



Contribution of peat fires to the 2015 Indonesian fires

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Indonesia experienced widespread fires and severe air quality degradation due to smoke during September and October 2015. The fires are thought to have originated from the combination of El-Niño-induced drought and human activities. Fires ignited for land clearing escaped into drained peatlands and burned until the onset of the monsoonal rain. In addition to the health impact, these fires are thought to have emitted large amounts of greenhouse gases, e.g. more than Japan over the entire year.

The Copernicus Atmosphere Monitoring Service (CAMS) has detected and quantified the fires with the Global Fire Assimilation System (GFAS) and the smoke dispersion with the Chemistry-Integrated Forecasting System (C-IFS) in near real time. GFAS and C-IFS are constrained by satellite-based observations of fire and smoke constituents, respectively. The distinction between peat and above-ground fires is a crucial and difficult step in fire emission estimation as it introduces errors of up to one order of magnitude.

Here, we quantify the contribution of peat fires to the total emission flux of the 2015 Indonesian fires by (1) using an improved peat map in GFAS and (2) analysing the observed diurnal cycle of the fire activity as represented in a new development for GFAS. Furthermore, we link the fires occurrence to economic activity by analysing the coincidence with concessions for palm oil plantations and other industrial forest uses.