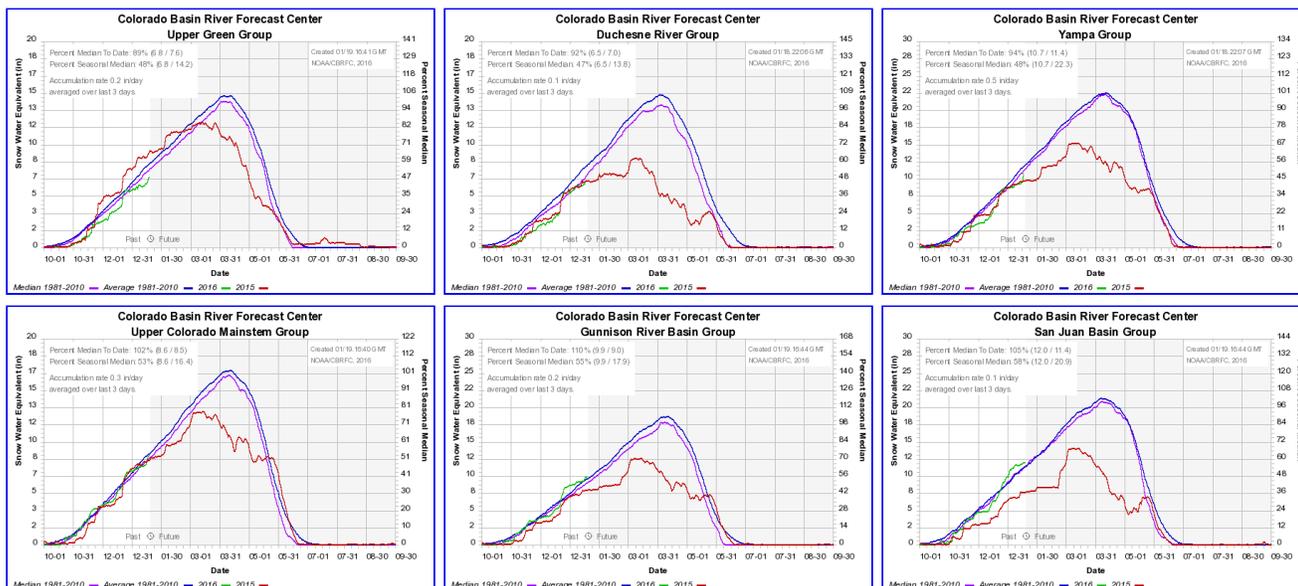
for the water year to date. Central Sweetwater County is in great shape at over 110% of normal.

- Northeastern Utah is mostly between 75 and 100% of normal for the water year to date. Farther to the west over higher terrain percentages are a little lower at between 50 and 75%.
- Southeastern Utah has balanced out to a fairly typical water year to date. The area is between 75 and 125% of normal.
- AHAPS indicates a very dry band in Conejos, Rio Grande, Mineral, and southwest Saguache Counties. Here precipitation is less than 50% of average for the water year to date. Radar does tend to struggle in this area, so it may be worth taking another look at when our precipitation figures update. Most of western Colorado is just slightly dry. The area is between 75 and 110% of normal for the water year to date.
- The Rio Grande Basin is now showing a mixed bag of above and below normal water year to date conditions. Southern Costilla County is doing very well at over 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).



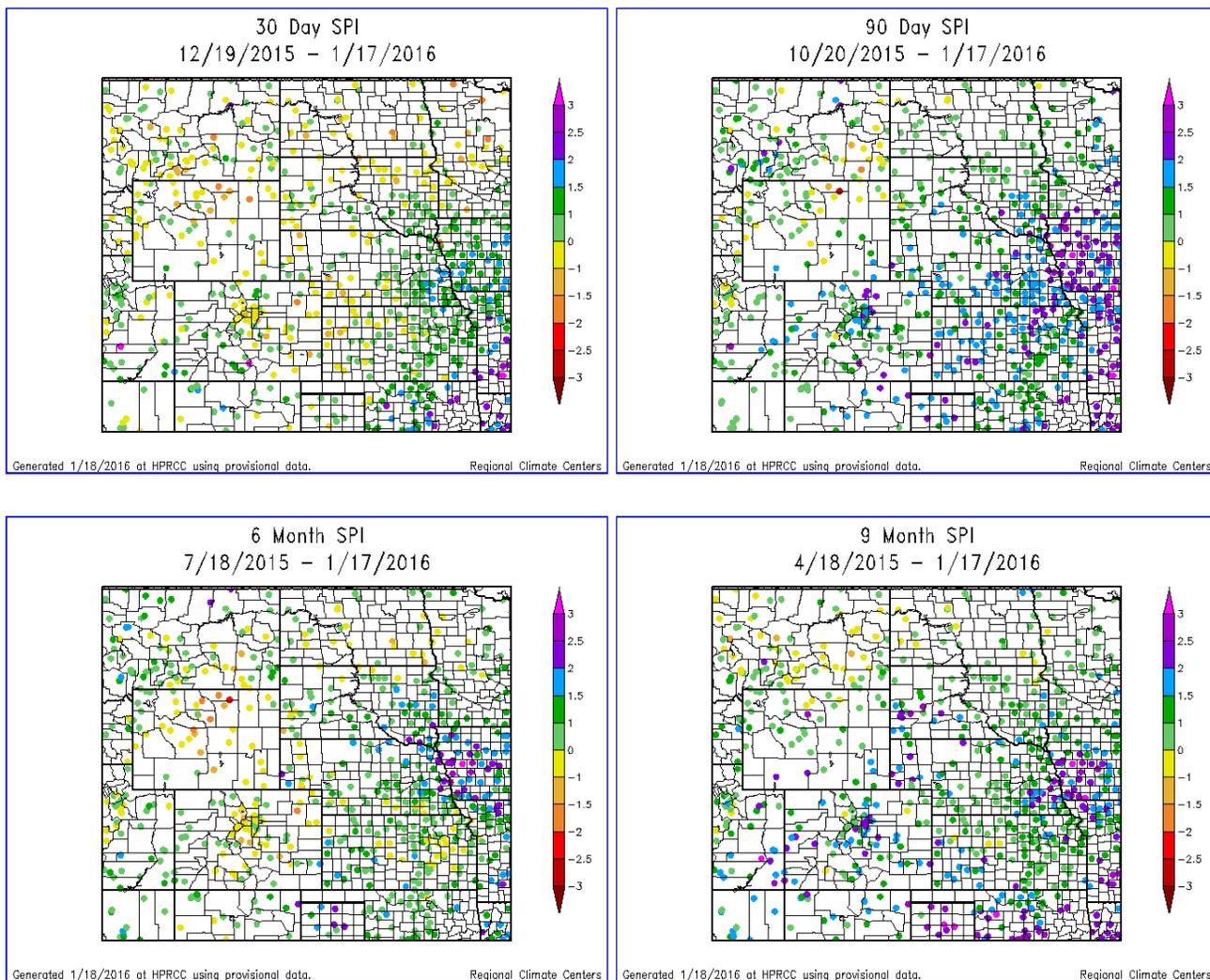
SNOTEL Precipitation Percentiles:

- SNOTEL Water Year precipitation percentiles in the Upper Green Basin are mostly below the median. Percentiles in the northern portions of Sublette County are mostly in the 20 - 40th percentile range. Percentiles in Lincoln and southern Sublette counties are below the 20th percentile.
- The Uintah Range is in the average range, but there is a lot of spread. SNOTEL water year to date percentiles are between 15th and 78th.
- In the Wasatch Range there is a gradient from north to south with the northernmost percentiles being the lowest. The southern Wasatch Range and all SNOTEL precipitation percentiles in southeast Utah are well above average.
- The northern Rockies in Colorado extending into Wyoming percentiles are in the normal range, but mostly below the median. A few percentiles in Routt, Larimer and along the Divide in Grand counties, are above the 60th percentile.
- The Rockies of central Colorado are mostly above average, but percentiles range from the 12th to 70th.
- The San Juans are well above average to start the water year. Percentiles are above the median, with most above the 70th percentile.
- The Sangre de Cristos are above average with percentiles between the 52nd and 78th.

SWE Timeseries Graphs:

- The Upper Green Basin is slightly below normal, at 89% of median snowpack for the season to date.
- The Duchesne basin is at 92% of median snowpack.
- The Yampa River Basin is at 94% of median snowpack to date.
- The Upper Colorado River Mainstem is now at 102% of median snowpack.
- The Gunnison Basin is at 110% of median snowpack for the season to date.
- The San Juan Basin is at 105% or median snowpack to date.

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):

- SPIs in the UCRB have started to drop off a bit, with a few more 0 to -1 SPIs showing up.
- The Green River Basin is mostly in the normal range in the short term (-1 to +1). One SPI in Sweetwater County is in the +1 to +1.5 range.
- Northeastern Utah is showing SPIs in also in the range of - to +1, with a few more negative SPIs showing.
- Southeast Utah is also showing SPIs primarily between 0 and +1.5. One SPI in San Juan County is between +1.5 and +2, and one SPI in western Wayne County is above +3.
- Western Colorado is also starting to see some 0 to -1 SPIs, however there are more 0 to +1.5 than negative. Grand and Summit counties now have all dry SPIs in the 0 to -1 range.
- Eastern Colorado 30-day SPIs are now mostly in the dry range. Only

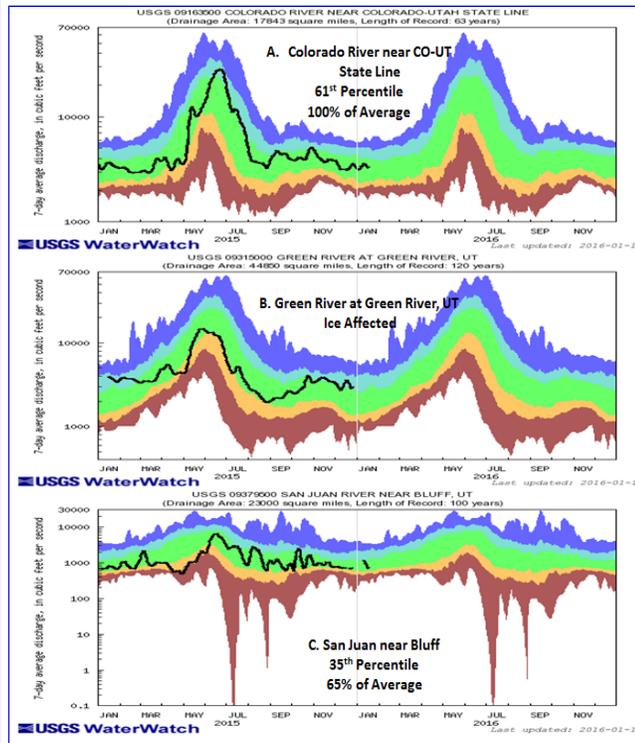
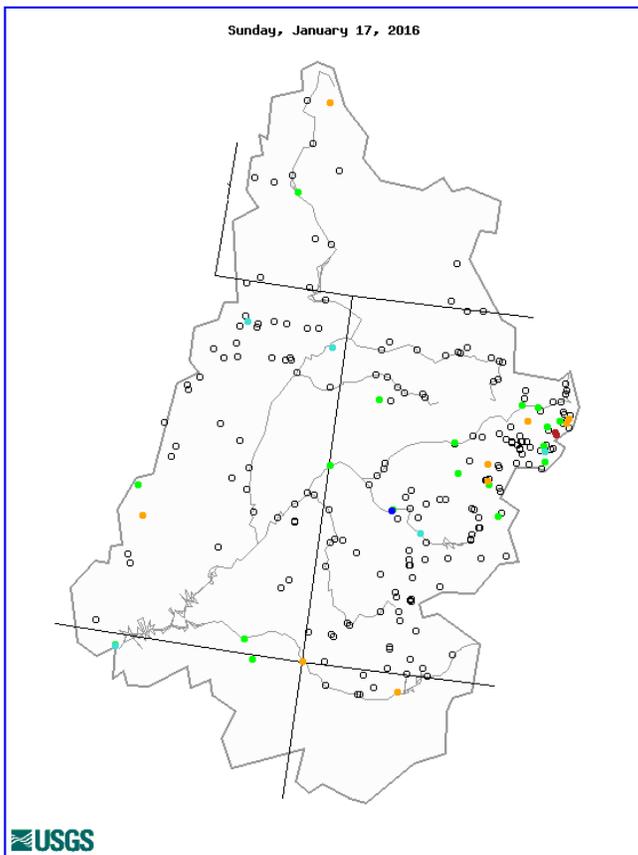
Larimer, Weld, Logan and Pueblo counties are showing positive SPIs, mainly in the 0 to +1 range, Larimer County is in the +1 to +1.5 range. All other SPIs are in the 0 to -1 range, with a few between -1 and -2.

- The Rio Grande Basin showing SPIs that are all positive. One SPI in eastern Alamosa County is above +3.
- When looking at the 90 Day SPI, all SPI points in the UCRB and eastern Colorado are on the positive (wet) side of the scale.

Long Term (6-month):

- 6-month SPIs in the UCRB are trending a bit on the wetter side for lower elevations and a bit on the drier side for higher elevations.
- The Upper Green River basin is in the normal range with SPIs between -1 and +1.
- Eastern Utah 6-month SPIs are mostly wet with the vast majority of SPIs between 0 and +1.5.
- Western Colorado is showing SPIs mostly between -1 and +1. The driest SPIs show up in Grand, Summit, Lake, and Gunnison Counties.
- The San Luis Valley is showing 6-month SPIs in the normal range.
- East of the divide the majority of 6-month SPIs are between -1 and +1. The northeast corner of the state is still showing some long-term dryness with SPIs down to -2. There are patches of dryness in Park, Crowley, El Paso, and Pueblo Counties as well.

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		

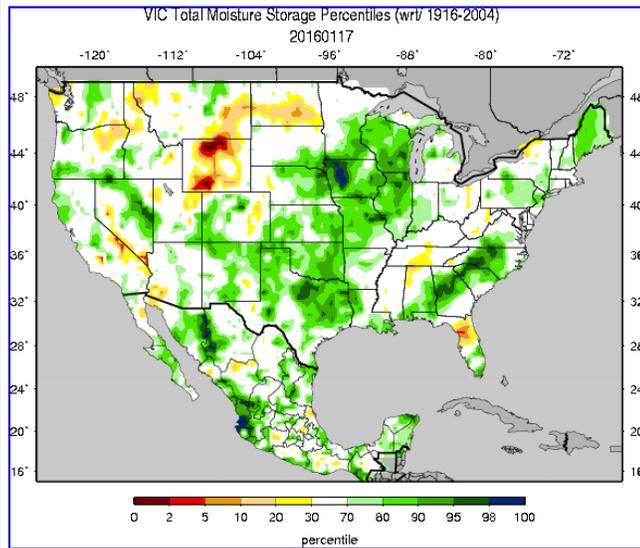
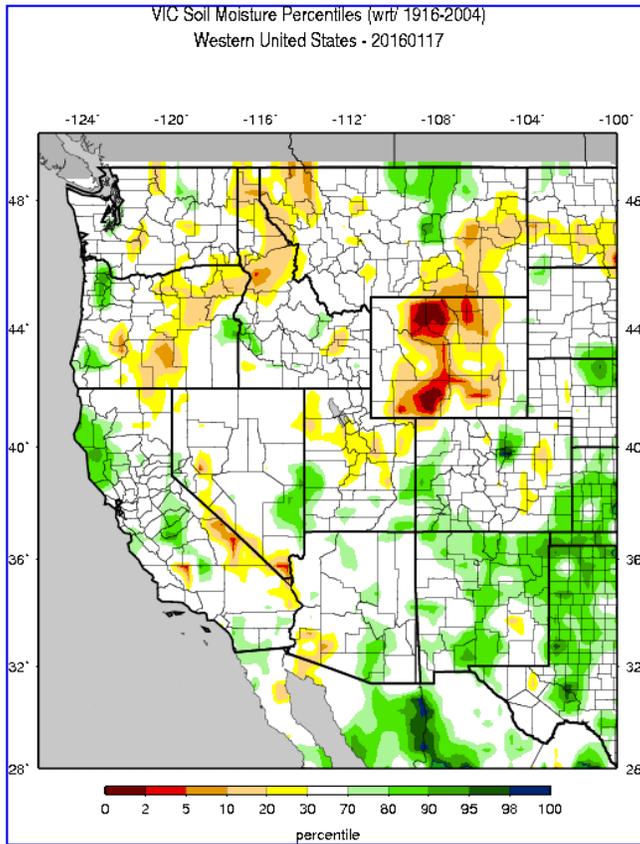
The top left image shows 7-day averaged streamflows as a percentile ranking across the UCRB. The top right image shows 7-day averaged discharge over time at three key sites around the UCRB: The Colorado River at the CO-UT state line; the Green River at Green River, UT; and the San Juan River near Bluff,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

Streamflow Statistics:

- The majority of stream gauges in the UCRB are now ice-affected and not reporting. Only 35 out of over 100 gauges are not ice-affected.
- 68% of gauges are reporting in the normal to much above normal range for the 7-day average streamflow.
- 2% of gauges reporting are in the below normal to much below normal range.
- The Colorado River at the CO-UT state line is at 100% of normal and in the 61th percentile.
- The Green River near Green River, UT is not reporting due to ice.
- The San Juan River near Bluff has dropped to the 35th percentile, 65% of normal. This gauge was ice-affected from the end of December to the second week of January, so ice could play a role in the lower flow of

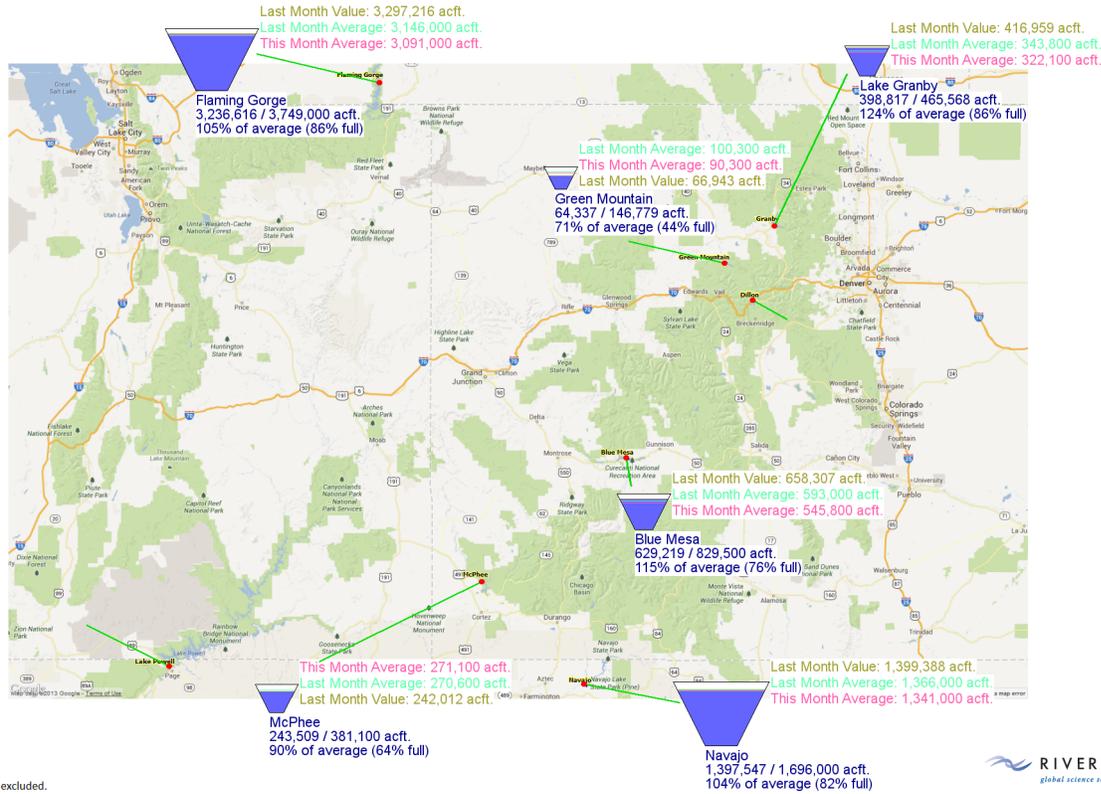
the river.

SURFACE WATER

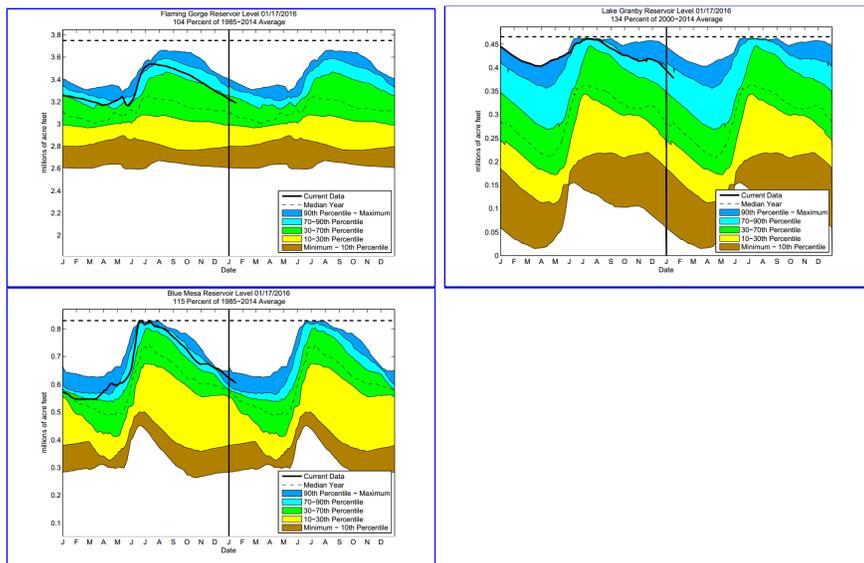


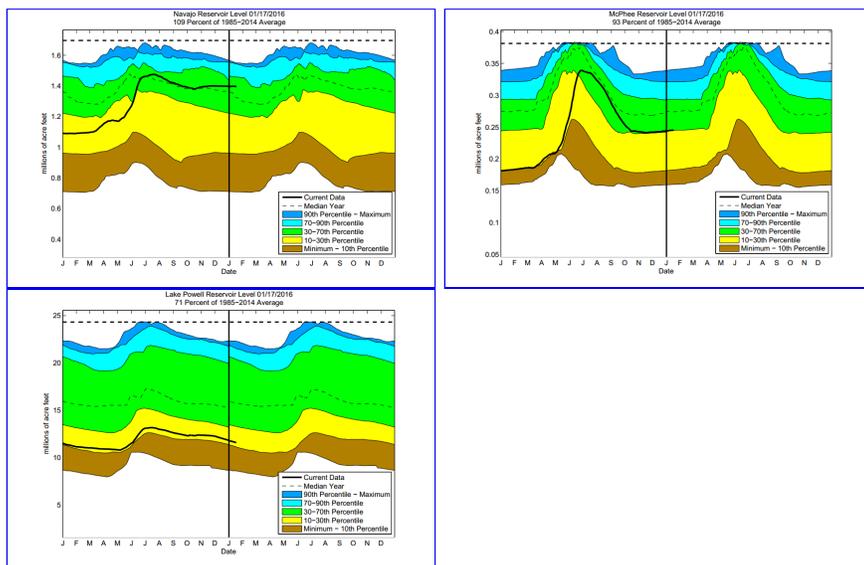
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows VIC+SWE.

2015/12/28



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. The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir levels observed over the past 30 years. The data are obtained from the Bureau of Reclamation. Some of the reservoir percentiles don't line up at the new year due to differences in reservoir levels at the beginning of 1985 and the end of 2014. Dead storage has been subtracted. Note: Lake Granby data are obtained from the Colorado Division of Water Resources, and only goes back to the year 2000.





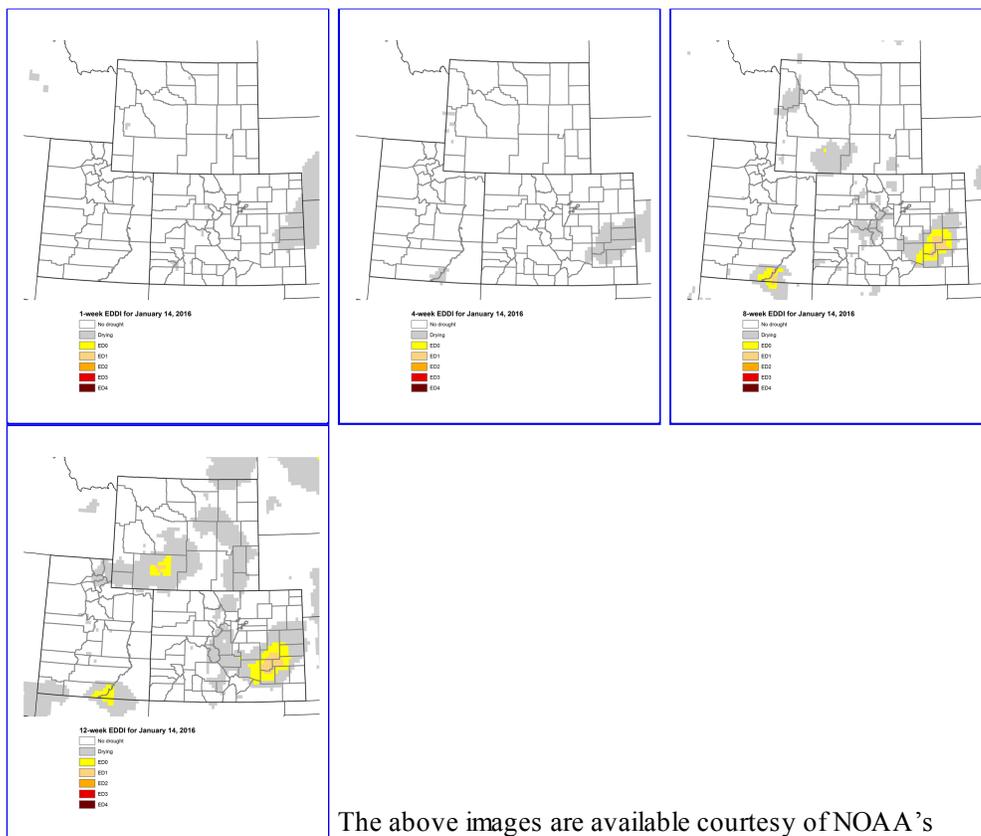
VIC:

- Modeled soils moisture in the Green River Basin in Wyoming continues to be much below normal, and conditions have been deteriorating over the past several weeks. In Sweetwater County, below the 2nd percentile in the eastern portion of the county. All of Sweetwater, and now parts of Sublette and Uinta Counties are below the 30th percentile.
- Soils in eastern Utah are mostly in the normal range with a bit of a gradient from northwest to southeast. Areas farther north and west such as Duchesne, Uintah, and Emery Counties are indicating some dry patches of soil between the 10th and 30th percentile. Some areas farther south and east such as eastern San Juan and eastern Grand Counties are showing soils between the 70th and 90th percentile.
- Soils in western Colorado are by and large either in the normal range or a bit above normal. Areas farther south are more likely to be above normal. Some dry soils extend down into Moffat County from the north. Soils in Mesa County are as wet as the 95th percentile.
- Soils in the Upper Rio Grande part of Colorado are mostly in the normal range with some wetter soils near the Colorado-New Mexico border.
- Soils in northeastern Colorado are mostly in the normal range. Jefferson, Broomfield, Adams, Boulder, and southern Weld Counties are showing wet soils up to the 98th percentile. Some areas in east-central Colorado are showing soil moisture in the 10th-30th percentile range, but most of the high plains are in the normal range.
- Soils in southeast Colorado range from dry to wet. In eastern Pueblo and El Paso Counties as well as Crowley and Otero Counties soils are still showing up below the 30th percentile. Soils in the southeast corner of the state in Baca, Prowers, and eastern Kiowa Counties are between the 70th and 90th percentile.

Reservoirs (based on the graphs below the map):

- Flaming Gorge is at 104% of the January average.
- Lake Granby is at 134% of the January average.
- Green Mountain is now at 71% of the December average and 44% full.
- Blue Mesa is at 115% of January average.
- Navajo is at 109% of January average.
- McPhee is at 93% of the January average.
- Lake Powell is 71% of the January average.

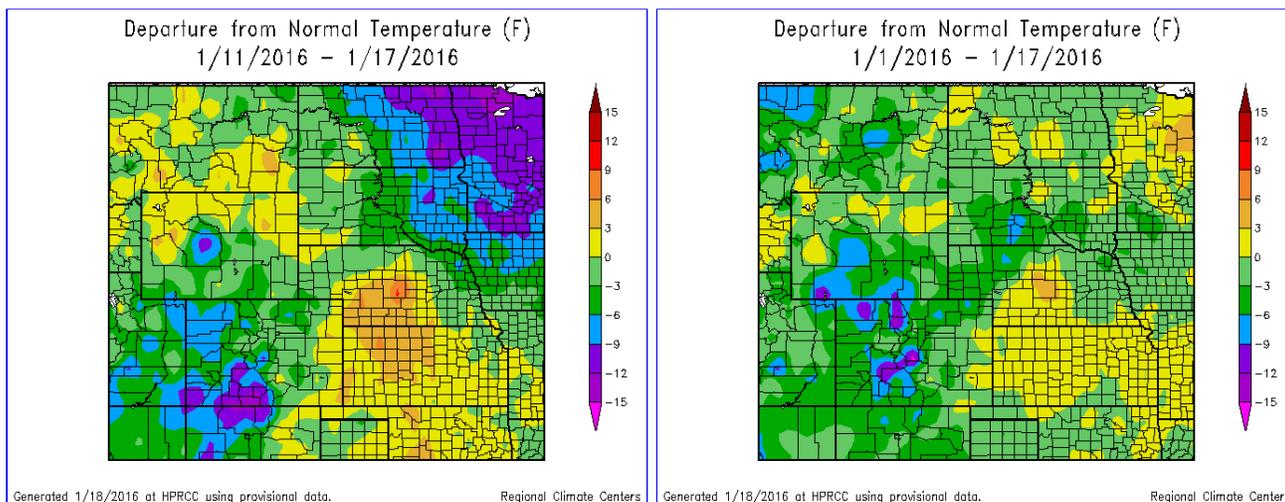
EVAPOTRANSPIRATION



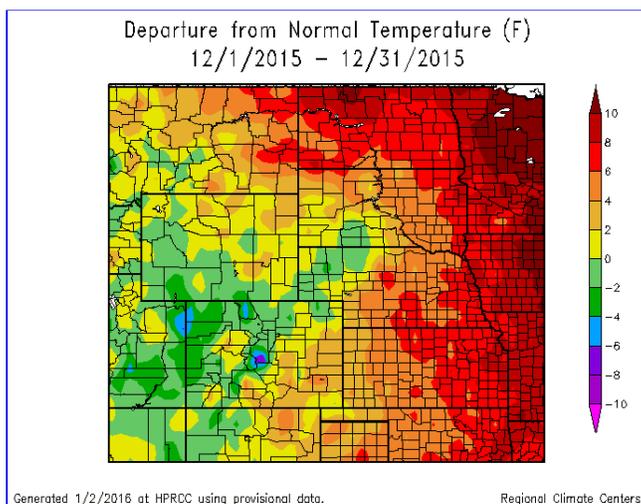
The above images are available courtesy of NOAA's

Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are in line with the US Drought Monitor's Percentile Ranking Scheme <http://droughtmonitor.unl.edu/AboutUs/ClassificationScheme.aspx>. Data used to generate these maps come from the North American Land Data Assimilation System Phase-2 (NLDAS-2) project, which assimilates observations of temperature, wind speed, radiation, and vapor pressure deficit. The date indicates the last day of the period of record, and the week number indicates the window size for the period of record..

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 UCRB saw mostly below normal temperatures, with the exception of the northern portion of the Upper Green River Basin.
- Sublette County in southwestern Wyoming saw temperatures 0 to 3 degrees above normal for the week. The rest of southwestern Wyoming was in the 0 to 6 degrees below normal range.
- Eastern Utah was below normal, mostly in the 3 to 6 degree below normal range. Uintah and southern San Juan County saw 6 to 9 degrees below normal for the week.
- Western Colorado was mostly 3 to 9 degrees below normal. The coldest parts were in northwestern and southwestern Colorado. The Four Corners area was down in the 9 to 12 degrees cooler than normal range.
- In Colorado east of the divide temperatures were mostly 0-6 degrees cooler than normal. Southern Park County were as much as 6 to 12 degrees below normal. Weld County was also a cooler spot with 3 to 9

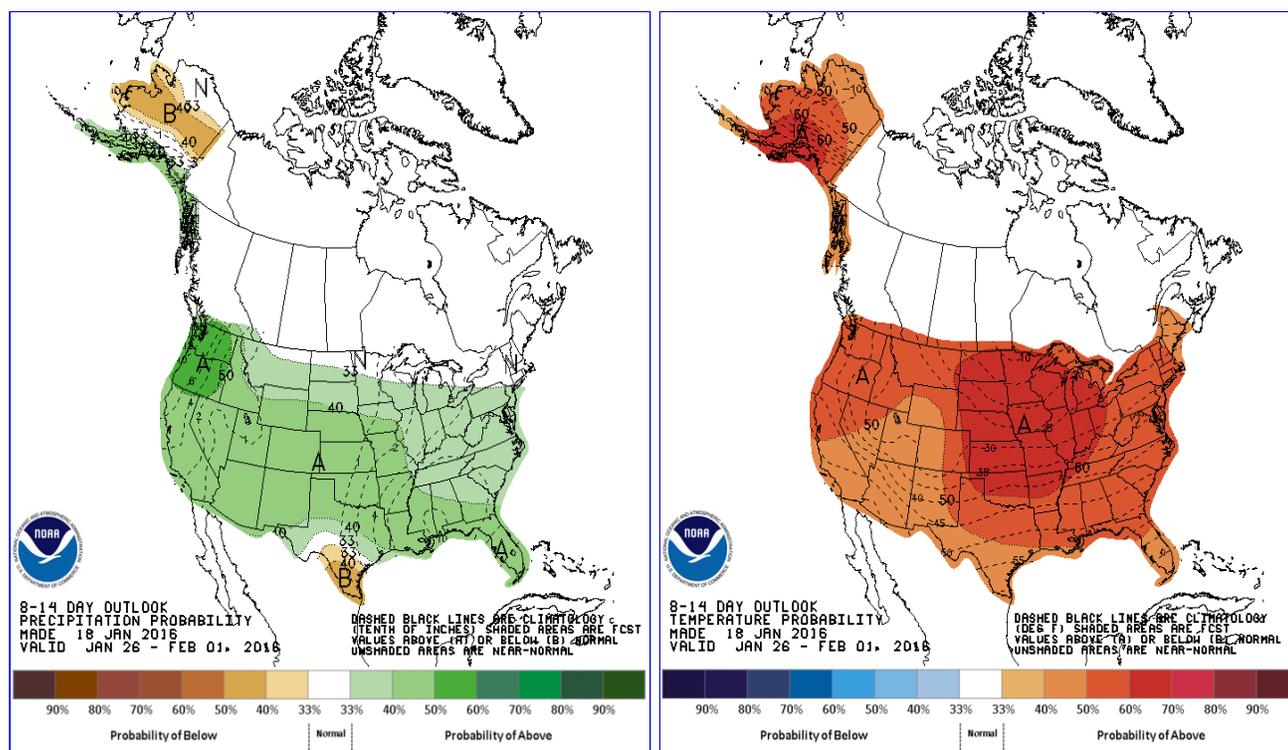
degrees cooler than normal.

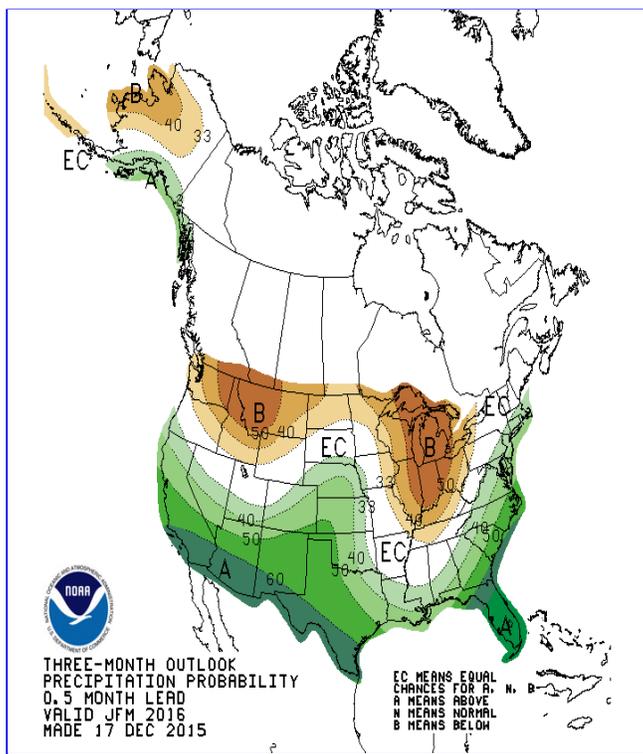
- The counties along the eastern border of Colorado were warmer than normal, in the 0 to 3 degrees above normal range.
- The Rio Grande Basin saw temperatures 6 to 15 degrees below normal.

December Temperatures:

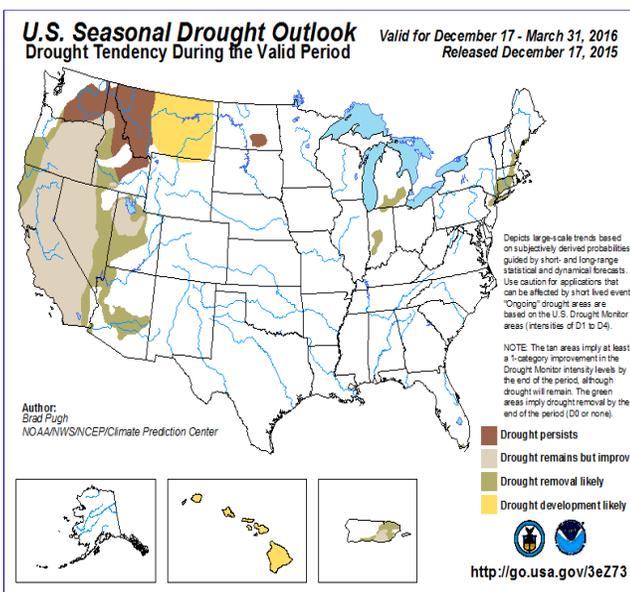
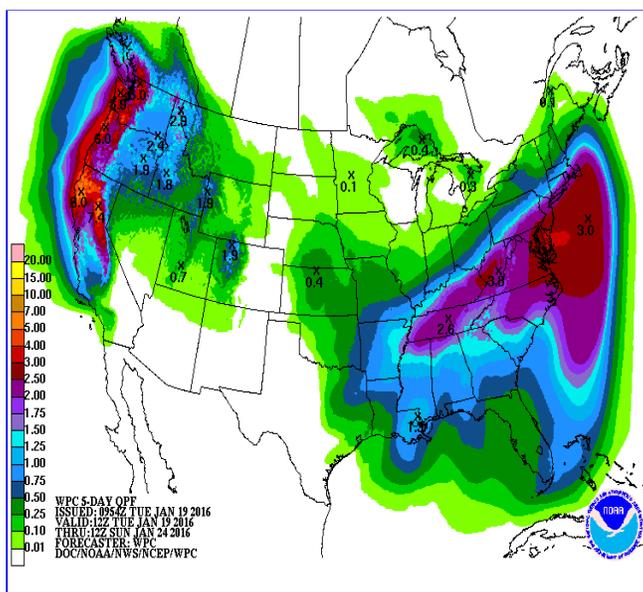
- The UCRB for the month of December was generally about normal in terms of temperatures. Parts of Garfield, Eagle, and Pitkin counties were about 4 degrees above normal, while further downstream in Mesa County temperatures were 4 below normal.
- The Green River basin in Wyoming were in the normal range for temperatures, as was eastern Utah. Eastern Uintah County was up to 6 degrees below normal.
- Southwest Colorado as also in the normal range for temperatures in the month of December, between -4 and +4 degrees of normal.
- Eastern Colorado was in the normal range of temperatures in the northeast portion of the state, while further southeast temperatures trended towards the warm side at mostly 2 to 4 degrees warmer than average. North Bent County was nearly 6 degrees above normal. One major standout is southern Park County which saw December temperatures roughly 8 degrees below normal.

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: (1/19)

- Precipitation over the coming week is expected to be confined primarily to the higher elevations. Northwestern Colorado is in the best position for large snowfall totals.
- As of today, the UCRB is under high pressure with the polar jet directly

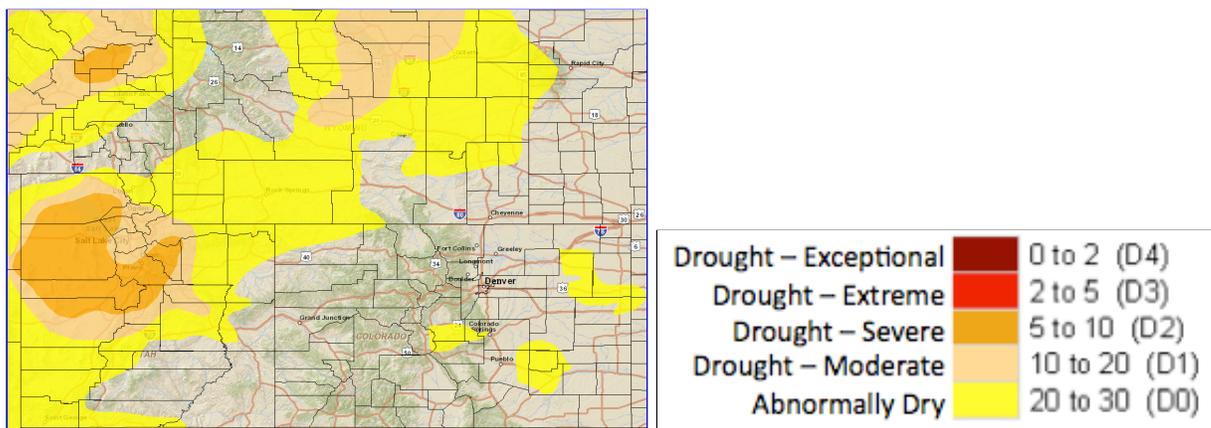
to the north. For this time of year the jet is not particularly strong.

- Tonight into tomorrow morning the jet dives south cooling things off a little bit. This westerly flow will lead to some decent snow totals over northwest Colorado.
- As the week rolls on temperatures warm. Friday and Saturday especially highs could be well above average in the UCRB and eastern Colorado. On Saturday night another system moves in from the northwest.
- On Sunday this low pressure will exit out onto the plains. As it does so, temperatures will cool again, and much of Colorado and eastern Utah will receive at least some snow. The main benefactors appear to be the Wasatch Range and the Rocky Mountains in Colorado, but lower elevations east of the divide are likely to see some light snow.
- Next week models are hinting at split flow where the polar jet recedes up into Canada, and a subtropical jet drops above average precipitation totals across much of the southern and middle portions of the lower 48. The southern portion of the UCRB and eastern Colorado may see a significant weather event, but as is usual that far in the future there is a fair amount of uncertainty.

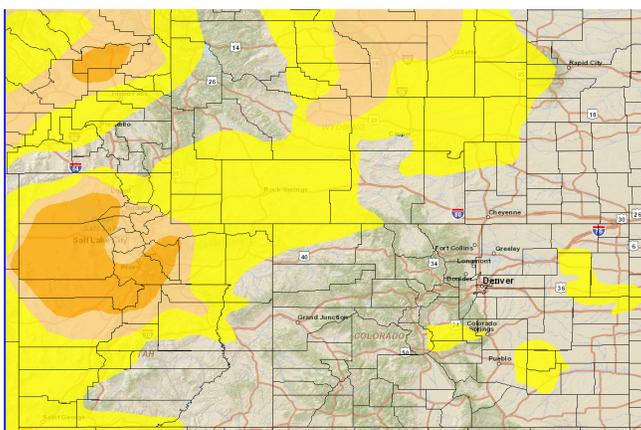
Longer Term:

- The 8-14 day precipitation outlook shows increased chances for above average precipitation for the entirety of the UCRB and eastern Colorado, nearly the whole country for that matter.
- The 8-14 day temperature outlook shows increased chances for above average temperature for literally the entirety of the lower 48 and Alaska. In the UCRB these chances are weakest to the southwest. In eastern Colorado these chances are strongest to the eastern border.
- The Climate Prediction Center January through March precipitation outlook shows increased chances for above average precipitation the south end of the UCRB. Most of Colorado east of the divide is forecast increased chances of above average precipitation, particularly towards the southeast corner of the state.
- The seasonal drought outlook for January through March indicates that drought improvement and removal are likely where it remains on the western fringe of the UCRB.

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: January 19, 2016

The past week was cooler than average with drier conditions through most of the Upper Colorado River Basin. The exception to the dryness was in the northern and central Rockies in Colorado, with Routt County seeing the best precipitation in the basin. The western edge of the basin also saw beneficial precipitation last week. Eastern Colorado saw a dry week, with mostly below normal temperatures. The far eastern portion of the state did see slightly above normal temperatures.

SPIs in the region are showing an interesting trend. The UCRB is mostly on the wet side, with a few slightly dry SPIs on the 30-day time. Central and eastern Colorado is showing a lot more dry SPIs for the 30-day. Looking at the 90-day SPI, almost all SPIs are positive, with many above the +1 SPI. Then, the longer-term 60-day SPI brings the dryness back in to central and eastern Colorado.

Snowpack through the basin and Colorado has dropped slightly below the median over the last few weeks, however it is still in good shape with most basins above 90% of normal snowpack to date.

Recommendations:

UCRB: Status quo.

Eastern Colorado: Status quo. We will keep an eye on the drying short-term SPIs. With the wet 90-day SPIs, no degradations are needed.