

US Southwest faces threat of megadroughts with rising temps

October 5 2016, by Alicia Chang



In this May 18, 2015 file photo, irrigation pipes sit along a dry irrigation canal on a field farmed by Gino Celli, who relies on senior water rights to water his crops, near Stockton, Calif. New research published on Wednesday, Oct. 5, 2016 found that increasing temperatures will greatly increase the risk of megadroughts in the Southwest region of the U.S. Oppressive dry spells lasting at least two decades have gripped the Southwest before, but scientists said future megadroughts would be hotter and more severe, putting a strain on water resources. (AP Photo/Rich Pedroncelli, File)

Already dealing with parched conditions, the U.S. Southwest faces the threat of megadroughts this century as temperatures rise, says a new study that found the risk is reduced if heat-trapping gases are curbed.

Oppressive dry spells lasting at least two decades have gripped the Southwest before, but scientists said future megadroughts would be hotter and more severe, putting a strain on water resources.

The study, published Wednesday in the journal *Science Advances*, is the latest to find that droughts more extreme than what is currently being experienced could become more common as the planet warms.

Using computer modeling, researchers calculated there's between a 70 percent and 90 percent chance the Southwest will experience a megadrought later this century.

If precipitation is below normal, the risk jumps to 99 percent—"virtually certain," said lead researcher Toby Ault of Cornell University.

If countries follow through with the Paris climate agreement to reduce emissions from the burning of coal, natural gas and oil to limit global temperature rise to well below 2 degrees Celsius (3.6 degrees Fahrenheit), then the risks are cut nearly in half, according to calculations.

"The likelihood of a megadrought is already increasing, and that risk will continue to go up as long as temperatures keep rising," Ault said in an email.

The Colorado River basin, which spans parts of Arizona, California, Colorado, New Mexico, Nevada, Utah, Wyoming and Mexico, has been in the midst of a historic drought for the past 16 years. Lake Mead is now surrounded by a distinctive white mineral "bathtub ring" showing

the 130-foot drop in water levels since the beginning of the regional drought.

California, which is entering a sixth year of exceptional dryness, imposed mandatory statewide cuts on water usage last year that left brown lawns and fallowed fields. Restrictions have since eased with local water districts taking control of conservation efforts. On Wednesday, state regulators said some water districts are not conserving enough.

The new forecasts of a future megadrought are "scary for sure," said Jonathan Overpeck, a University of Arizona climate scientist who wasn't involved in the research.

Based on studies of tree rings and other data, past megadroughts in the Southwest have lasted between 20 to 35 years, depending on the location.

"It is important to realize that future droughts will be much hotter, and thus the impacts of these droughts will be much more severe," Overpeck said in an email.

More information: Relative impacts of mitigation, temperature, and precipitation on 21st-century megadrought risk in the American Southwest, *Science Advances* 05 Oct 2016: Vol. 2, no. 10, e1600873, [DOI: 10.1126/sciadv.1600873](https://doi.org/10.1126/sciadv.1600873) , advances.sciencemag.org/content/2/10/e1600873

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