



Ad

Wonkblog

Global warming could increase U.S. lightning strikes by 50 percent



By **Chris Mooney** November 13 at 2:15 PM  [Follow @chrismooney](#)

A bolt of lightning strikes the Empire State Building during a summer rain storm in New York July 15, 2014. REUTERS/Lucas Jackson

In a [study](#) just out in the prestigious journal *Science*, a team of researchers deliver an alarming prediction: A global warming world will see a major increase in lightning strikes.

"Even with the warming of a few degrees Celsius, you can get some very large climate impacts -- in this case, a 50 percent increase in lightning," says study author David Romps, a climate researcher at the University of California, Berkeley.

Romps explains that there are two central factors that set the atmospheric stage for lightning. The first is the amount of water or precipitation, and the second is the instability of the atmosphere, a situation which allows air to rise rapidly. "To make lightning in a thunderstorm, you need water in all three phases – gas, liquid, solid – and you need fast rising clouds

Advertisement

that can keep all of that water suspended in the atmosphere to generate charged separation," explains Romps.

So the researchers simply examined how these two parameters -- precipitation and instability, more technically referred to as [convective available potential energy or CAPE](#) -- change in climate scenarios, and how that, in turn, should affect lightning. The upshot was that while precipitation [may increase in some areas](#) under global warming, CAPE is definitely expected to increase, and this is the central factor that will drive lightning increases, according to Romps.

The study showed that these two factors -- precipitation and instability -- can account for 77 percent of the variability in lightning flashes over the United States. It then used eleven climate change models -- high powered simulations run on supercomputers, which attempt to inscribe the behavior of the atmosphere in physical equations -- to track how future changes in these parameters would increase lightning. The result was a 12 percent increase in lightning per degree Celsius of global warming, and thus, a 50 percent increase over the 21st century if current projections of global warming hold.

Lightning is often produced in severe thunderstorms, which also depend on CAPE and may also become more common due to [more favorable storm environments](#) under global warming.

Lightning strikes are highly consequential for a number of reasons. While they do not produce a large number of human deaths directly -- somewhere between [23 and 48 people](#) are killed by lightning per year in the US -- lightning is one of the principal causes of dangerous wildfires.

WellPoint thinks
that's good for Amer
health care syste


WELLPOINT

ThinkWellPoint.com

The Most Popular All
Over

ST. LOUIS POST-DISPATCH

Taveras intoxicated at time of crash

"It's responsible for half of the wildfires in the US, and those are the ones that are often most difficult to fight, because lightning can strike far from a fire station," says Romps.

Chris Mooney reports on science and the environment.

WNYC - NEW YORK PUBLIC RADIO

Powerful: Soviet Hockey,
Superathletes, WFMU...

THE ATLANTIC

The Republican Obsession With
'Restoring' America

Our Online Games

Play right from this page

Spider Solitaire

Genre(s): [Card](#)

Spider Solitaire is known as the king of all solitaire games!

52 card pickup

Genre(s): [Card](#)

Pick up cards as fast as you can!

Tri-Peaks Solitaire

Genre(s): [Card](#)

Reveal cards as you clear your way to the top!

Carniball

Genre(s): [Arcade](#)

This amusement park classic will bring back some joyous memories
