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April Southwest Climate Outlook

Drought: Drought conditions remained unchanged in the last 30 days with the exception of southwest Arizona and central New Mexico, where drought intensified. Currently at least moderate drought covers about 89 and 97 percent of Arizona and New Mexico, respectively.

Precipitation: In the past 30 days, a small amount of rain fell only in parts of northern Arizona and New Mexico, leaving both states with below-average precipitation totals in the last month. Since January 1, less than 50 percent of average rain and snow has fallen in nearly all of the two states.

Temperature: Temperatures in the last 30 days were above average, continuing a pattern that has persisted all winter. Above-average temperatures were caused in part by fewer storms wafting into the region from colder, northern regions.

Snowpack: Snowpacks are typically low this time of year in Arizona and New Mexico. Nevertheless, snowpacks across both states are below average, much as they have been all winter. Snowpacks in the Upper Rio Grande Basin in Colorado are 72 percent of average. In parts of the Upper Colorado River Basin, however, snowpacks are mostly near or above average.

Water Supply: Total reservoir storage decreased by about 647,100 acre-feet in Arizona and increased by about 48,000 acre-feet in New Mexico in March. Storage stands at about 44.5 percent of capacity in Arizona and about 23.5 percent of capacity in New Mexico. Lake Mead fell by about 550,000 acre-feet.

ENSO: Probabilities that a El Niño event will develop in the summer or fall continue to increase. El Niño events affect winter atmospheric patterns more than summer for the Southwest and often deliver above-average precipitation to the region. The last El Niño event was in 2009.

Precipitation Forecasts: The NOAA-Climate Prediction Center is calling for slightly increased chances for above-average precipitation across the Four Corners region during the May–July period and equal chances elsewhere. May and June are typically the driest months of the year.

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

Streamflow Forecasts: The April-July streamflow forecasts for the Colorado River call for flows into Lake Powell to be around 110 percent of average, which was similar to forecasts made last month. In New Mexico, the March-July forecast for the Rio Grande at Otowi Bridge is around 32 percent of average, which is 6 percent less than the forecast made on March 1.

Fire Forecasts: Below-average precipitation and low snowpacks in Arizona and New Mexico contribute to above-average significant fire potential in the May–July period for most of the Southwest.

Tweet April's SW Climate Snapshot CLICK TO TWEET

Warm and dry in SW in last 30 days, upholding winter pattern that favors elevated fire risk in coming months. More @ http://bit.ly/1kG0vdf

Online Resources

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

Figure 2.
National Interagency Fire Center
http://www.nifc.gov

Figure 3.
International Research Institute for Climate and Society
http://iri.columbia.edu/

Climate Snapshot

Dry and warm conditions continued in the Southwest during the last 30 days, upholding a winter-long pattern. Rain or snow did not fall in southern Arizona and most of New Mexico, while the higher elevations of both states were able to squeeze out small amounts of precipitation. Across both states, precipitation deficits since January 1 are large, with most areas experiencing less than 50 percent of average precipitation (Figure 1). The infrequency of cold storms this winter caused snowpacks to be persistently low. While low snowpacks are common for this time of year, they are also below average. This is also the case in the San Juan Mountains of Colorado, which supports streamflows in New Mexico's most important river, the Rio Grande. Snowpacks there measure only 72 percent of average and contribute to low streamflow projections. The best estimate for inflow into Elephant Butte Reservoir in southern New Mexico, for example, is only 32 percent of average. Snowpacks in Colorado, on the other hand, continue to be above average and best estimates for projected inflows into Lake Mead remain around 110 percent of average.

Scant rain and warmer-than-average temperatures have caused drought conditions to persist in most of the Southwest in the last month. With the driest months in the Southwest—May and June—approaching, drought conditions will persist until the monsoon starts. The recent dry conditions, coupled with low snowpacks, likely will allow vegetation to dry out faster than normal in coming months, causing longer exposure to fire risk. This may lead to an earlier and longer fire season in most of the Southwest, according to the National Interagency Fire Center (NIFC). Fire risk is also boosted by the above-average 2013 monsoon, which facilitated vegetation growth. Taken together, the NIFC fire forecast calls for elevated chances for above-average significant fire potential, which refers to the likelihood that a wildland fire will require resources from outside the area in which the fire originated (Figure 2).

Looking beyond the fire season, there is increasing evidence that an El Niño event will materialize in the summer or early fall, and experts are leaning toward a moderate or more intense event. Probabilities for an El Niño by the fall exceed 60 percent (Figure 3). This event may also influence the monsoon, providing added moisture into which the monsoon taps, with six of the eight dynamical models calling for above-average precipitation in the May–July period. The monsoon, however, is difficult to forecast. For the winter, an El Niño would favor wetter conditions.

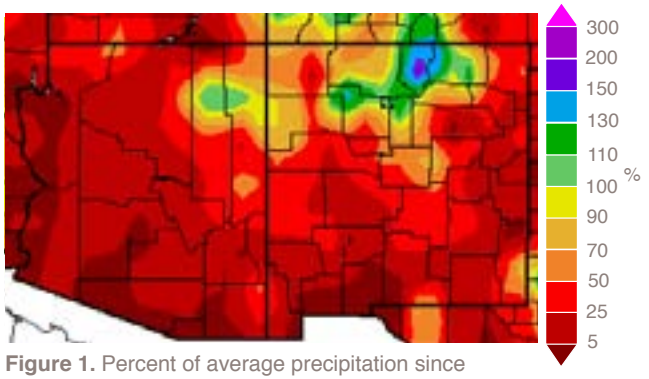


Figure 1. Percent of average precipitation since January 1 (January 1–April 16; interpolated).

Figure 2. Significant wildland fire potenital outlook for June and July.

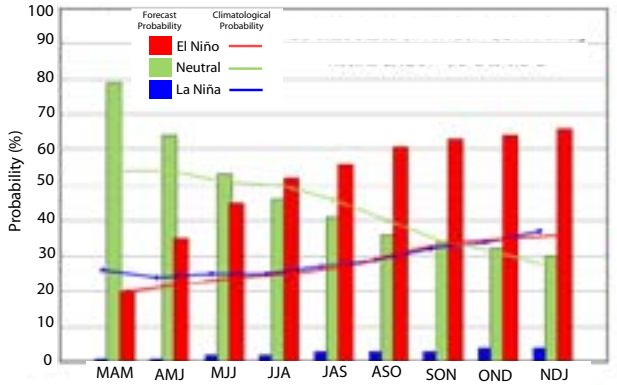


Figure 3. Seasonal probablities for ENSO phases. ENSO states based on Nino 3.4 seas surface temperature anomalies, with El Niño anomalies greater than 0.5 degrees C; La Niña anomalies less than -0.5 C.

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

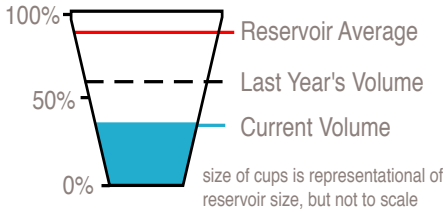
The map gives a representation of current storage for reservoirs in Arizona and New Mexico. Reservoir locations are numbered within the blue circles on the map, corresponding to the reservoirs listed in the table. The cup next to each reservoir shows the current storage (blue fill) as a percent of total 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).

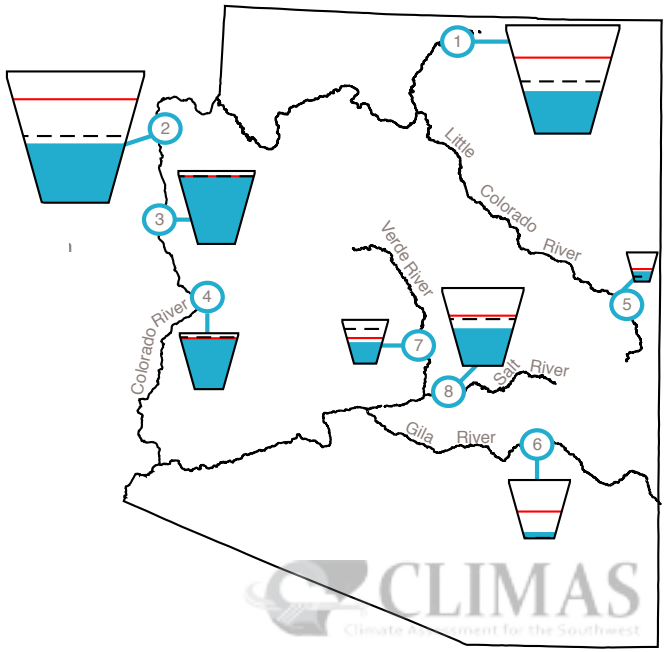
The table details more exactly the current capacity (listed as a percent of maximum storage). Current and maximum storage are given in thousands of acre-feet for each reservoir. One acre-foot is the volume of water sufficient to cover an acre of land to a depth of 1 foot (approximately 325,851 gallons).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

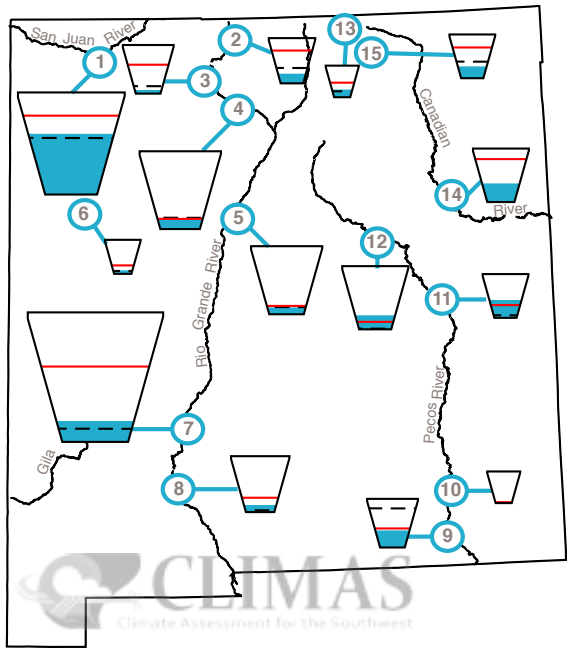
These data are based on reservoir reports updated monthly by the National Water and Climate Center of the U.S. Department of Agriculture's Natural Resources Conservation Service (NRCS).

Reservoir Volumes

DATA THROUGH MARCH 31, 2014







Reservoir Name	Capacity	Current Storage*	Max Storage*	One-Month Change in Storage*
1. Lake Powell	39%	9,496.0	24,322.0	-70.0
2. Lake Mead	45%	11,888.0	26,159.0	-549.0
3. Lake Mohave	92%	1,660.0	1,810.0	-17.2
4. Lake Havasu	91%	562.1	619.0	-24.3
5. Lyman	35%	10.5	30.0	1.1
6. San Carlos	11%	96.6	875.0	-22.4
7. Verde River System	49%	141.8	287.4	4.8
8. Salt River System	58%	1,177.9	2,025.8	29.9

*thousands of acre-feet

Reservoir Name	Capacity	Current Storage*	Max Storage*	One-Month Change in Storage*
1. Navajo	59%	996.1	1,696.0	30.1
2. Heron	21%	83.9	400.0	1.8
3. El Vado	7%	14.0	190.3	3.4
4. Abiquiu	13%	151.7	1,192.8	-1.1
5. Cochiti	10%	48.7	491.0	-0.4
6. Bluewater	10%	3.7	38.5	-0.1
7. Elephant Butte	16%	361.3	2,195.0	22.4
8. Caballo	12%	39.9	332.0	-0.6
9. Lake Avalon	35%	1.4	4.0	-1.6
10. Brantley	3%	32.3	1,008.2	-2.1
11. Sumner	41%	42.0	102.0	-1.1
12. Santa Rosa	22%	95.8	438.3	-1.2
13. Costilla	24%	3.9	16.0	0.4
14. Conchas	35%	89.8	254.2	-2.2
15. Eagle Nest	27%	21.1	79.0	0.3

N/A–value not available

* thousands of acre-feet