

Researchers Find Evidence of Warming Climate In Ohio

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Summer nights in Ohio aren't cooling off as much as they used to -- and it's likely a sign of climatic warming across the state, researchers say.

Jeffrey Rogers, professor of geography at Ohio State University, led the new study, which found that average summer nighttime low temperatures in Ohio have risen by about 1.7 degrees Celsius (about 3 degrees Fahrenheit) since the 1960s.

Why the change? It's not just the heat, it's the humidity, the researchers concluded -- coupled with increased cloudiness at night.

Three degrees Fahrenheit might not sound like much of an increase, but it is -- even though daytime highs have remained mostly the same, said Rogers, who is also the state climatologist for Ohio.

"A lot of Americans might expect that global climate change would cause extremely high daytime temperatures in the summer," he said.

"But in Ohio at least, the high temperatures haven't been changing -- it's the overnight low temperatures that have been creeping up. That means the average temperature over the 24-hour period is creeping up as well."

And this is exactly how Rogers believes that climate change would manifest itself in this region of the Midwest -- nighttime lows are rising, so that over time there would be less difference between them and the daytime highs.

That would mean a big change for Ohio, where a typical summer night is 20 degrees Fahrenheit cooler than the day.

In fact, stronger evidence of climate change would be hard to come by here, Rogers said: "In Ohio, we don't have a clear signal of global change, like you have in the Arctic, where sea ice is melting. But these rising nighttime lows are the next closest thing."

In the September 2007 issue of the *Journal of Climate*, Rogers and his coauthors report a survey of more than 120 years of Ohio weather data. Aside from a brief temperature spike during the Dust Bowl of the 1930s, nighttime temperatures remained relatively unchanged -- until 1965, when they began to rise.

They linked the change to an increase in a measure of moisture in the air known as specific humidity, which is similar to the dew point. A second factor -- which Rogers thinks may be even more important than the humidity -- is an increase in cloud cover over Ohio since the 1940s.

"The moisture in the air keeps the heat in. It's literally an enhanced greenhouse effect with all that humidity here in the summer," Rogers said. "And at night, cloud cover acts like a blanket and traps heat that would otherwise escape into the atmosphere."

He and his colleagues are still trying to puzzle out why humidity and cloud cover are increasing.

Coauthors on the study included Sheng-Hung Wang, a research associate at the Byrd Polar Research Center at Ohio State, and Jill Coleman, an assistant professor of geography at Ball State University in Indiana.

Source: Ohio State University

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