

# Climate change linked to violent behaviour

Study shows that even a small increase in average temperatures or unusual weather can spark violent behaviour

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theguardian.com, Friday 2 August 2013 06.53 EDT

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A new study from scientists in the US controversially draws a link between increased rates of domestic violence, assault and other violent crimes and a warming climate. Photograph: Martin Argles for the Guardian

Bring on the cool weather – climate change is predicted to cause extreme weather, more intense storms, more frequent floods and droughts, but could it also cause us to be more violent with one another?

A new study from scientists in the US controversially draws a link between increased rates of domestic violence, assault and other violent crimes and a warming climate.

That conflict could be a major result of global warming has long been accepted. As climate change makes vulnerable parts of the world more susceptible to weather-related problems, people move from an afflicted region to neighbouring areas, bringing

them into conflict with the existing populations. That pattern has been evident around the world, and experts have even posited that conflicts such as Darfur should be regarded as climate related.

But the authors of the study, published in the peer review journal *Science*, have departed from such examples to look closely at patterns of violence in Brazil, China, Germany and the US.

The authors suggest that even a small increase in average temperatures or unusual weather can spark violent behaviour. They found an increase in reports of domestic violence in India and Australia at times of drought; land invasions in Brazil linked to poor weather; and more controversially, a rise in the number of assaults and murders in the US and Tanzania.

The authors searched historic records as well as examining contemporary statistics. Solomon Hsiang, of University of California Berkeley in the US, who was lead author of the study, said: "What was lacking was a clear picture of what this body of research as a whole was telling us. We collected 60 existing studies containing 45 different data sets and we re-analysed their data and findings using a common statistical framework. The results were striking."

The study found that conflict, including domestic violence and ethnic violence, was heightened as temperatures rose. The authors said that in all of the 27 studies of modern societies they looked at, higher temperatures showed a correlation with rising rates of violence.

But they could not say why this might be the case. More studies would be needed to confirm the results and explain why such a correlation might exist, they said. The underlying reasons could run from increased economic hardship as harvests fail or droughts bite, to the physiological effects of hot weather.

"The studies showing that high temperature increases violence crime in the US and other wealthy societies seems to suggest that physiological responses are important, too, with very short-run exposure to heat contributing to more aggressive and violent behaviour," said Marshall Burke, also of Berkeley.