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Constraints on total fire carbon emissions over maritime southeast Asia in 2015

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In September and October 2015 widespread forest and peatland fires burned over large parts of maritime southeast Asia, releasing large amounts of terrestrially-stored carbon into the atmosphere, primarily in the form of CO_2, CO and CH_4. Although seasonal fires are a frequent occurrence in the human modified landscapes in the south of Kalimantan, the southeastern provinces of Sumatra, and West Papua, the extent of the fires was greatly inflated by an extended period of drought associated with a particularly strong El Niño.

In this contribution we provide an estimate of the total carbon released in these fires, making use of satellite observations of the fire's radiative power output as processed with GFAS, applied in the modelling and assimilation framework of the Copernicus Atmosphere Monitoring Service (CAMS: http://atmosphere.copernicus.eu/). The carbon emissions are further constrained with MOPITT atmospheric CO column measurements as well as unique *on-site* plume measurements on Kalimantan. We estimate the carbon emissions from the 2015 fires to be the largest over the maritime southeast Asian region since those associated with the record breaking El Niño of 1997.