

Amazon deforestation has a significant impact on the local climate in Brazil

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The loss of forest cover in the Amazon has a significant impact on the local climate in Brazil, according to a new study.

The UN Environment Programme has said warned that the Amazon wildfires threaten "...this precious [natural resource](#)..." and that the [forest](#) helps mitigate the effects of [climate change](#).

Insight into the effects of deforestation in the Amazon—and the way it can intensify climate change, particularly at a local level—has been published [open access](#) in the journal *Frontiers*.

Using [satellite data](#), Dr Jess Baker and Professor Dominick Spracklen from the University of Leeds, evaluated the climatic consequences of deforestation in the Amazon between 2001 and 2013.

They found that deforestation causes the local climate to warm—and that warming intensified as the severity of deforestation increased.

Intact forests in the region, with less than 5 percent canopy loss, had the most climate stability over the ten years, showing only small increases in temperature.

Areas that had [tree cover](#) reduced to below 70 percent warmed 0.44°C more than neighbouring intact forests during the study period.

The differences between intact and disturbed forests were most pronounced during the driest part of the year, when temperature increases of up to 1.5°C were observed in areas affected by severe deforestation. This increase is additional to global temperature rises driven by climate change.

Study co-author Dr. Baker from the School of Earth and Environment at Leeds said: "The Amazon wildfires have reminded us all of the important role that forests play in our global systems. But it cannot be overlooked that intact Amazon forests are also crucially important for Brazil's own local climate.

"A healthy intact Amazon forest helps regulate the local climate and can even act as a buffer to the warming effects of climate change, compared with disturbed forests."

Study co-author Dominick Spracklen, Professor of Biosphere-Atmosphere Interactions at Leeds said: "Deforestation decreases the amount of water emitted to the atmosphere from the forest through a process called evapotranspiration.

"Evapotranspiration can be thought of as the forest 'sweating'; when the moisture emitted by the forests evaporates it cools the [local climate](#). Deforestation reduces evapotranspiration, taking away this cooling function and causing local temperatures to rise.

"As temperatures rise this increases drought stress and makes forests more susceptible to burning."

More information: Jessica C. A. Baker et al. Climate Benefits of Intact Amazon Forests and the Biophysical Consequences of Disturbance, *Frontiers in Forests and Global Change* (2019). [DOI: 10.3389/ffgc.2019.00047](#)

Provided by University of Leeds

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