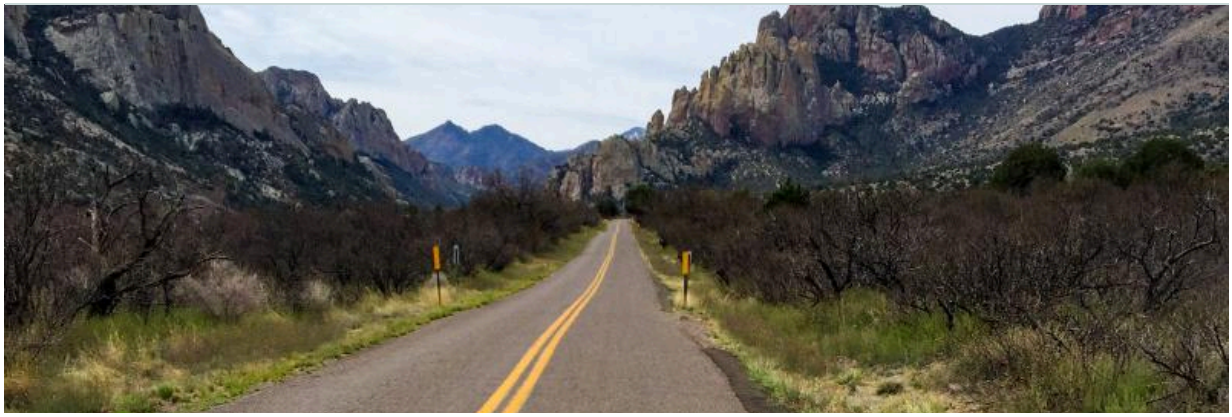


April 2024: Southwest Climate Outlook

Stacie Reece
May 1, 2024

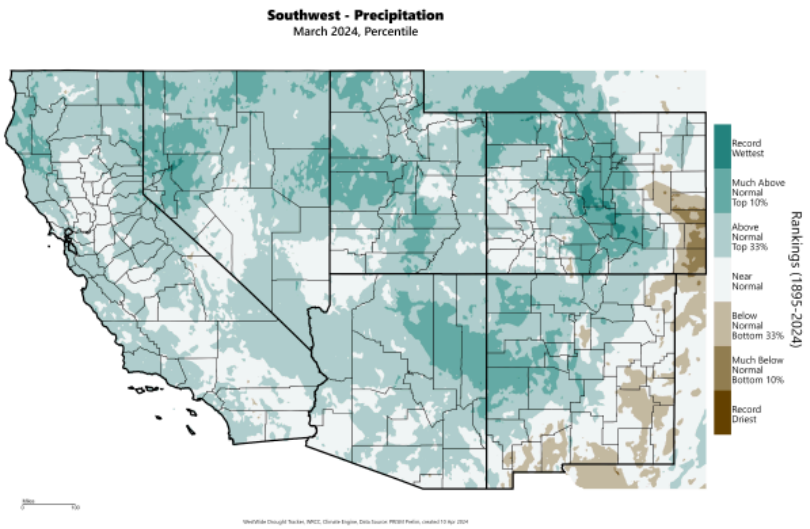
https://climas.arizona.edu/

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, sreece@arizona.edu

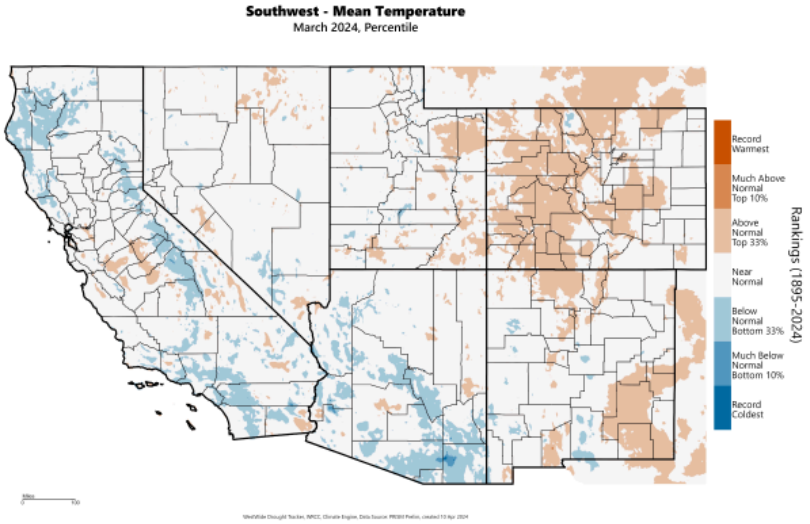
Precipitation and Temperature

March precipitation was above normal to much-above normal across much of Arizona and large parts of New Mexico. Precipitation in southern and eastern New Mexico ranged from near normal to below normal.



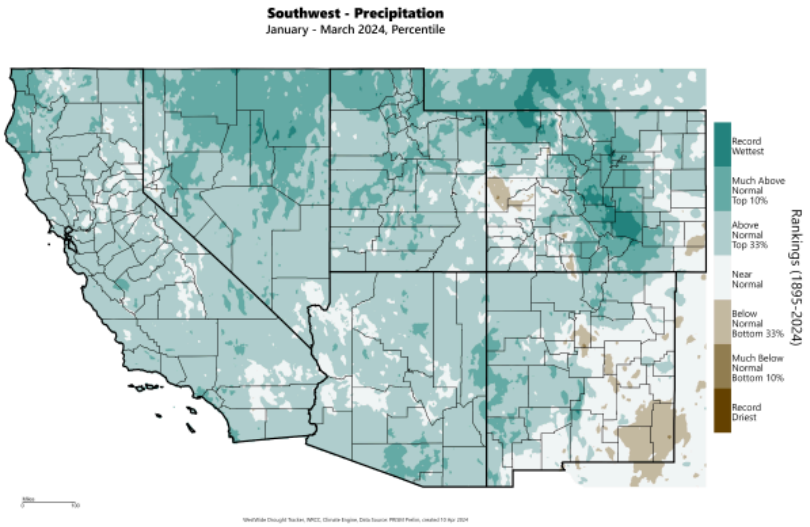
Source: WestWide Drought Tracker

March temperatures were near normal across most of Arizona and New Mexico, ranging into below normal temperatures in parts of Arizona, and above normal in parts of New Mexico.



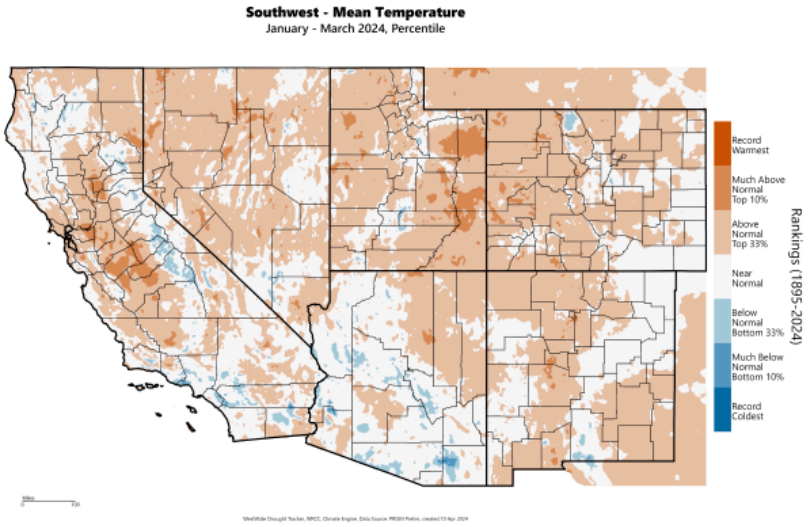
Source: WestWide Drought Tracker

January – March 3-month precipitation accumulation was above normal across Arizona and western and northern parts of New Mexico. Central, southern, and eastern parts of New Mexico saw near normal to below normal precipitation over those three months.



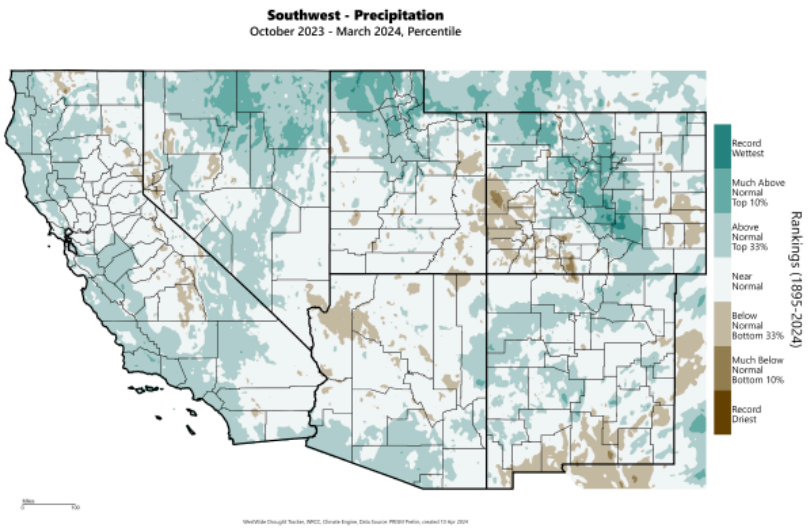
Source: WestWide Drought Tracker

January – March 3-month average temperatures varied across space, with large parts of Arizona and New Mexico seeing temperatures near normal, but areas including much of the Colorado Plateau, Rio Grande Valley, and southeastern plains of New Mexico seeing above normal averages. In some isolated areas, mostly in Arizona, temperatures averaged below normal.



Source: WestWide Drought Tracker

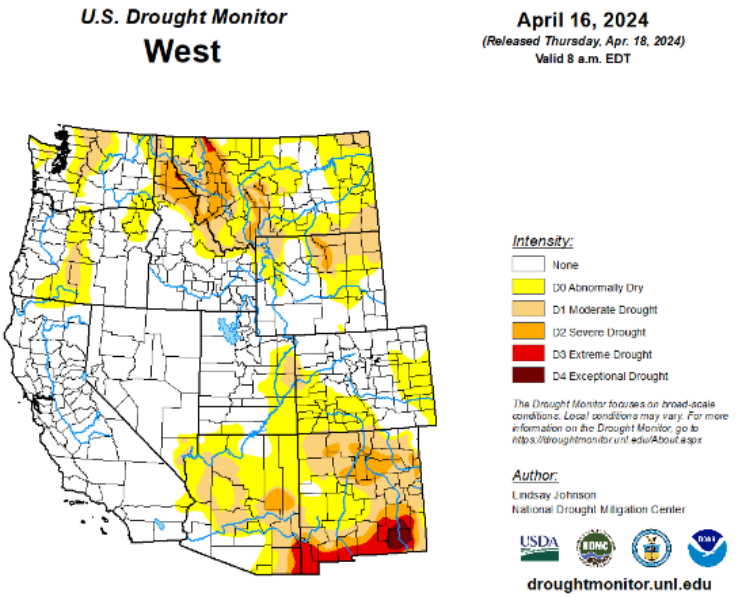
Water year precipitation so-far (October 2023 – March 2024) has been near normal across most of Arizona and New Mexico, but above normal in parts of southern and eastern Arizona, and in some places across New Mexico. Precipitation has lagged below normal in parts of northwestern Arizona and southern New Mexico over those six months.



Source: WestWide Drought Tracker

Drought

The U.S. Drought monitor highlights less-than-ideal conditions for Arizona and New Mexico as we enter the hot and dry season—drought conditions are affecting about three quarters of New Mexico and about one quarter of Arizona; an additional near-half of Arizona, and nearly all the remaining portion of New Mexico is classified as abnormally dry. The area facing the most acute drought conditions is southern New Mexico, where conditions are classified extreme to exceptional for over 13% of the state's area.



Source: U.S. Drought Monitor

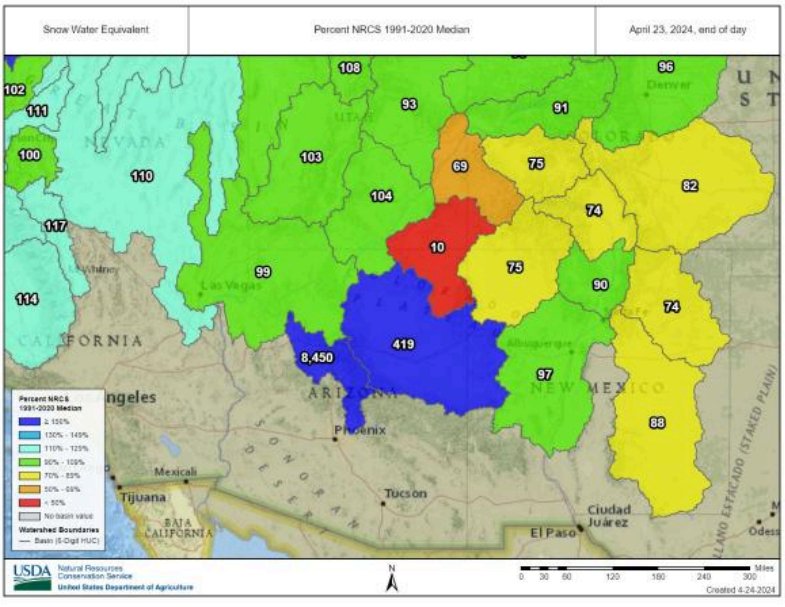
NIDIS Improved and Expanded State Pages on Drought.Gov

Arizona

New Mexico

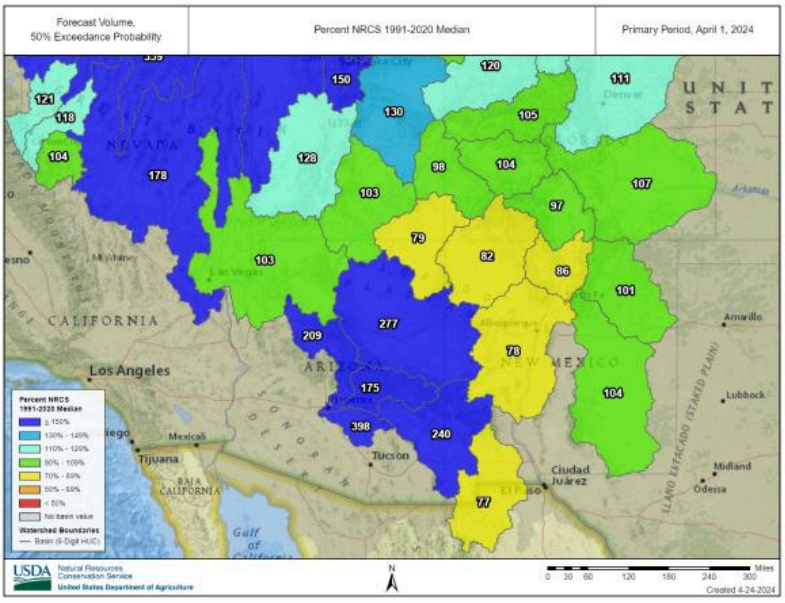
Snowpack & Streamflow

We are now well into the melting season for snowpacks in the Southwest, and basin-average snow water equivalent (SWE) estimates reflect measurements from fewer sites because the climatological normal (period-of-record median SWE) is zero or missing for this time of year. Only one station in Arizona is contributing data to SWE estimates as of April 29, and as normal approaches zero, percent-of-normal will become meaninglessly large, as seen in a few Arizona basins. Elsewhere, warm temperatures have rapidly melted snow that was, when at peak snowpack, near normal SWE. Estimates of near normal to below normal SWE from more northern or higher elevation basins are more reflective of snow storage conditions.



USDA-NRCS: National Water and Climate Center

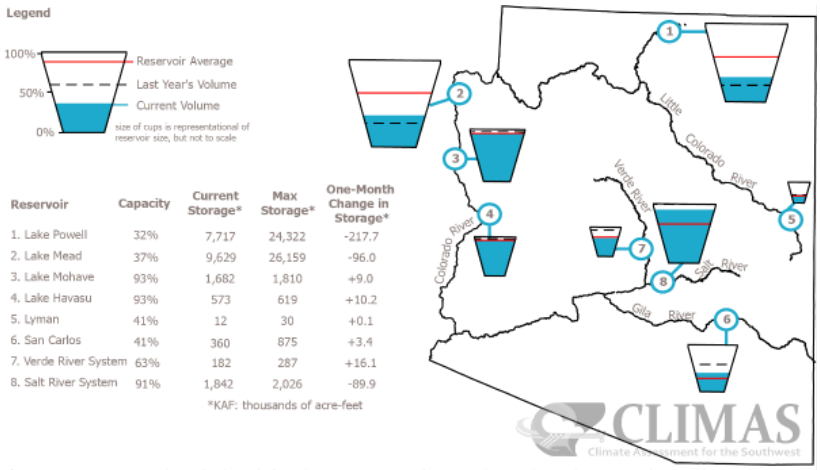
Streamflow forecasts vary from below normal expected flows in basins of the San Juan and Rio Grande rivers to much-above normal flows in basins of the Salt, Verde, and Gila rivers.



USDA-NRCS: National Water and Climate Center

Water Supply

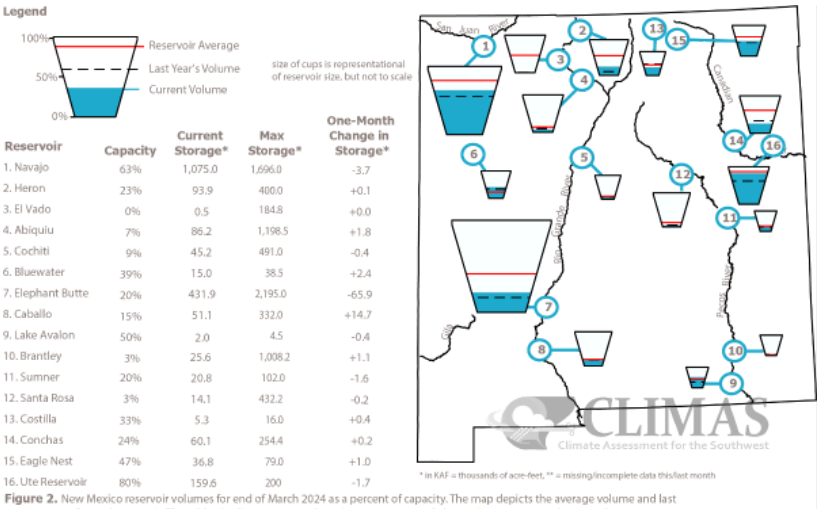
Water storage in reservoirs is broadly near-to-above normal in Arizona and below normal in New Mexico. Lakes Mead and Powell are well below normal (long term average), but levels have increased over last year's. The same is true of many larger New Mexico reservoirs including Elephant Butte and Navajo.



Reservoir	Capacity	Current Storage*	Max Storage*	One-Month Change in Storage*
1. Lake Powell	32%	7,717	24,322	-217.7
2. Lake Mead	37%	9,629	26,159	-96.0
3. Lake Mohave	93%	1,682	1,810	+9.0
4. Lake Havasu	93%	573	619	+10.2
5. Lyman	41%	12	30	+0.1
6. San Carlos	41%	360	875	+3.4
7. Verde River System	63%	182	287	+16.1
8. Salt River System	91%	1,842	2,026	-89.9

*KAF: thousands of acre-feet

Figure 1. Arizona reservoir volumes for the end of March 2024 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.



Reservoir	Capacity	Current Storage*	Max Storage*	One-Month Change in Storage*
1. Navajo	63%	1,075.0	1,696.0	-3.7
2. Heron	23%	93.9	400.0	+0.1
3. El Vado	0%	0.5	184.8	+0.0
4. Abiquiu	7%	86.2	1,198.5	+1.8
5. Cochiti	9%	45.2	491.0	-0.4
6. Bluewater	39%	15.0	38.5	+2.4
7. Elephant Butte	20%	431.9	2,195.0	-65.9
8. Caballo	15%	51.1	332.0	+14.7
9. Lake Avalon	50%	2.0	4.5	-0.4
10. Brantley	3%	25.6	1,008.2	+1.1
11. Sumner	20%	20.8	102.0	-1.6
12. Santa Rosa	3%	14.1	432.2	-0.2
13. Costilla	33%	5.3	16.0	+0.4
14. Conchas	24%	60.1	254.4	+0.2
15. Eagle Nest	47%	36.8	79.0	+1.0
16. Ute Reservoir	80%	159.6	200	-1.7

Figure 2. New Mexico reservoir volumes for end of March 2024 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)

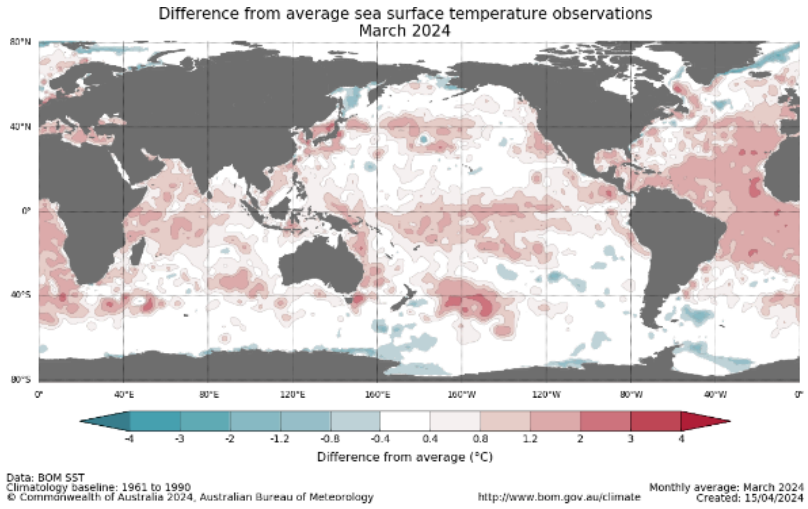
.

BOM: New Mexico Dashboard

ENSO Tracker

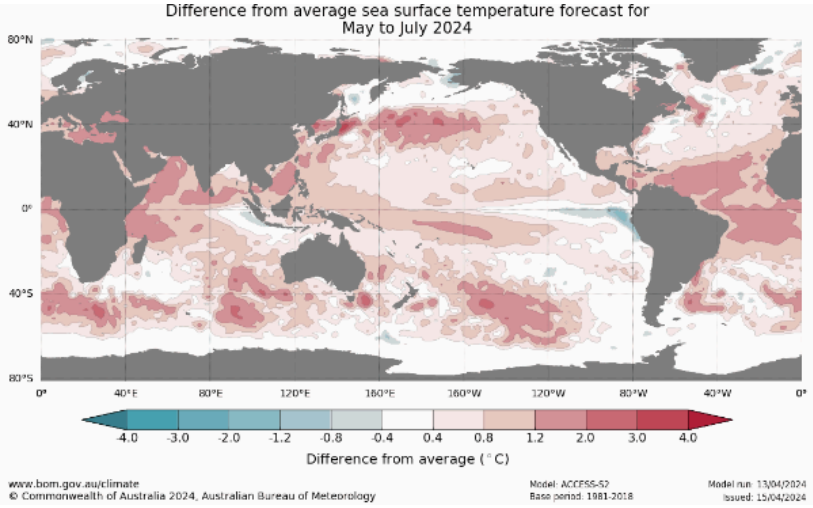
Sea surface temperatures (SSTs) in March showed warm SST anomalies in the central equatorial Pacific persisting from the El Niño event that peaked over the winter, while SSTs in the

eastern equatorial Pacific tended toward normal. The western equatorial Pacific featured warm SST anomalies that would be consistent with an expected development of La Niña later this year.



Source: Australian Bureau of Meteorology

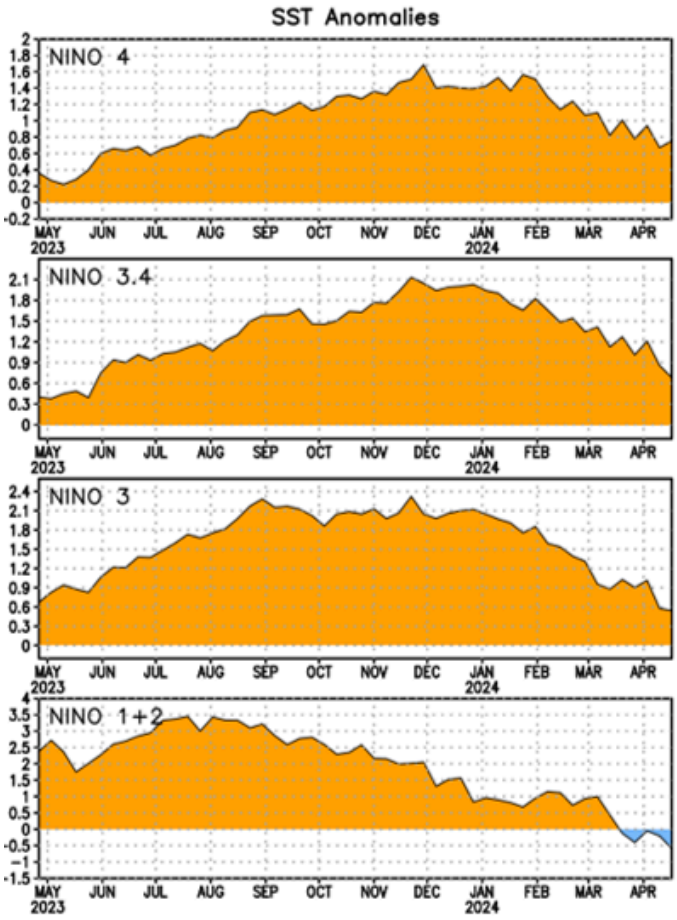
Forecast SSTs for May – July show expansion of warm SSTs in the western tropical Pacific and a cohesive region of cool SSTs in the eastern equatorial Pacific, in a pattern consistent with the development of La Niña conditions.



Source: Australian Bureau of Meteorology

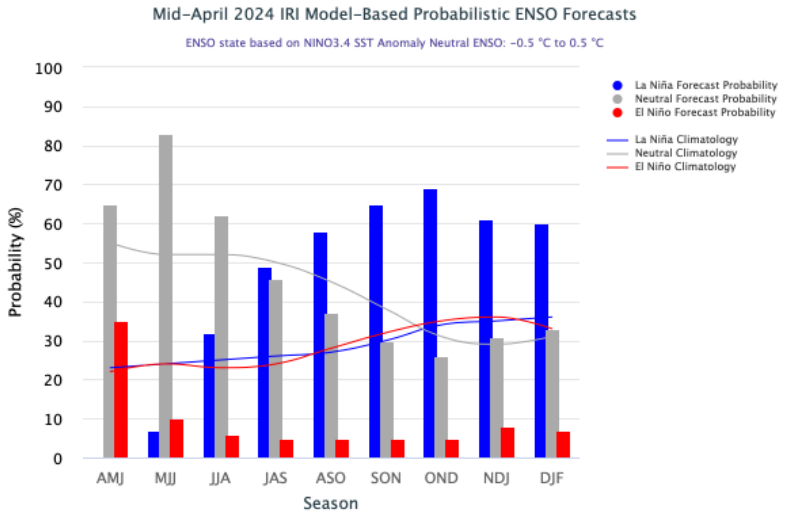
SSTs within the four ENSO diagnostic regions have continued to decline, and although regions Nino 3 (eastern equatorial Pacific), Nino 4 (central equatorial Pacific) and Nino 3.4 (a region spanning parts of Nino 3 and 4) have not yet returned to ENSO-neutral SSTs (-0.5°C < SSTA < 0.5°C), the coastal-

eastern Pacific region Nino 1+2 has shown cool-anomaly SSTs beginning in March.



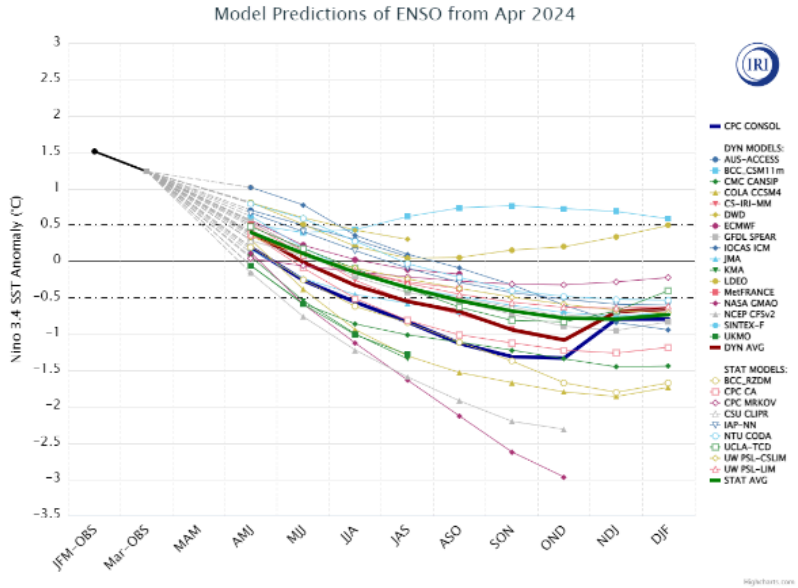
Source: Climate Prediction Center (NOAA)

The probabilistic summary of ENSO model forecasts favors ENSO-neutral conditions for the coming months, through the June – August prediction interval. La Niña conditions are the most likely state expected for the latter half of the year (2 out of 3 odds of La Niña conditions in October – December), but there is still uncertainty—probabilities >25% of ENSO-neutral conditions.



Source: The International Research Institute for Climate and Society, Columbia University Climate School

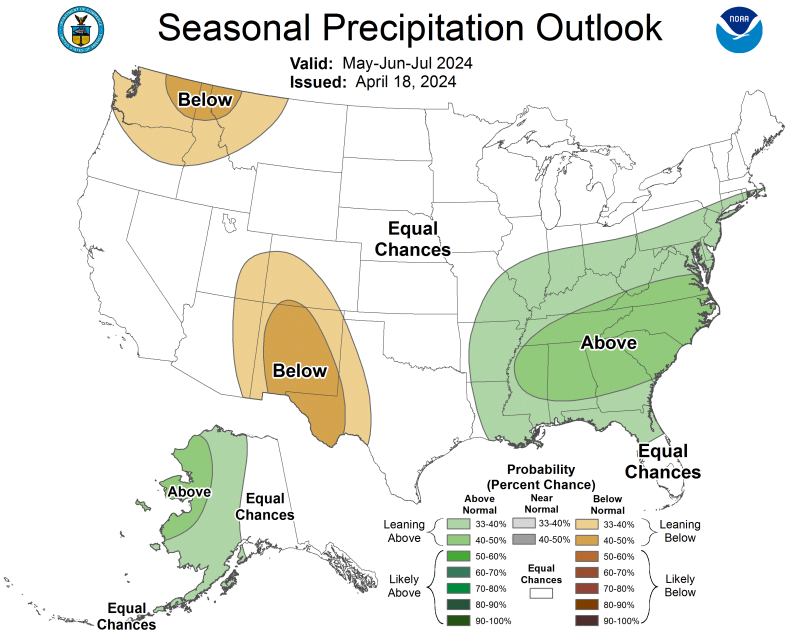
Among individual ENSO forecast models, the majority predict La Niña conditions by September – October; some models indicate a very strong La Niña event while others indicate a more subdued event. A few models predict ENSO-neutral conditions through year end, and one model indicates a return to weak El Niño conditions.



Source: The International Research Institute for Climate and Society, Columbia University Climate School

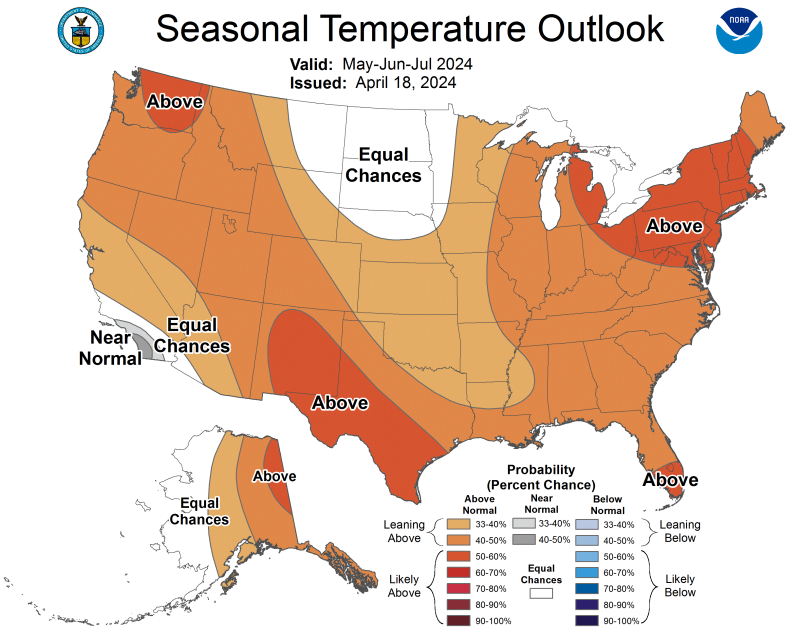
Seasonal Forecasts

The May – July seasonal precipitation forecast leans toward below normal precipitation for an area that includes New Mexico and eastern Arizona. Ensembles of weather prediction models contribute to these forecasts; the “leaning below” outlook in this case corresponds to 33%-50% of individual model ensemble members indicating precipitation totals in the lower tercile of the precipitation climatology for the season.



Source: Climate Prediction Center (NOAA)

The May – July seasonal temperature forecast leans toward above normal temperatures for Arizona, and favors above normal temperatures for New Mexico with greater likelihood.

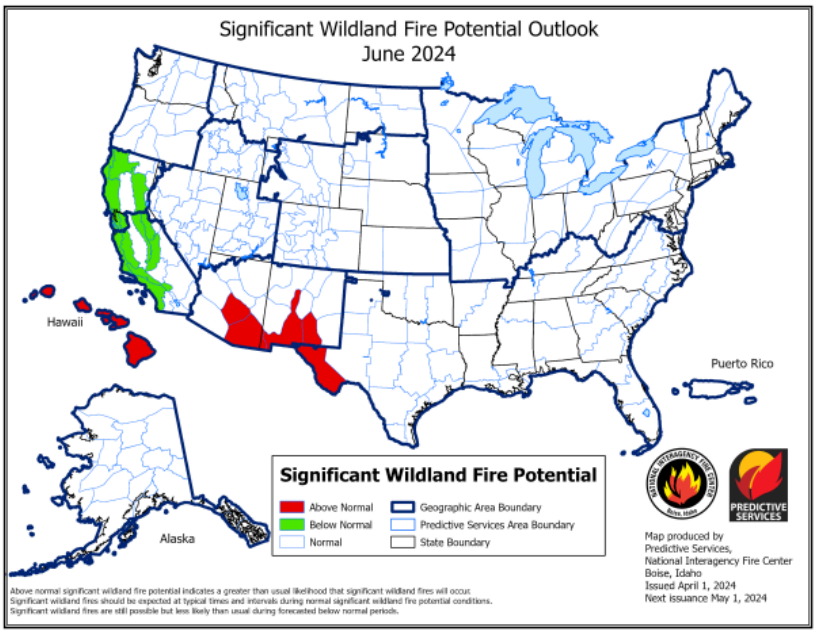


Source: Climate Prediction Center (NOAA)

Wildfire

Areas of central and southeastern Arizona, southern New Mexico, and the Rio Grande Valley are expected to have above normal potential for significant wildland fire in May and June. Reasons for the elevated potential include an abundant accumulation of fine fuels and expected hot, dry conditions.

Source: National Interagency Coordination Center



Source: National Interagency Coordination Center

Southwest Climate Podcast

March 2024 SW Climate Podcast - The Kinda, Sorta El Niño

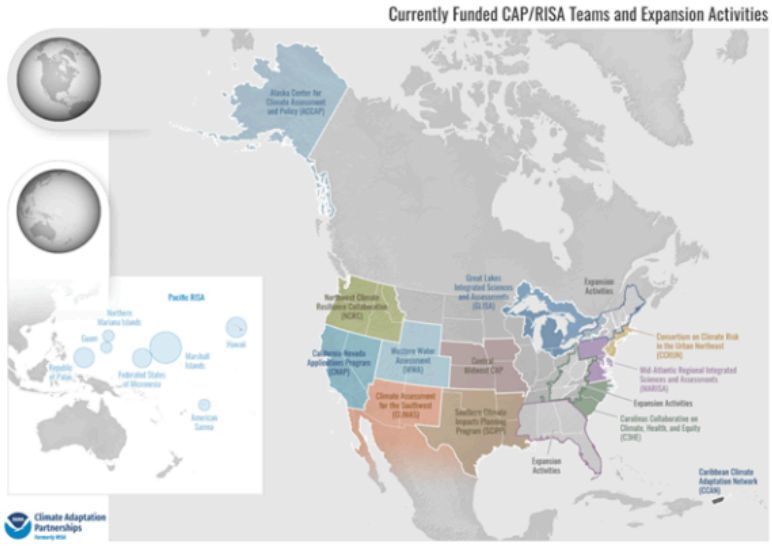
In this month's Southwest Climate Podcast hosts Zack Guido and Mike Crimmins look back at winter to share insights on the late-loaded precipitation, as well as current snowpack conditions and streamflow forecasts. The hosts discuss how El Niño played out as it starts its transition to La Niña and what to look out for this coming spring setting up this year's monsoon season.

And stay tuned for news on this year's Monsoon Fantasy competition on the next Pod being released next week!

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

This packet contains official and non-official forecasts, as well as other information. While we make every effort to verify this information, please understand that we do not warrant the accuracy of any of these materials. The user assumes the entire risk related to the use of this data. CLIMAS, and UA Cooperative Extension disclaim any and all warranties, whether expressed or implied, including (without limitation) any implied warranties of merchantability or fitness for a particular purpose. In no event will CLIMAS, UA Cooperative Extension, or The University of Arizona be liable to you or to any third party for any direct, indirect, incidental, consequential, special or exemplary damages or lost profit resulting from any use or misuse of this data.

Southwest Climate Outlook contributors:	Mike Crimmins & Matt Meko