NIDIS Intermountain West Drought Early Warning System September 11, 2018

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.

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





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



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.



Evaporative Demand





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 <u>map of locations</u> 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 <u>US Drought Monitor's Percentile Ranking</u> <u>Scheme</u>. 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.



Condition Monitoring and Impacts



Map of current condition monitoring reports submitted to CoCoRaHS in the last week overlaid on the current U.S. Drought Monitor depiction. Specific impacts reports from local experts listed below.

Due to warm and dry conditions crop development is about 2 weeks ahead of schedule for the fall harvest through eastern Colorado.

Western Colorado ranchers are still selling off their cattle due to little to no feed. Hay prices have at least doubled what they normally are.

Front Range water supplies are still in good shape, however most of the water utilities have seen an increase in demand for water this year, thanks to the hot and dry conditions.

Recent precipitation in eastern Colorado is giving hope for a good start to the winter wheat planting, which is starting to get underway.

Outlook



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



Summary and Recommendations



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: September 11, 2018

Last week the Upper Colorado River Basin and including Wyoming, western Utah and Arizona was rather dry seeing less than 0.10" of precipitation through much of the area. Parts of the Gunnison River Basin and the Grand Mesa saw some precipitation, up to 1.00 inch. There was beneficial precipitation in the western side of the San Luis valley and the Upper Rio Grande Basin. Eastern Colorado mostly saw less than 0.25 inches last week. Exceptions were the Front Range from Boulder County down to Huerfano County where 0.50 to 2.00 inches fell last week, the higher amounts in northern Jefferson County. Far southeastern Colorado from Cheyenne to Baca County also received up to 1.00 inches last week.

The recent precipitation in eastern Colorado has helped to get the winter wheat planting off to a good start while hot and dry conditions are speeding up the fall harvest by a couple of weeks.

The 30-day SPI is showing near normal precipitation through much of the IMW region, however once we look at the 90-day SPI the situation gets much drier, especially in western Colorado and eastern Utah. The dryness extends back to the last 12 months for our drought stricken areas.

The long term dryness has taken its toll on streamflow and surface water storage conditions. The San Juan River is on track to be the driest or one of the driest water years on record. Reservoirs are majorly hurting in this area from higher demand and low water supplies. As winter approaches, we can only hope for a strong start to the season and a beginning to the recovery.

Looking at the next week does not look promising. Little to no precipitation is in the forecast for the IMW region. Looking ahead to 2 weeks out, it's looking like below normal precipitation is expected for western Wyoming and Colorado and all of Utah, with far eastern Colorado showing favorable chances of above normal precipitation, with temperatures being above average.

Recommendations:

UCRB: Status quo: With the recent expansion of D3 and D4 and little precipitation, the DM picture is looking representative of conditions this week.

Eastern CO: Status quo: Eastern Larimer, Weld and Morgan Counties have started to dry out recently so we will need to keep an eye on conditions in this area as we wrap up the water year.