



July 2023: Southwest Climate Outlook



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Stacie Reece

July 31, 2023



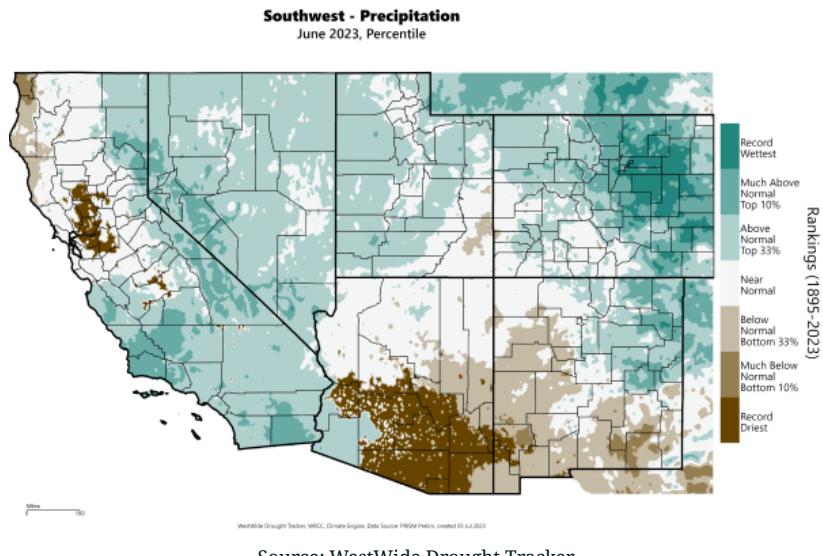
<https://climas.arizona.edu/>

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 Mexico State Climate office.

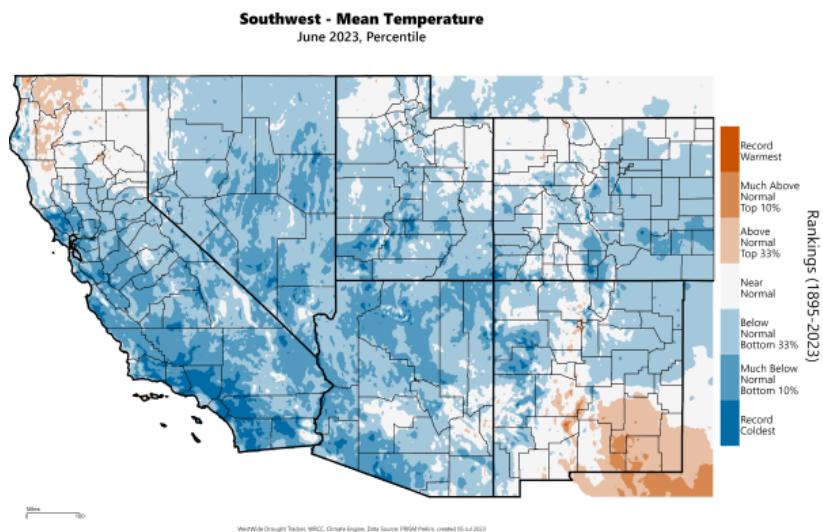
Questions/Contact: Stacie Reece, sreeece@arizona.edu

Precipitation and Temperature

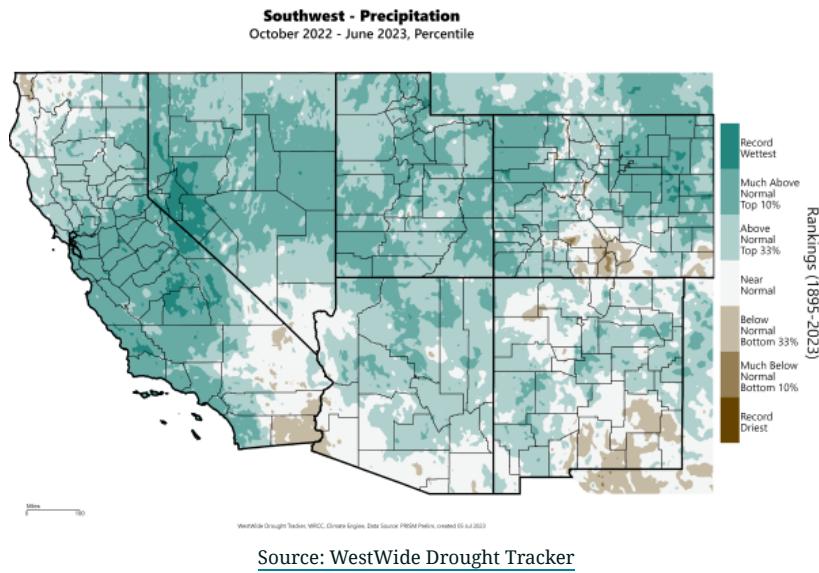
June precipitation totals varied from much-above normal in northeastern New Mexico to below normal in southern New Mexico, with much of southern Arizona recording its driest June on record.



June temperatures were below normal or much-below normal across Arizona and much of New Mexico; near-normal to much-above normal temperatures were recorded for central and southeastern New Mexico.

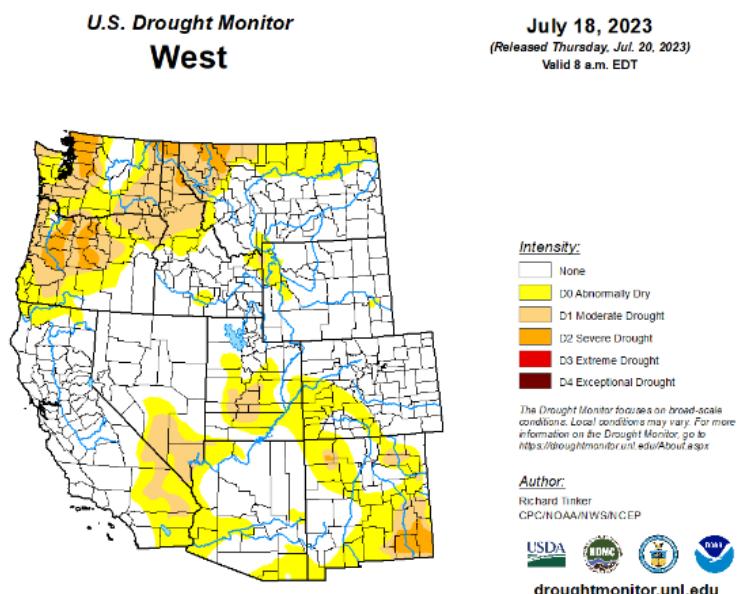


Water year (October 2022-June 2023) precipitation totals are above normal across much of Arizona and New Mexico; southern parts of the region have near-normal to below-normal totals, in part because of the relatively dry June.



Drought

The U.S. Drought Monitor shows some increase in areas of Arizona and New Mexico experiencing drought conditions, though the increase is mainly in the least-severe category of drought, D0 Abnormally Dry, with areas of Moderate (D1) to Severe Drought (D2) confined mainly to southeastern New Mexico. No areas are currently classified as experiencing Extreme (D3) or Exceptional (D4) drought conditions, and much of Arizona (~70%) is free of drought conditions.



Source: U.S. Drought Monitor

NIDIS Improved and Expanded State Pages on Drought.Gov

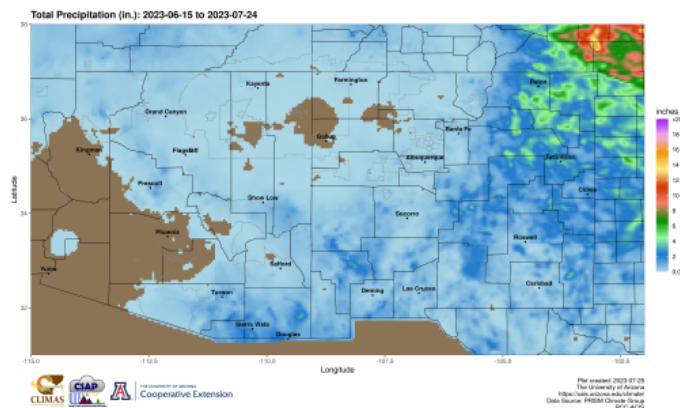
Arizona

New Mexico

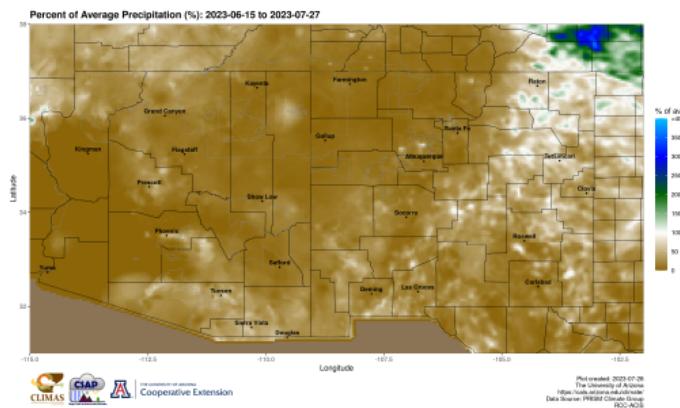
Monsoon

Monsoon precipitation totals (season beginning June 15) are below normal across most of Arizona and New Mexico.

Northeastern New Mexico has seen above-normal precipitation for the season.



Source: UA Cooperative Extension / CLIMAS



Source: UA Cooperative Extension / CLIMAS

Water Supply

Most of the reservoirs in Arizona and New Mexico are at or above the levels recorded at this time last year. For reservoirs in New Mexico, and Lakes Mead and Powell, the current levels are below the long-term average.

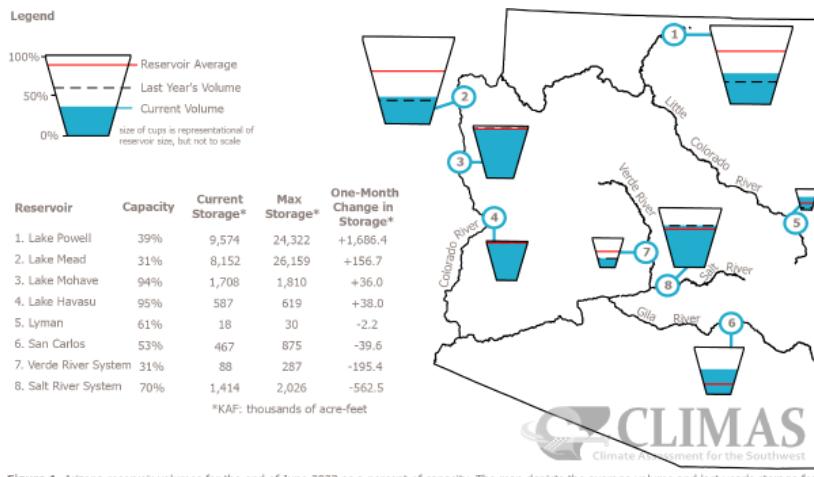
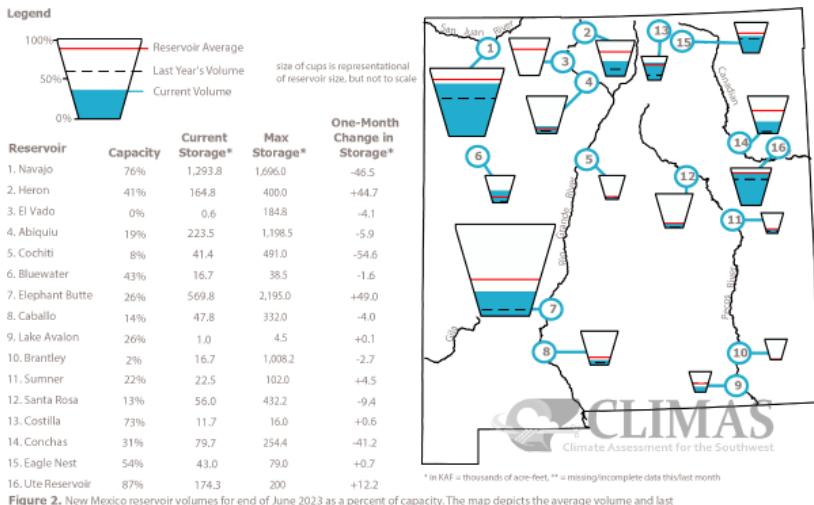


Figure 1. Arizona reservoir volumes for the end of June 2023 as a percent of capacity. The map depicts the average volume and last year's storage for each reservoir. The table also lists current and maximum storage, and change in storage since last month.



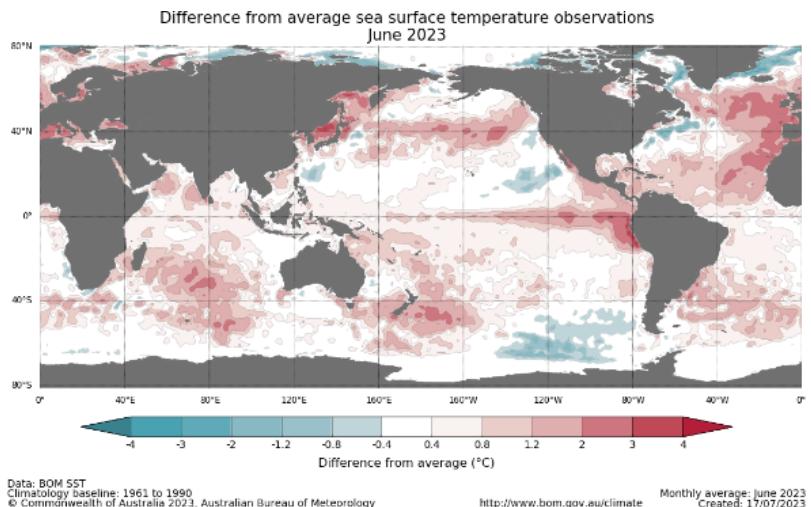
The map gives a representation of current storage for reservoirs in Arizona and New Mexico. Reservoir locations are numbered within the blue circles on the map, corresponding to the reservoirs listed in the table. The cup next to each reservoir shows the current storage (blue fill) as a percent of total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

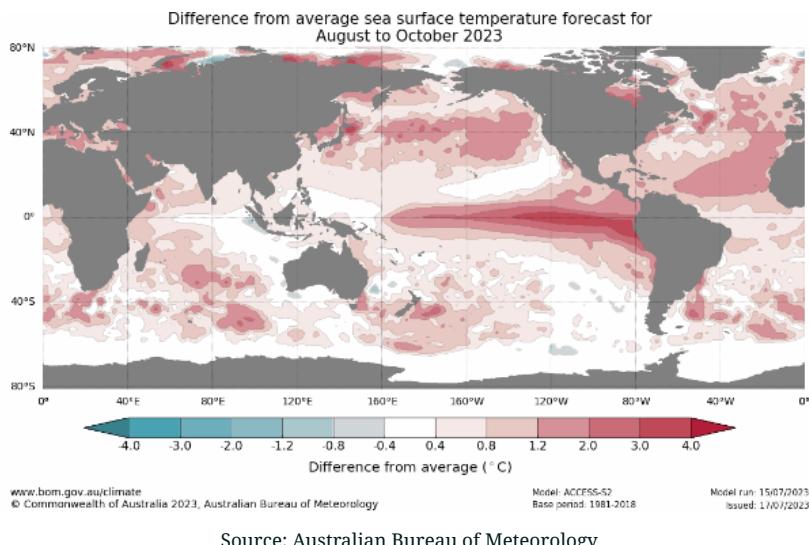
BOM: New Mexico Dashboard

ENSO Tracker

Equatorial sea surface temperatures (SSTs) in the Pacific have been consistent with El Niño conditions, which are expected to persist in the coming months.

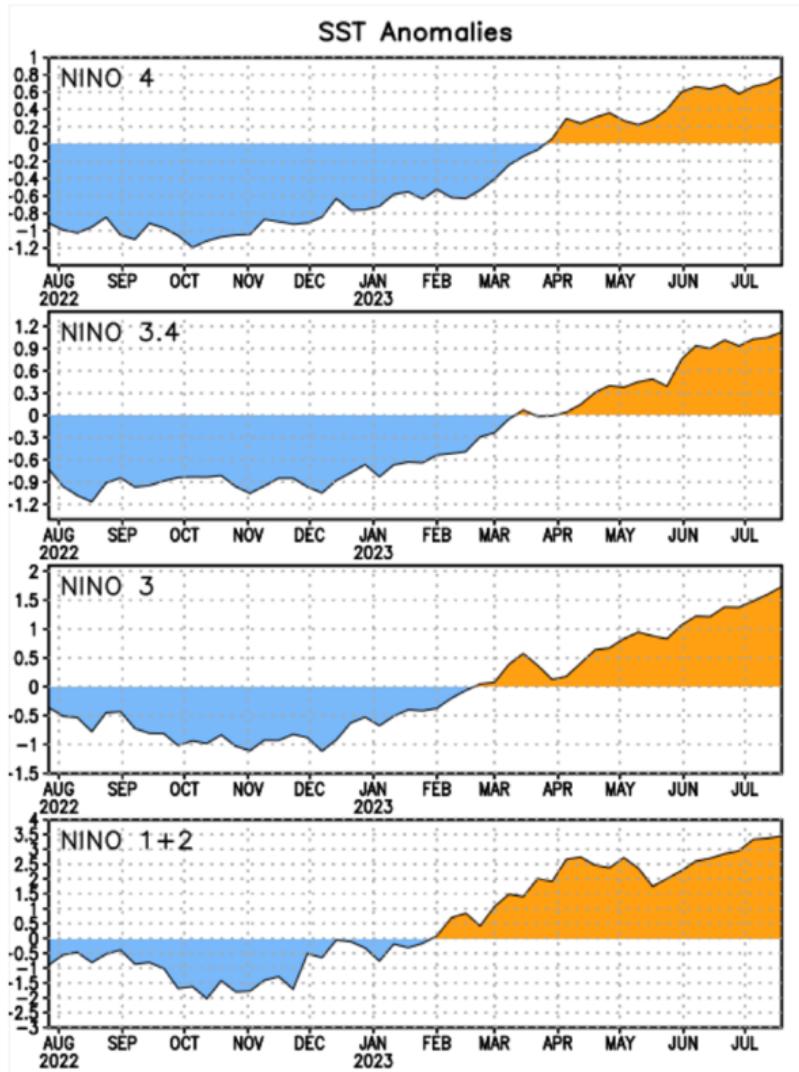


Source: Australian Bureau of Meteorology



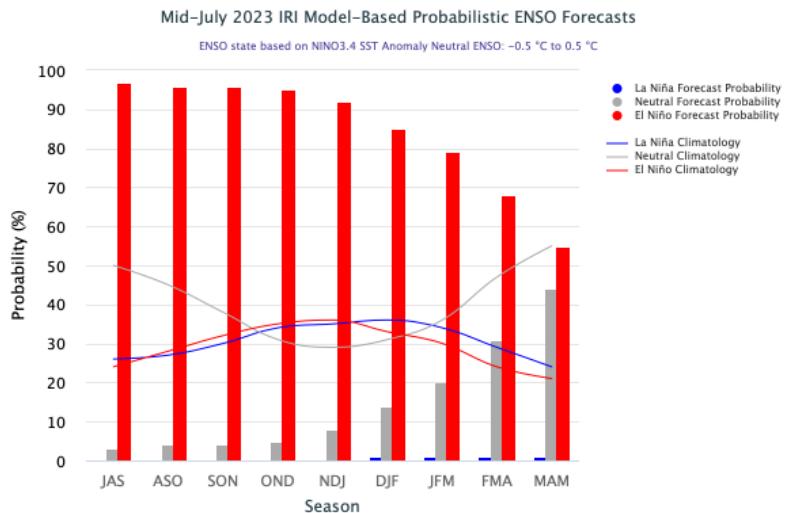
Source: Australian Bureau of Meteorology

Niño 3.4 SST anomalies have been steadily increasing, most-recently measuring 1.1 °C; Niño 3.4 SST anomalies of 1.5 °C or greater are the criteria for a strong El Niño. The greatest SST anomalies continue to be found along the western coast of South America, where Niño 1+2 region SSTs are 3.5 °C above average.



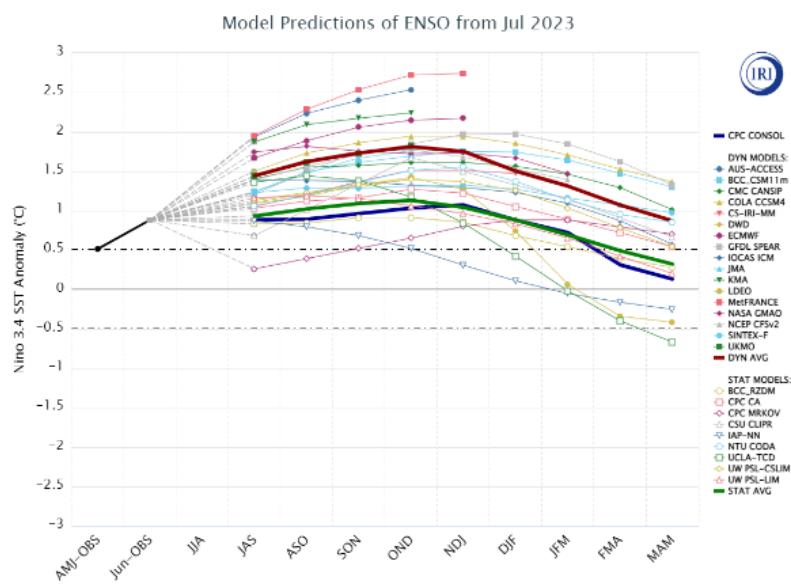
Source: Climate Prediction Center (NOAA)

ENSO forecasts strongly favor persisting El Niño conditions (Niño 3.4 SST anomaly $> 0.5^{\circ}\text{C}$) through to the end of the year, with $>90\%$ probability El Niño will persist through January 2024. Forecasts for subsequent months are less certain, assigning near equal chances for El Niño and ENSO-neutral conditions by spring (March-May) 2024.



Source: The International Research Institute for Climate and Society, Columbia University
[Climate School](#)

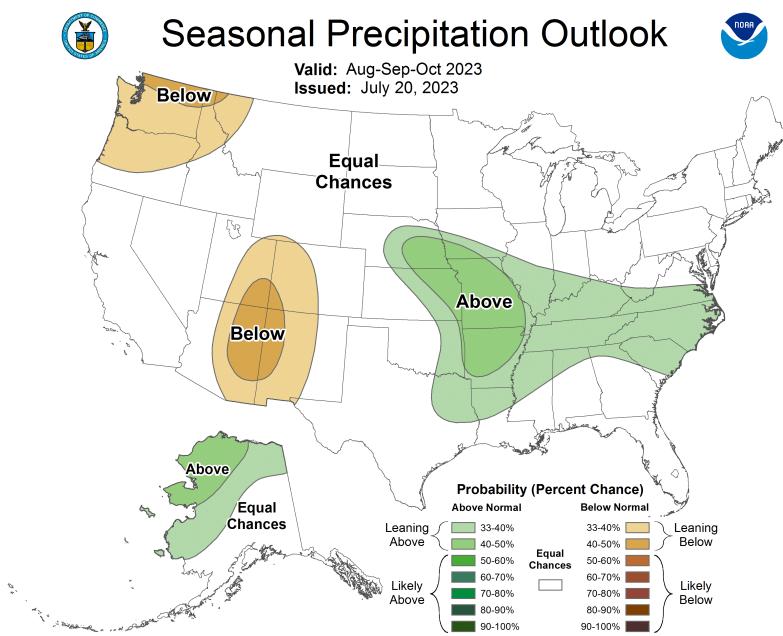
ENSO forecast models are in good agreement about the continuation of El Niño conditions, but dynamical models (physics-based) indicate a strong El Niño (Niño 3.4 SST anomaly $> 1.5^{\circ}\text{C}$), while statistical models (based on how past ENSO events progressed) indicate a more moderate El Niño (Niño 3.4 SST anomaly $\sim 1^{\circ}\text{C}$). CPC gives an approximately 1 in 5 chance of an event that becomes “historically strong,” with a seasonally-averaged Niño 3.5 $\geq 2^{\circ}\text{C}$, similar to El Niño events seen in the winters of 1997-98 or 2015-16.



Source: The International Research Institute for Climate and Society, Columbia University
[Climate School](#)

Seasonal Forecasts

The August-October seasonal precipitation forecast from CPC favors below-normal precipitation in the Four Corners region, citing a consistent indication of a weak monsoon by multiple forecast tools, including an ensemble of dynamical models and statistical models that reflect how the season progressed in past years with similar patterns of sea surface temperatures.



Source: Climate Prediction Center (NOAA)

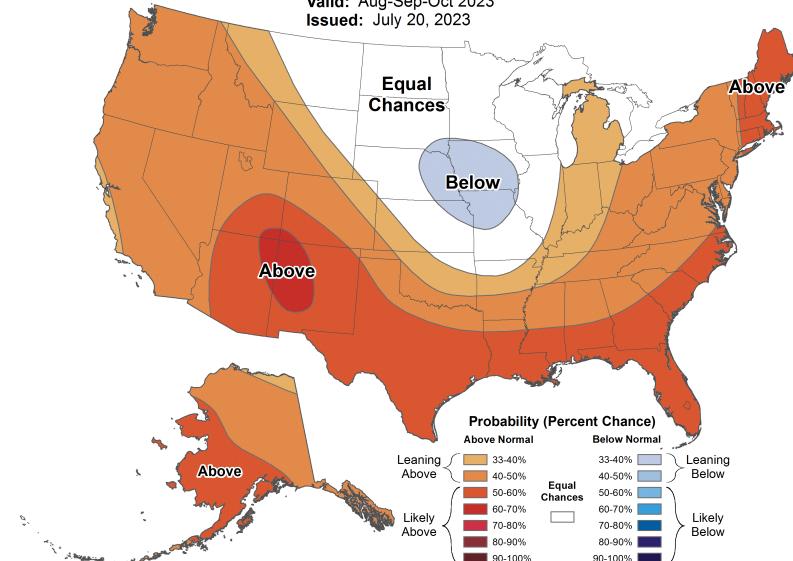
The August-October seasonal temperature forecast from CPC favors above-normal temperatures for Arizona and New Mexico, with the highest probabilities assigned to the Four Corners area. This forecast also rests on the indication of a weak monsoon by CPC forecast tools.



Seasonal Temperature Outlook



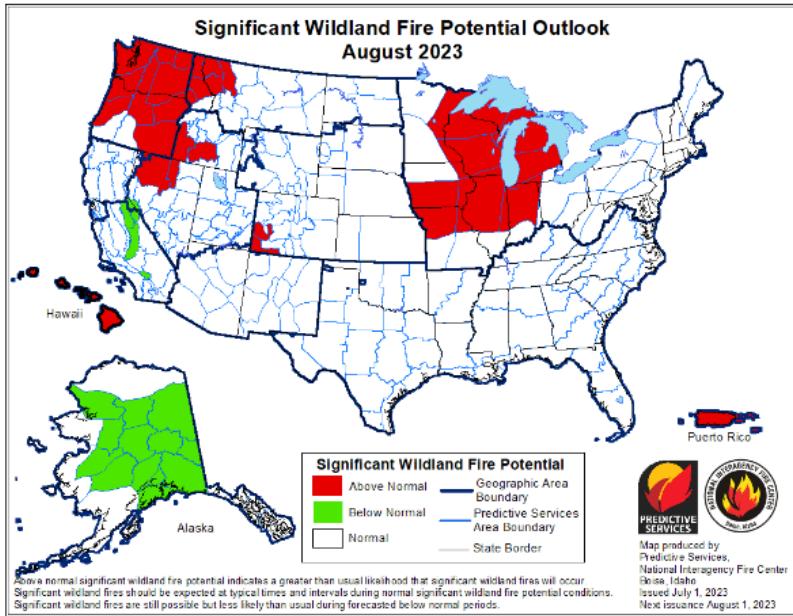
Valid: Aug-Sep-Oct 2023
Issued: July 20, 2023



Source: Climate Prediction Center (NOAA)

Wildfire

Significant wildland fire potential is normal for Arizona and New Mexico in August, according to the National Interagency Fire Center (NIFC). The NIFC outlook was issued July 1, and the intervening weeks have been hot and dry with a delayed arrival of monsoon moisture. NIFC does note that a wet spring and 2022 monsoon increased fine fuels in the region, and that the season for large fires will likely last longer this year, into late summer or fall, because of expected dry conditions, especially west of the continental divide. So far this year has seen over 150,000 acres burned in Arizona and over 137,000 acres burned in New Mexico.



Source: National Interagency Fire Center - Predictive Services

SW YEAR-TO-DATE FIRES AND ACRES

ARIZONA	HUMAN CAUSED	HUMAN ACRES	LIGHTNING CAUSED	LIGHTNING ACRES	UNKNOWN CAUSED	UNKNOWN ACRES	FIRES	ACRES
Arizona State Forestry	193	44752	30	11371	34	2140	257	58264
Bureau of Indian Affairs	174	281	24	3143	110	14066	308	17490
Bureau of Land Management	44	517	10	621	67	3451	121	4589
Bureau of Reclamation							0	0
Department of Defense							0	0
National Park Service	7	64	7	1	10	314	24	379
U.S. Fish & Wildlife Service	3	3	3	3	3	3	9	9
U.S. Forest Service	187	3919	90	44578	162	20969	439	69467
YTD TOTAL	608	49537	164	59718	386	40942	1158	150197
BLM - Arizona Strip District							0	0
TOTAL - ARIZONA	608	49537	164	59718	386	40942	1158	150197
NEW MEXICO	HUMAN CAUSED	HUMAN ACRES	LIGHTNING CAUSED	LIGHTNING ACRES	UNKNOWN CAUSED	UNKNOWN ACRES	FIRES	ACRES
New Mexico State Forestry	180	4327	47	8645	127	25998	354	38971
Bureau of Indian Affairs	39	34	4	4	26	32	69	70
Bureau of Land Management	44	1020	32	934	19	1137	95	3092
Department of Defense							0	0
Department of Energy							0	0
National Park Service			16	17	6	18	22	35
U. S. Fish & Wildlife Service	1	1	1	1	1	1	3	3
U.S. Forest Service	56	130	71	91786	57	3624	184	95539
TOTAL NEW MEXICO	320	5513	171	101387	236	30810	727	137710
YTD ARIZONA & NEW MEXICO *	928	55050	335	161105	622	71752	1885	287907

* Total Includes AZ-ASD

Source: Southwest Coordination Center

Southwest Coordination Center

Monsoon Fantasy



With white lightning, ferocious wind, and pelting rain, the monsoon has officially arrived!

If you placed bets for July, now's the time to review your predictions and cast your wagers for August – and even if you didn't play in July, it's not too late to sign up now! It's free to play, and you might even win one of our cash prize Amazon gift card giveaways.

The Southwest Monsoon Fantasy Forecast is an initiative of the Arizona Institute for Resilience at the University of Arizona. As a reminder, players take guesses at total monthly precipitation in the five major cities in the U.S. Southwest Monsoon region. Points are assigned each month based on the riskiness and accuracy of the players' forecasts, and cash prizes will be awarded to the top three players at the end of the season.

Forecasts for August must be cast by July 31 at 11:59 PM!
Sign up today to compete with other players and learn about the Southwest region's iconic summer storms.

Make your August Forecast Today!

Monsoon Fantasy

Southwest Climate Podcast

June 2023 - 2023 Monsoon Kick Off

If you aren't thinking about the 2023 Monsoon Season, this Kick Off episode for the June 2023 Southwest Climate Podcast is just what you need. Zach Guido and Mike Crimmins are



here to dive into the May / June review, a look at the current wildfire season, a brief chat about drought, then get into the recent Tex-Mex Heat Dome and dive right into the nitty gritty of the upcoming '23 Monsoon Season. They follow it up with an overview of the flex of El Niño, some hurricane looks - and last but not least - Monsoon Predictions.

[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.](#)



Disclaimer

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Southwest Climate Outlook Mike Crimmins & Matt Meko
contributors: