



Published on August 4th, 2013 | by Nathan

1

Climate Change Will Exacerbate Violence Around The World, Research Finds

70 Share13813838 Tweet138 Share8 Share



Climate change will exacerbate violence around the world, increasing levels of both personal violence and social upheaval, according to new research from Princeton University and the University of California–Berkeley. Throughout history, even slight spikes in temperature and precipitation have led to greatly increased levels of war, violence, and migration. Projected onto an Earth that is currently expected to be 2 degrees Celsius warmer by the year 2050, this means that increased human conflict is very likely to be an outcome of climate change.

For the new study, the researchers analyzed 60 studies worth of data from a variety of different scientific disciplines — archaeology, criminology, economics, psychology, etc — which have explored the strong connection between weather and violence. The analysis included data from all over the world, and from all throughout the last 12,000 years of history.

It took about 18 months for the researchers to completely review all of those studies' data, and to repeatedly re-crunch and recalculate all of the raw numbers. Once the work was done, though, the results were very clear — "while climate is not the sole or primary cause of violence, it undeniably exacerbates existing social and interpersonal tension in all societies, regardless of wealth or stability."

Follow @cleantechnica

16K followers

Like

8,918 people like this. Be the first of your friends.

15586 readers
BY FEEDBURNER





Riot Police and Tear Gas
Image Credit: Untitled via Flickr CC

The press release from Princeton University provides the specifics:

They found that 1 standard-deviation shift — the amount of change from the local norm — in heat or rainfall boosts the risk of a riot, civil war or ethnic conflict by an average of 14%. There is a 4% chance of a similarly sized upward creep in heat or rain sparking person-on-person violence such as rape, murder and assault. The researchers report that climate-change models predict an average of 2 to 4 standard-deviation shifts in global climate conditions by 2050.

"We think that by collecting all the research together now, we're pretty clearly establishing that there is a causal relationship between the climate and human conflict," stated Solomon Hsiang, lead author of the new research. "People have been skeptical up to now of an individual study here or there. But considering the body of work together, we can now show that these patterns are extremely general. It's more of the rule than the exception."

"Whether there is a relationship between climate and conflict is not the question anymore. We now want to understand what's causing it," Hsiang continued. "Once we understand what causes this correlation we can think about designing effective policies or institutions to manage or interrupt the link between climate and conflict."

While this research is certainly some of the most comprehensive, there's nothing truly unexpected about the findings — [prominent researchers, military personnel](#), historians, etc, have been warning for years that the [worst effects of climate change won't be the purely weather/climate related effects, they'll be the human ones — war, migration, agricultural failure, disease, etc.](#)

Existing research had already (more or less) established an overall link between climate and conflicts, "but that link needed to be extracted from reams of figures from various disciplines in order for the research to reach general conclusions."

"We attained a huge amount of the data that was available and we used the same method on all of the data so that we could directly compare studies," Hsiang explained. "Once we did that, we saw that all of the results were actually highly consistent — previously they just weren't being analyzed in a consistent way."

The researchers examined three categories of conflict: "personal violence and crime," which includes murder, assault, rape and domestic violence; "intergroup violence and political instability," such as civil wars, riots, ethnic violence and land invasions; and "institutional breakdowns," which are abrupt and major changes in governing institutions or, in extreme cases, the collapse of entire civilizations.

Extreme climatic conditions amplified violence in all three categories, regardless of geography, societal wealth or the time in history. An aberrant climate coincided with incidents including spikes in domestic violence in India and Australia; increased assaults and murders in the United States and Tanzania; ethnic violence in Europe and South Asia; land

CleanTechnica on

Follow



+1,814

Crowdfunding Cleantech Spotlight



Environment

[Power Up Slum Island](#)

by [George Potts](#)

[Nairobi, Kenya](#)

access:energy installs a local electricity network on Remba, Kenya - known locally as Slum Island. Power to the People.

\$4,499 USD 15%
Starting - 0.149966666666666666
Complete

Want some help with your crowdfunding project? See our crowdfunding help page!

invasions in Brazil; police using force in the Netherlands; civil conflicts throughout the tropics; the collapse of ancient empires; and wars and displacement in Middle-Ages Europe.



"We find the same pattern over and over again, regardless of whether we look at data from Brazil, Somalia, China or the United States," noted researcher Edward Miguel, who is also the Oxfam Professor of Environmental and Resource Economics at Berkeley. **"We often think of modern society as largely independent of the environment, due to technological advances, but our findings challenge that notion. The climate appears to be a critical factor sustaining peace and well-being across human societies."**

And it really doesn't take much of a change at all for large societal effects to be seen — the '1 standard-deviation shift' that the researchers refer to equates to an — on the surface — seemingly minimal change. It's nearly equivalent to "warming an African country by 0.35°C, or by 0.63°F, for an entire year, or warming a county in the United States by 2.9°C, or by 5.2°F, for a given month."

"These are pretty moderate changes, but they have a sizable impact on those societies," stated study co-author Marshall Burke, a doctoral candidate in Berkeley's Department of Agricultural and Resource Economics.

Something to keep in mind — a majority of global climate models "project global temperature increases of at least 2 degrees Celsius over the next several decades, which, when combined with the Princeton-Berkeley findings, suggest that warming at that level could increase the risk of civil war in many countries by more than 50%."

The factors that interact with climate to produce chaos and discord are varied. A popular theory is that drought and flooding cripple an economy, especially one based on agriculture or that is already weak. When people look for someone to blame, governmental leaders have a target on their backs, as do any people with whom there is existing tension, such as an ethnic minority or a migrant group from stricken hinterlands.

But sometimes heat just makes people more aggressive. The researchers found that personal violence was far more influenced by a leap in temperature. Hsiang and his colleagues cite studies that equate excessive heat with spikes of violence in the United States and other stable, wealthy countries. For example, a 1994 study found that two groups of police officers undergoing the exact same simulation training were more likely to draw their weapons if the room was uncomfortably warm.

"There's a large amount of evidence that environmental conditions actually change a person's perception of their own condition, or they also can change the likelihood of people using violence or aggressive action to accomplish some goal," Hsiang explained.

"Our study is not saying that climate is the only cause of conflict, and there's no conflict that we think should be wholly attributed to some specific climatic event," he continued. "Every conflict has roots in interpersonal and intergroup relations. What we're trying to point out is that climate is one of the critical factors that affect how things escalate, and if they escalate to the point of violence."

Many of the "interpersonal" and "intergroup" reasons, though, are themselves going to be amplified as a result of climate change, and various other conditions of the modern world. As an example, as the Arctic Ocean warms and summer sea-ice extent continues diminishing, the vast fossil fuel reserves of the region will become increasing accessible. When you combine that with the limited nature of fossil fuel resources in the world, and a number of other economic/political factors, it is very likely that there will be substantial conflict over said resources. In recent years, it's often been noted that the Arctic region as a whole is likely to become the center of human activity over the next century or so — with the crush of several billion people making their way northwards during this time, no doubt these "intergroup" factors will come into play there.

The new research was just published in the journal *Science*.

Hot Posts



Tesla Wants To Eliminate Side Mirrors



New Redox Power Fuel Cell Gives Li-ion Batteries A Run For The Money



Keystone XL Is Only Part Of The Problem: 3 More Controversial Pipelines

Clean Wind
Energy Solar d Elect
Energy Energy ric
gy gy gy Cars

Clean Wind
Energy Solar d Elect
Energy Energy ric
gy gy gy Cars

100% Renewable Energy?

How Much Renewable Energy Will Be Installed In 2030? 2040? 2050?

Renewable Energy Big Pic

Clean Energy Needed Now!

Merit Order Effect

Solar-Wind Hybrid Power Plants Twice As