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[Home](#) → [Blog](#) → [Indonesia's Fire Outbreaks Producing More Daily Emissions than Entire US Economy](#)

Indonesia's Fire Outbreaks Producing More Daily Emissions than Entire US Economy

by  [Nancy Harris](#), [Susan Minnemeyer](#), [Fred Stolle](#) and [Octavia Payne](#) - October 16, 2015

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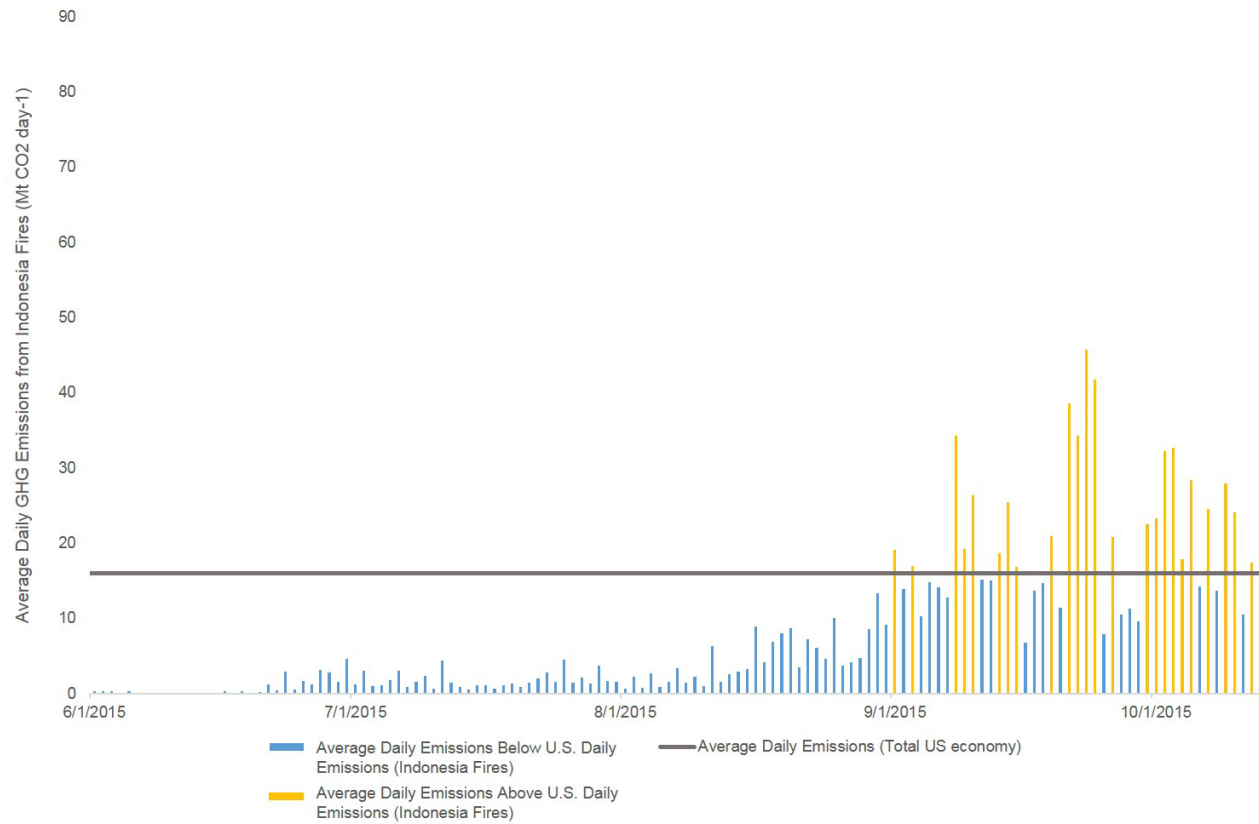
According to estimates released this week by Guido van der Werf on the [Global Fire Emissions Database](#), there have been [nearly 100,000 active fire detections](#) in Indonesia so far in 2015, which since September have generated emissions each day

exceeding the average daily emissions from all U.S. economic activity. Following several recent intense outbreaks of fires—in **June 2013**, **March 2014** and **November 2014**—the country is now on track to experience more fires this year than it did during the 2006 fire season, one of its worst on record.



Fire in Central Kalimantan, Indonesia. Photo by Rini Sulaiman/ Norwegian Embassy for Center for International Forestry Research (CIFOR)

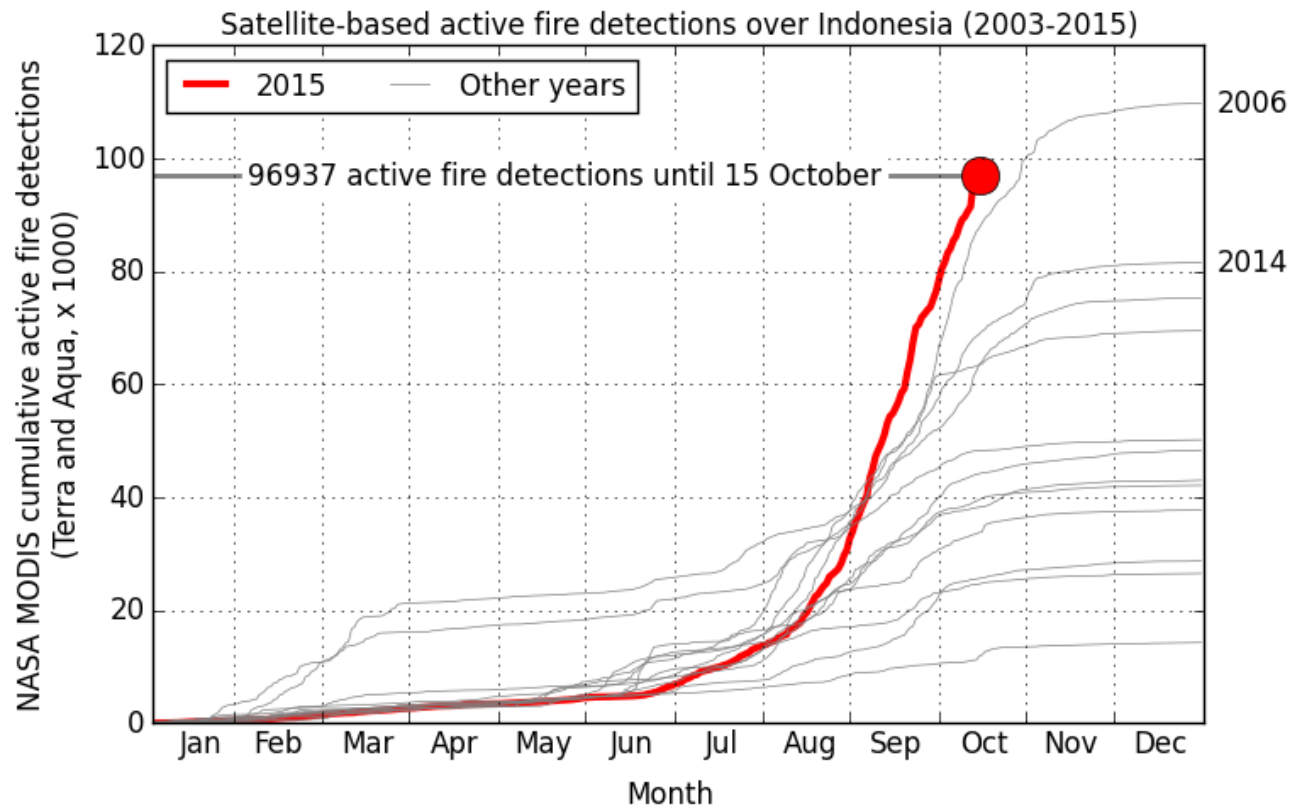
DAILY EMISSIONS FROM INDONESIA FIRES EXCEED THOSE OF U.S. ECONOMY



SOURCE: GLOBAL FIRE EMISSIONS DATABASE and CAIT

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On 26 of the past 44 days (indicated in gold), daily estimated GHG emissions from fires in Indonesia surpassed average daily emissions from the entire US economy (approximately 15.95 Mt CO₂ per day). A massive spike in emissions can be seen on October 14, when 4,719 fires were observed.



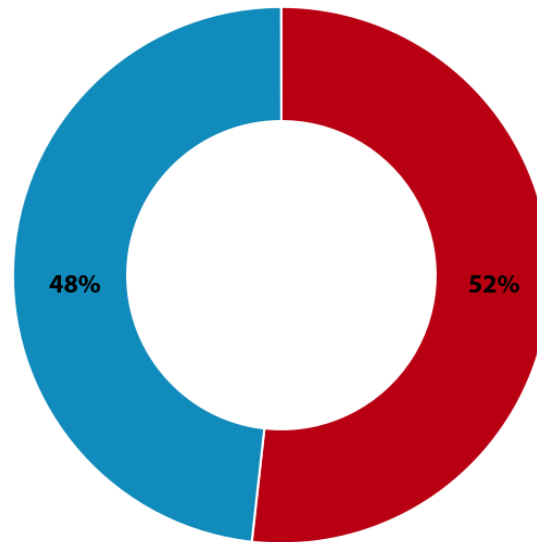
Fire emission estimates based on the Global Fire Emissions Database (GFED4s, >www.globalfiredata.org<) updated for 2015 using NASA MODIS active fire data (Figure courtesy Guido van der Werf).

Emissions Spikes Caused by Burning Peatlands

Global Forest Watch Fires shows that more than half of these fires have occurred on peatland areas, concentrated mainly in South Sumatra, South and Central

Kalimantan, and Papua. These regions continue to suffer major fires as the fire alerts density map below shows, with few signs that occurrences are diminishing.

MORE THAN HALF OF INDONESIA'S FIRES OCCUR ON PEATLAND OCT 7-14, 2015

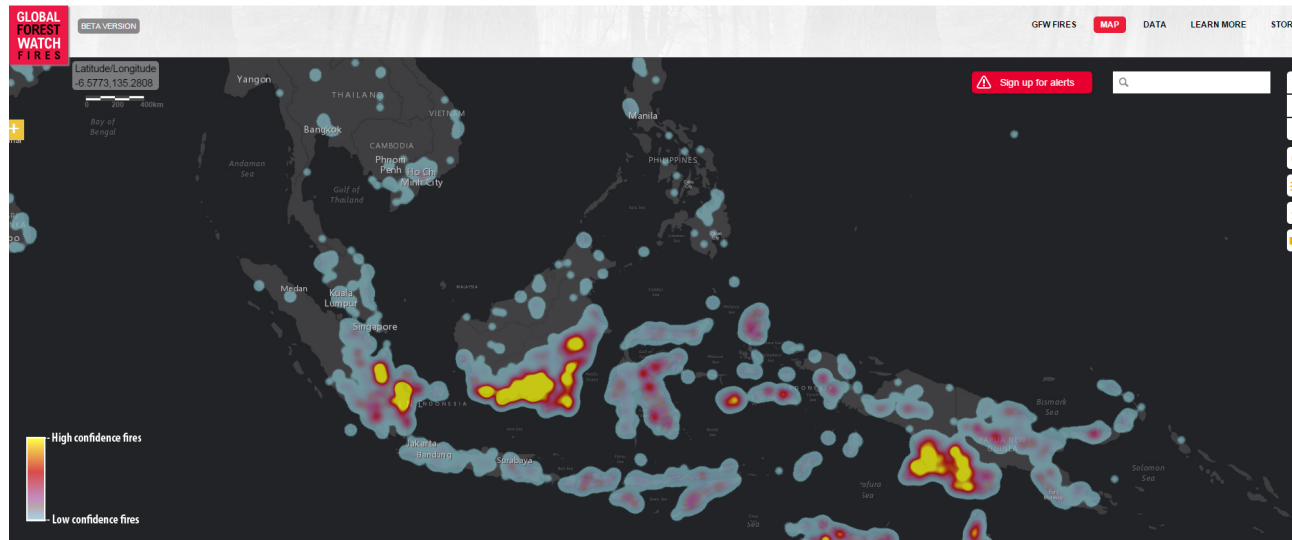


■ Peat
■ Non-peat

fires.globalforestwatch.org

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INDONESIA FIRES CONCENTRATED IN SUMATRA, KALIMANTAN AND PAPUA



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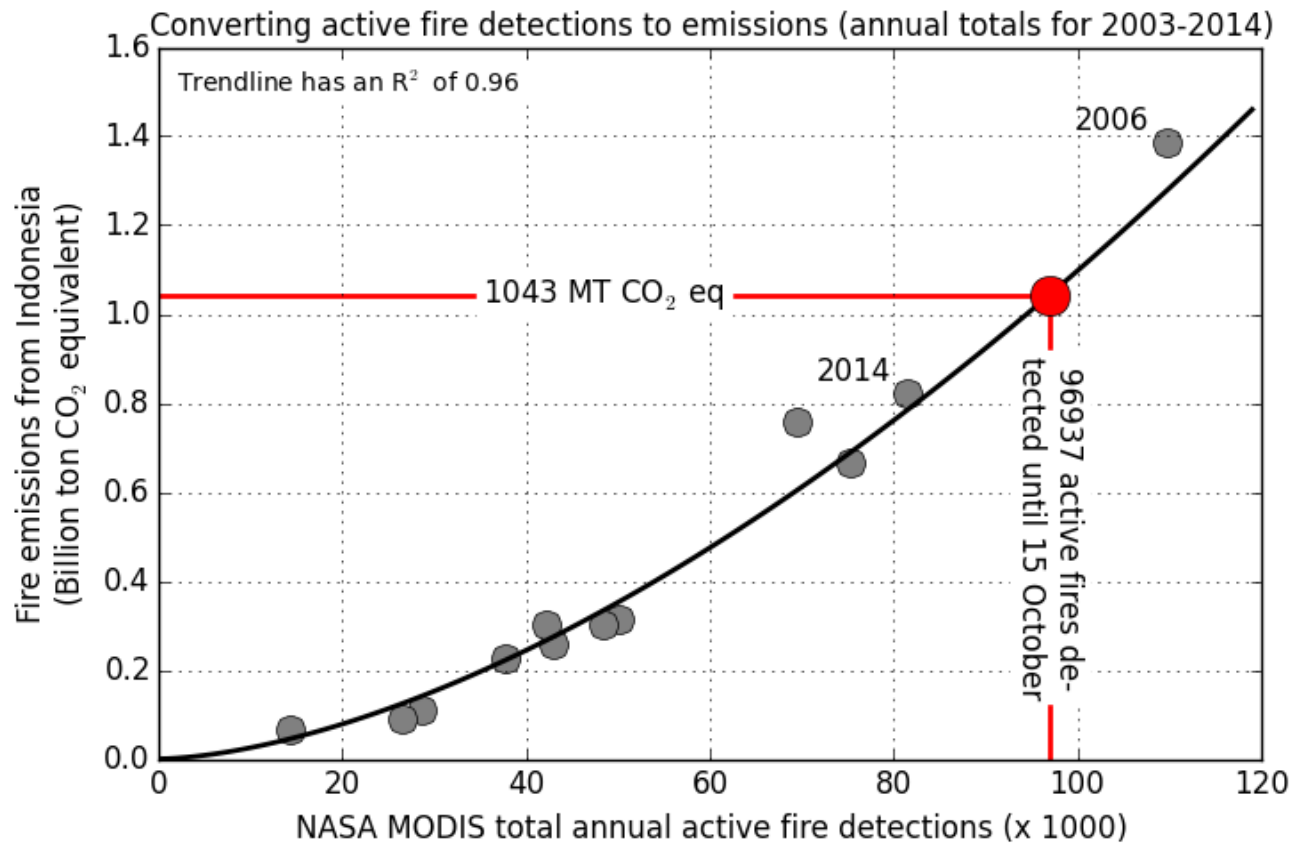
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Global Forest Watch Fires heatmap shows areas with highest concentrations of fires.

The burning of tropical peatlands is so significant for greenhouse gas emissions because these areas **store some of the highest quantities of carbon** on Earth, accumulated over thousands of years. Draining and burning these lands for agricultural expansion (such as conversion to oil palm or pulpwood plantations) leads to huge spikes in greenhouse gas emissions. Fires also emit methane, a greenhouse gas **21 times more potent** than carbon dioxide (CO₂), but peat fires may emit **up to 10 times more methane** than fires occurring on other types of land. **Taken together, the impact of peat fires on global warming may be more than 200 times greater than fires on other lands.**

Putting the Data in Perspective

What does a climate catastrophe look like in a real world context? Since September, daily emissions from Indonesia's fires exceeded daily emissions from the entire U.S. economy on 26 days. To put it into perspective, the U.S. economy is **20 times larger** than Indonesia's. Van der Werf pointed out in a recent report that emissions from these fires over a three-week period are also already higher than the **total annual CO2 emissions of Germany**.





On October 14, which had the highest number of fires to date this year with 4,719, MODIS Terra imagery reveals smoke plumes from massive peat fires on Kalimantan.

For Indonesia, the Climate Challenge Is a Land Management Challenge

Reducing emissions from fires is a significant challenge. Last month, Indonesia **released a draft** of its

How did we compare emissions from Indonesia's fires to US emissions?

Van der Werf's research team developed rough estimates of the greenhouse gas emissions arising from recent Indonesia fires

new climate plan, or Intended Nationally Determined Contribution (INDC), ahead of the climate negotiations taking place at the Paris COP in December. The draft INDC calls for at least a 29 percent emissions reduction below business as usual by 2030— and up to 41 percent in reduction with international assistance and cooperation. While the new data shows how fires present a major challenge to reaching this goal, Indonesia can still make progress if the government focuses on better land planning, improved law enforcement, and alternatives for small farmers to burning land. If Indonesia is to meet its climate commitment, making significant investments in these areas to prevent future fires must be the first step.

Editor's Note: An earlier version of this post omitted the word "million" from a figure for the overall emissions of Indonesia's fires this year. The number has been updated to read "1,043 million metric tons".

using estimates from past years based on satellite data and fire emissions models. They calculated that the 96,937 fires in Indonesia detected to date this year emitted roughly 1,043 million metric tons of carbon dioxide equivalent emissions (Mt CO₂eq) cumulatively. Based on the modeled relationship of fire counts to emissions, it is possible to estimate daily emissions based on the number of fires occurring on a specific day.

Using this information, it becomes apparent that on 26 of the past 44 days (up to October 14), daily estimated greenhouse gas emissions from fires in Indonesia surpassed average daily emissions from the entire US economy (approximately 15.95 Mt CO₂ per day).

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