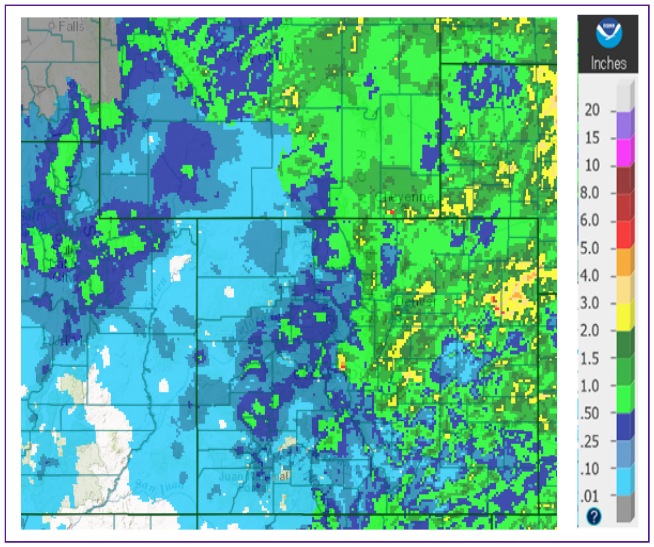
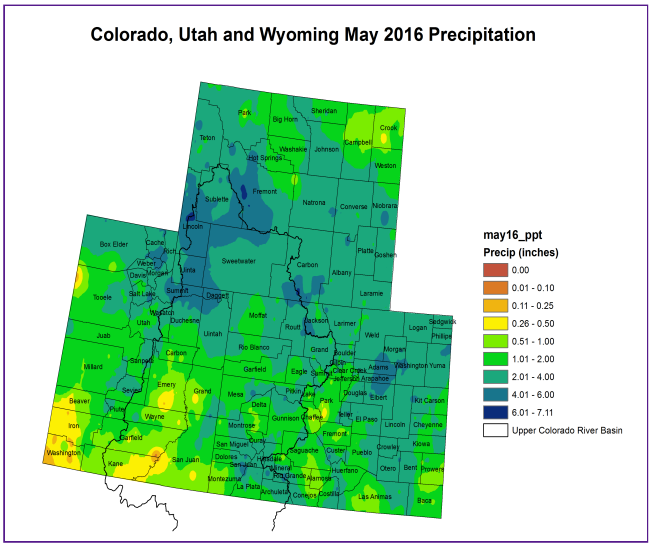
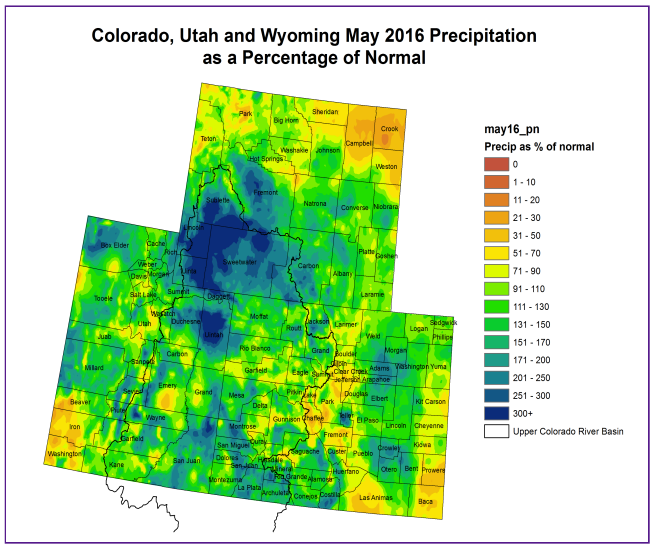
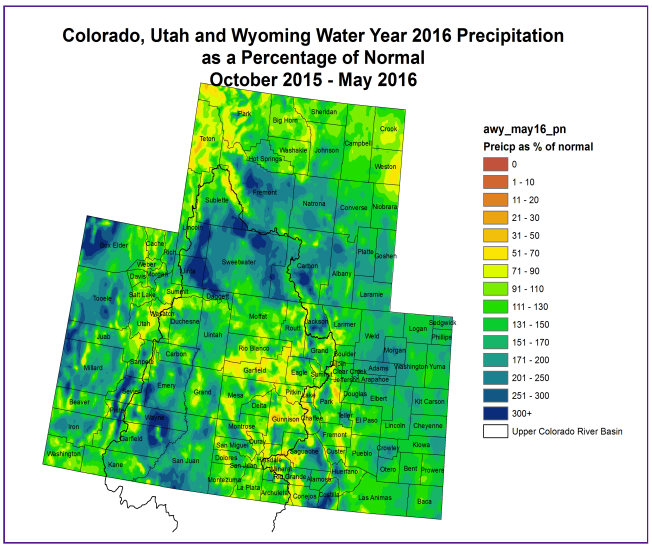
PRECIPITATION



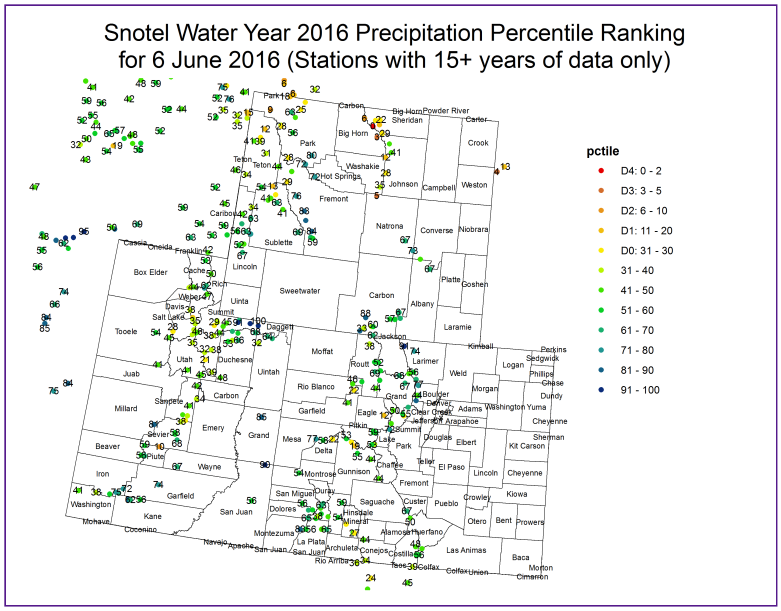


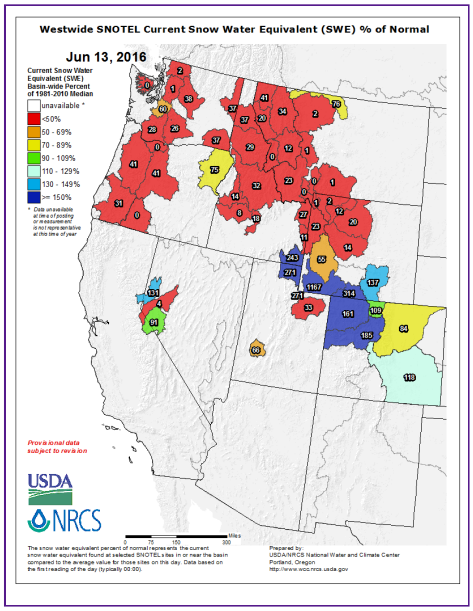




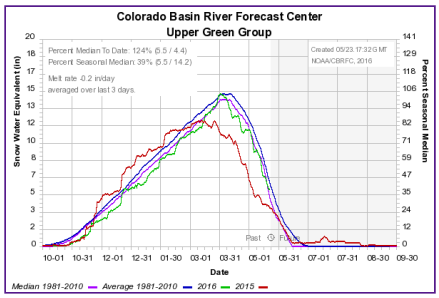
The images above use daily precipitation statistics from NWS COOP, CoCoRaHS, and CoAgMet stations. From top to bottom, and left to right: most recent 7-days of accumulated precipitation in inches; current month-to-date accumulated precipitation in inches; last month's precipitation as a percent of average; water-year-to-date precipitation as a percent of average.

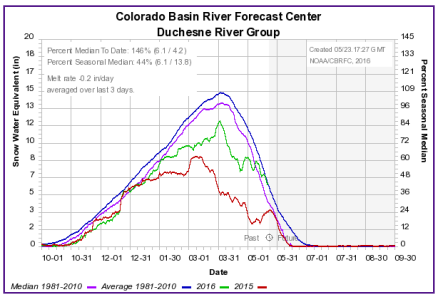
SNOTEL AND SNOWPACK

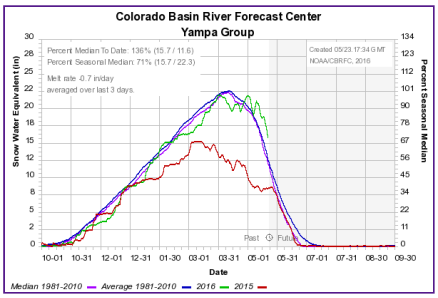


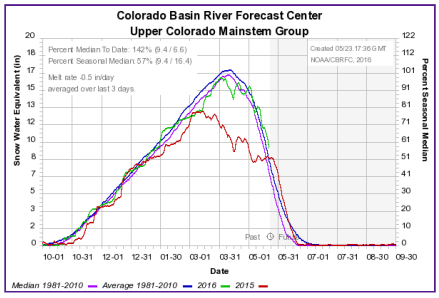


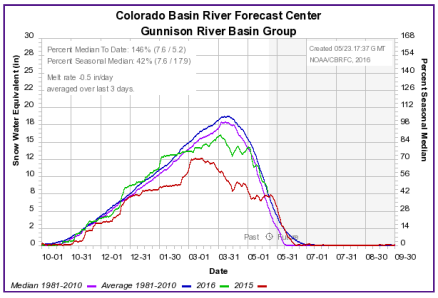
The top left image shows the Natural Resources Conservation Service's SNOTEL water-year-to-date precipitation percentile rankings. The top right image shows sub-basin averaged snow water equivalent accumulations as a percent of average. The images below show accumulated snow water equivalent in inches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

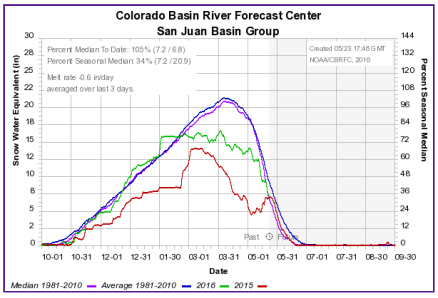




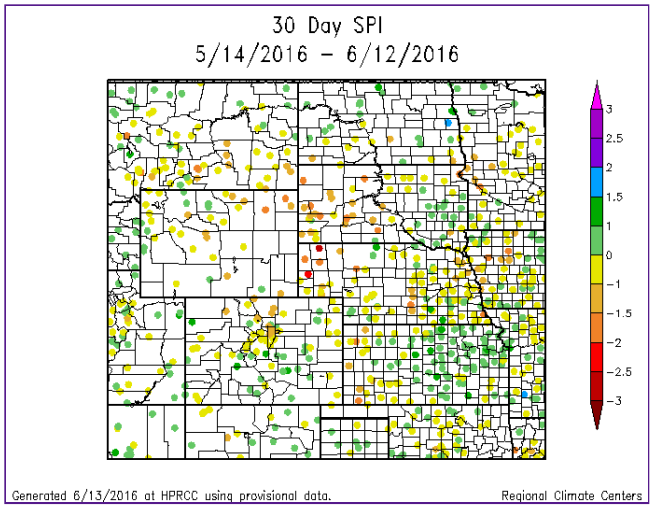


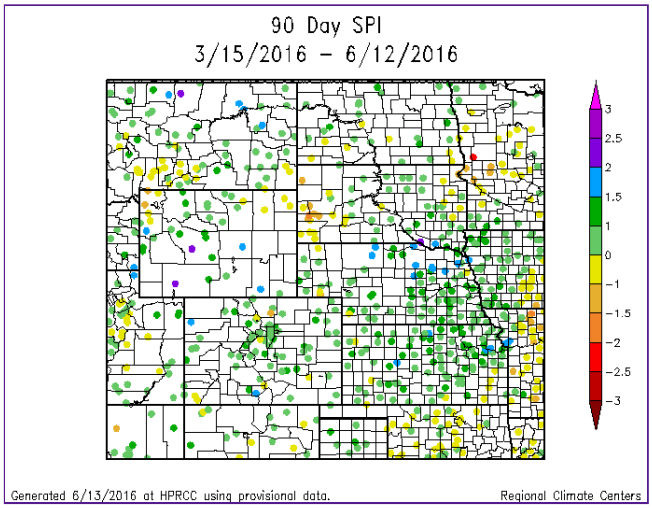


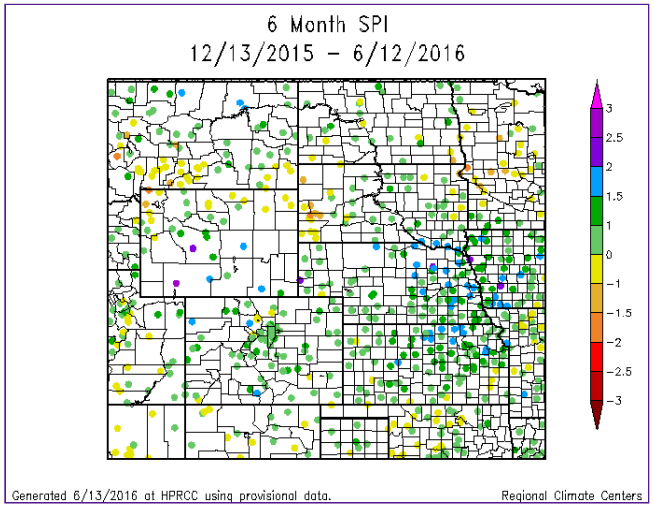


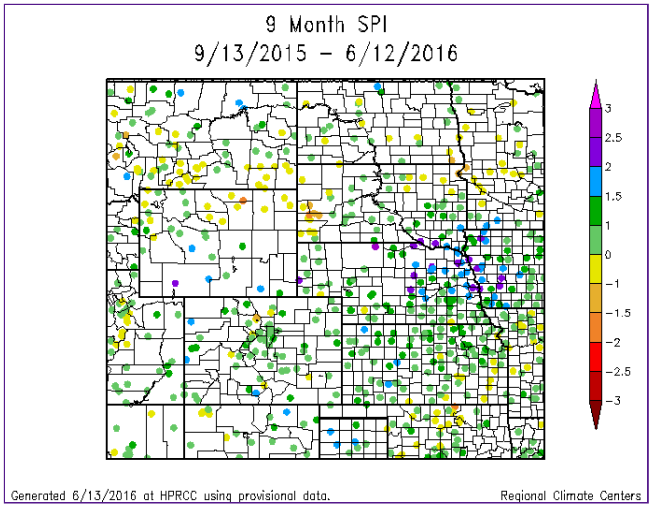


STANDARDIZED PRECIPITATION INDEX



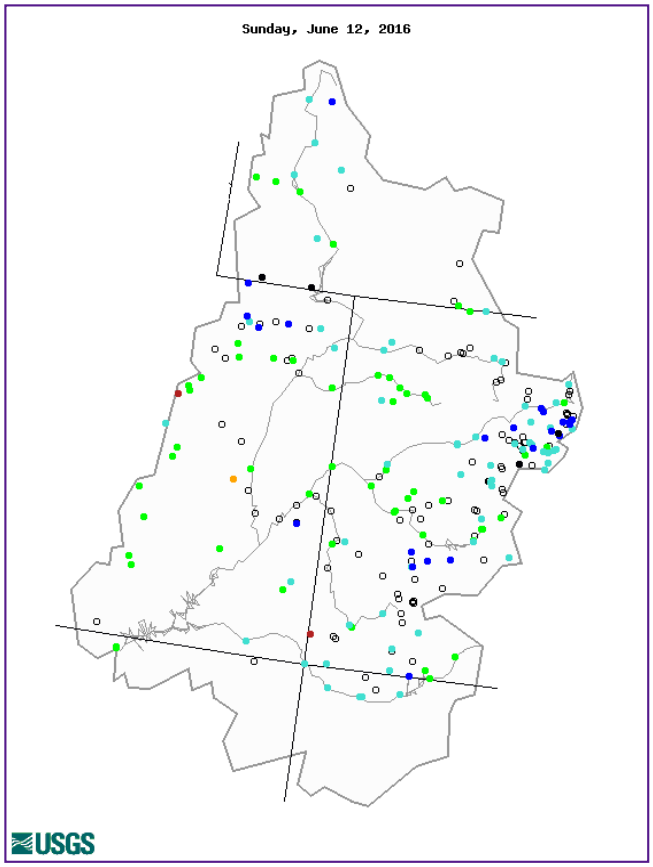


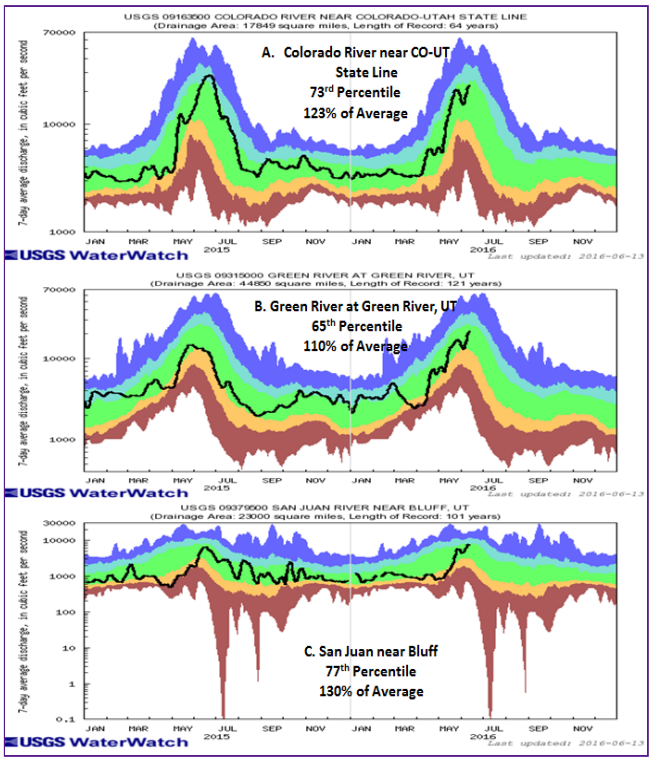




Standardized Precipitation Index standardizes precipitation accumulations for a specified time period into percentile rankings. -1.0 to -1.5 is equivalent to a D1 to D2. -1.5 to -2.0 is equivalent to a D2 to D3. -2.0 and worse is equivalent to a D3 to D4. 30- and 60-day SPIs focus on short-term conditions while 6- and 9-month SPIs focus on long-term conditions. SPI data provided by High Plains Regional Climate Center.

STREAMFLOW

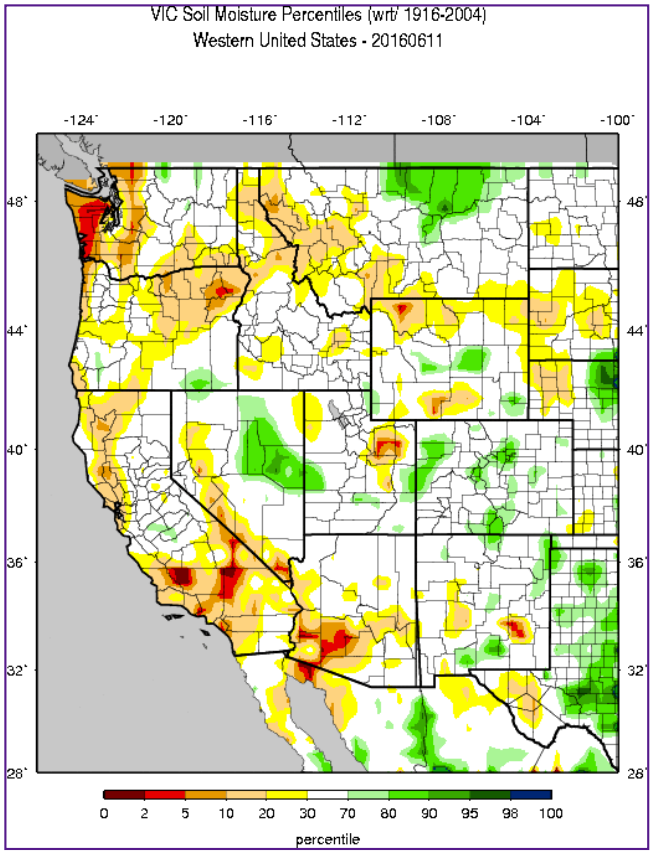


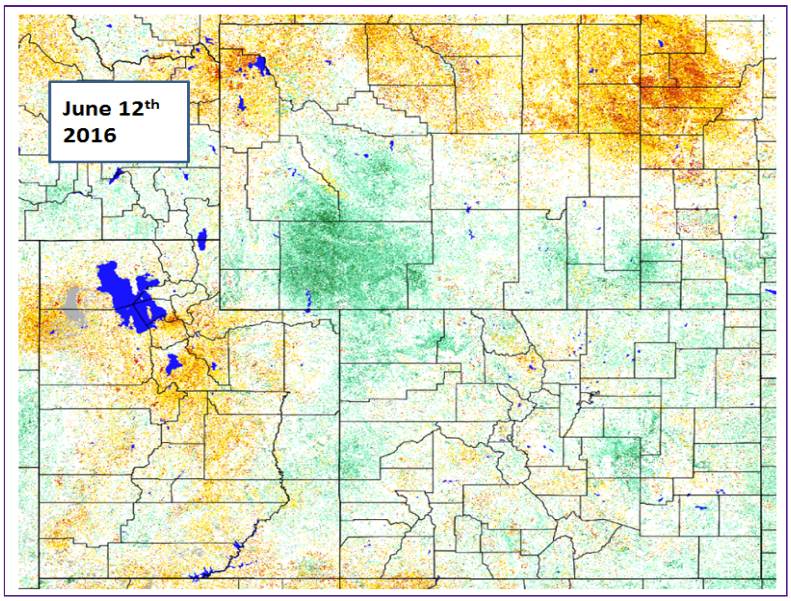


Explanation - Percentile classes							
Low	<10	10-24	25-75	76-90	>90	High	Not-ranked
	Much below normal	Below normal	Normal	Above normal	Much above normal		

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.

SURFACE WATER

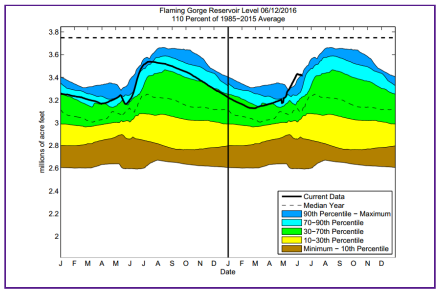


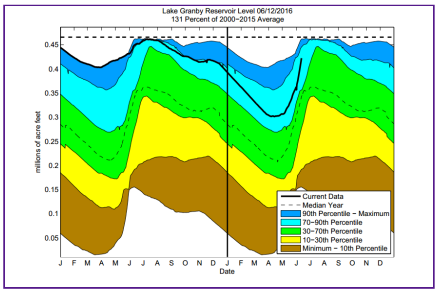


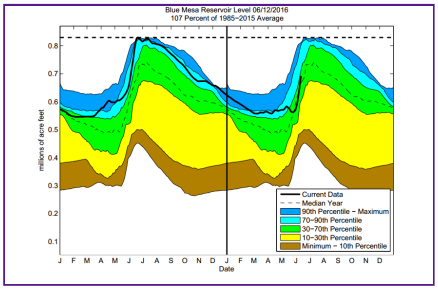
- Extreme Drought
- Severe Drought
- Moderate Drought
- Pre-Drought
- Normal
- Slightly Moist
- Very Moist
- Extremely Moist
- Water
- Out of Season

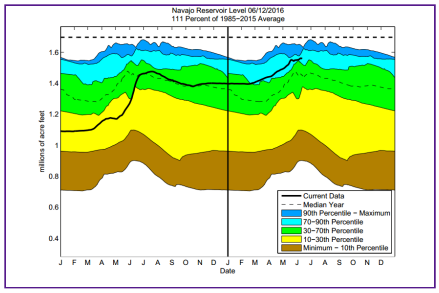
The top left image shows VIC modeled soil moisture as a percentile ranking. The top right image shows satellite-derived vegetation from the VegDRI product (which updates on Mondays).

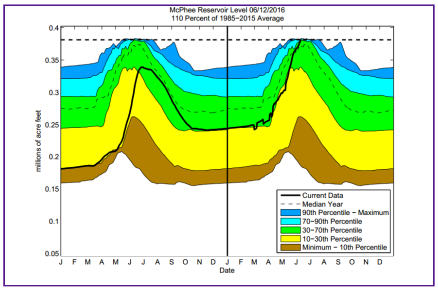
The graphs shown below are plots of reservoir volumes over the past full year and current year to date (black). The dashed line at the top of each graphic indicates the reservoir's capacity, and the background color-coded shading provides context for the range of reservoir levels observed over the past 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.

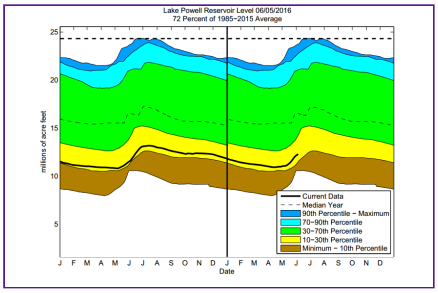




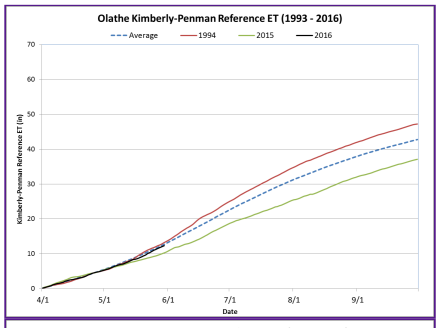


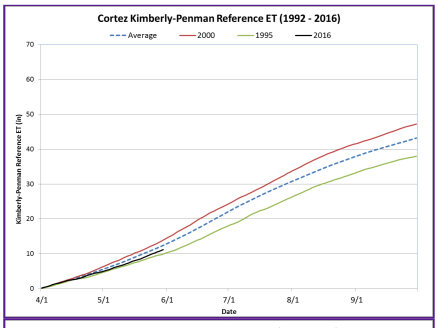


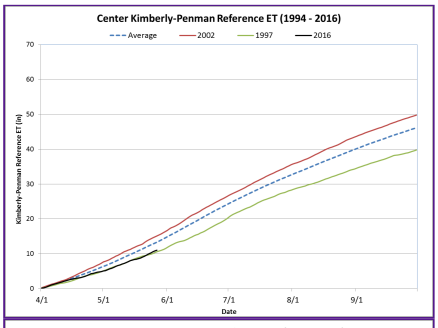


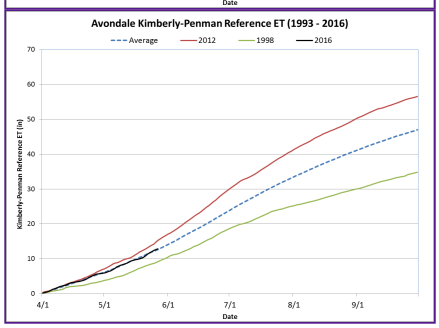


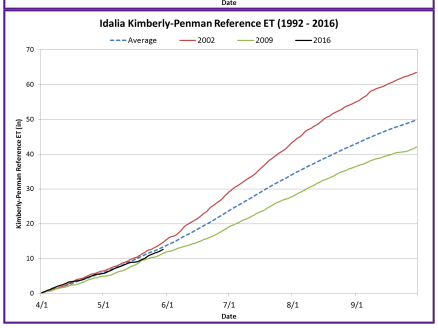
EVAPOTRANSPIRATION

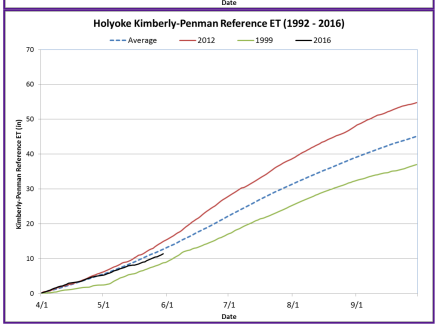


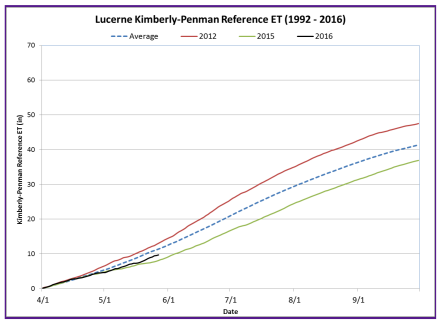




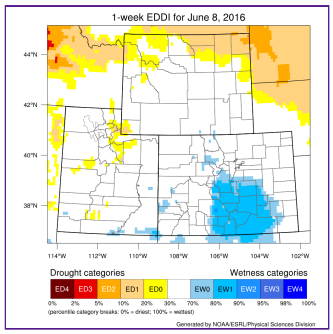


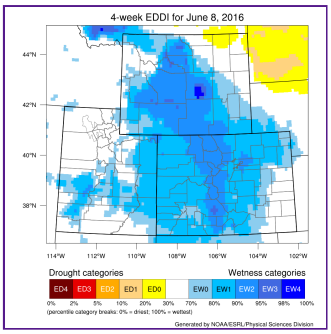


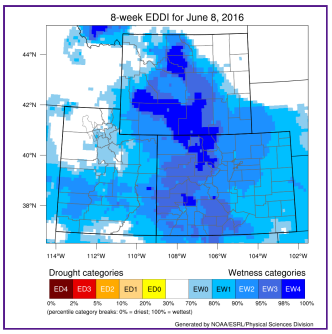


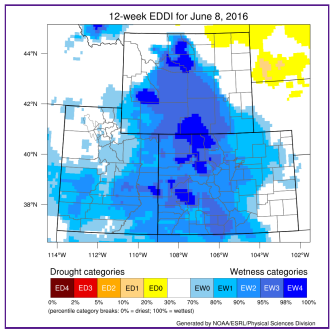


The above images are of reference evapotranspiration (ET) from CoAgMet sites across Colorado. Reference ET assumes the amount of water that will evaporate from a well-irrigated crop. Higher ET rates occur during hot, dry, and windy conditions. Lower ET rates are more desirable for crops. See a map of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



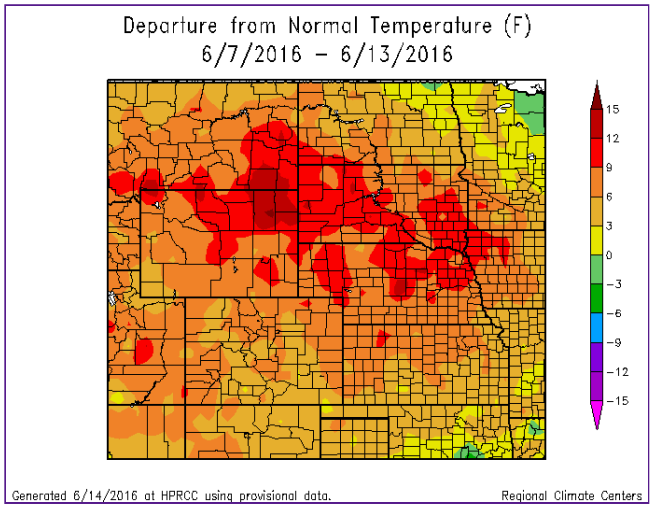


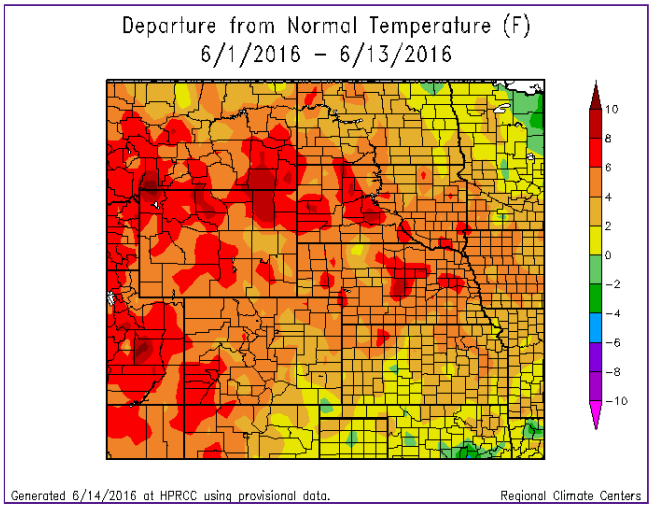




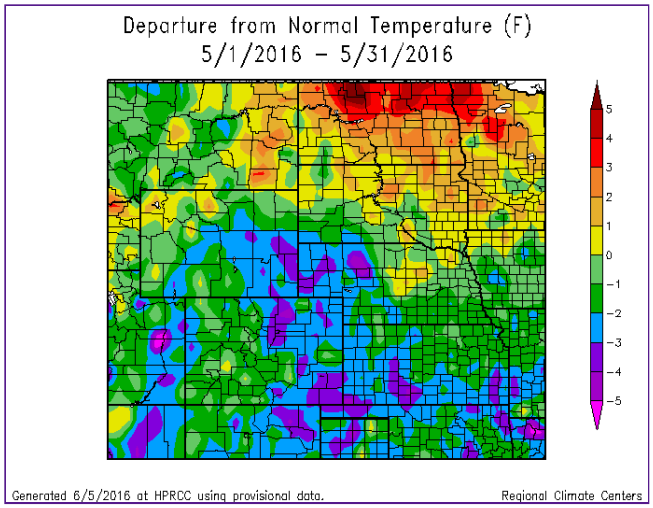
The above images are available courtesy of NOAA's Evaporative Demand Drought Index (EDDI). Drought classification listed is a function of the depth of reference evapotranspiration accumulated over a given period of record with respect to a climatology of 1981-2010. The drought categories displayed are 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

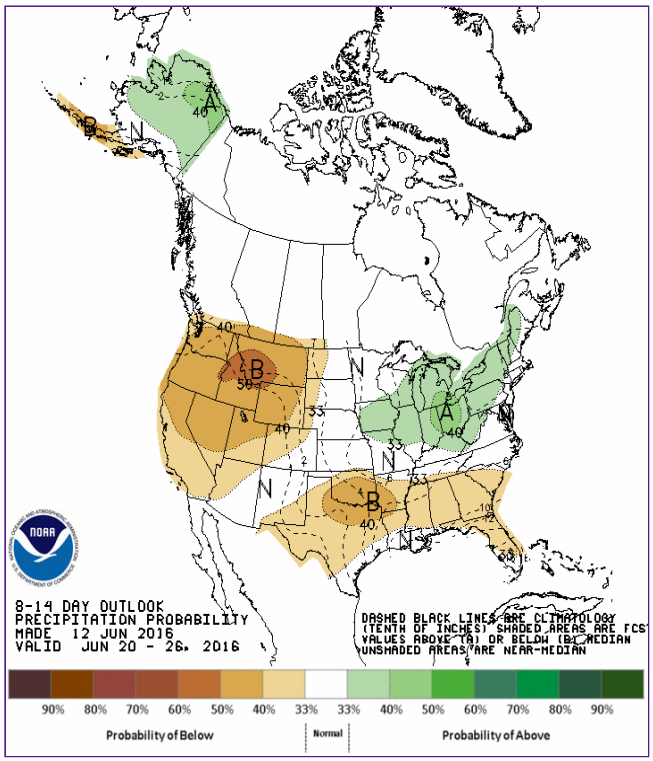


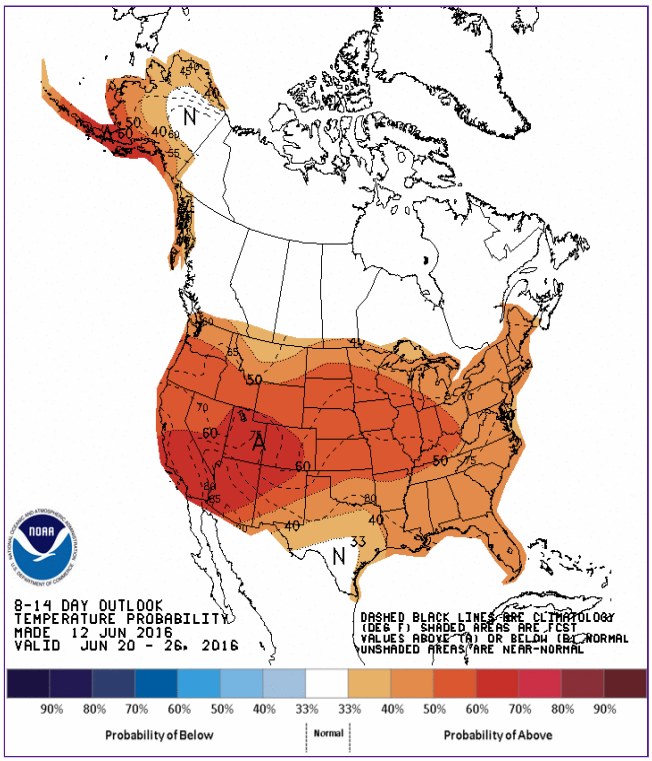


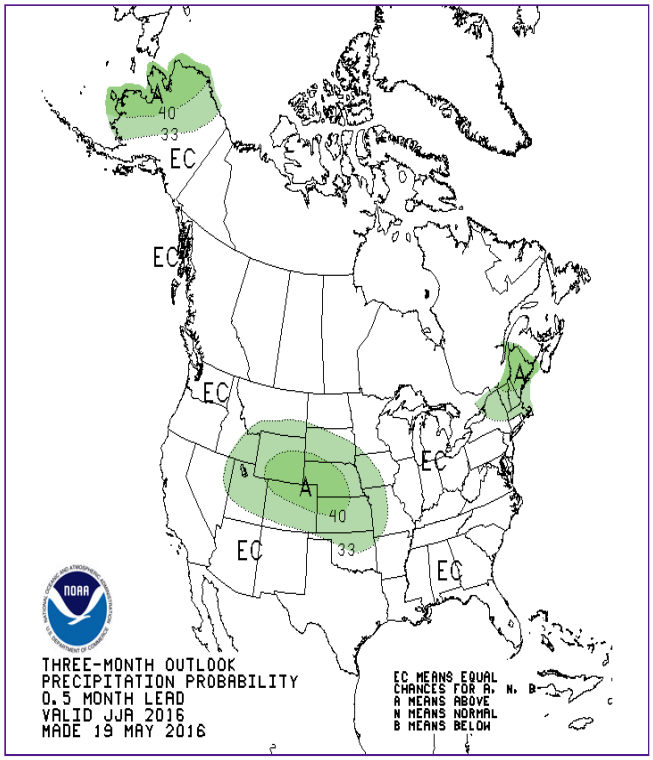
All images show temperature departures from average over different time periods (last 7 days on top left; month-to-date on top right; last full month on bottom). Temperature departure maps provided by HPRCC ACIS.



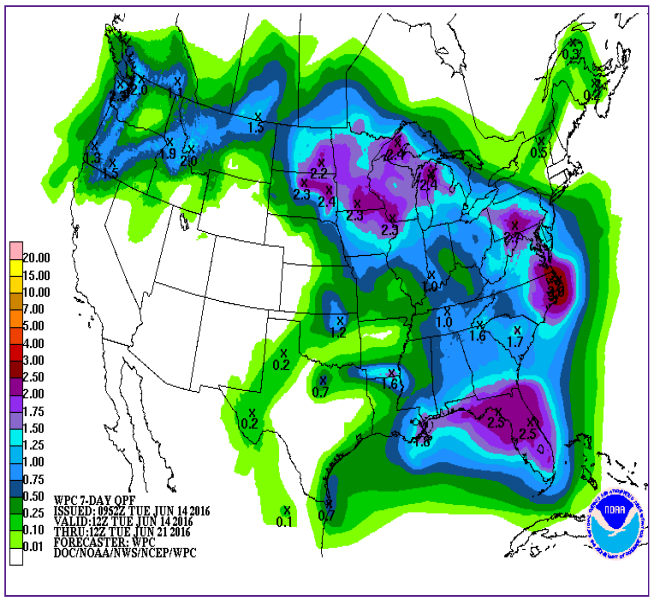
FORECAST AND OUTLOOK

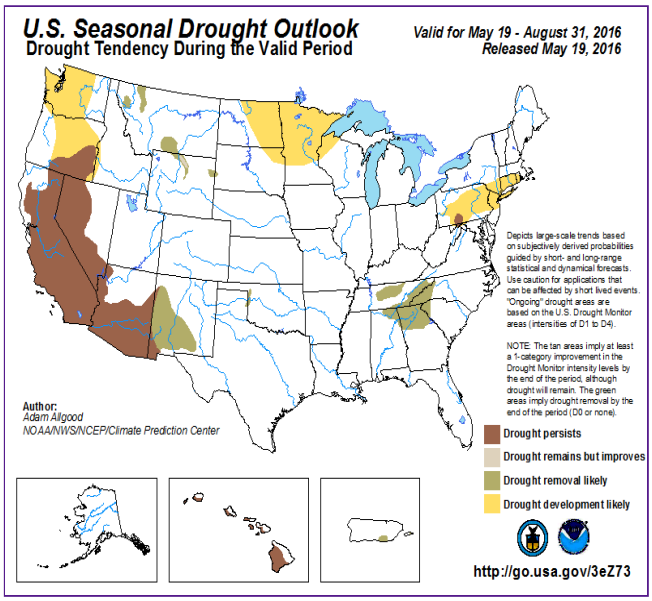






The top two images show Climate Prediction Center's Precipitation and Temperature outlooks for 8 - 14 days. The middle image shows the 3 months Precipitation outlook. The bottom left image shows the Weather Prediction Center's Quantitative Precipitation Forecast accumulation for the seven days between Tuesday 12Z and ending Tuesday 12Z. The bottom right image shows the Climate Prediction Center's most recent release of the U.S. Seasonal Drought Outlook.





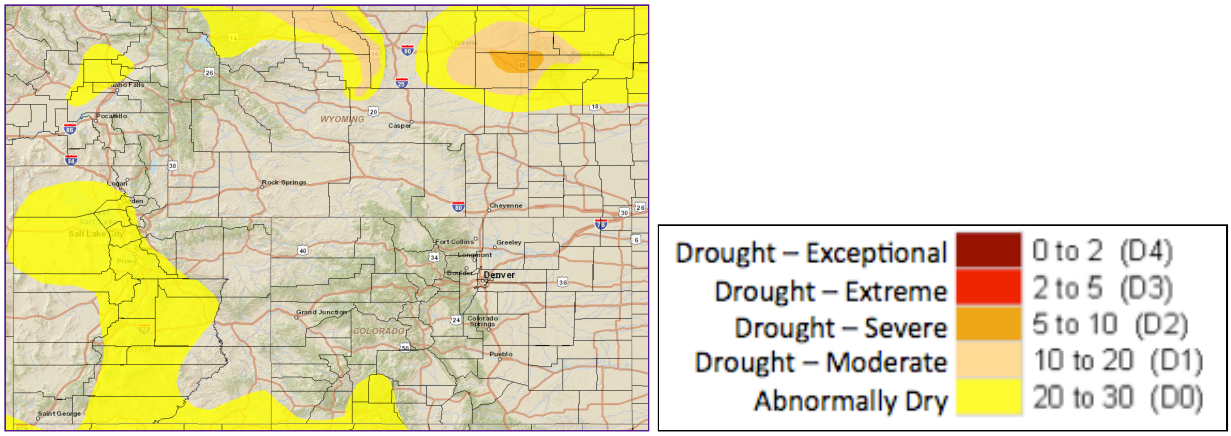
Short Term: (6/14)

- Afternoon thunderstorms are possible for the headwaters of the Upper Green River Basin today. Following that, the entirety of the UCRB and eastern Colorado can expect a hotter than average week with no precipitation.

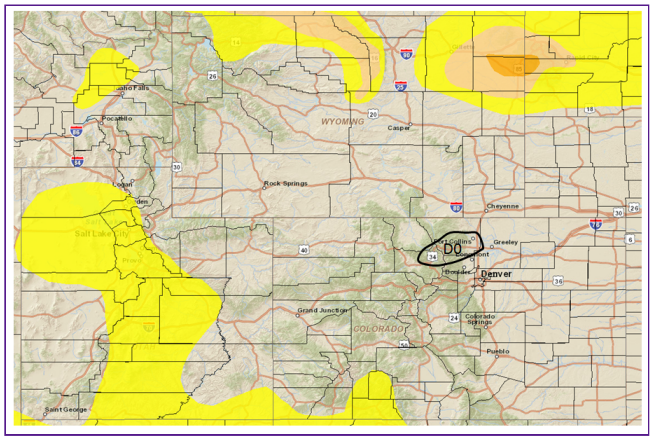
- **Longer Term:**

- The 8-14 day precipitation outlook shows increased chances for below average precipitation for the UCRB and for northeast Colorado. These chances are most highly enhanced over the Upper Green River Basin.
- The 8-14 day temperature outlook shows increased chances for above average temperatures for the entirety of the UCRB and eastern Colorado. These chances are most highly enhances for the southern UCRB and the San Luis Valley.
- The Climate Prediction Center June through August outlook shows increased chances of above average precipitation for the entirety of the UCRB and eastern Colorado. These chances are most highly enhanced in north and northeast Colorado.
- The seasonal drought outlook for Colorado and the UCRB shows no likely drought development over the next three months, and removal likely in the southeast corner of the state.

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: June 14, 2016

The past week was a warm week over the Upper Colorado River Basin and eastern Colorado. Temperatures were 6-9 degrees F above average for much of the basin. Eastern Colorado experienced temperatures anywhere from 3-9 degrees above average with the higher temperature anomalies being closer to the northeast corner of the state. Most of the UCRB was dry over the last week at low elevations, receiving less than a tenth of an inch of precipitation. Some isolated thunderstorms dropped over 0.50" in small portions of the basin. These storms were primarily confined to the mountains. For eastern Colorado the week was convectively active. Afternoon thunderstorms fired off of the foothills on most days with the evening of the 13th seeing the strongest convection. Precipitation was very unevenly distributed from these storms. Parts of the South Platte Headwaters and Washington and Yuma Counties out east received over 2.00" of rainfall. Other areas such as eastern Larimer County, central Lincoln County, and southwestern Prowers County received less than 0.25" of rainfall. This precipitation pattern is quite characteristic of the Upper Colorado River Basin and eastern Colorado for the early to mid-June.

Surface water response to the higher than average temperatures and unevenly distributed precipitation is mixed. Streamflows in the UCRB are primarily above average as the high temperatures coaxed an increase in high elevation snowmelt. All three key indicator sites are reaching new peaks for the season and continuing to increase in flow. Flaming Gorge Reservoir is at its highest mid-June level over the past 30 years, McPhee Reservoir is at capacity, and both Lake Granby and Blue Mesa are have seen large increases. Lake Powell continues to struggle. Response of root zone soil moisture and surface vegetation to the drier conditions has been less favorable. Soil moisture across much of northeast Colorado has fallen out of the above average range in response to increased evaporative demand. This is a time of year where soil moisture characteristically decreases across the eastern plains of Colorado, and these decreases have been more rapid than average. The MODIS VegDRI product is showing increases in isolated dry patches, especially in areas that have been on the losing side of the stochastic nature of convection.

The outlook for the second half of June is discouraging. The 7-day precipitation forecast shows some precipitation as likely today in the headwaters of the Upper Green River Basin today. Other than that, the UCRB and eastern Colorado are likely to remain dry for the rest of the week. A warm-dry airmass forming out of the southwest will park itself over the region. The one-to-two week outlook, while less certain, isn't much more favorable. The UCRB is forecast increased chances of above average temperature and below average precipitation. In eastern Colorado the one-to-two week outlook calls for above average temperature as well. The northeast corner of the state is forecast increased chances of lower than average precipitation. The summer solstice is almost upon us, so a heatwave at this time of year has the potential to quickly wash away the low evaporative stress anomalies that have been seen across the region over April and May. If this forecast holds, more degradations are likely in the coming weeks.

Recommendations:

UCRB: Status quo.

Eastern Colorado: It is recommended that a short-term impact D0 be added in southern Larimer, northwest Boulder, and northeast Grand Counties. This area is now showing SPIs below -1 on the 60-day timescale due to missing out on some of the best convective storms across Colorado over the past several weeks. This short-term SPI is alarming since it comes at the time of year when the area characteristically experiences a maxima precipitation. The increased evaporative stress in this area has been observed in decreasing soil moisture and drying vegetation.