

Climate change won't dry up Southern California, study finds

Bettina Boxall, Los Angeles Times, 12-12-14

Overall rainfall amounts in the Los Angeles region will remain the same in coming decades, according to a new study that examined the effects of a warming climate on Southern California precipitation.

The third in a series of UCLA studies on the impact of climate change on Los Angeles, the report is good news for the city's efforts to develop more local water supplies.

"The findings of the study are critically important to us," said Martin Adams, a senior assistant general manager at the Los Angeles Department of Water and Power. "If we've got plans to capture local storm water and use it, we have to make sure there is storm water."

Using data from global climate-change simulations, researchers developed a finer-scaled computer model to project future conditions on a regional level. They found that "overall precipitation is not likely to change dramatically," said study coauthor Alex Hall, a UCLA climate scientist.

Natural swings from dry to wet years will continue, playing a more pronounced role in the region's rainfall than climate change. "This natural variability is just so huge," Hall added.

At the same time, warming temperatures will raise evaporation rates and reduce soil moisture, possibly increasing water demand.

"Figuring out how to adapt to the natural variation is really key," Hall said. "When you factor in the warming -- how you get through those dry periods is probably going to end up being the big challenge."

The report, published online Thursday in the *Journal of Climate*, is the latest indication that although California will grow hotter with global warming -- turning more mountain snow to rain -- most of the state will not, on average, become appreciably drier.

Scientists predict that as the earth's atmosphere heats up, wet parts of the globe will get wetter and dry parts drier. California straddles the line between that division, with climate models suggesting precipitation may rise in the northern end of the state and decline in the extreme south.

The UCLA researchers studied an area extending roughly from Santa Barbara to south Orange County and inland to Palm Springs. But Hall said the results could apply to most of Southern California.

The team compared a simulation of local climate from 1981 to 2000 to the middle and end of this century, using a scenario of unabated greenhouse gas emissions. Some of the models showed a slight decrease in total precipitation and some a slight increase. Overall, the scale of change was small.

Though average annual precipitation may not deviate much from the present, weather patterns could become more volatile with global warming, other researchers have found.

Dan Cayan, director of the California Climate Change Center at the Scripps Institution of Oceanography, said there may be more dry days, with precipitation falling during a shorter rainy season with bigger storms.

"So I don't think the story is quite as simple as saying no change, no worries," said Cayan, who is familiar with the UCLA work but did not participate in the study.

Previous UCLA studies concluded that global warming could cut snowfall in Southern California mountains by roughly a third by midcentury and triple the number of days every year when the temperature in downtown L.A. climbs above 95 degrees.

The precipitation study was funded through federal grants, including one from the U.S. Department of Energy obtained by the city of L.A.

Los Angeles currently gets about 11% of its water supply from local groundwater. Except for a small amount of recycled water, the rest is imported from Northern California, the Eastern Sierra and the Colorado River.

City leaders want to reduce reliance on those imports, which have grown less dependable, by increasing local supplies. Part of that strategy calls for cleanup of contaminated wells in the San Fernando Valley, along with the use of recycled water and more storm runoff to replenish the valley aquifer.

“If someone said L.A. is going to become a desert and it’s going to rain once a year, then we have problems,” Adams said. “The UCLA study shows us that our plans ... are valid.”