

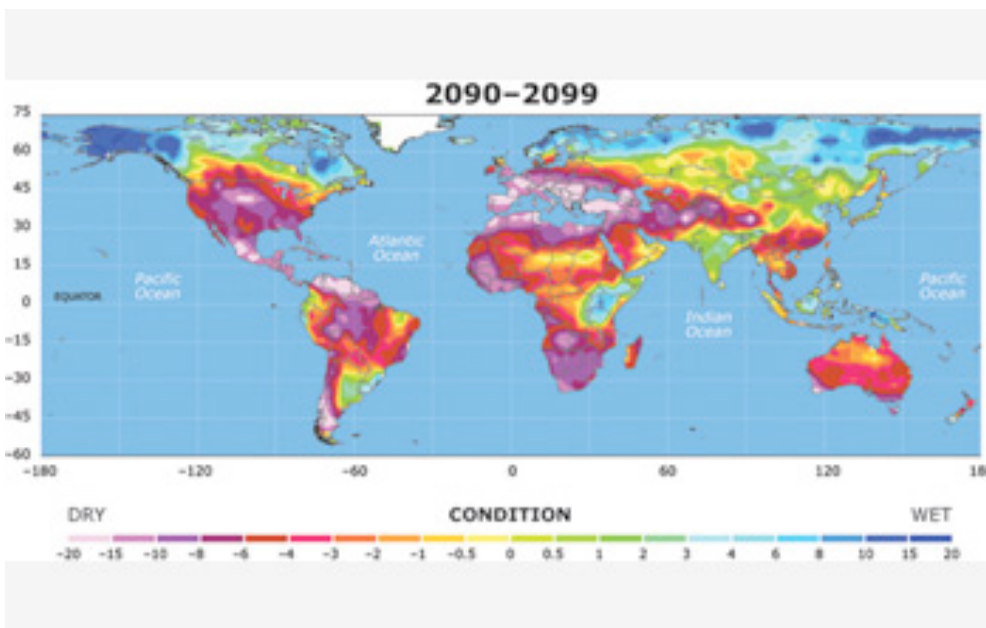
Forecast: global warming may bring giant drought

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Courtesy of the U.S. National Science Foundation
and World Science staff

Thanks to global warming, the United States and many other populous countries face a growing threat of long, harsh drought in the next 30 years, a new study indicates.

If the projections "come even close to being realized, the consequences for society worldwide will be enormous," said Aiguo Dai of the U.S. National Center for Atmospheric Research in Boulder, Colo., who conducted the research.



Projected drought conditions at this century's end, according to a new study. (Courtesy NCAR).

His analysis concludes that global warming will likely create increasing dryness across much of the globe, possibly reaching a scale in some regions by the century's end rarely, if ever, seen in modern times.

Using an ensemble of 22 computer climate models and a comprehensive index of drought conditions, as well as analyses of previously published studies, Dai reports that by the 2030s, dryness is likely to increase substantially across most of the Western Hemisphere, along with large parts of Eurasia, Africa, and Australia.

In contrast, higher-latitude regions from Alaska to Scandinavia are likely to become moister, but not enough to balance out the drying elsewhere, Dai predicts.

Dai cautioned that the findings are based on the best current projections of emissions of greenhouse gases, which trap heat in the atmosphere. What happens will depend on many factors, including natural climate cycles such as El Niño.

The findings appear this week as part of a longer paper in the research journal *Wiley Interdisciplinary Reviews: Climate Change*. The study was supported by the U.S. National Science Foundation.

"This research does an excellent job of placing future warming-induced drought in the context of the historical drought record," said Eric DeWeaver, program director in foundation's Division of Atmospheric and Geospace Sciences. "The work argues credibly that the worst consequences of global warming may come in the form of reductions in water resources."

While regional climate projections are less certain than those for the globe as a whole, Dai's study indicates that most of the western two-thirds of the United States will be significantly drier by the 2030s. Other places predicted to face a significant drying threat include much of Latin America, including large sections of Mexico and Brazil; regions bordering the Mediterranean Sea, which could become especially dry; large swaths of Southwest Asia; most of Africa and Australia, with particularly arid conditions in regions of Africa; and Southeast Asia, including parts of China and neighboring countries.

The study also finds that drought risk can be expected to decrease this century across much of Northern Europe, Russia, Canada, and Alaska, as well as some areas in the Southern Hemisphere. But "the increased wetness over the northern, sparsely populated high latitudes can't match the drying over the more densely populated temperate and tropical areas," Dai said.