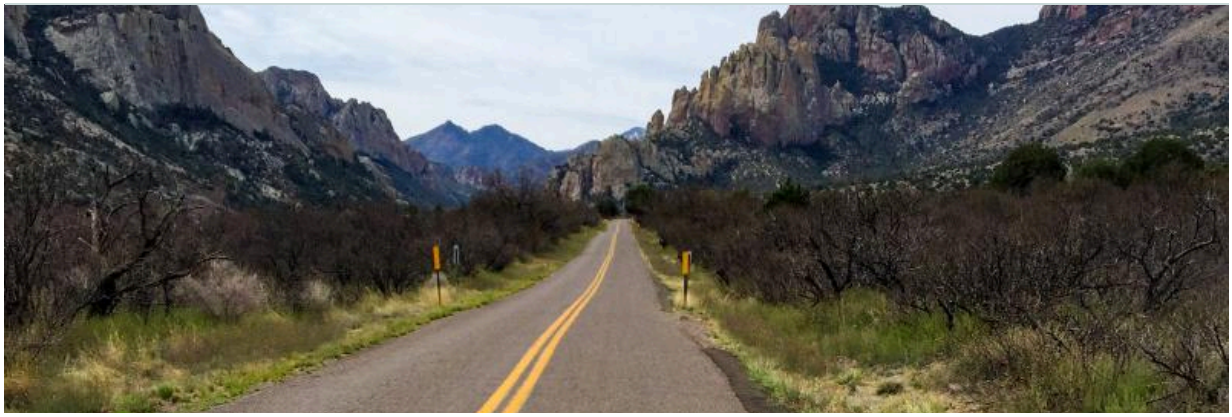

May 2024: Southwest Climate Outlook

Stacie Reece
May 30, 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.

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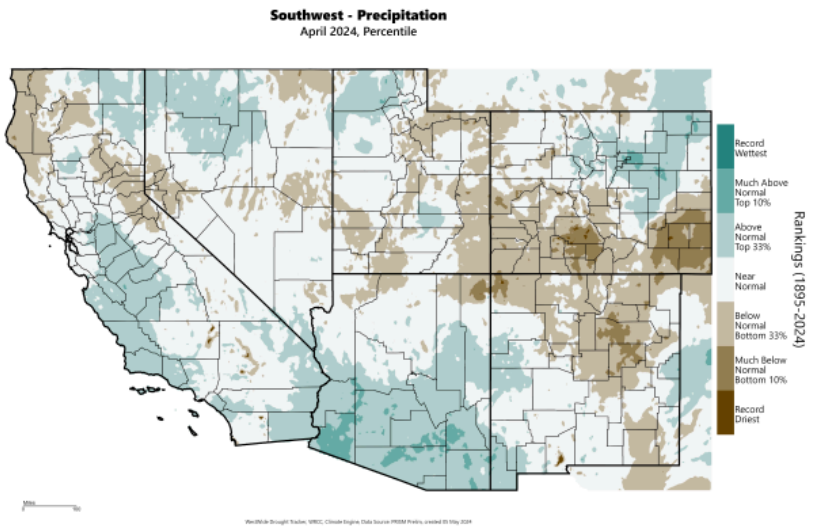
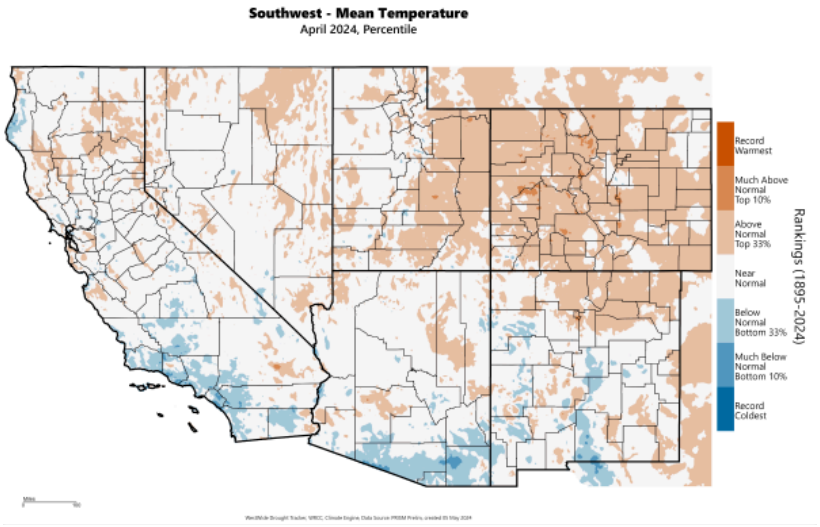
Precipitation and Temperature

April precipitation was above normal for central and southern Arizona, near normal for northern Arizona and much of New Mexico, and below normal for parts of northern New Mexico.



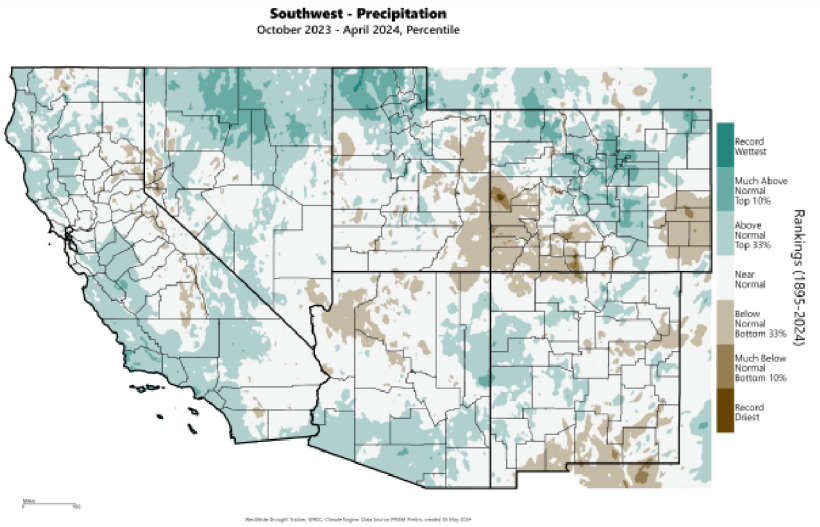
Source: WestWide Drought Tracker

April temperatures were near normal across much of Arizona and New Mexico, with below normal temperatures in parts of southern Arizona and isolated areas of New Mexico, and above normal temperatures in northern New Mexico.



Source: WestWide Drought Tracker

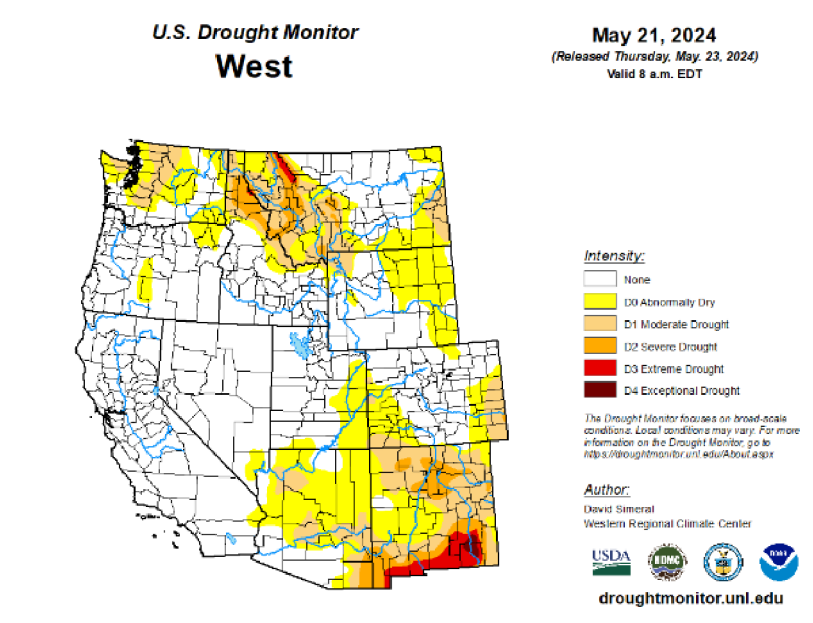
Water year precipitation through April (October 2023 – April 2024) is near normal across much of Arizona and New Mexico, with above normal totals in parts of southern and eastern Arizona, and western New Mexico. Totals are below normal for parts of northwest Arizona and southern New Mexico.



Source: WestWide Drought Tracker

Drought

Nearly three-quarters of Arizona, and nearly all of New Mexico, is classified as abnormally dry or in drought, despite some improvement over last month—mainly in Arizona. The most acute drought conditions continue to be found in southern New Mexico, where drought is extreme or exceptional for over one-tenth of that state's area. Moderate-or-worse drought conditions are found across 73% of New Mexico, spanning an area that includes northern, eastern, and southern parts of the state. Drought conditions are less acute for Arizona, but areas of northwestern, central, and southeastern Arizona are classified under moderate drought, and the area of severe drought extends from New Mexico into extreme southeast Arizona.



Source: U.S. Drought Monitor

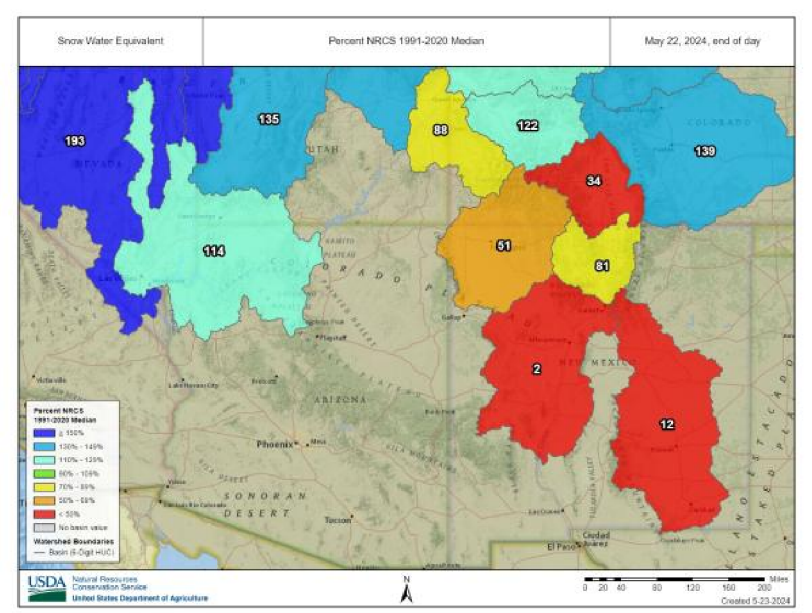
NIDIS Improved and Expanded State Pages on Drought.Gov

Arizona

New Mexico

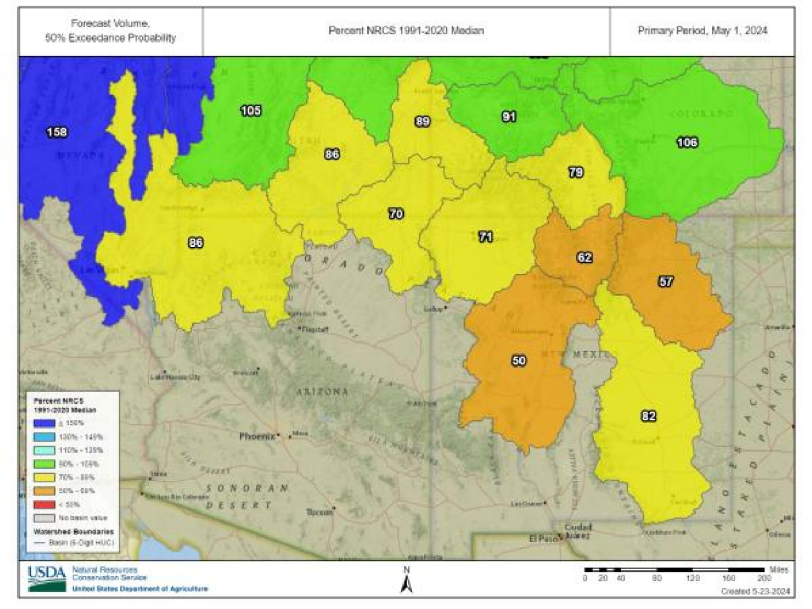
Snowpack & Streamflow

Much of the southern portion of this past winter's snowpack has melted away, and what remains in New Mexico is much less than normal, in part because warm temperatures accelerated melting.



USDA-NRCS: National Water and Climate Center

Streamflow forecasts are calling for below normal flows in basins of the San Juan, Pecos upper Rio Grande, and the Colorado River below Grand Junction, with middle Rio Grande basin flows expected to be much-below normal.

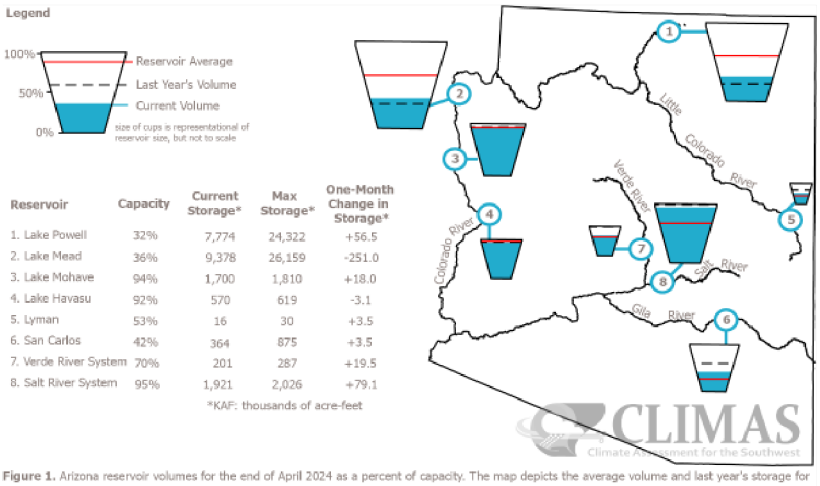


USDA-NRCS: National Water and Climate Center

Water Supply

Arizona reservoir levels are near or above the long-term average, except for lakes Mead and Powell, which remain

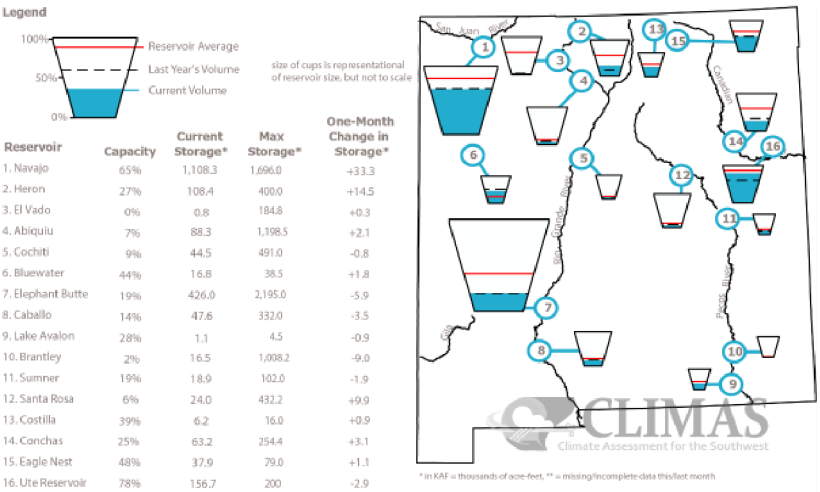
well-below average but are holding more water than they were last year. New Mexico reservoir levels are below the long-term average, but in most cases near or above last year's levels.



Reservoir	Capacity	Current Storage*	Max Storage*	One-Month Change in Storage*
1. Lake Powell	32%	7,774	24,322	+56.5
2. Lake Mead	36%	9,378	26,159	-251.0
3. Lake Mohave	94%	1,700	1,810	+18.0
4. Lake Havasu	92%	570	619	-3.1
5. Lyman	53%	16	30	+3.5
6. San Carlos	42%	364	875	+3.5
7. Verde River System	70%	201	287	+19.5
8. Salt River System	95%	1,921	2,026	+79.1

*KAF: thousands of acre-feet

Figure 1. Arizona reservoir volumes for the end of April 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	65%	1,108.3	1,696.0	+33.3
2. Heron	27%	108.4	400.0	+14.5
3. El Vado	0%	0.8	184.8	+0.3
4. Abiquiu	7%	88.3	1,198.5	+2.1
5. Cochiti	9%	44.5	491.0	-0.8
6. Bluewater	44%	16.8	38.5	+1.8
7. Elephant Butte	19%	426.0	2,195.0	-5.9
8. Caballo	14%	47.6	332.0	-3.5
9. Lake Avalon	28%	1.1	4.5	-0.9
10. Brantley	2%	16.5	1,008.2	-9.0
11. Sumner	19%	18.9	102.0	-1.9
12. Santa Rosa	6%	24.0	432.2	+9.9
13. Costilla	39%	6.2	16.0	+0.9
14. Conchas	25%	63.2	254.4	+3.1
15. Eagle Nest	48%	37.9	79.0	+1.1
16. Ute Reservoir	78%	156.7	200	-2.9

Figure 2. New Mexico reservoir volumes for end of April 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

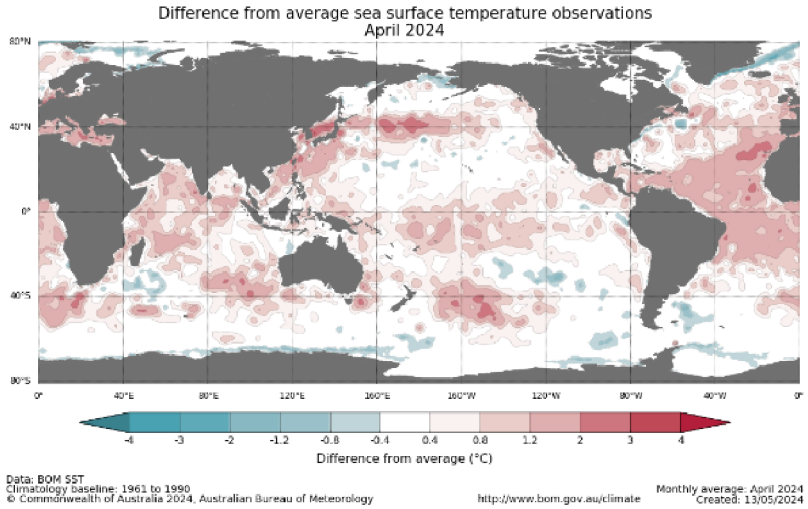
325,851 gallons). On average, 1 acre-foot of water is enough to meet the demands of four people for a year. The last column of the table lists an increase or decrease in storage since last month. A line indicates no change. These data are based on reservoir reports updated monthly by the Natural Resources Conservation Service - National Water and Climate Center (USDA)

.

BOR: New Mexico Dashboard

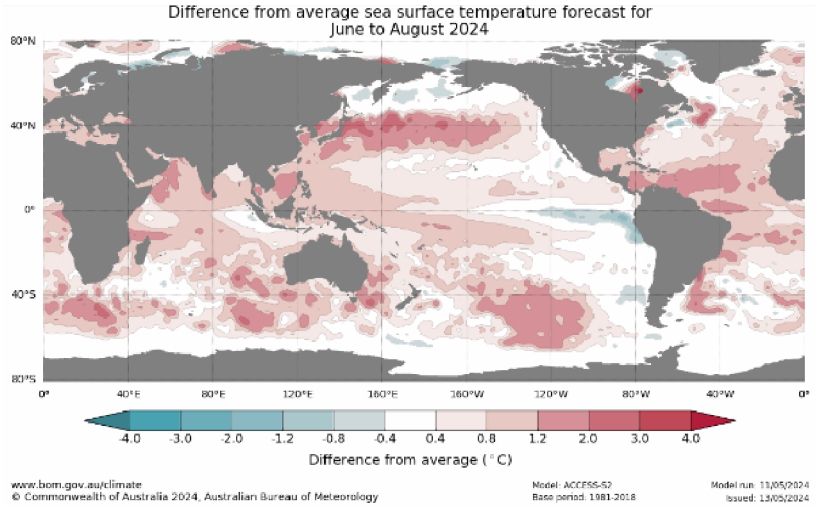
ENSO Tracker

Sea surface temperatures (SSTs) in the equatorial Pacific still show warm anomalies in the central Pacific, left over from El Niño but appearing much less spatially cohesive. Also apparent are patterns of anomalies consistent with an expected La Niña episode—normal-to-cool SSTs in the eastern equatorial Pacific and warm SSTs in the western equatorial Pacific.



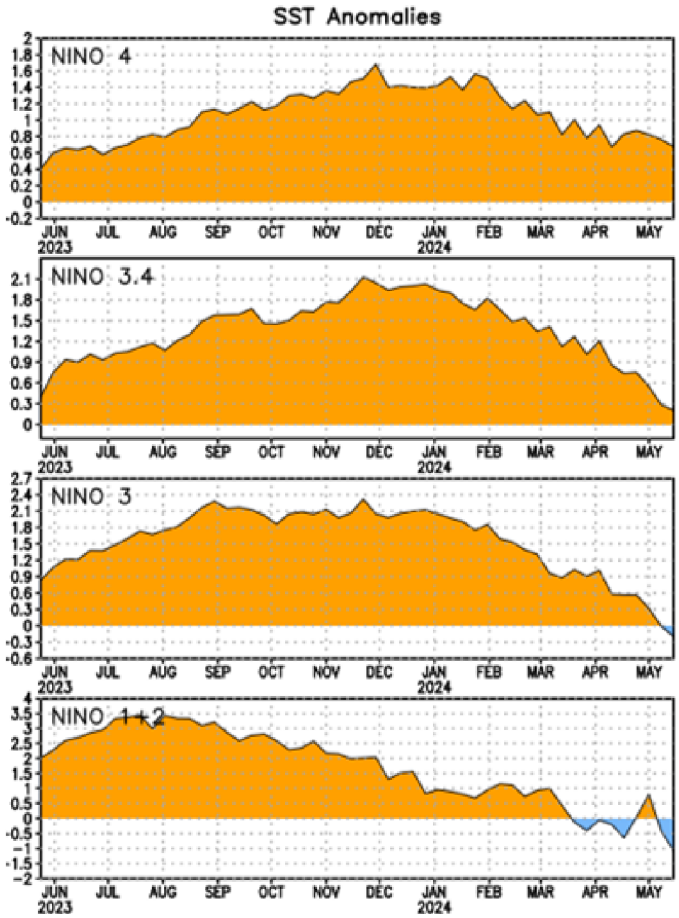
Source: Australian Bureau of Meteorology

The June-August SST forecast shows a clear, emerging La Niña-like pattern of SSTs along the equator in the Pacific—warm in the west and cool in the east.



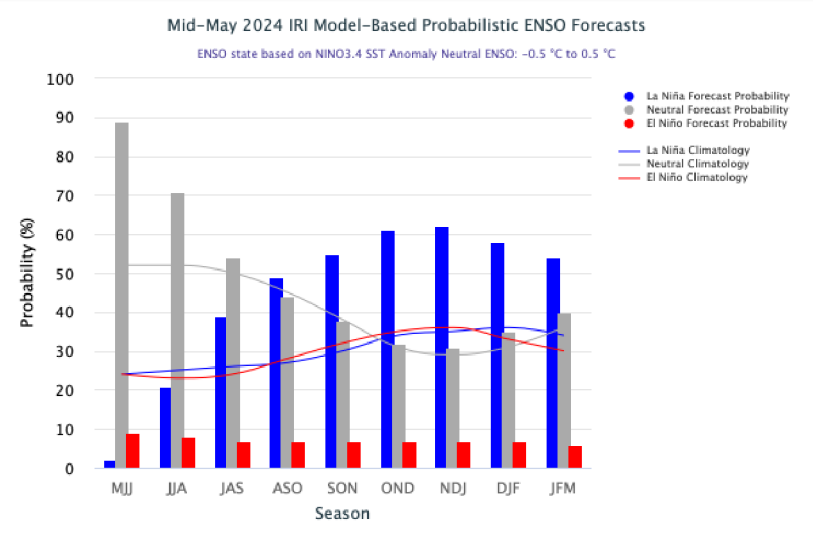
Source: Australian Bureau of Meteorology

Weekly SST anomalies (departures from long-term average; SSTAs) for ENSO diagnostic regions show cool SSTAs have been prevailing since March in the westernmost region, Nino1+2, and the most recent weekly measured SSTA for eastern Pacific region Nino 3 was also negative, consistent with the beginning stages of a developing La Niña.



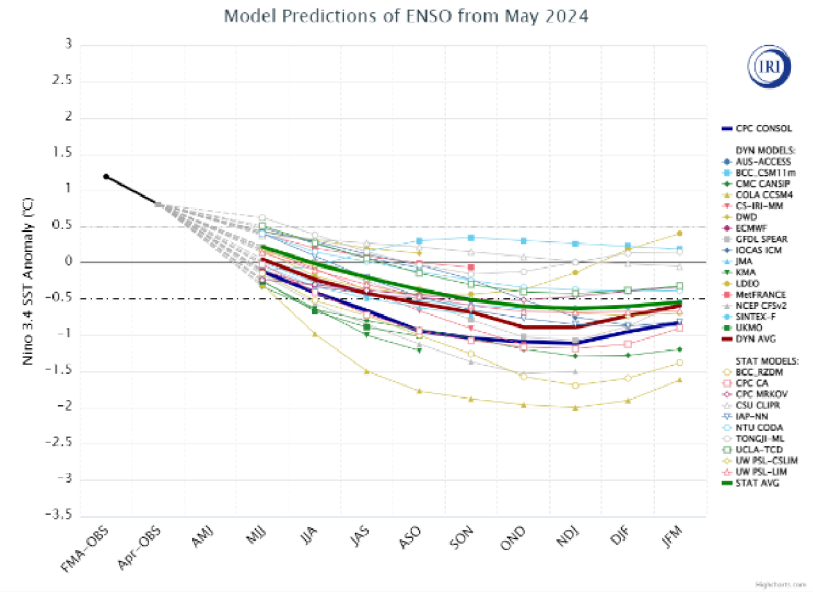
Source: Climate Prediction Center (NOAA)

The current probabilistic summary of ENSO forecasts gives the best odds to ENSO-neutral conditions in the near term, through the July – September prediction window, then favoring La Niña for the September – October window and the remaining part of the year.



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

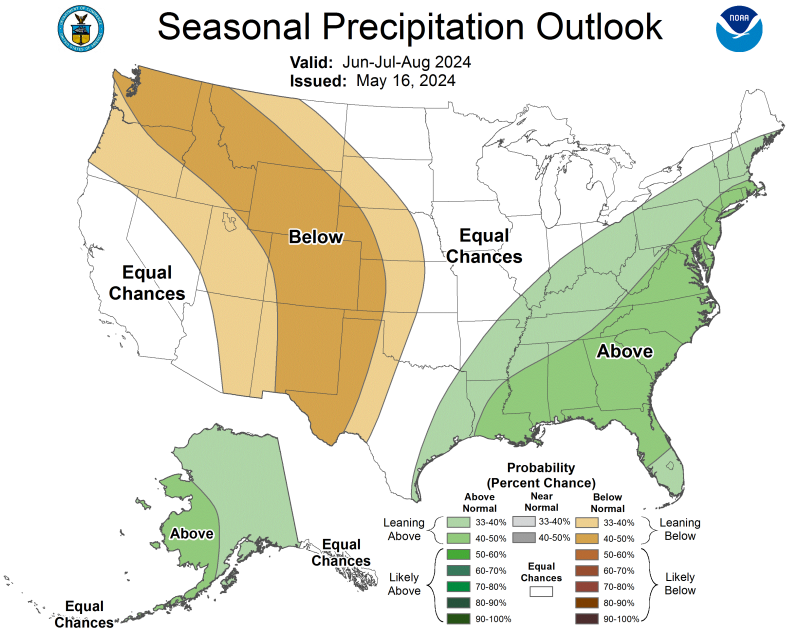
Of individual ENSO forecast models, the majority predict a development of La Niña conditions later this year, but many do not, instead predicting ENSO-neutral conditions that persist through the rest of the year.



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

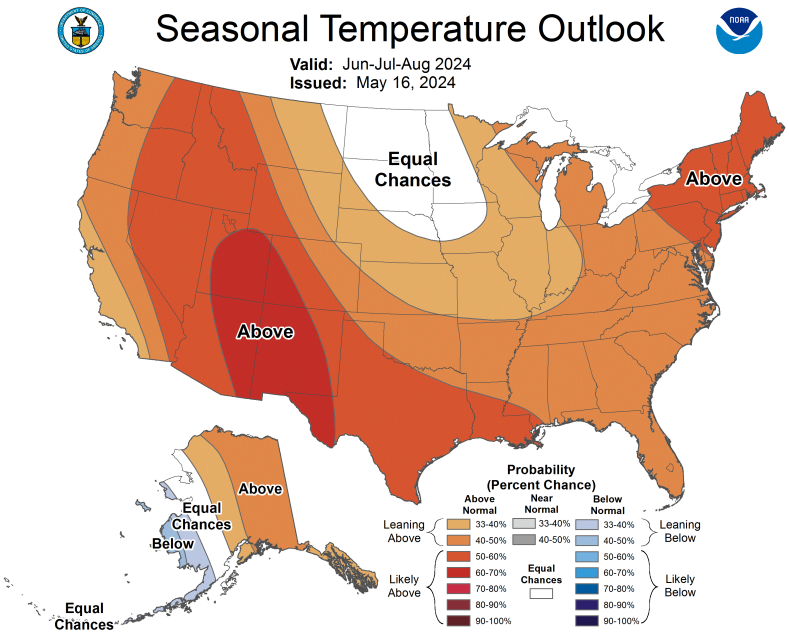
Seasonal Forecasts

The June – August seasonal precipitation forecast leans toward below normal precipitation for a region of the western U.S. that includes New Mexico and much of Arizona. The probability of below normal precipitation is greater for New Mexico than for Arizona.



Source: Climate Prediction Center (NOAA)

The June – August seasonal temperature forecast indicates above normal temperatures are likely (50% - 70% chance) for Arizona and New Mexico.



Source: Climate Prediction Center (NOAA)

Wildfire

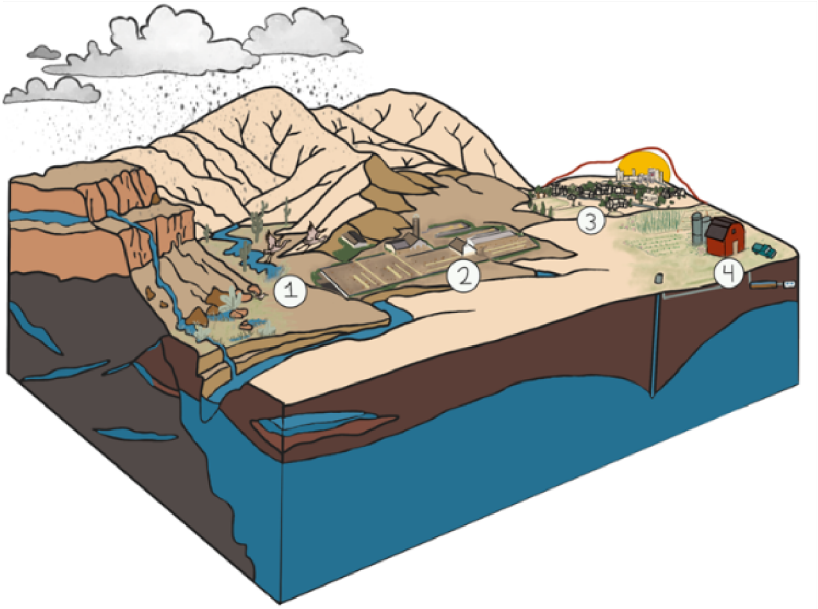
In June, the potential for significant wildland fire is expected to be above normal for areas of central and southeastern Arizona, and in New Mexico from the south through the Sangre de Cristo mountains in the north.

Source: National Interagency Coordination Center

Public Health Corner

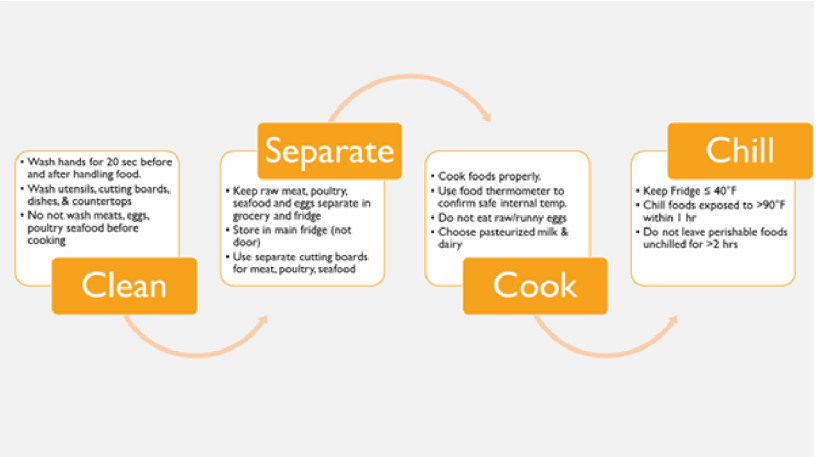
> *Welcome to the Public Health Corner, a section in the Southwest Climate Outlook dedicated to exploring the intersection between climate change and public health in Arizona and New Mexico! In this section, we will dive into the various health impacts of climate change that are affecting our communities and explore strategies to mitigate and adapt to these challenges.*

The saying goes “April showers bring May flowers” but what does flooding bring to the Southwest? Foodborne, waterborne and enteric diseases typically start to rise this time of year, but the reasons behind this seasonality are less understood. We know these illnesses as ‘food-poisoning’ but there are often many potential sources of infection. Enteric diseases are caused by pathogens such as viruses, bacteria and parasites that cause intestinal illness with symptoms such as diarrhea, nausea, and vomiting. The figure below helps to explain potential sources and drivers of these infections. (1) Wild birds and animals are reservoirs for enteric pathogens. Climate change can cause ecological shifts in their habitats and movement, facilitating the spread of these pathogens through contamination of water sources and food production areas. (2) Farm runoff can result in contamination of water sources and adjacent lands. Higher temperatures may also indirectly influence the growth and survival of these pathogens in livestock, increasing pathogen loads during the growing and production of food. (3) Higher enteric diseases in the early summer months could be due to behavior changes due to enjoying more days outside at a picnic (with undercooked BBQ chicken!) or increase the chances of contact with contaminated soils or infected livestock and pets. (4) Wider contamination from pathogens in the environment can infiltrate water supplies, and many waterborne outbreaks have occurred following extreme precipitation events. Enteric diseases have been associated with increasing temperatures as well as precipitation events, and most predict that enteric diseases will increase with climate change.



CLIMAS researchers Drs Erika Austhof and Heidi Brown are exploring what the combination of weather events means for health in the Southwest. One project explores drought conditions prior to extreme rainfall events and the association with enteric infections. We found that the conditions prior to rainfall matter, and are different depending on the pathogen. For example, the greatest risk for *Campylobacter* infections is for precipitation following wet conditions whereas the greatest risk for *Salmonella* is for precipitation following drought conditions. Both of these infections are commonly associated with undercooked meat (poultry, beef), raw milk, and contaminated produce or water.

So, what can we do to protect ourselves and our loved ones from enteric infections? Remember the four basic steps for food safety: **clean,** always wash your food, hands, counters, and cooking tools; **separate,** keep raw foods to themselves; **cook,** foods need to get hot and stay hot; and **chill,** put food in the fridge right away. Public health departments use surveillance data to detect food and waterborne outbreaks in your county, and through studying the association between weather and these infections we can figure out how populations with an increased risk of infection become ill and project disease burden due to climate change. These strategies will help inform planning and response strategies for public health, keeping you healthy during extreme flooding and precipitation events in the future.



Southwest Climate Podcast

May 2024 SW Climate Podcast – Rumble in the Desert

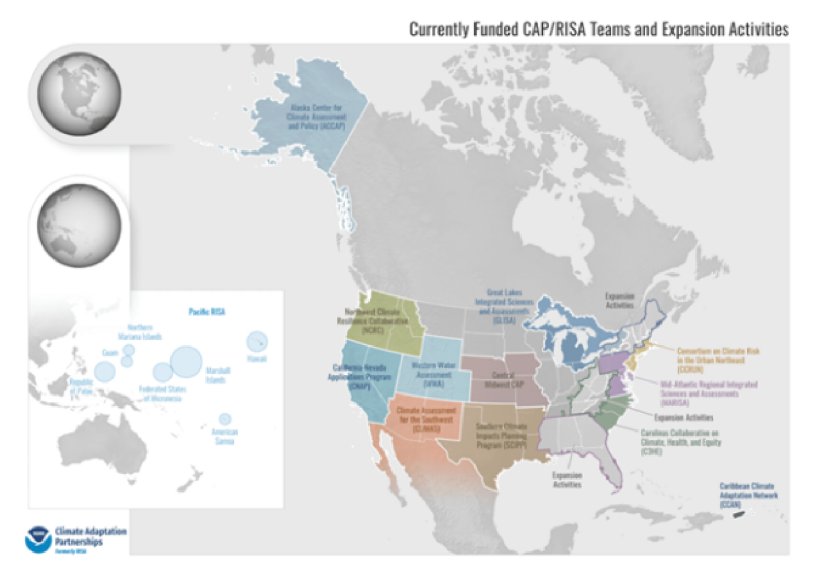
It's that time and we are 6 weeks away from the start of the 2024 monsoon season. In this month's Southwest Climate Podcast, hosts Zack Guido and Mike Crimmins cover the end of the winter season, the transition month of April and give an early preview to the monsoon. Will the shift from El Niño to La Niña make for a dry or wet monsoon or active hurricane season? Will Zack break Mike's eternal optimism with what the forecast models are saying? Listen in so you can be ready to play the Monsoon Fantasy Forecast Game!

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.

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