

Copernicus Atmosphere Monitoring Service: Brazil wildfire briefing sheet August 2019

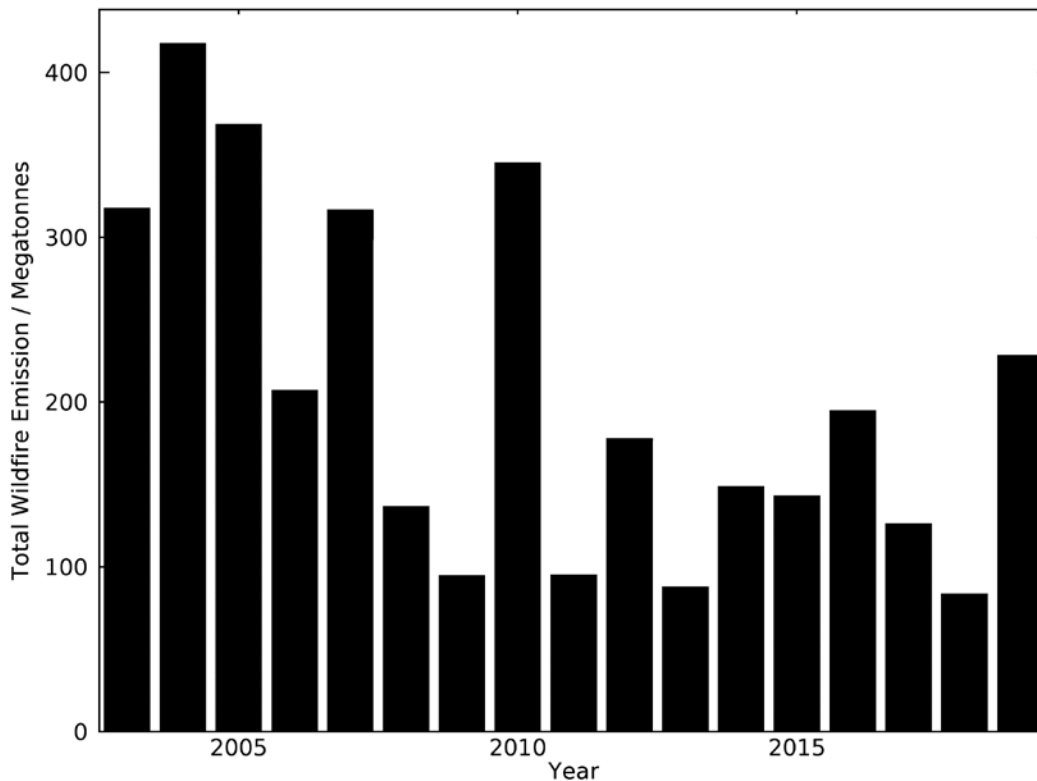
August 2019

Overview

The Copernicus Atmosphere Monitoring Service (CAMS) data shows that there was above average daily fire intensity across parts of Amazonia during the first couple of weeks of August but overall the total estimated emissions for August have been within normal limits - higher than the last 6-7 years but lower than the activity in the early 2000s.

- **About CAMS Wildfire Monitoring:** CAMS uses/provides information on the intensity and emissions of wildfires but does not have any information on the physical size of any wildfires. This is because satellite observations of burned areas are not available in near-real-time. Some preliminary estimates based on visible satellite imagery have been reported by Copernicus Emergency Management Service on twitter. <https://twitter.com/CopernicusEMS>
- **Brazil Wildfire Emissions:** The chart (Title: *CAMS 1 Jan - 21 August Wildfire CO2 Emissions (GFASv1.2) for Brazil*) shows the estimated Brazil total equivalent CO2 emissions from 1 January to 21 August from 2003 to 2019 - this is for reference, and the numbers are below. Note that we do not have information on the burned area but the estimated CO2 emission is usually a reasonable proxy on the size.

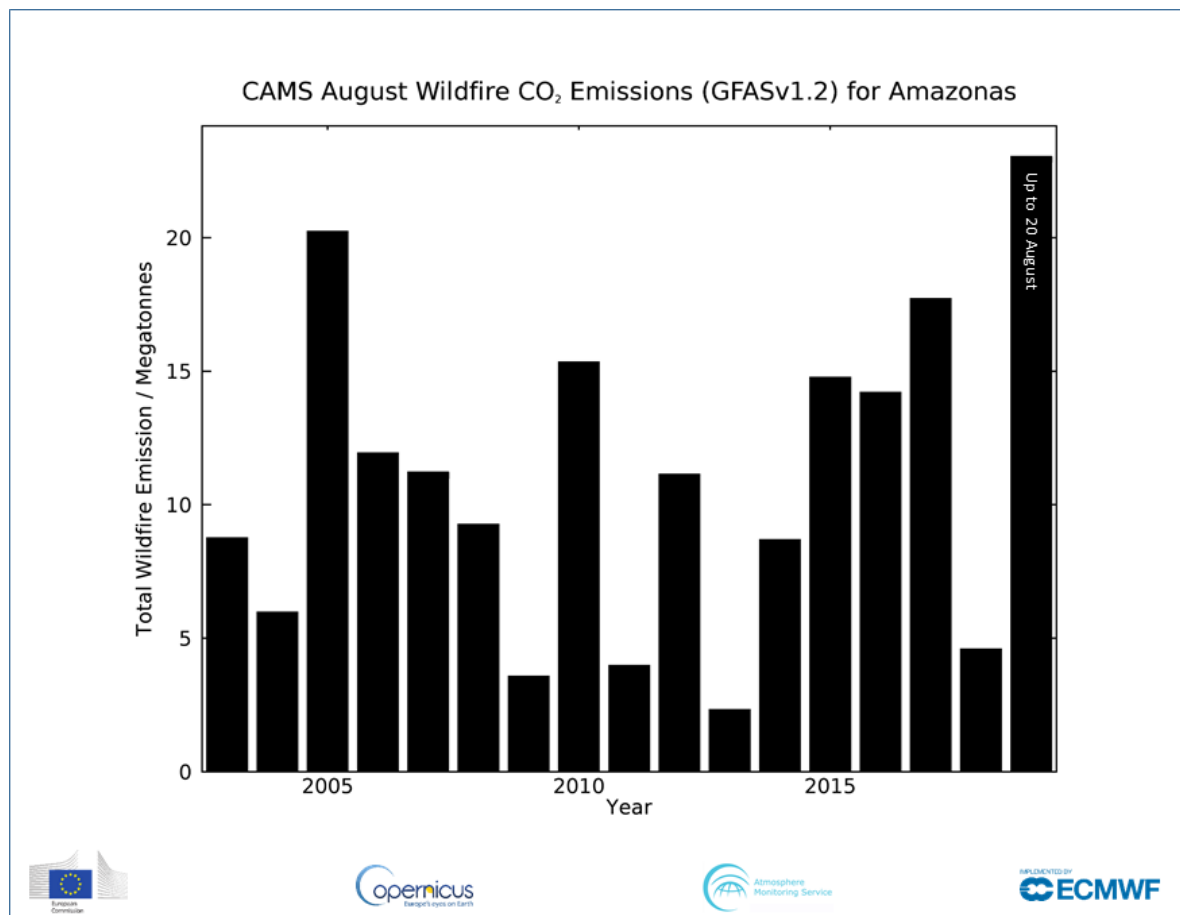
CAMS 1 Jan - 21 Aug Wildfire CO₂ Emissions (GFASv1.2) for Brazil

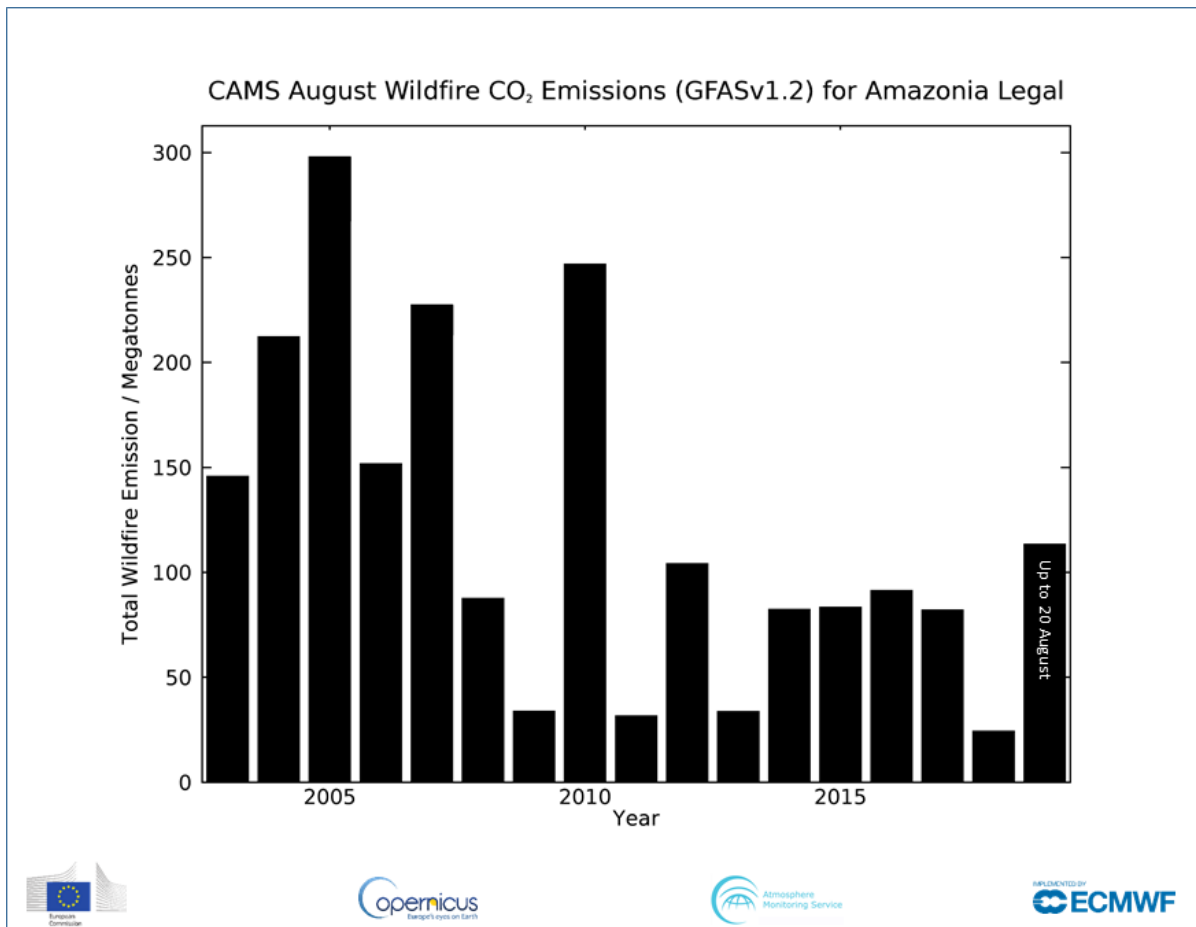


- **Amazonian States Wildfire Emissions:** CAMS has looked at the August total estimated CO₂ for Amazonia Legal as a whole and the trend, which is fairly similar for Rondonia, Para and most of the other states in that region and is not out of the ordinary. The one state where this appears to be different is Amazonas, where the 2019 August total to the 20th August is already the higher than the previous 16 years of our [Global Fire Assimilation System \(GFAS\)](#) dataset.
- **Emissions and smoke plumes:** Satellite imagery, along with our CAMS fire emissions and atmospheric composition data, is showing huge plumes of smoke originating from fires across western Amazonia with many fires in Amazonas, Rondonia and Mato Grosso in Brazil as well as the Santa Cruz Department of Bolivia. It is still too early in the season to say whether the magnitude of the estimated emissions are unusual or not as we would expect to see reasonable numbers of fires and associated smoke between August-October. What the 17 years of our Global Fire Assimilation System (GFAS) fire data is showing, is that the August total estimated emissions from Amazonas are the highest this year since the dataset begins in 2003. However, for the neighbouring states (i.e., Rondonia, Para and Amazonia Legal in general) the numbers are still much lower than what we were seeing in the early 2000s. In terms of the daily total fire activity, this was above the 2003-2018 average for Amazonia Legal during the first two weeks of August but does seem to have returned to average and below average values over the last couple of days.



- **Smoke impacts:** As with any vegetation fires there are emissions of a wide range of different atmospheric pollutants and particulate matter that have impacts on air quality both local to the fires and much further afield; in the case of the smoke transport to Sao Paulo, this came about due to a change in the atmospheric circulation with northwesterly winds carrying the smoke to Sao Paulo and the Atlantic coast. It is possible that similar incidents could occur across South America, and indeed there are regular cases of smoke from vegetation fires affecting air quality in cities across South America at different times of year.
- **Connection to climate change:** This is outside of CAMS' expertise but one of the concerns with fires on this scale in the Amazon is the impact on the carbon cycle and whether it is turning those regions of the Amazon into a net source of CO₂ due to the loss of rainforest and change in vegetation.





The graphics in this sheet have been created by Senior Scientist Mark Parrington, Copernicus Atmosphere Monitoring Service, ECMWF using the GFAS (Global Fire Assimilation System) dataset.

About Copernicus, the Copernicus Atmosphere Monitoring Service (CAMS) and the European Centre for Medium-Range Weather Forecasts (ECMWF)

Copernicus is the European Union's flagship Earth observation programme. It delivers freely accessible operational data and information services which provide users with reliable and up-to-date information related to environmental issues.

The Copernicus Atmosphere Monitoring Service (CAMS) is implemented by the European Centre for Medium-Range Weather Forecasts (ECMWF) on behalf of the European Union. ECMWF also implements the Copernicus Climate Change Service (C3S). ECMWF is an independent intergovernmental organisation, producing and disseminating numerical weather predictions to its 34 Member and Co-operating States.