



Frequency of Northern Hemisphere Temperature  
Anomalies Relative to 1950-1980 Norm (X-Axis is Local  
Standard Deviation From Norm)

People get bored. Climate change is old news, but there are lots of things with more immediate interest: the economy, the presidential race, the Summer Olympics, the latest celebrity scandal. But Nature never gets bored. Nature just keeps working away. Greenhouse gases are still in the atmosphere and increasing all the time, and so is climate change — whether or not we're paying attention. And in fact, as the graph above shows, climate change is already resulting in a lot more places with extremely hot summers.

The graph is from a [paper](#) by James Hansen. He's written about the paper in the [Washington Post](#):

*Our analysis shows that it is no longer enough to say that global warming will increase the likelihood of extreme weather and to repeat the caveat that no individual weather event can be directly linked to climate change. To the contrary, our analysis shows that, for the extreme hot weather of the recent past, there is virtually no explanation other than climate change.*

*The deadly European heat wave of 2003, the fiery Russian heat wave of 2010 and catastrophic droughts in Texas and Oklahoma last year can each be attributed to climate change. And once the data are gathered in a few weeks' time, it's likely that the same will be true for the extremely hot summer the United States is suffering through right now.*

Hansen compares the situation to loading the dice:

*In a normal climate without global warming, two sides of the die would represent cooler-than-normal weather, two sides would be normal weather, and two sides would be warmer-than-normal weather. . . But loading the die with a warming climate changes the odds. You end up with only one side cooler than normal, one side average, and four sides warmer than normal.*

You could say we're heading for a lot more WWW: Wildly Warmer Weather. Or more simply, you could just see that the heat wave now gripping the U.S. is going to seem a lot like the new normal.

For those with a slightly wonkish bent, it's worth taking another look at the graph. There are actually two things going on. First, the curve is shifted to the right. Due to the shape of

the bell curve, a small shift in the mean can produce a large increase in likelihood of events that were previously rare and extreme. Second, the center of the curve is lower, a sign that the variance has also increased. This amplifies the increase in previously extreme events. It also means that there's more diversity in the relative extent of temperature variations between years and places, making prediction and planning more difficult. In other words, there are more extremely warm summers compared with 1980-1950, but also more variation in terms of the size of the anomalies.

While we've been watching the Olympics or the presidential race, and otherwise getting on with our lives, climate change has been sending us heat waves in a way we haven't seen before. Maybe it's time for people to get serious about this. Some problems just won't go away, no matter how tired we are to hear about them.

UPDATE: the full peer-reviewed paper from the Proceedings of the National Academy of Science is available [here](#).