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## Fires make climate change worse - report

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WASHINGTON, April 23 (Reuters) - In a vicious cycle made worse by humans, scientists now believe fires spur climate change, which in turn makes blazes bigger, more frequent and more damaging to the environment.

Climate experts have known that a warmer world would spawn more fires, but in research published on Thursday in the journal *Science*, scientists reported that fires -- especially those set by humans to clear forests -- influence climate change.

Smoke particles sent into the atmosphere by fires inhibit rainfall, which makes the land drier and encourages more fires to start, said study co-author Jennifer Balch of the University of Santa Barbara in California.

On a global scale, burning releases vast amounts of heat-trapping greenhouse gases like carbon dioxide, making fires more likely in a warming world, Balch said in a video news briefing.

The report's authors estimate that greenhouse emissions from the world's fires equal about 50 percent of emissions that come from the burning of fossil fuels.

Deforestation fires, like those set to clear forest for pasture in tropical areas like the Amazon, are part of an unintentional "extreme experiment," Balch said: "We're testing how burning forests will influence the climate system."

### 'THE SCARY BIT'

These deliberately set forest fires contributed up to one-fifth of all human-generated warming in industrial times, she said.

The climate-fire cycle works like this: plants store the climate-warming gas carbon dioxide; when they burn, they release the gas into the atmosphere, which contributes to global warming.

The more fires, the more carbon dioxide is released, which in turn causes more warming in a cycle scientists call positive feedback.

"The scary bit is that, because of the feedbacks and other uncertainties, we could be way underestimating the role of fire in driving future climate change," said co-author Thomas Swetnam of the University of Arizona in Tucson.

This important piece of the climate change puzzle has not previously been emphasized, said co-author David Bowman of the University of Tasmania in Hobart, Australia.

Most climate scientists considered fire to be a natural disturbance that was not a crucial force that should be considered in creating models of how the planet's climate will change, Bowman said.

"Humans and fire have a complex and ancient relationship," Bowman said. "The relationship means that we can manage fire but we can also start fires. A citizen can't create hurricanes, but a citizen (who sets a fire) can create a mass disaster."

The report's 22 authors called on the U.N. Intergovernmental Panel on Climate Change to take the role of fire into account when making future climate models.

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