



March 2023: Southwest Climate Outlook

Stacie Reece
March 30, 2023



<https://climas.arizona.edu/>

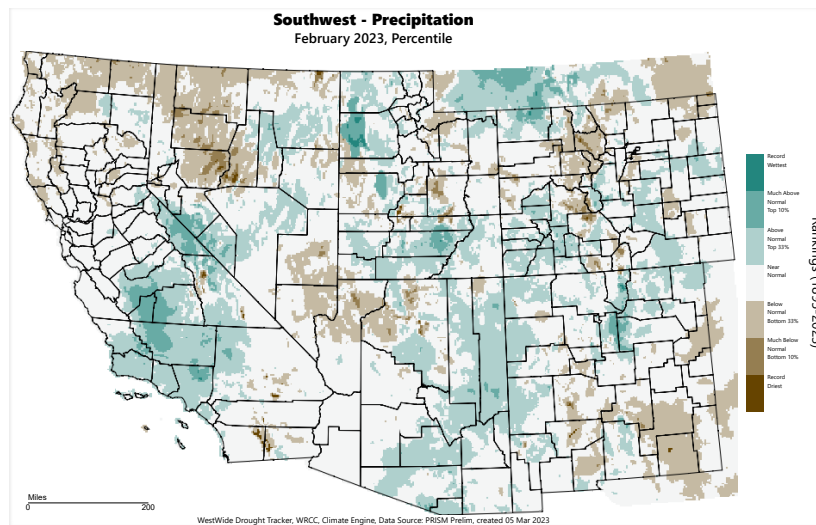
The Southwest Climate Outlook is published by the Climate Assessment for the Southwest (CLIMAS), with support from University of Arizona Cooperative Extension, and the New

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Questions/Contact: Stacie Reece, sreece@arizona.edu

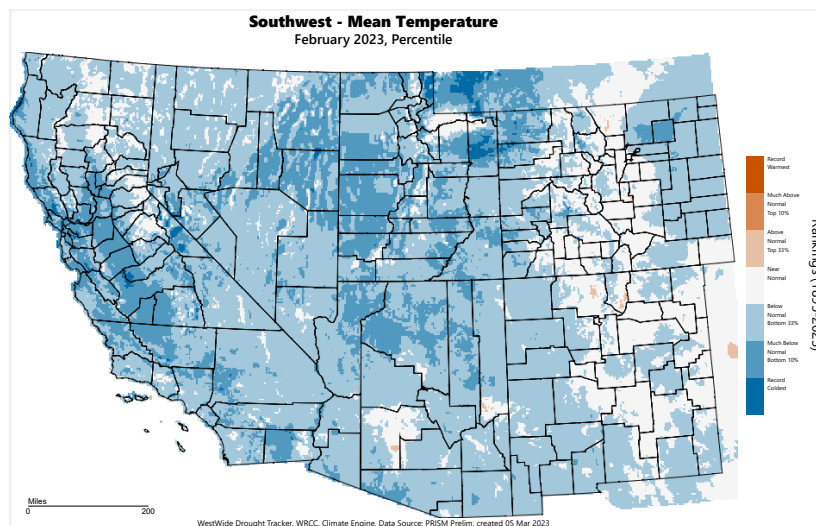
Precipitation and Temperature

February precipitation totals were near average to above average for most of Arizona and New Mexico; except for some areas of central and southeastern New Mexico, and areas of northeastern Arizona where precipitation was below normal.



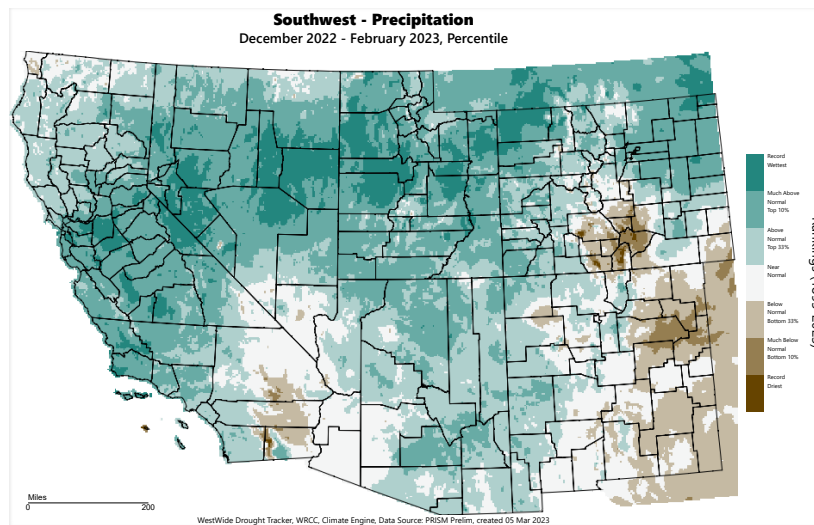
Source: [WestWide Drought Tracker](#)

February temperatures were below normal to much below normal for Arizona and near normal to below normal for New Mexico.



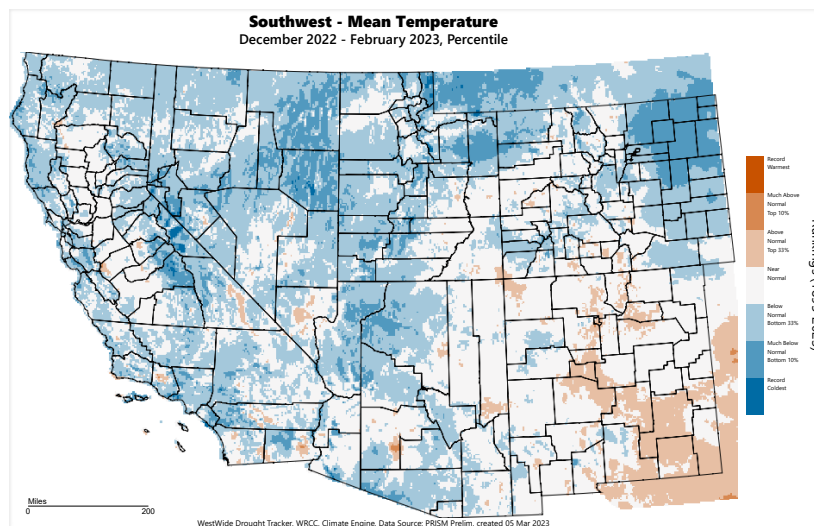
Source: [WestWide Drought Tracker](#)

Winter (DJF) precipitation totals were above normal for most of Arizona and near normal for the southwestern part of the state, but more variable across New Mexico, where totals tended toward above-normal in the west and below-normal in the eastern part of the state.



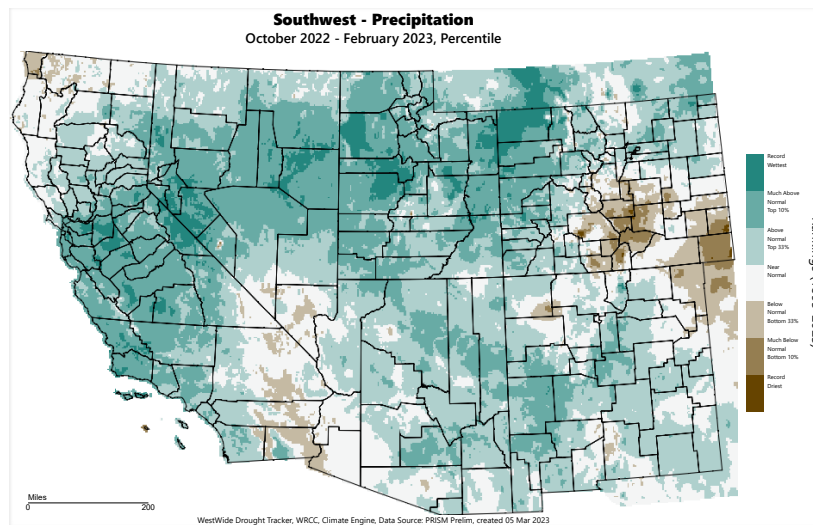
Source: [WestWide Drought Tracker](#)

Winter (DJF) temperatures were near-to-below normal for Arizona, but above near-to-above normal for much of New Mexico.



Source: [WestWide Drought Tracker](#)

Water Year precipitation totals thus far (Oct 2022 – Feb 2023) are above average for most of Arizona and New Mexico.



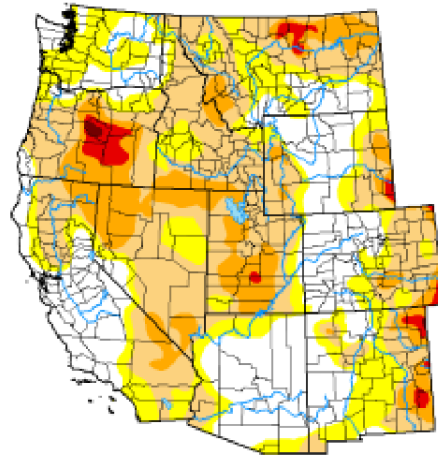
Drought

The U.S. Drought Monitor (USDM) has most of Arizona classified as mostly free of drought conditions, save for some abnormally dry (D0) and moderate drought (D1) conditions in the extreme western, northwestern, and southeast parts of the state. Drought conditions in New Mexico vary west-to-east with drought conditions absent in the west, abnormally dry conditions prevailing between the Rio Grande and Pecos, and moderate-to-extreme drought conditions (D1-D3) in the far eastern part of the state.

Short-term drought conditions have continued to improve with the recent above-average precipitation across the Southwest. Only 12% of Arizona was drought-free 3-months ago and now over 80% of the state is drought-free. The improvements have been slower to come across New Mexico, but the state is now at 36% drought-free relative to only 7% three months ago.

U.S. Drought Monitor
West

March 14, 2023
(Released Thursday, Mar. 16, 2023)
Valid 8 a.m. EDT



Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <http://droughtmonitor.unl.edu/About.aspx>

Author:

Brad Rippey
U.S. Department of Agriculture

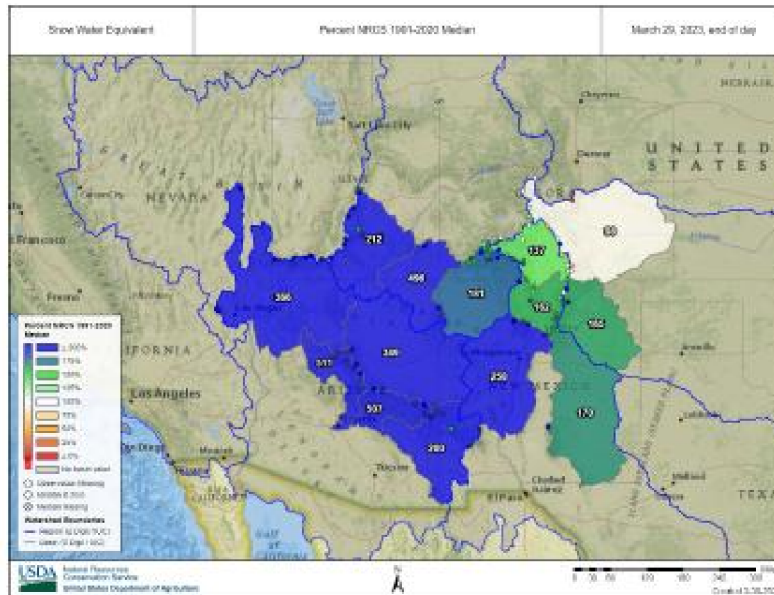


droughtmonitor.unl.edu

Source: [U.S. Drought Monitor](http://droughtmonitor.unl.edu)

Snowpack & Streamflow

All of the major watersheds across the Southwest are observing above-median SWE for the end of March. The Salt and Verde watersheds in Arizona are observing SWE values over 5 times the median typically seen in late March. SWE values in northern New Mexico aren't quite as impressive, but still above-median. This largely follows the precipitation patterns that have accumulated throughout the winter season since early December.



Source: National Resource Conservation Service (USDA)

Water Supply

Reservoir levels at Lakes Mead and Powell remain very far below average and have fallen since last year, but the other major Arizona reservoirs are at near- or above-average levels. Most reservoirs in New Mexico are at similar levels as this time last year, below their long-term average.

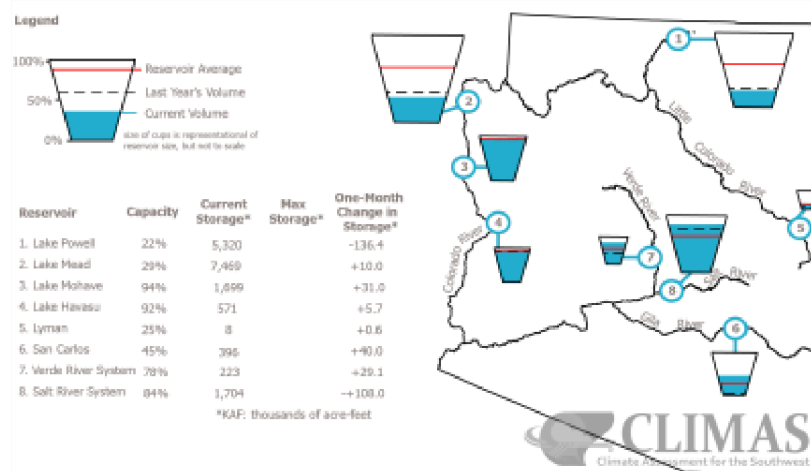
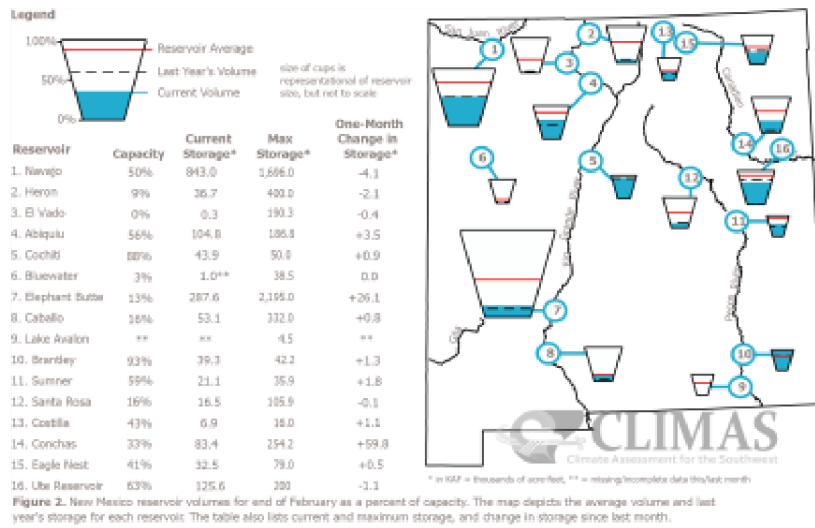


Figure 1. Arizona reservoir volumes for the end of February as a percent of capacity. The map depicts the average volume and last year's storage for each reservoir. The table also lists current and maximum storage, and change in storage since last month.

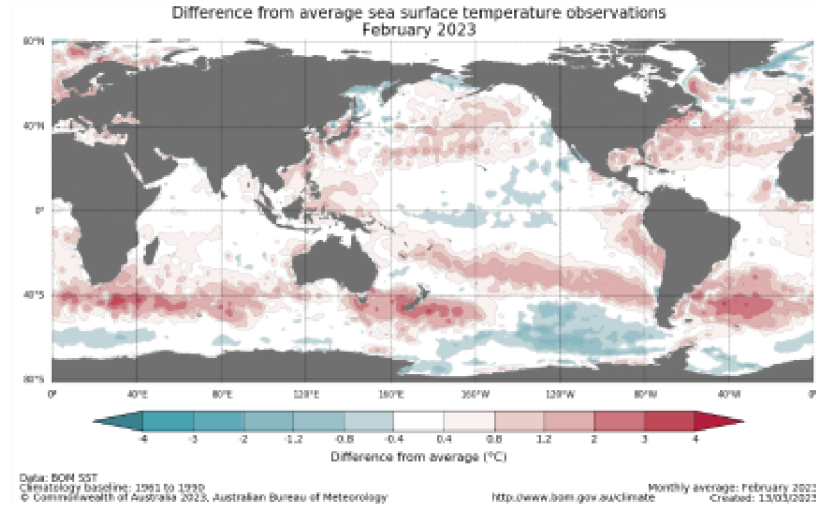


The map gives a representation of current storage for reservoirs in Arizona and New Mexico. Reservoir locations are numbered within the blue circles on the map, corresponding to the reservoirs listed in the table. The cup next to each reservoir shows the current storage (blue fill) as a percent of total 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 1991–2020 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 four people for a year. The last column of the table lists 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 [Natural Resources Conservation Service - National Water and Climate Center \(USDA\)](#).

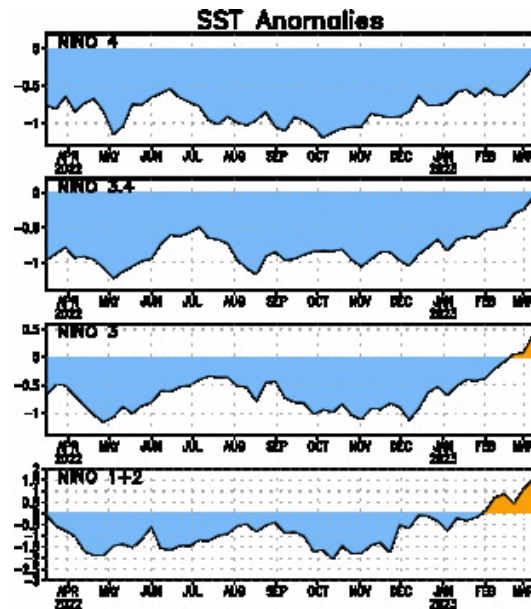
ENSO Tracker

February sea surface temperatures (SST) show a central Pacific with near-average conditions and traces of cool anomalies from a waning La Niña. Above-average SSTs have developed in the eastern Pacific, reflected in the Nino 1+2 index rising to +1.1°C and Nino 3 index crossing to positive values. Nino 3.4/4 values also show steady increases and

indicate a transition to ENSO-neutral state; SSTs are no longer sufficiently below-average to meet La Niña criteria.

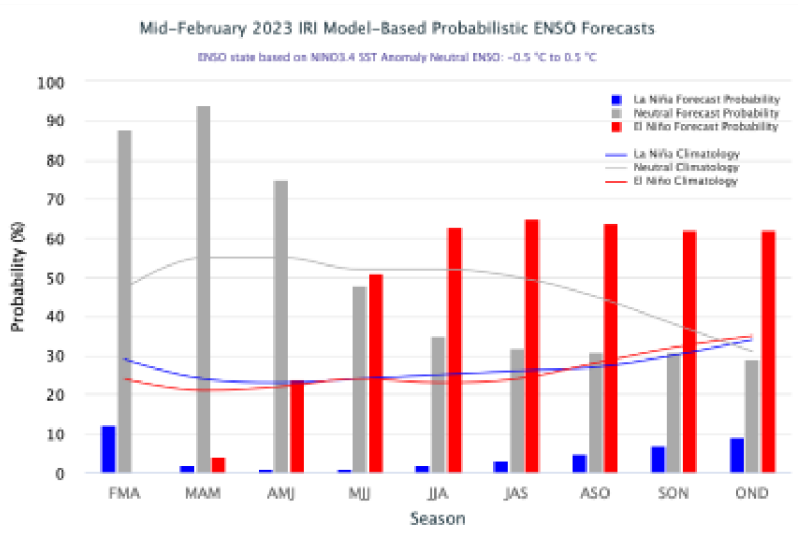


Source: Australian Bureau of Meteorology

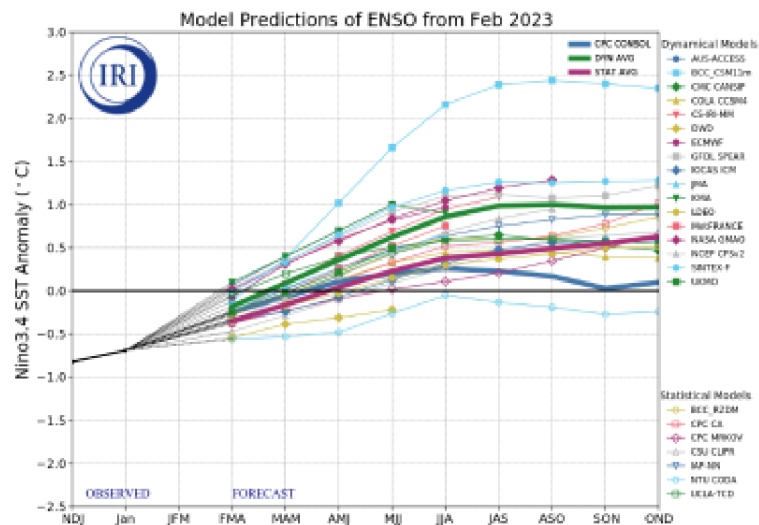


Source: Climate Prediction Center (NOAA)

Model-based predictions favor an ENSO-neutral state continuing through spring, progressing to El Niño conditions in summer. However, forecasters have low confidence in the summer transition to El Niño because atmospheric conditions over the tropical Pacific remain unfavorable and because of the relatively poor accuracy of past projections made from spring conditions.



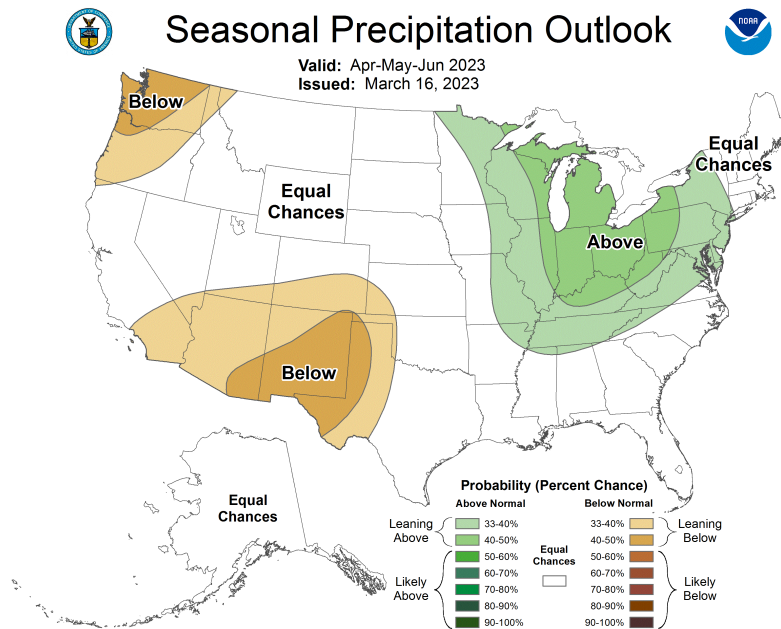
Source: International Research Institute (Columbia University)



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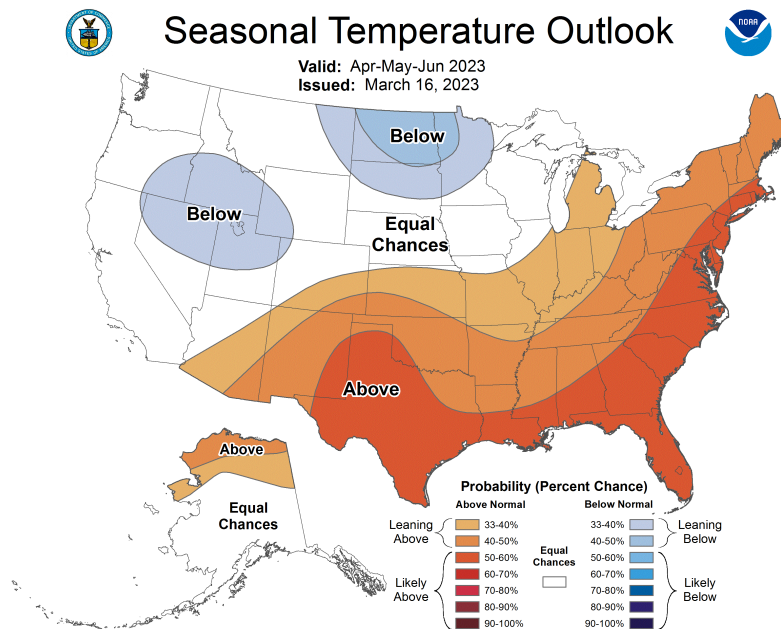
Seasonal Forecasts

The NOAA seasonal precipitation outlook for April – June leans toward a prediction of below normal precipitation for Arizona and New Mexico; this prediction stops short of declaring a dryer-than-normal spring to be likely, but rather it is more likely than not.



Source: [Climate Prediction Center \(NOAA\)](#)

The seasonal temperature outlook (April – June) leans toward above-normal for most of Arizona and New Mexico, with above-normal temperatures more likely for New Mexico, especially in the southeastern part of the state.



Source: [Climate Prediction Center \(NOAA\)](#)

Feb 23 - Having it Both Ways: A La Niña and non-La Niña Winter



In the February 2023 edition of the Southwest Climate Podcast, Mike Crimmins and Zack Guido return after a bit of a hiatus, and have a lot to talk about (buckle up!). Across the pod, they recap the winter conditions in the Southwest, talk about how this did/did-not live up to expectations for a La Niña winter, the effect some really widespread winter storm activity had across the western US, and what this means for snowpack and water supply

going into spring.

[Listen Here](#)

About CLIMAS

The Climate Assessment for the Southwest (CLIMAS) program was established in 1998 as part of the National Oceanic and Atmospheric Administration's Climate Adaptation Partnerships (CAP) Program (formerly known as Regional Integrated Sciences and Assessments, or RISA). CLIMAS—housed at the University of Arizona's Institute of the Environment—is a collaboration between the University of Arizona and New Mexico State University. The CLIMAS team is made up of experts from a variety of social, physical, and natural sciences who work with partners across the Southwest to develop sustainable answers to regional climate challenges.

[Learn more about the NOAA CAP program here.](#)



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**Thank You to additional
contributors:**

Mike Crimmins & Matt Meko