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Study predicts future megadroughts for western U.S.

Published: Feb. 13, 2015 at 10:36 AM

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WASHINGTON, Feb. 13 (UPI) --WASHINGTON, Feb. 13 (UPI) -- Researchers at NASA say the ongoing drought in California, one of the worst in decades, is rather puny compared to what awaits in the second half of this century.

A new study by climatologists with the space agency claims so-called megadroughts -- the driest and longest droughts in more than 1,000 years -- could afflict much of the U.S. Southwest and Central Plains in just a few decades.

The increased risk in these regions of more expansive, longer-lasting and drier droughts is fueled by the increasing levels of anthropogenic greenhouse gas emissions, researchers say.

While previous studies have offered similar suggestions, no one climate model is exactly the same. The latest efforts by NASA researchers amassed data from 17 climate models. The researchers also ran the numbers on a variety of scenarios, including one in which greenhouse gas emissions taper off by mid-century and another in which emissions continue to rise at an accelerated pace.

"What I think really stands out in the paper is the consistency between different metrics of soil moisture and the findings across all the different climate models," said Kevin Anchukaitis, a climate scientist at the Woods Hole Oceanographic Institution who participated in the study. "It is rare to see all signs pointing so unwaveringly toward the same result, in this case a highly elevated risk of future megadroughts in the United States."

Under a scenario where greenhouse gas emissions taper off by 2050 or so, the chance of a megadrought -- one lasting more than three decades -- affecting the western United States comes out to roughly 60 percent. That chance rises to 80 percent if emissions fail to slow down in the coming decades.

"When you stack these model projections against the reconstruction of past climates, the results are so sobering that they have me ready to go out for a drink," Ken Caldeira, a climate scientist at the Carnegie Institution for Science and Stanford University who did not participate in the study, told the San Francisco Chronicle.

Authors of the new study -- published this week in the journal Science Advances -- acknowledged that their predictions are only probabilities, not certainties. A single El Nino event could disrupt a drought, they said. But the risk, they point out, is real.

Climate change may encourage bigger storms and increased rainfall elsewhere. But study co-author Jason E. Smerdon, research scientist for NASA's Goddard Institute for Space Studies, said rising temperatures in the U.S. Southwest and Central Plains are likely to result in "reductions in rainfall and snowfall."

"Not just rainfall but soil moisture . . . and changes in evaporation that dry out the soil much more than normal."