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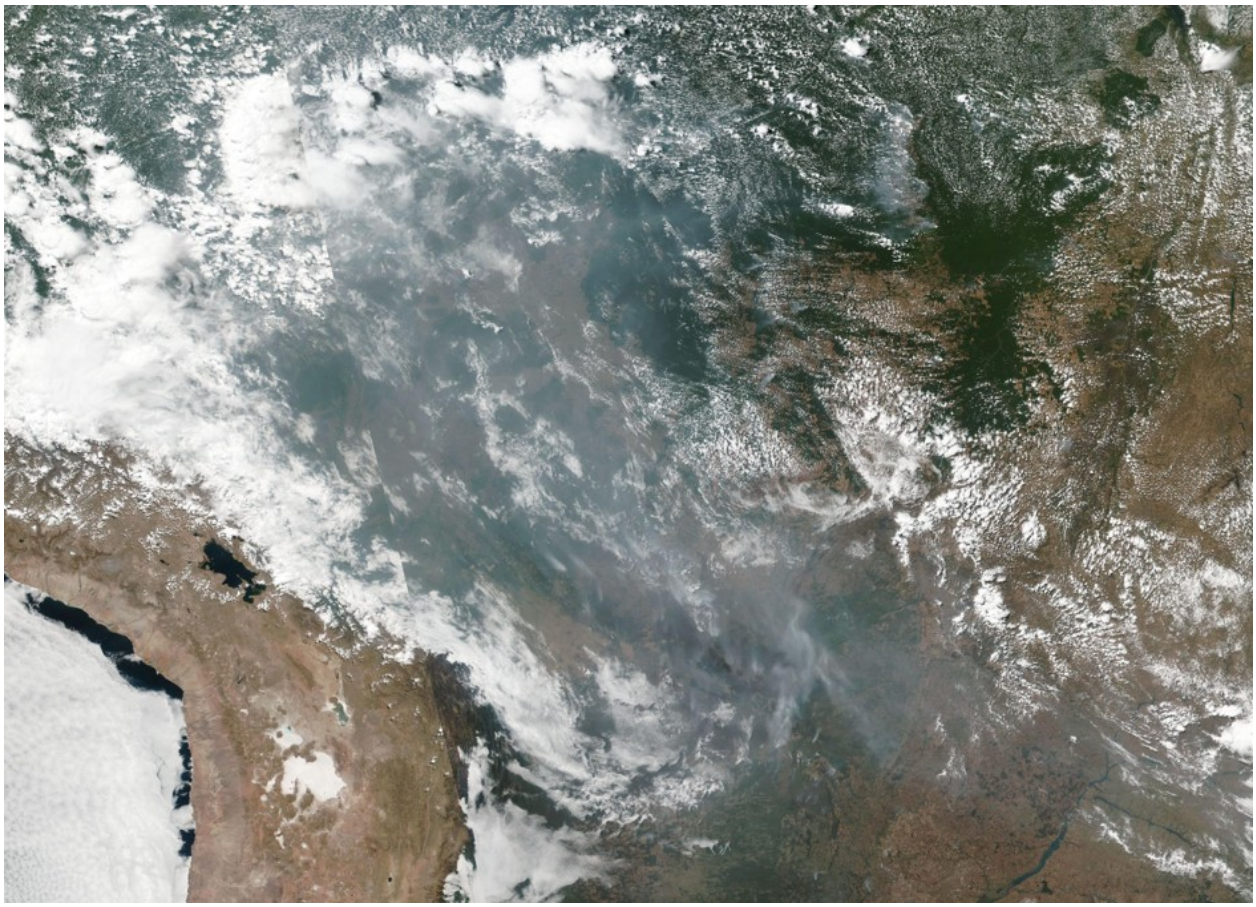


Smoke from the fires hangs over Brazil. NASA Worldview, Earth Observing System Data and Information System (EOSDIS)

Why the Amazon Is on Fire

Sarah Holder Aug 22, 2019

The rash of wildfires now consuming the Amazon rainforest can be blamed on a host of human factors, from climate change to deforestation to Brazilian politics.

The Amazon rainforest is burning.

That in itself is not extraordinary: July marked the start of fire season. But the whole year has been a record-breaking one in Brazil, which contains 60 percent of the Amazon's land mass. Scientists at Brazil's National Institute for Space Research (also called INPE) said that the number of fires counted is about 85 percent higher than last year; on Tuesday, about one new fire was sprouting every minute.

The forces behind this carbon catastrophe alive are manifold, and human-made: a combination of anthropogenic climate change, which catalyzed three once-in-a-century droughts in the past 15 years; a land-ravenous cattle industry, fueled by the West's endless appetite for cheap beef; and Brazilian President Jair Bolsonaro, who's rolled back environmental protections and allowed loggers to set fires

with impunity. (An avid deforester, Bolsonaro has jokingly nicknamed himself “Captain Chainsaw.”) The weather has been dry, but INPE scientists told CNN that in all, 99 percent of the fires were the result of human actions, “either on purpose or by accident.”

These fires could spell doom not only for the indigenous tribes who call the Amazon home, but for many, many others: The enormous river basin contains 10 percent of the world’s plant and animal life and supplies about 20 percent of the world’s oxygen. If you are fan of breathing, this affects you.

Here are some visuals that show the scope of the problem, and its effect on the built and lived environment.

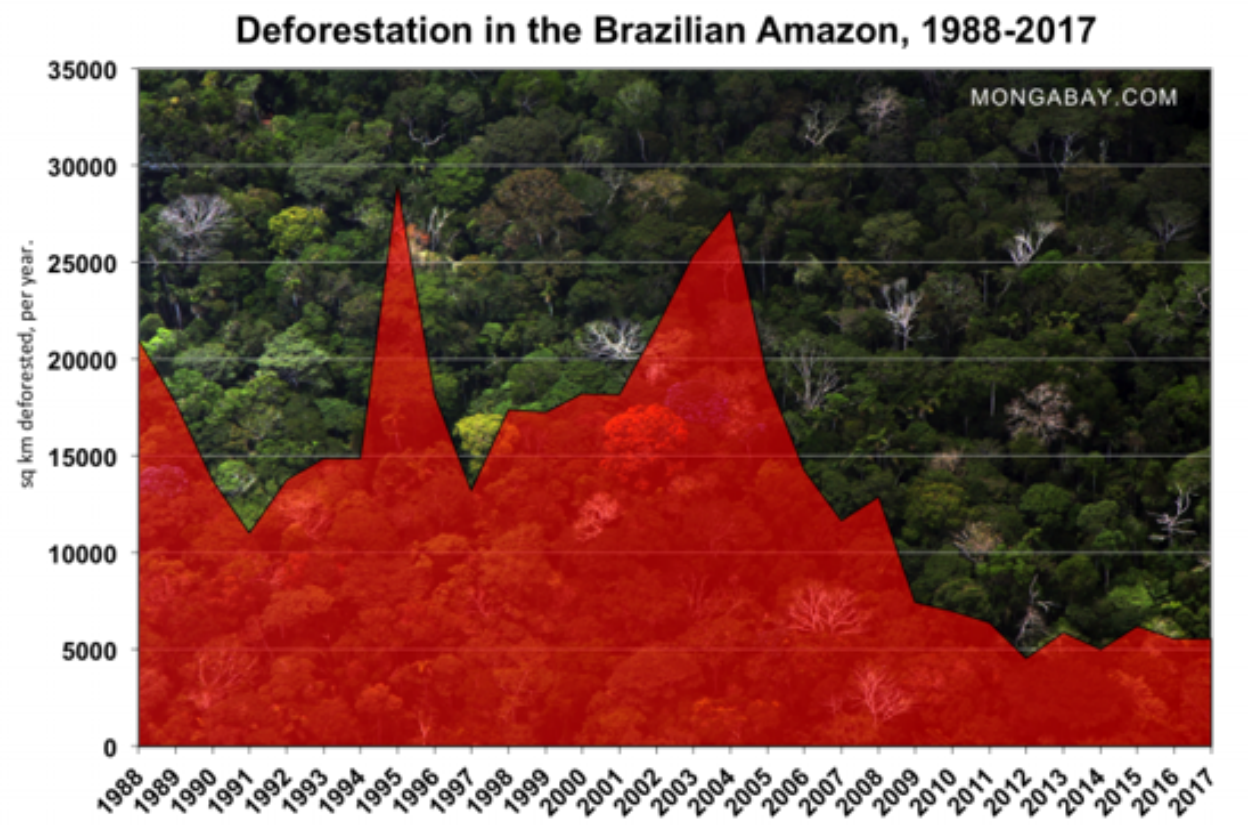
The fire

The map below, courtesy of InfoAmazonia, uses NASA data to displays fires raging in South America in the last 24 hours in red. (Hover over them to see their temperature and radiative power.) As a point of comparison, the most intense fires that have occurred between 2000 and 2012 are in yellow.

More than half of the hot spots on the map of the country are in the Amazon, according to InfoAmazonia, concentrated in the north and midwest of the jungle.

The deforestation

As environmental scientist Jonathan Foley pointed out on Twitter, deforestation rates in the Amazon have indeed spiked since 2013—but they are still lower than the levels of deforestation reported in the 1980s and ‘90s. Thanks to a groundswell in environmental activism and increased government efforts, deforestation decreased by 80 percent between 2004 and 2012.



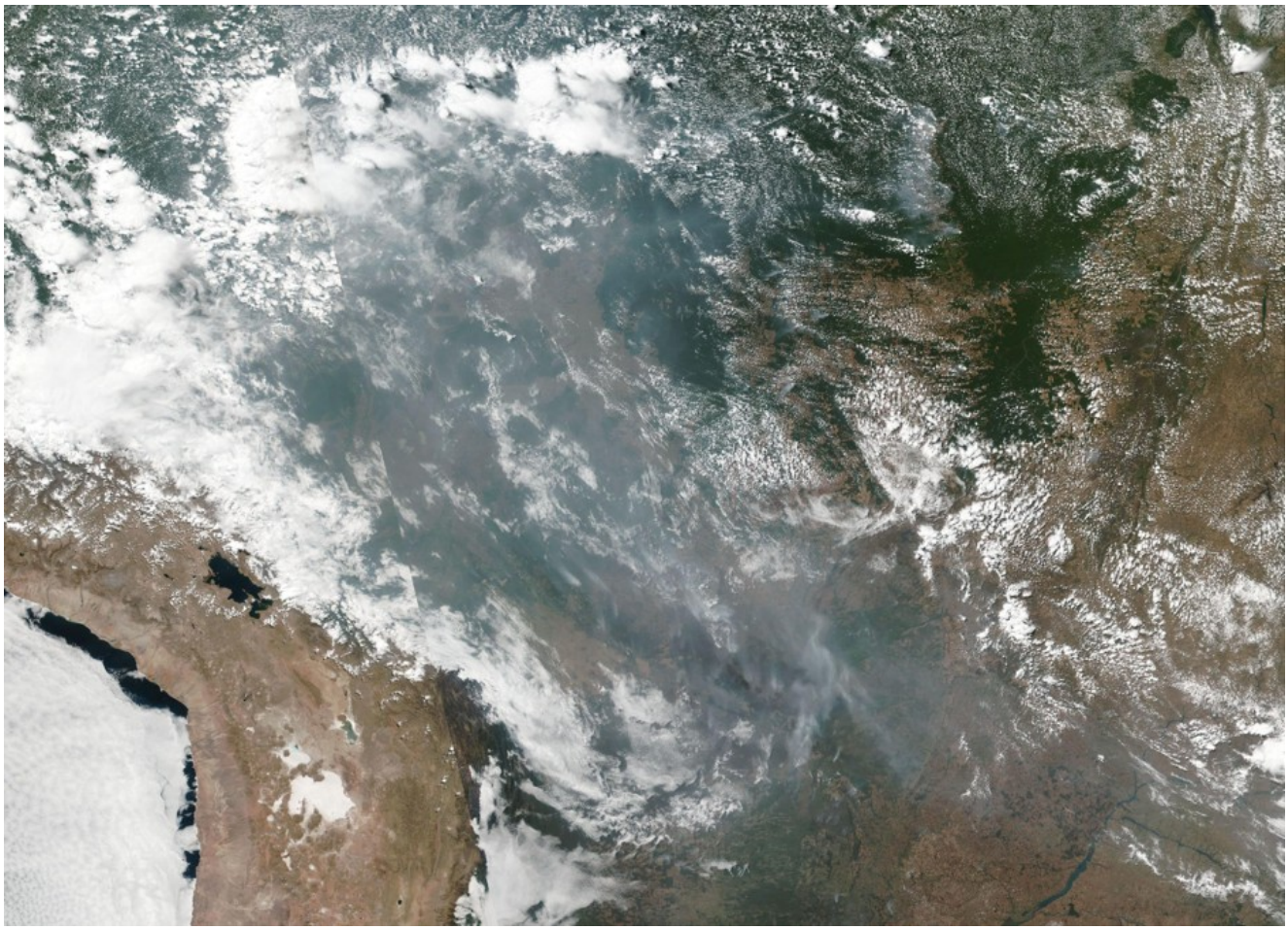
Deforestation rates, 1988 til 2017. (Mongabay.com)

Still, during that last half-century, a fifth of the Amazon rainforest was destroyed, as Alexander Zaitchik reports in *The Intercept*:

Scientists warn that losing another fifth of Brazil's rainforest will trigger the feedback loop known as dieback, in which the forest begins to dry out and burn in a cascading system collapse, beyond the reach of any subsequent human intervention or regret. This would release a doomsday bomb of stored carbon, disappear the cloud vapor that consumes the sun's radiation before it can be absorbed as heat, and shrivel the rivers in the basin and in the sky.

The smoke

Huge plumes of smoke from the fires are causing respiratory problems in cities across Brazil, according to the *Wall Street Journal*. Below, a NASA satellite photo shows the smoke spreading across the country. Reports from São Paulo show daytime skies blackened from the fires raging some 2,000 miles away in Rondonia and Bolivia. The darkness closed in at 4 p.m. one day this week, about two hours earlier than usual; residents collected bottles full of black rainwater.



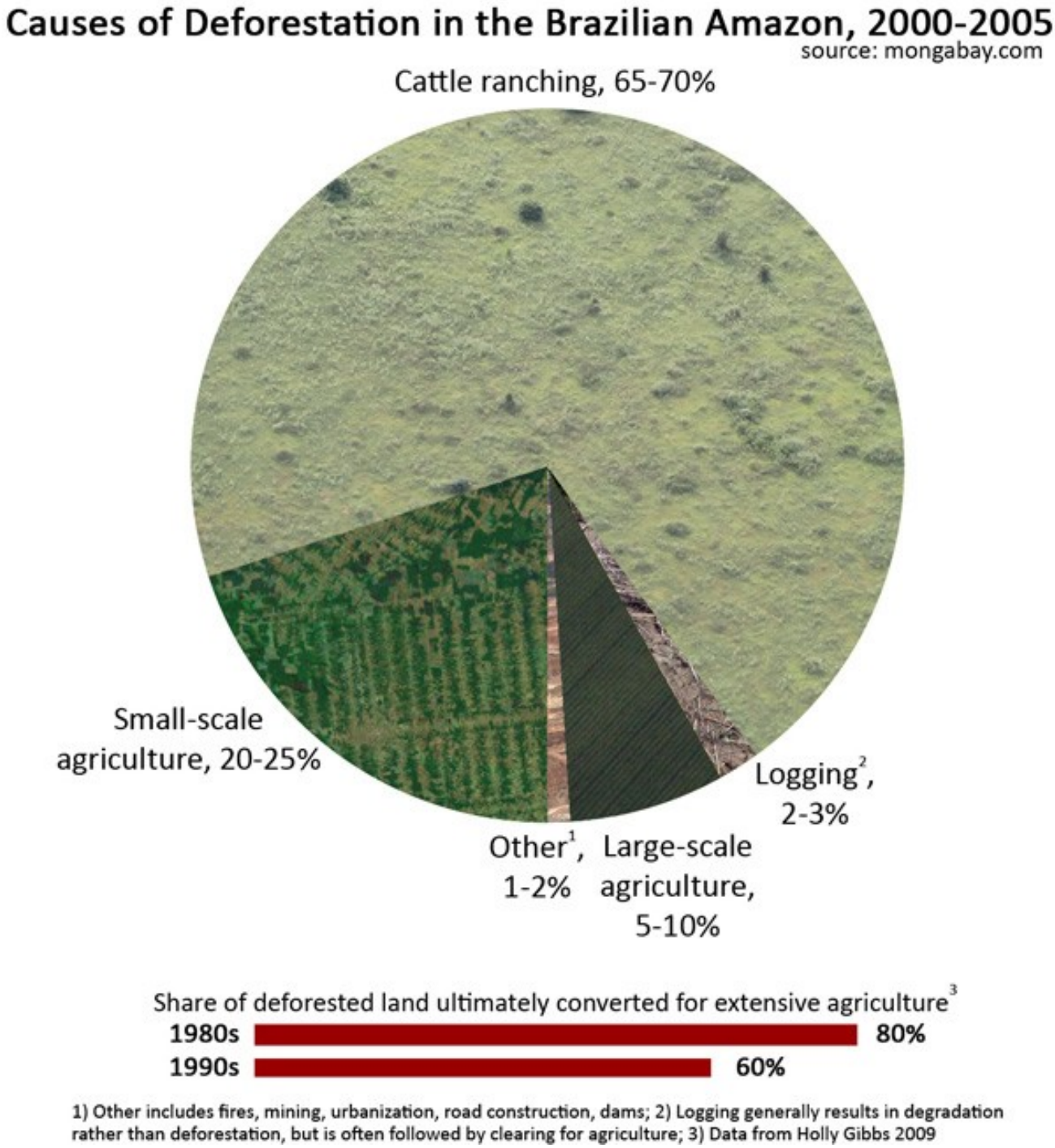
Smoke from the fires hangs over Brazil. (NASA Worldview, Earth Observing System Data and Information System (EOSDIS))

This layer of smoke has other weather impacts on the region: It's contributing to the heating of the atmosphere, by absorbing sunlight. "This process can suppress the formation of clouds," NOAA writes.

> The NOAA-NASA #SuomiNPP shows the #smoke (gray, wispy areas) and the locations of active #fires (red dots) in #Bolivia from very early today. The city lights of Santa Cruz, Bolivia's largest city, are visible as the bright, white glow in the left-center of the image. pic.twitter.com/rLCCB1019P
>
> — NOAA Satellites PA (@NOAASatellitePA) August 22, 2019

The beef industry

Much of the deforestation binge is being driven by farming pressure: The Amazon basin is the largest exporter of beef in the world, with about 200 million heads of cattle. And all those cows need a lot of space to spread out. "Because cattle use energy to convert grass into protein, several times the amount of land is needed to produce an equal amount of beef as poultry, and about 10 times the amount of land than needed to produce grain," according to the Yale School of Forestry and Environmental Studies' Global Forest Atlas. "In Brazil, pasture land outweighs planted cropland by about 5 times."



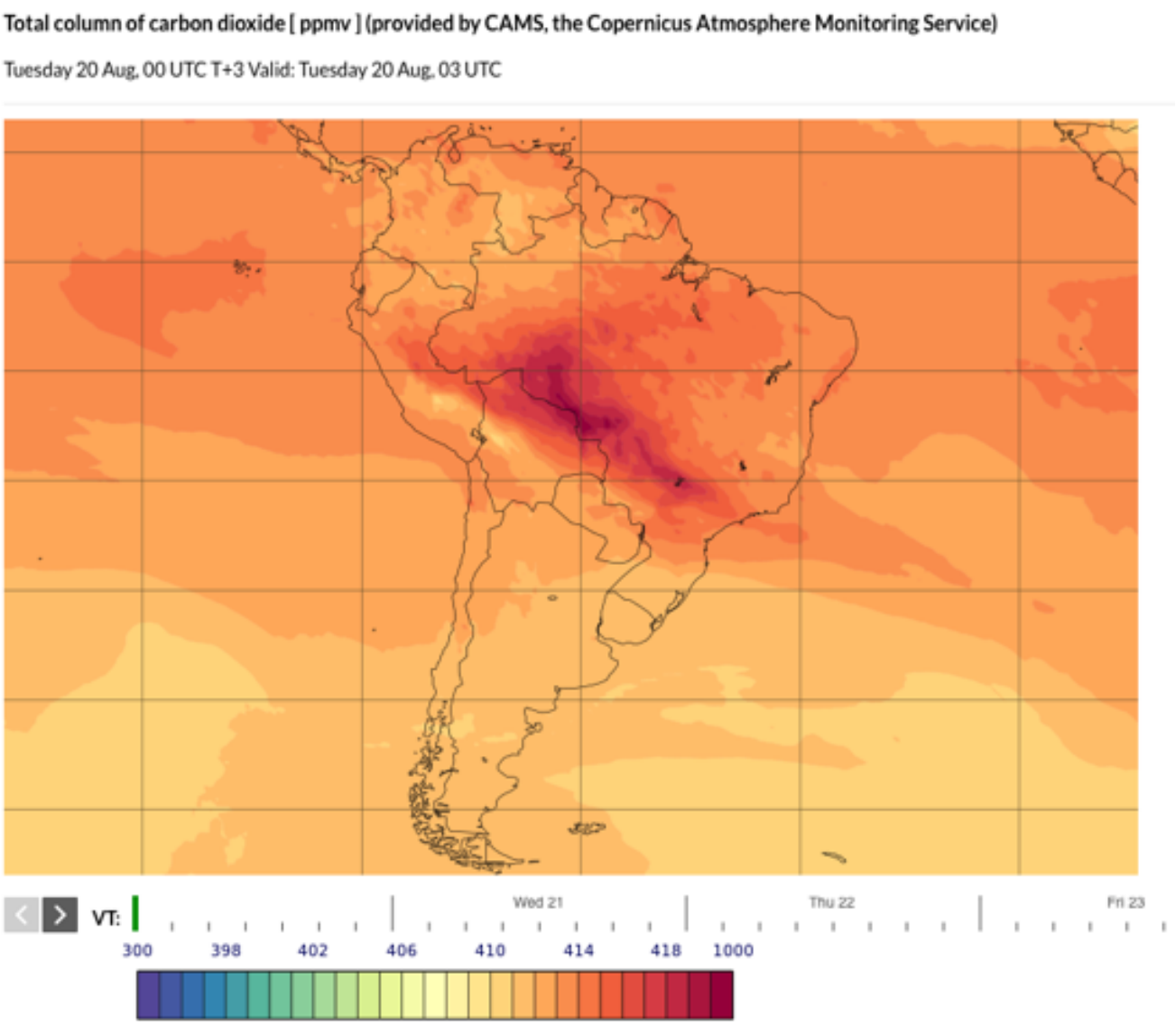
(Mongabay.com)

An estimated 450,000 square kilometers of the Amazon are dedicated to cattle farming, where there used to be trees—about 60 percent of the land that's been deforested.

The climate stakes

Just as climate change may have contributed to the fires' ignition, the fires have contributed to heightened carbon monoxide and carbon dioxide emissions. The European Union's Copernicus Climate

Change Service [told the *Washington Post*] that fire-related carbon output is "posing a threat to human health and aggravating global warming."



Copernicus

Without the carbon-sucking forces of the Amazon—the forest holds about a decade's worth, or 90 billion metric tons—it will be a lot harder to keep global warming levels below the 2 degrees Celsius climate scientists insist is necessary to stave off the most dire effects of climate change.

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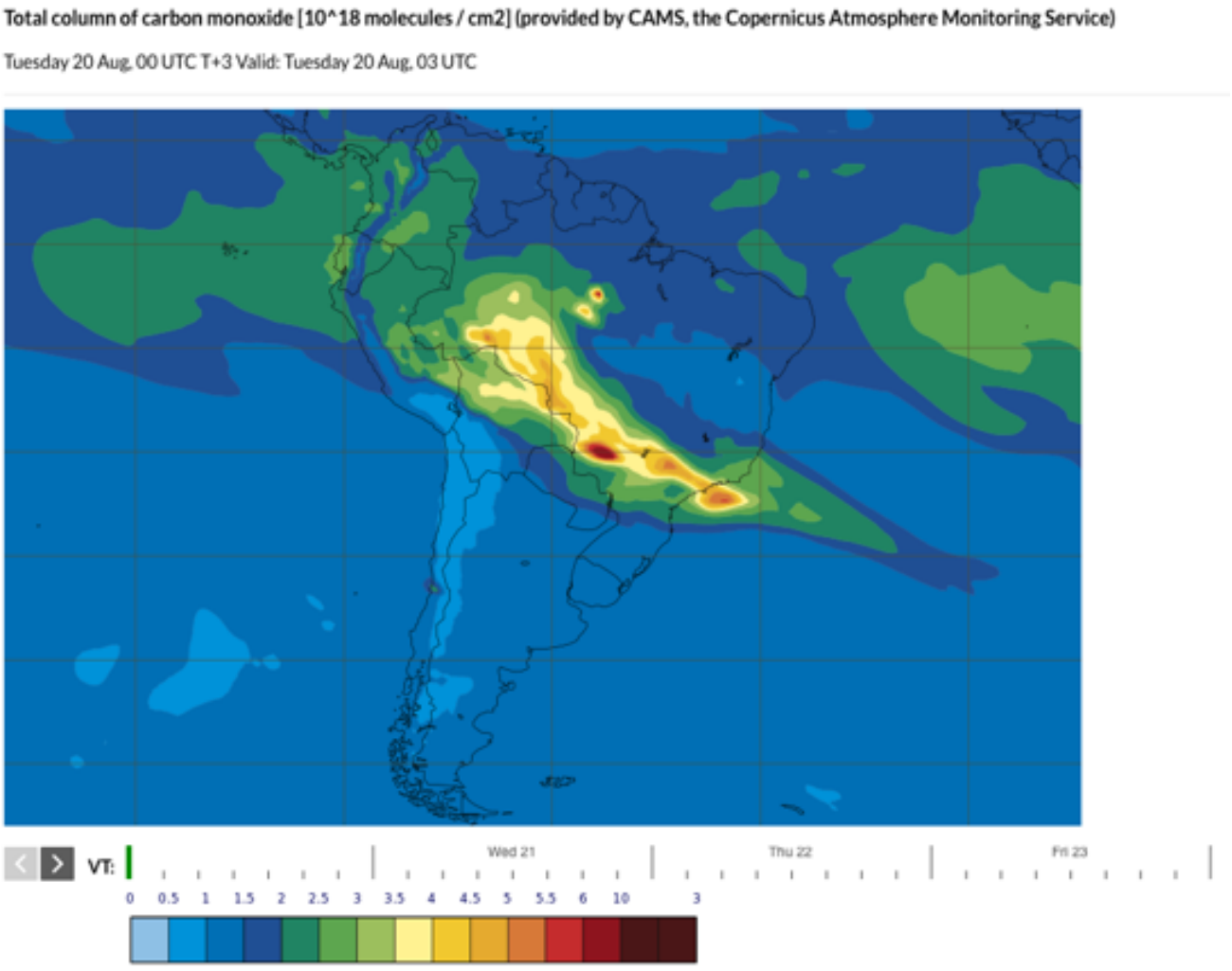

Total column of carbon monoxide [10^18 molecules / cm2] (provided by CAMS, the Copernicus Atmosphere Monitoring Service)

Copernicus

But what is most troubling, scientists say, is what may come next. Rainfall is predicted to be nearly half as heavy as normal in the central and normal parts of the Amazon over the next three months, according to InfoAmazonia. And fire season—which peaks between August and October, and ends in mid-November—is only just beginning.

About the Author **Sarah Holder** @sarahsholder, Sarah Holder is a staff writer at CityLab covering local policy, housing, labor, and technology.