

Interactive comment on “Atmospheric CH₄ and CO₂ enhancements and biomass burning emission ratios derived from satellite observations of the 2015 Indonesian fire plumes” by Robert J. Parker et al.

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We would like to thank Referee 1 for taking the time to review our manuscript and appreciate the useful comments/corrections.

Major comments:

Do the authors have a view on the possible fraction of peatland/forest fires relative to agricultural burning?

Whilst this is difficult to quantify exactly, there has been some work in this area and

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approximately 3/4 of the fuel consumption is estimated to have occurred as peatland burning. For further details, please see Huijnen et al., (2016) which includes some of our co-authors from this work. In the Supplementary Information of that paper the authors report that "From our total emissions estimate of 692 Tg CO₂ produced in Sept-Oct 2015 over the region, 79

We have added a section in the text to discuss this as well as including the relevant reference.

"It is estimated that approximately $\frac{3}{4}$ of the fire activity over this time period was due to peatland burning (Huijnen et al., 2016)."

Added in reference to:

Huijnen, V. et al. Fire carbon emissions over maritime southeast Asia in 2015 largest since 1997. Sci. Rep. 6, 26886; doi: 10.1038/srep26886 (2016).

Minor comments/typographical:

Various typographical corrections

All typographical corrections have been fixed as recommended.

Is July used to determine the degree of enhancement (relative to October) as this is defined as the first month of fire activity (Figure 1)?

Yes. We'll clarify that in the text to better explain.

"In order to quantify the extreme nature of the October 2015 observations and to account for the annual growth rate, we define the magnitude of the enhancement as the October-July difference for each year, with July typically signifying the start of the fire season in this region".

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