November Southwest Climate Outlook

Drought: Drought conditions remained virtually unchanged in the last 30 days in both Arizona and New Mexico. Currently, moderate or more severe drought covers about 68 and 79 percent of Arizona and New Mexico, respectively.

Precipitation: Precipitation across Arizona was below average in the last 30 days, with deficits of around 0.5 inches in many locations. Precipitation during this time of year, however, often is scant. One storm clipped northern regions of New Mexico, but rainfall in the state was otherwise below average.

Temperature: The last 30 days in Arizona were warmer than average, particularly in the southeast, where both minimum and maximum temperatures were around 4 degrees F above average. Temperatures in most of New Mexico were 0–2 degrees F above average.

Snowpack: Early winter precipitation in the Upper Colorado River and Rio Grande basins has resulted in above-average snowpacks for this time of year. A large snowpack this winter is needed to improve low storage in these basins, particularly in the Rio Grande.

Water Supply: Reservoir storage in Arizona slightly increased in October; storage in Lakes Mead and Powell remain at about 46 percent. In New Mexico, storage did not substantially change in October; reservoir storage for the state stands at about 21 percent of capacity.

ENSO: Sea surface temperatures (SSTs) in the tropical Pacific Ocean are near average, or ENSO-neutral. the majority of models forecast the persistence of ENSO-neutral conditions through the winter.

Precipitation Forecasts: The NOAA-Climate Prediction Center is calling for elevated chances for below-average precipitation through the winter, noting a general consensus from both dynamical and statistical models for this outlook ENSO-neutral conditions, however, makes precipitation outlooks less certain.

Temperature Forecasts: The NOAA-Climate Prediction Center forecasts above-average temperatures for all three-month seasons, including the December–February period, between December and May. These forecasts are based in part on seasonal warming trends.

On the horizon: A large storm tapping subtropical moisture is expected to douse the Southwest in rain and snow in coming days. Snow likely will fall at high elevations, and this one event may ease precipitation deficits that have mounted since the end of the monsoon.

Tweet November's SW Climate Snapshot

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November temps have been September-like in Southwest. Snowpack in mountains off to a good start.

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Online Resources

Figure 1.
Data obtained from High Plains Regional Climate Center
www.hprcc.unl.edu/maps/current/

Figure 2.
Natural Resources Conservation Severice
www.wcc.nrcs.usda.gov/gis/snow.html

Figure 3.
Climate Prediction Center forecasts
www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/churchill.php

Climate Snapshot

Temperatures in November have been September-like across the Southwest; the mild conditions have been the climate story of the last month. This is most pertinent in southeastern Arizona where minimum, maximum, and average temperatures have ranged between 2 and 5 degrees F above average.

October and November precipitation can deliver a healthy dose of rain when tropical storms penetrate inland, but dry conditions typically characterize fall in the Southwest. In the last 60 days, less than 0.5 inches of rain—less than 25 percent of average—has fallen in nearly all of Arizona and most of New Mexico (Figure 1). The one exception has been in northern New Mexico, where a cold front sneaked into the region on November 5 and delivered precipitation. For most of the region, however, the percent of average metric can be misleading during this time of year because rain and snow accumulations are historically small. Consequently, drought conditions often remain fixed after the monsoon season until winter rain and snow begin—or do not begin—in earnest. Currently, severe drought covers about 25 percent of Arizona, while either severe or extreme drought exists over 38 percent of New Mexico. Drought in both states, however, is not as intense or widespread as it was one year ago.

The next several months will be pivotal for either improving or worsening drought conditions. Winter precipitation also substantially influences reservoir storage, because a large fraction of total annual streamflow in the region's major rivers is generated from winter rain and snow. As of October 31, reservoirs in both Arizona and New Mexico were well-below capacity (see page 3). If recent snow in the Upper Colorado River and Rio Grande basins is a harbinger of things to come, the above-average snowpacks bode well (Figure 2). A large storm set to slam the Southwest over the November 23 weekend could further build snowpacks and also improve short-term drought conditions. The seasonal precipitation outlook for December–February, however, favors below-average rain and snow for Arizona and New Mexico and equal chances for the Upper Colorado River and Rio Grande basins (Figure 3). However, confidence in precipitation outlooks is lower in the absence of a La Niña or El Niño event. Historically, winters in which ENSO-neutral conditions prevail—the expectation this winter—have been characterized both by above- and below-average precipitation.

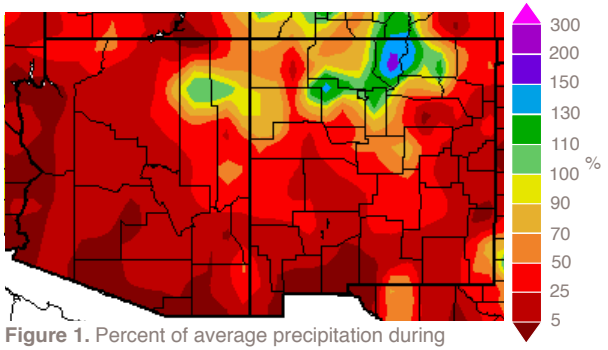


Figure 1. Percent of average precipitation during previous 60 days (Sept. 22–Nov. 20; interpolated).

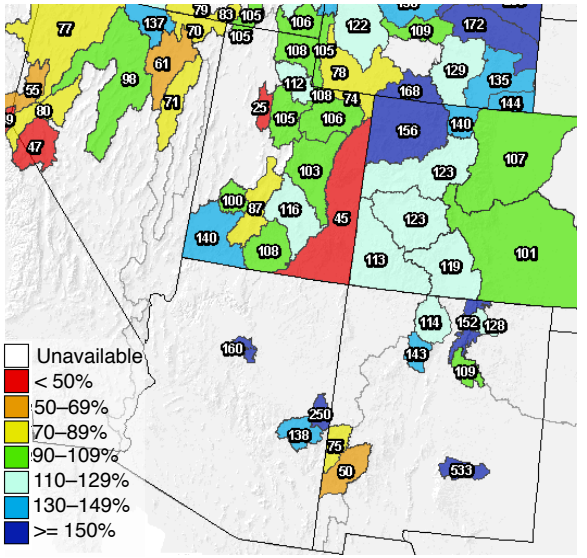


Figure 2. The percent of average snow water content contained in snowpacks on Novermber 21, 2013.

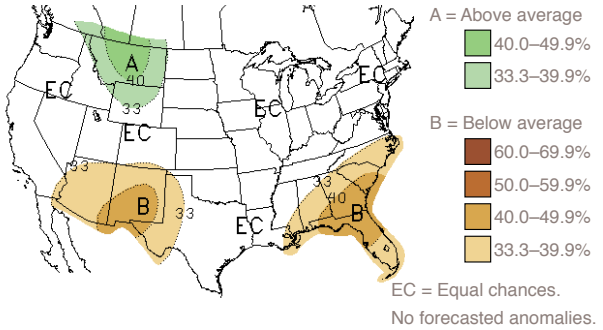


Figure 3. Long-lead national precipitation forecast for December–February 2013.

Online Resources

Portions of the information provided in this figure can be accessed at NRCS

Arizona: http://1.usa.gov/19e2BdJ

new Mexico: www.wcc.nrcs.usda.gov/wsf/reservoir/resv_rpt.html

Notes

The map gives a representation of current storage for reservoirs in Arizona and New Mexico. Reservoir locations are numbered within the blue circles on the map, corresponding to the reservoirs listed in the table. The cup next to each reservoir shows the current storage (blue fill) as a percent of total capacity. Note that while the size of each cup varies with the size of the reservoir, these are representational and not to scale. Each cup also represents last year's storage (dotted line) and the 1971–2000 reservoir average (red line).

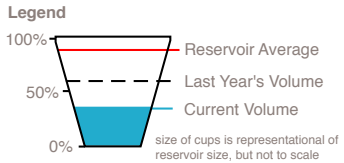
The table details more exactly the current capacity (listed as a percent of maximum storage). Current and maximum storage are given in thousands of acre-feet for each reservoir. One acre-foot is the volume of water sufficient to cover an acre of land to a depth of 1 foot (approximately 325,851 gallons). On average, 1 acre-foot of water is enough to meet the demands of 4 people for a year. The last column of the table list an increase or decrease in storage since last month. A line indicates no change.

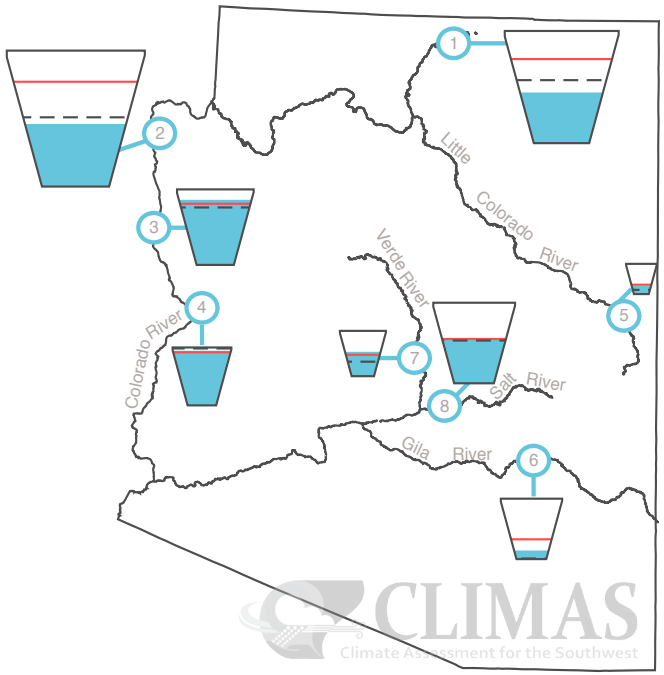
These data are based on reservoir reports updated monthly by the National Water and Climate Center of the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS).

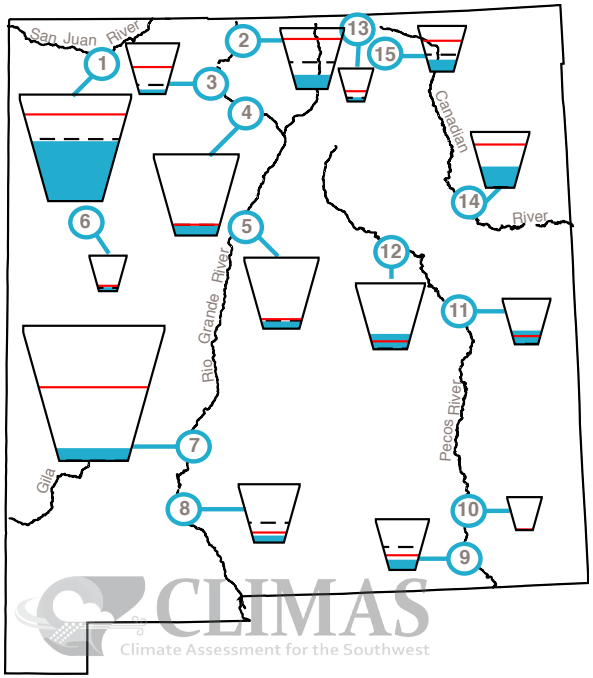
Reservoir Volumes

DATA THROUGH OCTOBER 31, 2013

Data Source: National Water and Climate Center, National Resources Conservation Service







Reservoir Name	Capacity	Current Storage*	Max Storage*	One-Month Change in Storage*
1. Lake Powell	45%	10,899.0	24,322.0	-35
2. Lake Mead	46%	12,094.0	26,159.0	-268
3. Lake Mohave	86%	1,556.3	1,810.0	-67.4
4. Lake Havasu	94%	583.2	619.0	22.9
5. Lyman	27%	8.1	30.0	0.4
6. San Carlos	14%	119.5	875.0	2.1
7. Verde River System	54%	156.0	287.4	-26.9
8. Salt River System	54%	1,099.7	2,025.8	-1.8

*thousands of acre-feet

Reservoir Name	Capacity	Current Storage*	Max Storage*	One-Month Change in Storage*
1. Navajo	56%	951.2	1,696.0	16.6
2. Heron	23%	91.5	400.0	2.6
3. El Vado	9%	17.6	190.3	-1
4. Abiquiu	12%	143.0	1,192.8	-8.4
5. Cochiti	10%	47.1	491.0	-25.1
6. Bluewater	11%	4.2	38.5	-0.2
7. Elephant Butte	9%	192.5	2,195.0	25.1
8. Caballo	12%	38.6	332.0	-0.9
9. Lake Avalon	20%	0.8	4.0	-4.5
10. Brantley	3%	25.3	1,008.2	-2.8
11. Sumner	30%	30.9	102.0	-3.1
12. Santa Rosa	23%	100.4	438.3	-1.6
13. Costilla	13%	2.1	16.0	0.6
14. Conchas	38%	97.2	254.2	-1.5
15. Eagle Nest	26%	20.4	79.0	-0.8

N/A–value not available

* thousands of acre-feet