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October Southwest Climate Summary

Drought: Drought conditions do not often change this time of year and remain similar to those 30 days ago. Currently, moderate or more severe drought covers 62 and 75 percent of Arizona and New Mexico, respectively.

Temperature: Several storm systems passed through the Southwest, bringing cooler-than-average conditions. Temperatures have been between 2 and 6 degrees F below average in Arizona but warmer in New Mexico.

Precipitation: Precipitation generally has been less than 50 percent of average in the Southwest in the last 30 days, except in northern parts of both states, where a storm around October 10 delivered rain and snow.

Water Supply: Wet conditions in September boosted water storage in the Southwest, with the Pecos River in New Mexico and small reservoirs benefitting most. Reservoir storage in the region, however, remains much below average.

El Niño-Southern Oscillation (ENSO): ENSO-neutral conditions, which have persisted for more than a year, likely will continue through the winter.

Precipitation Forecasts: Seasonal forecasts for the November 2013–January 2014 period call for above-average temperatures in all of Arizona and New Mexico and below-average precipitation for all of New Mexico and southeastern Arizona.

On The Horizon: October is a transition season in which the mechanism of precipitation shifts to winter frontal storms. For upcoming months, the consistency of precipitation and cool temperatures can help establish early snowpacks, which are vital for replenishing regional water supplies.



Tweet October's SW Climate Snapshot

CLICK TO TWEET

Cold storms swept through SW last month, frost-nipping crops. Storms didn't bring much precip.

Editors Note. In 2002, during the early stages of an expansive and intense drought, which largely continues today in the Southwest, CLIMAS launched End InSight, an apt name for a one-year experiment in learning how to deliver timely, credible, and relevant drought information. This venture morphed into the Southwest Climate Outlook (SWCO) as a result of extensive user input, becoming one of the region's flagship resources for routine climate monitoring. To keep in step with calls

for a concise product and to confront time challenges of producing a comprehensive monthly publication posed to our research program, SWCO has received a makeover.

The upshot is that CLIMAS will pare down SWCO and deliver a pithy monthly summary of contemporary climate phenomena such as the monsoon, snowpack, and El Niño forecasts, along with a concise climate narrative. We will also publish our unique tea-cup reservoir graphics to summarize water

supplies (except this month due, to the federal shutdown). In this new format our focus on delivering value-added climate information—a mainstay for SWCO since the beginning—will endure.

If the new SWCO does or does not have the same value to you, we'd love to hear about it. Feedback from our readers, positive or negative, will inform future SWCO versions and other CLIMAS products. After all, SWCO emerged from our readers' insights 11 years ago.



Online Resources

Figure 1.
Data obtained from High Plains
Regional Climate Center

www.hprcc.unl.edu/maps/current/

Figure 2.
The weekly U.S. Drought Monitor

www.drought.gov/drought/

Figure 3.
Climate Prediction Center
forecasts

www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/churchill.php

Climate Snapshot

An active jet stream ferried several storms into the Southwest in the last 30 days, delivering cool conditions but little precipitation (Figure 1). With the exodus of monsoon moisture around mid-September, nighttime temperatures nose-dived during these storms, causing early frostnip on some crops across the Southwest.

Although conditions were drier than average across the Southwest in the last month, this time of year is often dry and drought conditions are usually locked in for a few months after the end of the monsoon. The good news is that copious summer rain substantially improved short-term drought across the Southwest. Extreme drought, for example, covered about 22 and 90 percent of Arizona and New Mexico, respectively, on June 18. Currently, those conditions span only about 3 percent of New Mexico; Arizona is free of extreme drought. Similarly, only about 25 and 38 percent of Arizona and New Mexico are classified with severe drought, down from 72 and 98 percent at the onset of the monsoon (Figure 2).

The bad news is the accumulated precipitation deficits over longer timescales. The 12-, 18-, and 24-month standard precipitation index (SPI), which tallies local precipitation anomalies over these intervals, show abnormally dry conditions across many parts of the Southwest. The effects of these protracted dry conditions are most evident in water stored in large reservoirs. Elephant Butte in New Mexico, while experiencing a recent bump of about 72,000 acre-feet, largely from September rains, remains at only 8 percent of capacity. Storage in Lakes Mead and Powell also has dwindled in recent years, with the U.S. Bureau of Reclamation lowering water flows from Lake Powell to Lake Mead beginning on October 1 due to diminished Upper Colorado River Basin (UCRB) streamflow.

This winter brings a drought inflection point. Meager snowfall in the UCRB will cause Lake Mead's water elevation to approach 1,075 feet above sea level (asl), the trigger elevation for the first tier of Colorado River water shortage (it currently sits at 1,106 feet asl). Large snowpacks can help stave off shortages. Water managers and farmers tied into the Rio Grande also are keenly watching snowpack conditions. With the El Niño-Southern Oscillation in a neutral phase, forecast models are unclear if the headwaters of both the Rio Grande and Colorado River will receive above-average precipitation (Figure 3). Neutral events, however, often have high month-to-month and seasonal variability.

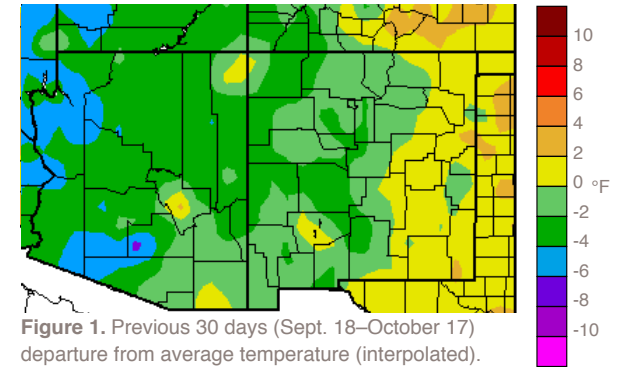


Figure 1. Previous 30 days (Sept. 18–October 17) departure from average temperature (interpolated).

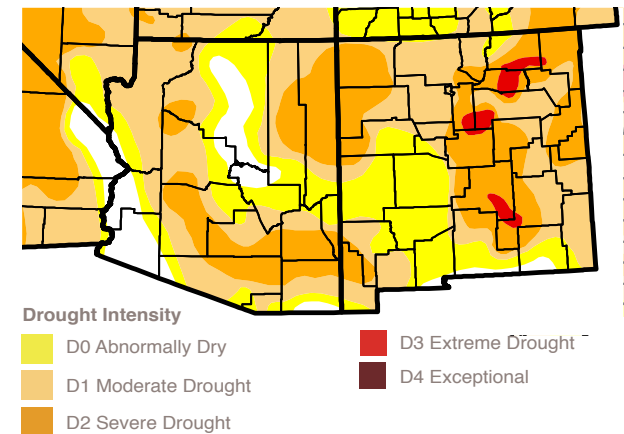


Figure 2. U.S. Drought Monitor map based on data through Oct 15.

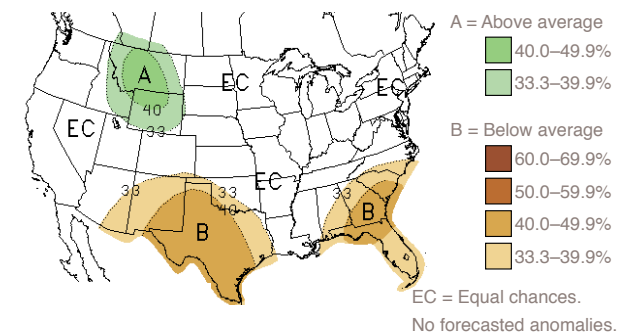


Figure 3. Long-lead national precipitation forecast for August–October 2013.