

Science News

Share Blog Cite

Print Email Bookmark

Climate Change Could Boost Incidence of Civil War in Africa

ScienceDaily (Nov. 24, 2009) — Climate change could increase the likelihood of civil war in sub-Saharan Africa by over 50 percent within the next two decades, according to a new study led by a team of researchers at University of California, Berkeley, and published in the Nov. 23 online issue of the journal *Proceedings of the National Academy of Sciences* (PNAS).

See Also:

Earth & Climate

- Climate
- Global Warming
- Environmental Issues

Science & Society

- Environmental Policies
- World Development
- Conflict

Reference

- Consensus of scientists regarding global warming
- Scientific opinion on climate change
- Instrumental temperature record
- Climate model

The study, conducted by researchers at UC Berkeley as well as at Stanford University, New York University and Harvard University, provides the first quantitative evidence linking climate change and the risk of civil conflict. It concludes by urging accelerated support by African governments and foreign aid donors for new and/or expanded policies to assist with African adaptation to climate change.

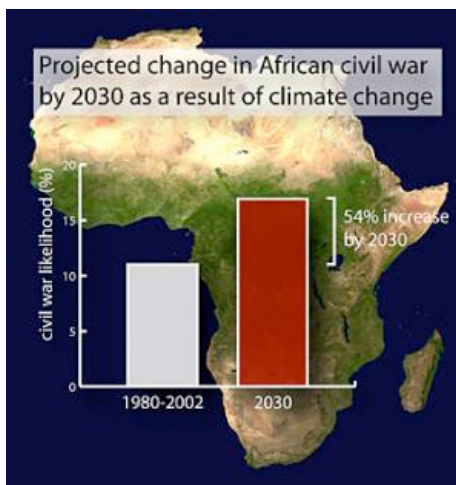
"Despite recent high-level statements suggesting that climate change could worsen the risk of civil conflict, until now we had little quantitative evidence linking the two," said Marshall Burke, the study's lead author and a graduate student at UC Berkeley's Department of Agricultural and Resource Economics.

"Unfortunately, our study finds that climate change could increase the risk of African civil war by over 50 percent in 2030 relative to 1990, with huge potential costs to human livelihoods."

"We were definitely surprised that the linkages between temperature and recent conflict were so strong," said Edward Miguel, professor of economics at UC Berkeley and faculty director of UC Berkeley's Center for Evaluation for Global Action. "But the result makes sense. The large majority of the poor in most African countries depend on agriculture for their livelihoods, and their crops are quite sensitive to small changes in temperature. So when temperatures rise, the livelihoods of many in Africa suffer greatly, and the disadvantaged become more likely to take up arms."

Understanding the causes and consequences of civil strife in much of the African continent has been a major focus of the social sciences for decades, said Miguel, as monumental suffering has resulted from it. In the case of the Democratic Republic of Congo's, the International Rescue Committee estimates that at least 5.4 million people have died from fighting, hunger and disease during that country's ongoing civil unrest over the past 10 years.

In the study, the researchers first combined historical data on civil wars in sub-Saharan Africa with rainfall and temperature records across the continent. They found that between 1980 and 2002, civil wars were significantly more likely in warmer-than-average years, with a 1 degree Celsius increase in temperature in a given year raising the incidence of conflict



The researchers found that the incidence of African civil war could increase roughly 55 percent by 2030, leading to 390,000 more battle deaths if future wars are as deadly as recent wars. (Credit: Image courtesy of University of California - Berkeley)

Ads by Google

Africa Hunger

Make a tax deductible donation now. Give to ChildFund International. www.ChildFund.org

Fourier Data Loggers

Exclusive U.S. Fourier distributor MicroLite USB temp logger \$65.95 www.lemosint.com

Envirolet Reviews

Envirolet composting toilet reviews & testimonials. 100s of photos. EnviroletBuzz.com

The Wild Mokelumne River

Keep the Mokelumne Wild & Scenic Help by Signing our Petition www.foothillconservancy.org

Related Stories

Global Warming May Lead To Increase In Kidney Stones Disease (May 15, 2008) — Rising global temperatures could lead to an increase in kidney stones. Dehydration has been linked to stone disease, particularly in warmer climates, and global warming will exacerbate this effect. ... [> read more](#)

Global Warring: Climate Change Could Be The Root Of Armed Conflicts (July 10, 2007) — Climate change, and the resulting shortage of

Just In:

How Did Flowering Plants Dominate Earth?

Science Video News



Global Warming Equals Stronger Hurricanes

Climate change experts studying hurricanes documented a 35-year warming trend in ocean surface temperature and linked it to larger hurricanes. The. ... [> full story](#)

Meteorologists See Future of Increasingly Extreme Weather Events

Climatologists Forecast Completely New Climates

Improving Accuracy Of Hurricane Forecasts

[more science videos](#)

Start saving today with the ScholarShare® College Savings Plan

Open a ScholarShare Account

Turn here™
SCHOLARSHARE
college savings plan

Fidelity
INVESTMENTS

Fidelity Brokerage Services, Member NYSE, SIPC 517712

Breaking News

... from NewsDaily.com

French scientists create skin fast from stem cells

Space station crew land safely in Kazakhstan

Space station crew return to Earth

"Big Bang" collider sets particle beam record

Space shuttle Atlantis returns to Earth

[more science news](#)

In Other News ...

Obama to send more troops, seek Afghanistan exit

Obama to offer troop increase for Afghanistan

REUTERS

HELP STOP GLOBAL WARMING

Sign the Petition!

across the continent by nearly 50 percent.

Building on this historical relationship between temperature and conflict, the researchers then used projections of future temperature and precipitation change to quantify future changes in the likelihood of African civil war. Based on climate projections from 20 global climate models, the researchers found that the incidence of African civil war could increase 55 percent by 2030, resulting in an additional 390,000 battle deaths if future wars are as deadly as recent ones.

All climate models project rising temperatures in coming decades, said David Lobell, study co-author and an assistant professor of environmental earth systems science at Stanford.

"On average, the models suggest that temperatures over the African continent will increase by a little over 1 degree Celsius by 2030," he added. "Given the strong historical relationship between temperature rise and conflict, this expected future rise in temperature is enough to cause big increases in the likelihood of conflict."

To confirm that this projection was not the result of large effects in just a few countries or due to overreliance on a particular climate model, the researchers recalculated future conflict projections using alternate data. "No matter what we tried -- different historical climate data, different climate model projections, different subsets of the conflict data -- we still found the same basic result," said Lobell.

It's easy to think of climate change as a long way off, said the researchers, but their study shows how sensitive many human systems are to small increases in temperature, and how fast the negative impacts of climate change could be felt.

"Our findings provide strong impetus to ramp up investments in African adaptation to climate change by such steps as developing crop varieties less sensitive to extreme heat and promoting insurance plans to help protect farmers from adverse effects of the hotter climate," said Burke.

Applying findings from this study could prove useful to policy makers at the upcoming Copenhagen negotiations in December in determining both the speed and magnitude of response to climate change, the authors said.

"If the sub-Saharan climate continues to warm and little is done to help its countries better adapt to high temperatures, the human costs are likely to be staggering," said Burke.

Email or share this story:

[More](#)

Story Source:

Adapted from materials provided by [University of California - Berkeley](#).

Need to cite this story in your essay, paper, or report? Use one of the following formats:

- APA University of California - Berkeley (2009, November 24). Climate change could boost incidence of civil war in Africa. *ScienceDaily*. Retrieved December 1, 2009, from <http://www.sciencedaily.com/releases/2009/11/091123152224.htm>
- MLA

Note: If no author is given, the source is cited instead.

ecological resources, could be to blame for armed conflicts in the future, according to David Zhang from the University of Hong Kong and colleagues. ... > [read more](#)



Climate Change Triggers Wars And Population Decline, Study Shows

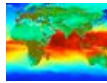
(Nov. 26, 2007) — Climate change may be one of the most significant threats facing humankind. A new study shows that long-term climate change may ultimately lead to wars and population decline. The study revealed that ... > [read more](#)

Greenhouse Gas, Temperature Feedback Mechanism May Raise Warming Beyond Previous Estimates

(May 22, 2006) — Climate change estimates for the next century may have substantially underestimated the potential magnitude of global warming. Actual warming due to human fossil fuel emissions may be 15-to-78 ... > [read more](#)

Carbon Emissions Linked To Global Warming In Simple Linear Relationship

(June 11, 2009) — Scientists have found a direct relationship between carbon dioxide emissions and global warming. Researchers used a combination of global climate models and historical climate data to show that there ... > [read more](#)



Some African Drought Linked To Warmer Indian Ocean, NASA Data Show

(Aug. 7, 2008) — A new study, co-funded by NASA, has identified a link between a warming Indian Ocean and less rainfall in eastern and southern Africa. Computer models and observations show a decline in rainfall, ... > [read more](#)

How Can Evolutionary Responses to Climate Change Be Measured?

(Nov. 30, 2009) — As global temperatures continue to rise, scientists are presented with the complex challenge of understanding how species respond and ... > [read more](#)



Apparent Problem With Global Warming Climate Models Resolved

(May 30, 2008) — Yale University scientists may have resolved a controversial glitch in models of global warming: A key part of the atmosphere didn't seem to be warming as expected. Computer models and basic ... > [read more](#)

Ads by Google

Oceans & Climates

Advanced Science Students Study Global Climate Change At SEA www.sea.edu

Exclusive Yes Men Videos

Never seen before Stunts as The Yes Men Fix the World! www.Babelgum.com/YesMen

Water For People

884 Million People Lack Safe Water. Help Solve the Global Water Crisis. www.waterforpeople.org

AMITIZA® (lubiprostone)

Official web site for AMITIZA. Get the product profile and more... www.amitiza.com/HCP

[Azerbaijan](#)

Iran warns of serious action against UK yachtsmen

Tiger Woods gets traffic ticket for accident

Suspect in U.S. cop killings is shot dead by police

Russia shifts stance on Iran, Ahmadinejad defiant

Iran "not obliged" to tell IAEA of home-made sites

Dubai ruler plays up strength as Gulf markets fall

[more top news](#)



Convio.net/Greenpeace
Ads by Google

Copyright Reuters 2008. See [Restrictions](#).

Free Subscriptions ... from ScienceDaily

Get the latest science news with our free email newsletters, updated daily and weekly. Or view hourly updated newsfeeds in your RSS reader:

[Email Newsletters](#)

[RSS Newsfeeds](#)

Feedback ... we want to hear from you!

Tell us what you think of the new ScienceDaily -- we welcome both positive and negative comments. Have any problems using the site? Questions?

Your Name:

Your Email:

Comments:

Click button to submit feedback:

Find with keyword(s):

Search

Enter a keyword or phrase to search ScienceDaily's archives for related news topics, the latest news stories, reference articles, science videos, images, and books.

[About This Site](#) | [Editorial Staff](#) | [Awards & Reviews](#) | [Contribute News](#) | [Advertise With Us](#) | [Privacy Policy](#) | [Terms of Use](#)

Copyright © 1995-2009 ScienceDaily LLC — All rights reserved — Contact: editor@sciencedaily.com
Part of the iVillage Your Total Health Network