Heat Waves Are Getting A Lot Hotter Than What The Index Show; Here's Why

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KEY POINTS

- The NWS relies on the heat index to issue public warnings
- This index downplays the physiological stresses the body faces in heat conditions
- On most heat-packed days, the estimates are off by up to 10°C

Heat waves have become quite frequent in the U.S. and around the world in recent times. The spate of heat waves has had a profound impact on humans and wildlife. But, if a recent study is to be believed, the yardstick for measuring such extreme temperatures - the heat index - has become faulty, which is making us feel hotter than it actually is.

According to the study, published in the journal Environmental Research Letters, the heat index, measured by the U.S. National Weather Service (NWS), does not provide us with the right picture. This index downplays the physiological stresses the body faces in heat conditions.

The heat index, also called the apparent temperature, measures what the environmental conditions feel like to us physiologically, and it

works well for the most part. However, the recent rise in the temperatures - the cardinal sign of global warming - has made this system inadequate so much so that on most heat-packed days, the estimates are off by up to 10°C, according to ScienceAlert.

> *Heat Waves Are Feeling Hotter, And We're Measuring Them Wrong, Too* *https://t.co/e5aZ9n2tO8*
>
> — ScienceAlert (@ScienceAlert) August 22, 2022

"Most of the time, the heat index that the National Weather Service is giving you is just the right value. It's only in these extreme cases where they're getting the wrong number," co-author and climate physicist David Romps, from the University of California, Berkeley, said in a news release.

The heat index is an important parameter since the NWS relies on it to issue public warnings regularly, and even researchers use it in their studies to measure the physiological impacts of warming.

The heat index is different from what the rise in mercury dictates. The physiological responses of sweating and cooling influence our brain's perception of the relative temperature.

First calculated in 1979 by Physicist Robert Steadman, the heat index was created by measuring the impact of the blood flow in our skin

under different temperatures and humidity levels.

According to this index, at an average humidity of 70%, a human body in the shade would experience 20°C as 20°C. But as temperatures rise, the body would start evaporating sweat to cool down, making it feel hotter than it really was.

For instance, a temperature of around 30°C might feel more like 34.5°C. At elevated humidity, the apparent heat only worsens. The higher the humidity level, the harder it becomes for our bodies to sweat it.

Humidity is a very important factor in the perceived temperature. In fact, humidity was one of the reasons why the recent heat waves in the U.K. felt unbearable, even though the temperatures had only reached levels considered rather standard for summer in other parts of the world.

When temperatures become uncomfortable, our bodies flush blood through veins near our skin's surface to dissipate heat.

"When you start to map the heat index back onto physiological states and you realize, oh, these people are being stressed to a condition of very elevated skin blood flow where the body is coming close to running out of tricks for compensating for this kind of heat and humidity. So, we're closer to that edge than we thought we were before," said Romps.

The researchers have proposed their own calibrated index to make up

for the pitfalls in the heat index.
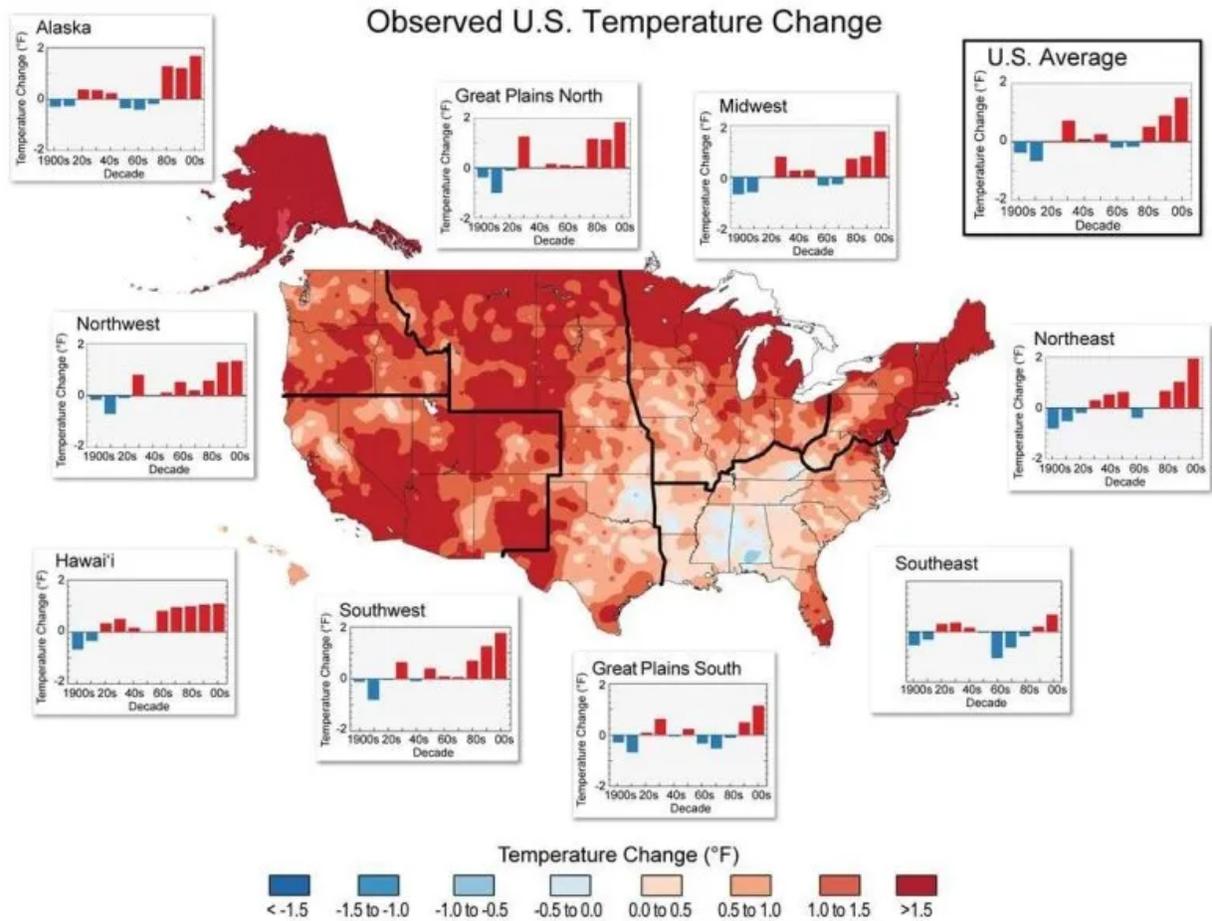
From 1999 through 2009, extreme heat exposure caused more than 7,800 deaths in the United States. As climate change causes temperatures to continue to rise, heat waves are expected to become more frequent and severe in the coming decades.   (PHOTO: "THE HEALTH IMPACTS OF CLIMATE CHANGE ON AMERICANS." THE WHITE HOUSE)