February Southwest Climate Outlook

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Drought: Drought intensity increased in the last month in Arizona and New Mexico; severe and extreme drought conditions now cover about 57 percent of both states.

Precipitation: Rain and snow were nearly nonexistent in the last 30 days across all of Arizona and New Mexico due to the persistence of a high-pressure system over the West Coast. Most of the region received less than 25 percent of average precipitation. Although uncommon, the month of January has been as dry or drier in the past.

Temperature: Temperatures in the last 30 days in the Southwest were generally between 2 and 6 degrees F warmer than average, with the exception of eastern New Mexico, where temperatures were below average. Maximum temperatures were more above average than minimum temperatures.

Snowpack: All but one basin in Arizona and New Mexico are reporting snowpacks with less than 60 percent of average snowpacks as of February 18, and some of those basins are nearly snow-free. The headwaters of the Rio Grande in Colorado measured around 80 percent of average, while parts of the Upper Colorado River Basin had above-average conditions on February 18.

Water Supply: Total reservoir storage in Arizona and New Mexico in January decreased by about 230,000 and 36,000 acre-feet, respectively. Total storage in Arizona is at about 46 percent of capacity, while New Mexico is storing about 23 percent of capacity. Elephant Butte Reservoir in southern New Mexico gained about 33,000 acre-feet in January—increases are typical this time of year—but remains low, at 14 percent of capacity or 60 percent of average.

ENSO: Sea surface temperatures (SSTs) in the tropical Pacific Ocean are near average and ENSO-neutral conditions remain entrenched. The majority of models forecast the persistence of ENSO-neutral status through the winter, with some hints for a developing El Niño in the summer and fall. However, it is often difficult to predict future ENSO conditions at this time of year.

Precipitation Forecasts: The NOAA-Climate Prediction Center (CPC) is calling for equal chances for above-, below-, or near-average precipitation across nearly all of Arizona and New Mexico for the March–May period.

Temperature Forecasts: The NOAA-Climate Prediction Center (CPC) forecasts high chances for above-average temperatures in the Southwest during the March–May period.

Streamflow Forecasts: The April–July streamflow forecasts issued on February 1 for the Colorado River call for flows into Lake Powell to be around 95 percent of average. March–July forecasts for the Salt, Verde, and Gila rivers, on the other hand, project well below-average flows. In New Mexico, the March-July forecast for the Rio Grande at Otowi Bridge is around 50 percent of average.

Tweet February's SW Climate Snapshot

Record temps, scant snow, intensifying drought: this winter seeks superlatives. Colorado snow a silver lining; more at http://bit.ly/1jdO46K CLICK TO TWEET

Online Resources

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

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

Figure 3.
National Drought Mitigation Center
http://droughtmonitor.unl.edu/Home/RegionalDroughtMonitor.aspx?west

Climate Snapshot

Only three storms have penetrated the Southwest since the water year began on October 1, and precipitation deficits continue to mount. Arizona and New Mexico have received less than 25 percent of average precipitation in the last 60 days and no rain or snow fell in many places in the last month. January was the second driest on record in Arizona and the driest recorded in New Mexico. Temperatures were very warm in the past 30 days (Figure 1), exacerbating dry conditions by ramping up evaporation and more rapidly melting snowpacks. All of the basins in Arizona and New Mexico report below-average snowpacks (Figure 2), with several snow monitoring sites in the Gila Mountains and Upper Rio Grande Basin measuring snow water equivalent values in the driest 10 percent of their historical record. Consequently, streamflow forecasts are well below average for streams that draw water predominately from the higher elevations of either state. Precipitation in the Upper Colorado River Basin has been above average, however and has helped compensate for below-average snows in other parts of the basin. Nonetheless, February 1 projections for inflow into Lake Powell still favor slightly below-average streamflows. The dry conditions also have caused drought to intensify from moderate to extreme in central areas of Arizona (Figure 3). In the last month, severe and extreme drought increased by 22 and 7 percent, respectively. Similarly, the area covered in New Mexico with severe and extreme drought rose by 24 and 11 percent, respectively.

A persistent ridge of high pressure parked off the West Coast has causedwarm and dry conditions over Arizona and New Mexico, as well as record-setting dry weather in California. This pattern has driven storms north of the region where it has entrained cold air before moving east over the Rocky Mountains in Montana and Wyoming and then south into Colorado and eastern New Mexico. While the moisture has been largely sapped from the air before leaving Colorado, the cold air has driven down temperatures in New Mexico (Figure 1). This atmospheric circulation resembles a classic La Niña pattern, although sea surface temperatures in the tropical Pacific Ocean have been near average, or ENSO-neutral. When a resilient atmospheric pattern sets up, like the one in place this winter, forecasts usually favor persistence. The seasonal drought forecasts call for elevated chances for drought to persist or intensify, while temperature forecasts favor above-average conditions; precipitation forecasts are a coin flip.

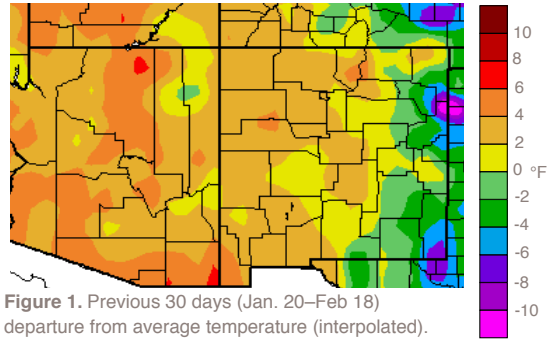


Figure 1. Previous 30 days (Jan. 20–Feb 18) departure from average temperature (interpolated).

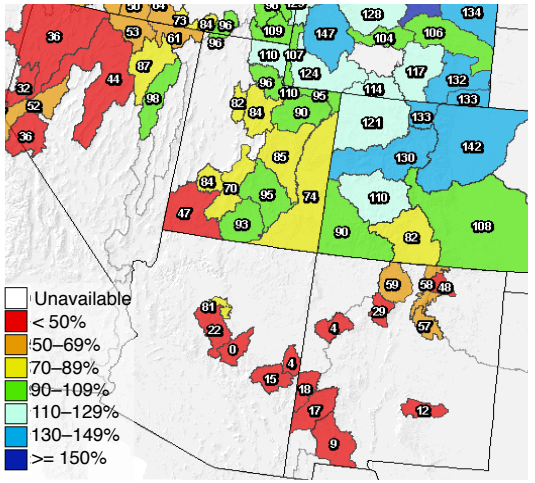


Figure 2. The percent of average snow water content contained in snowpacks on February 18, 2014.

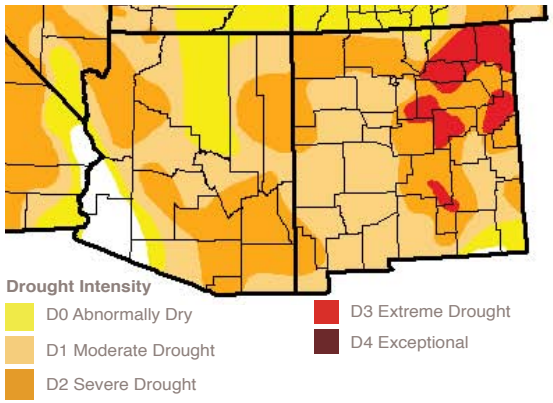


Figure 3. U.S. Drought Monitor map based on data through February 19.

Online Resources

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

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

New Mexico: http://www.wcc.nrcs.usda.gov/cgibin/resv_rpt.pl?state=new_mexico

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).

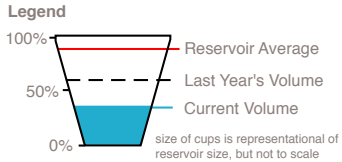
The table details more exactly the current capacity (listed as a percent of maximum storage). Current and maximum storage are given in thousands of acre-feet for each reservoir. One acre-foot is the volume of water sufficient to cover an acre of land to a depth of 1 foot (approximately 325,851 gallons). 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.

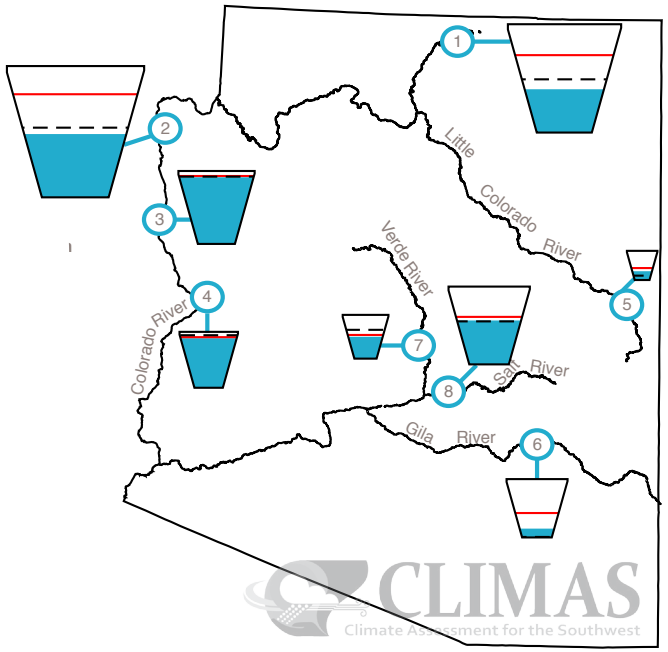
These data are based on reservoir reports updated monthly by the National Water and Climate Center of the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS).

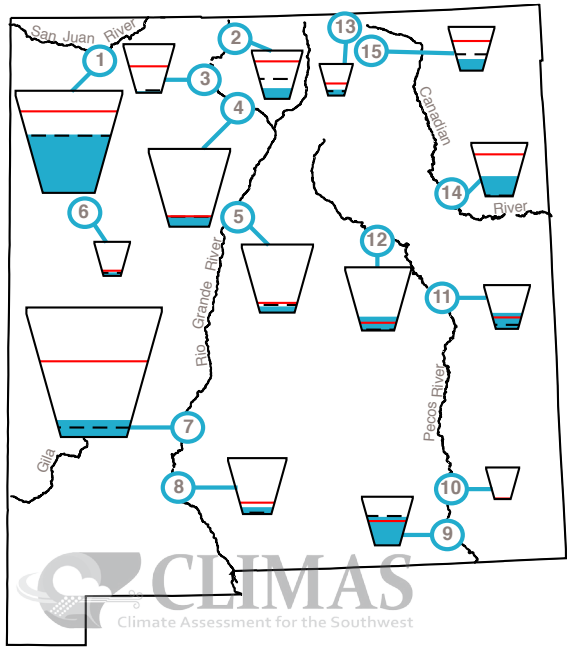
Reservoir Volumes

DATA THROUGH FEBRUARY 17, 2014

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	40%	9,819.0	24,322.0	-488.0
2. Lake Mead	48%	12,543.0	26,159.0	194.0
3. Lake Mohave	91%	1,640.0	1,810.0	35.1
4. Lake Havasu	88%	547.8	619.0	11.0
5. Lyman	30%	9.1	30.0	0.2
6. San Carlos	15%	128.2	875.0	2.2
7. Verde River System	50%	144.0	287.4	1.4
8. Salt River System	56%	1,140.9	2,025.8	10.6

*thousands of acre-feet

Reservoir Name	Capacity	Current Storage*	Max Storage*	One-Month Change in Storage*
1. Navajo	57%	965.0	1,696.0	-1.8
2. Heron	22%	86.9	400.0	-2.7
3. El Vado	3%	4.8	190.3	2.0
4. Abiquiu	13%	154.6	1,192.8	-0.9
5. Cochiti	9%	46.6	491.0	2.1
6. Bluewater	10%	3.9	38.5	0.0
7. Elephant Butte	13%	277.7	2,195.0	33.4
8. Caballo	12%	39.7	332.0	0.5
9. Lake Avalon	58%	2.3	4.0	0.5
10. Brantley	3%	31.9	1,008.2	1.5
11. Sumner	36%	37.2	102.0	3.0
12. Santa Rosa	22%	98.6	438.3	-0.8
13. Costilla	19%	3.0	16.0	0.2
14. Conchas	37%	95.0	254.2	-1.8
15. Eagle Nest	26%	20.3	79.0	0.3

N/A–value not available

* thousands of acre-feet