

Cities Are Getting Even Hotter

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Climate change may be magnifying the 'heat island' effect found in America's cities, a new study says.



A man stands in a fountain in Washington Square Park during a July 2012 heat wave in New York City. A new study finds that cities, which already tend to be warmer than adjacent rural areas, are now getting hotter at an even faster rate than nonurban areas.

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No need to travel this summer – hot islands can be found right here at home.

America's cities, which already tend to form "heat islands" that are warmer than the rest of the region, are now getting "dramatically" hotter at faster rates than their surrounding rural areas – potentially threatening the health of hundreds of millions of Americans, a new study finds.

"Every year, cities are seeing more extremely hot days than rural areas," co-author [Alyson Kenward](#), research director at the nonprofit research group [Climate Central](#), which published the study, said during a conference call

with reporters. "The fact that they're happening that much more frequently – 10, 20, 30 days more – in the cities than in the rural areas, that really was surprising to me."

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Extreme heat ranks as "the No. 1 weather-related killer in the U.S.," the study said, ahead even of extreme cold, hurricanes and tornadoes. Not only does heat place extraordinary stress on the young, the sick and the elderly, but it also correlates with poorer air quality, a potential danger for anyone with a respiratory issue.

"There are serious health implications to urban heat and really hot temperatures in particular," Kenward said.

Cities, in particular, feel the heat each summer. Home to about 80 percent of the country's population, they're coated in asphalt and concrete, which retains more heat than dirt and grass; they have far greater concentrations of cars and industrial facilities, which emit more heat-trapping greenhouse gases; and they have fewer trees and vegetation, which help keep rural areas cool.

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Kenward and her team were curious whether climate change – which has already been pushing average air temperatures ever higher – was affecting cities differently than rural areas.

"It's difficult to tease out exactly how much urbanization and climate change each contribute to the urban heat island effect," she said.

Gathering data from 60 of the nation's largest metropolitan areas, they collected air temperature records from both the cities and their surrounding rural areas, going all the way back to 1970. Then, they compared the numbers:

- In 45 of the 60 cities they found urban areas were heating up faster than their surrounding nonurban regions
- Single-day temperatures in some cities were as much as 24 degrees hotter than adjacent areas
- On average, the single-day maximum temperature difference was 17.5 degrees
- Cities, on average, had eight more days that were hotter than 90 degrees compared to their rural counterparts
- In 50 of 51 cities with reliable air-quality measurements, hotter temperatures correlated with measurably worse air quality.

Las Vegas was found to have the greatest "heat island effect," or difference between urban and rural average daily temperatures, followed by Albuquerque and Denver. The nation's capital ranked sixth on the list.

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The study called on city planners to take more steps to mitigate the heat island effect. More trees, white roofs, and alternative building materials that do not trap as much heat can all help.

"There's some very clear things that can be done," Kenward said.