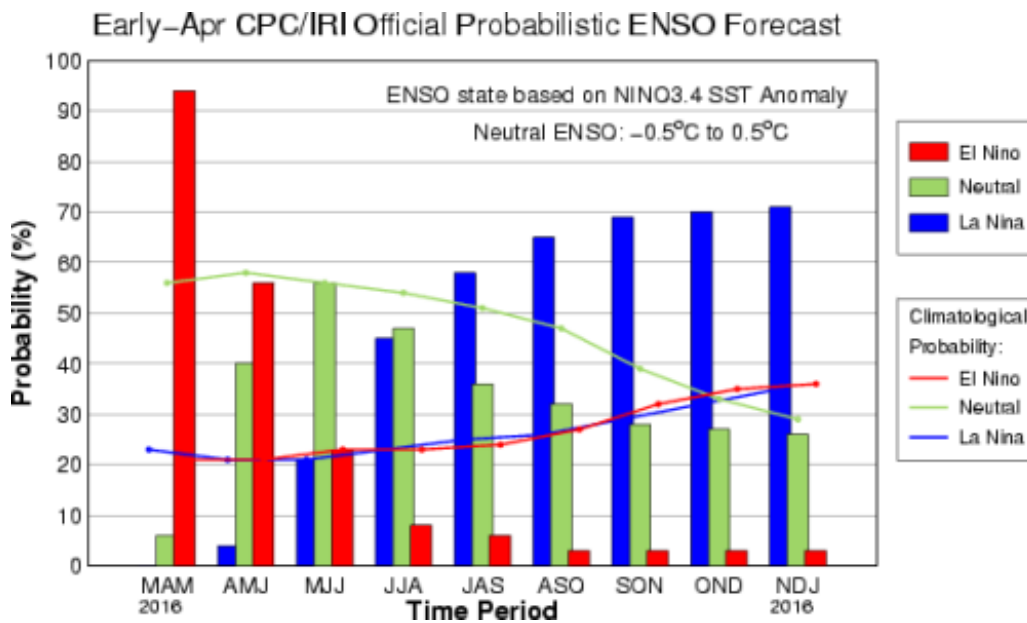


California drought: Odds of La Niña increase for next winter, bringing concerns the drought may drag on

By Paul Rogersprogers@mercurynews.com

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In what may be an ominous sign for the end of the drought, the El Niño that brought Northern California its wettest winter in five years is continuing to weaken and appears to be giving way to its atmospheric sibling -- La Niña.

The shift in Pacific Ocean temperatures could mean a drier-than-normal winter is ahead, especially in already parched Southern California, where La Niña conditions have historically had the most impact.

On Thursday, the National Oceanic and Atmospheric Administration issued a La Niña watch for the first time since May 2012. Scientists at NOAA and Columbia University said that there is a 71 percent chance of La Niña conditions being present in the Pacific Ocean by November, up from 57 percent a month ago.

"At this point, odds favor the development of La Niña by the fall," said Mike Halpert, deputy director of the NOAA's Climate Prediction Center in College Park, Maryland. "And should we see La Niña develop, below-normal precipitation would be favored next winter across Central and Southern California."

It's still very early, researchers cautioned. A clearer picture, including how strong or weak La Niña conditions might be, won't be known until this summer.

But the growing likelihood of a La Niña event -- the shifting of trade winds and cooling of sea surface temperatures along the equator off South America that can often follow an El Niño -- has already begun to draw the attention of state water regulators, who are working to come up with a plan for how much to ease the mandatory water conservation targets they imposed on California's urban areas last June at the order of Gov. Jerry Brown.

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Those targets, which ranged from 8 percent to 36 percent depending on each community's per capita water usage, forced cities across the state to impose strict limits on lawn watering, financial penalties and other rules on millions of residents. Brown's goal was for urban residents overall to cut water use 25 percent. They nearly hit the target, saving 23.9 percent through the end of February.

Now, the rules likely will be eased in May following a public hearing Wednesday in Sacramento.

But Felicia Marcus, chairwoman of the State Water Resources Control Board, which will make the decision, said earlier this month that although reservoirs have filled in many parts of Northern California this winter, Southern California has received only about half as much rainfall as its historic average.

As a result, the state must brace for the fact that this winter might have been one normal rainfall season in a longer drought, rather than the beginning of the end of the drought that began in 2011.

"I think we need to adjust to recognize the reality that we are in," she said, "while still being mindful that we don't know what next year is going to bring."

The area near the spillway at Lexington Reservoir in Los Gatos looks like a moonscape in 2000. Thanks to that year's La Niña, the lack of rain has reportedly caused the water level to lower to such a degree that the tops of a couple of bridges that used to connect the town to the rest of Santa Clara County and San Jose are now visible above the water line. (Gary Reyes/Bay Area News Group)

Marcus cited Australia as a warning. Starting two decades ago, the "Millennium Drought" hit Australia hard, causing major water shortages, crop failures and wildfires. It was interrupted by the occasional normal year, raising hopes, but continued from 1995 to 2012.

"I'm sleeping better," Marcus said of this winter's rains. "But I'm still not sleeping through the night."

There have been 20 La Niña years since 1950.

Rainfall in San Francisco has been below the historic average in 14 of those winters, like the dry years of 1975-76 and 1988-89, and above the historic average in only six La Niña years.

The difference in rainfall totals between La Niña years and other years is usually relatively modest, said Jan Null, a meteorologist with Golden Gate Weather Services in Saratoga who compiled the research. Also, La

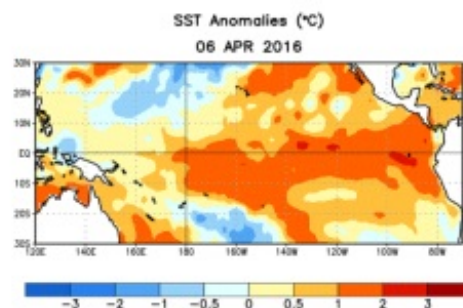


Figure 1. Average sea surface temperature (SST) anomalies (°C) for the week centered on 6 April 2016. Anomalies are computed with respect to the 1981-2010 base period weekly means.



Niña has had more effect in Southern California.

In Los Angeles, for example, 16 of the 20 La Niña years had below average rainfall, and in Fresno, 17 did.

"Overall, the West Coast pattern with La Niña is wetter than normal in Seattle and drier than normal in Southern California," said Null. "The Bay Area is often in between."

He noted that nothing is guaranteed, however, because 20 years is a relatively small sample size, and "the entire planet is changing, so whether climatology from 65 years ago should be valid now, you may need to put an asterisk next to it."

Strong El Niño winters, like the one this year, have historically meant a greater likelihood of wetter-than-normal conditions. However, Null said this winter rainfall has been about normal in the Bay Area, and below normal in Southern California, because many of the El Niño storms hit farther north than expected on the West Coast, soaking Washington and Oregon. That ended droughts there but didn't cause the hoped-for deluges statewide in California.

Historically, strong El Niños have meant dry weather in the Pacific Northwest and wet weather in Southern California. But not this year.

"El Niño was a Godzilla," said Null, "but where it impacted was atypical."

Paul Rogers covers resources and environmental issues. Contact him at 408-920-5045. Follow him at [Twitter.com/PaulRogersSJM](https://twitter.com/PaulRogersSJM)

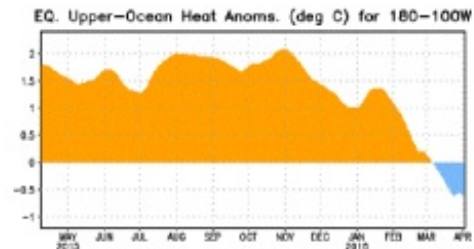


Figure 3. Area-averaged upper-ocean heat content anomaly (°C) in the equatorial Pacific (5°N-5°S, 180°-100°W). The heat content anomaly is computed as the departure from the 1981-2010 base period pentad means.

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