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## Climate change may make civil wars much more common

19:00 01 August 2013 by **Peter Aldhous**  
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As the mercury rises, so too will a tide of human violence, according to a new analysis that puts a fresh spin on the phrase "[dangerous climate change](#)".

Indeed, if societies respond to future warming in the same way as they have responded to historical surges in temperature, the frequency of civil wars could increase by more than 50 per cent by the middle of the century.

But this provocative attempt to quantify the influence of climate on human conflict is itself setting off clashes among researchers who study the issue. "I would take their projections with a huge grain of salt," says [Halvard Buhaug](#) of the Peace Research Institute Oslo in Norway.

The new study is by economists at the University of California, Berkeley, who sought to make sense of a recent explosion of research into the relationship between climate and conflict. [Marshall Burke](#) and his colleagues used a meta-analysis of multiple studies, combining the different findings to try to find definitive answers.

### Broad net

The Berkeley researchers cast a broad net, looking at studies of many types of violence – from crimes such as murder and assault, to riots and civil wars – over a broad sweep of human history. They then narrowed the focus to include only studies that used rigorous methods to study the relationship between violence and surges in temperature or changes in rainfall. Where possible, they reanalysed the original data to help studies clear this bar, generating a cohort of 60 studies.

Their results suggest that warming and extremes of rainfall – both drought and deluge – are associated with upswings in violence. The relationship seems stronger for conflicts between groups of people than acts of violence between individuals.

The researchers were also able to estimate the size of the effect. For each [standard deviation](#) of warming – a statistical measure of variation from average conditions – they calculate that the frequency of conflicts between groups rises by 14 per cent. Given that inhabited regions could warm by between two and four standard deviations from the current norm by the middle of the century, an alarming surge in conflict could be in store.

### Conclusions disputed

Those conclusions are controversial, however. Unlike in medicine, where meta-analyses combine well-controlled experiments conducted using

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Droughts are correlated with a rise in violence  
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common methods, the Berkeley team crunched numbers from a wide variety of studies that rely on observations of how patterns of violence shift with changing temperature and rainfall.

Given this chequered background, the exact criteria the team used to include or exclude studies may affect the conclusions drawn, critics suggest. "I have some concerns about the selection," says Buhaug, who has previously crossed swords with Burke over an earlier study suggesting that global warming will cause a surge in civil wars in Africa.

What's more, the Berkeley team's conclusions come from analysing the consequences of relatively brief departures from average conditions. It doesn't necessarily follow that sustained warming in the coming decades will have the same effect.

"I'm optimistic," says Cullen Hendrix, a conflict specialist at the College of William and Mary in Williamsburg, Virginia. "Unlike glaciers, humans have remarkable adaptive capacity," he says.

#### Conflict in decline

Trends over the past few decades reinforce this encouraging message, says Iedan Salehyan of the department of political science at the University of North Texas, Denton. "We've seen rising temperatures, but there's actually been a decline in armed conflict." That is probably due to factors including economic growth in developing countries and a spread of democracy.

Also under discussion is the mechanism by which warming could give rise to an increase in violence. One leading idea is that extreme conditions cause economic disruptions that drive people into conflict. Burke hopes that the new meta-analysis will prompt further research. "If we can understand it, then we can really think about adaptation and how to help societies respond," he says.

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