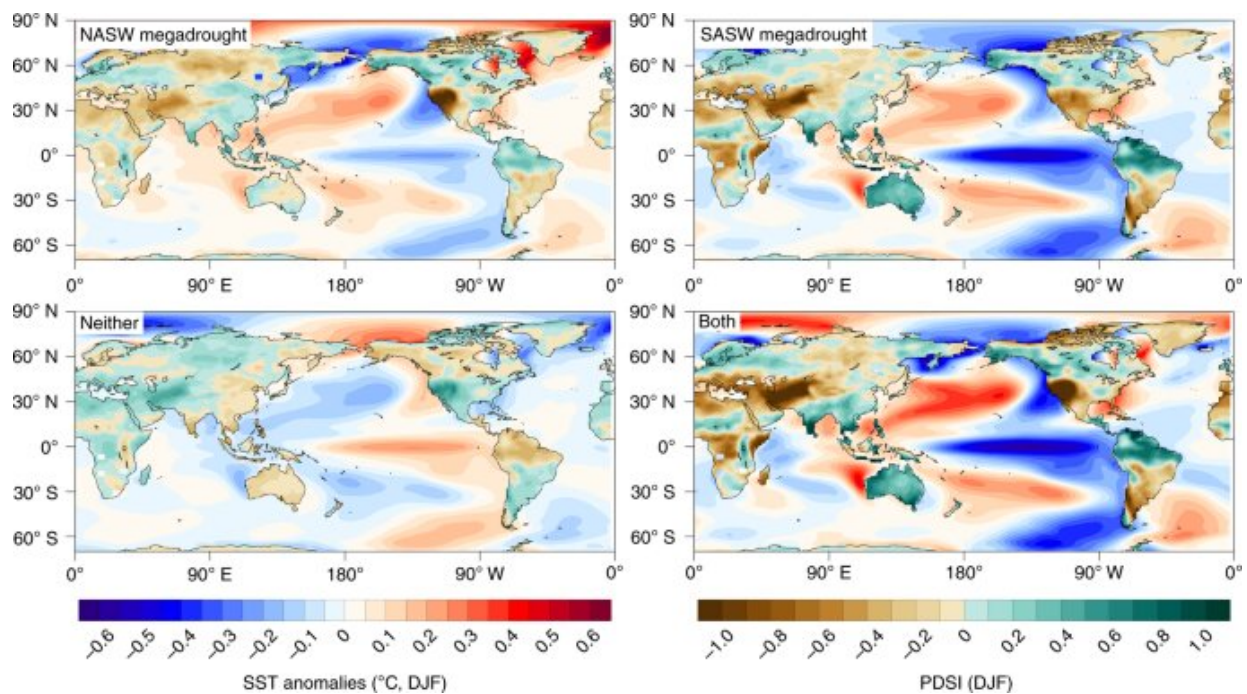


# Climate model shows drought in North and South America at the same time during La Niña events

August 31 2021, by Bob Yirka



Credit: DOI: [10.1038/s41561-021-00819-9](https://doi.org/10.1038/s41561-021-00819-9)

A team of researchers at Columbia University has shown that long-term droughts in southwestern parts of North America and in southwestern parts of South America have occurred at the same time on multiple occasions over the past 1,000 years coinciding with La Niña events. In

their paper published in the journal *Nature Geoscience*, the group describes how they used archival data and paleoclimate proxies (materials preserved in the geologic record that can be used to estimate climate conditions) to create a climate models.

La Niña events are climatic occurrences that are kicked off when trade winds in the Pacific Ocean are pushed toward Asia. This results in a [cooling effect](#) in the waters off the coasts of North and South America. It pushes the jet stream northward just enough to create drier conditions across parts of both continents. In this new study, the researchers wondered if La Niña events might be responsible for some of the megadroughts (droughts that last for more than 20 years) that have been experienced in parts of North and South America over the past thousand years.

To find out, they collected archival data describing rainfall amounts and temperatures in the North American Southwest and the South American Southwest (mostly involving California and Chile) to create a climate model that could represent both continents over the time period desired, and then they added paleoclimate proxies. They then used the models to run simulations in both regions over the past thousand years. The simulation showed that nine megadroughts have occurred in the North American Southwest over that [time period](#) and 12 have occurred in the South American Southwest. More importantly, they found that seven of the megadroughts occurred simultaneously in both regions—a number that the researchers state cannot be ascribed to chance. They suggest this indicates that dual droughts are likely during future La Niña events, which could have major implications because both are major food producing areas. They also note that it is still unclear how global warming may impact such events.

**More information:** Nathan J. Steiger et al, ENSO-driven coupled megadroughts in North and South America over the last millennium,

*Nature Geoscience* (2021). [DOI: 10.1038/s41561-021-00819-9](https://doi.org/10.1038/s41561-021-00819-9)

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