

Atmos. Chem. Phys. Discuss., referee comment RC2
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Comment on acp-2022-211

Anonymous Referee #2

Referee comment on "Tropical peat fire emissions: 2019 field measurements in Sumatra and Borneo and synthesis with previous studies" by Robert J. Yokelson et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2022-211-RC2>, 2022

The manuscript presented by Yokelson et al. reports on emission factors of a wide range of species obtained from multiple fires at different location in Indonesia in 2019. It is well written, the methodology is well explained, and the results are discussed in a sufficient manner. The updated emission factors that this work provides is greatly needed to address the impact of tropical peat fires on the atmospheric composition on regional and global scales. Especially the discussion on the usage of the derived dataset for fire emission inventories is very helpful and will allow to further constrain the influence of these fires on air quality and climate. I suggest the publication of this work in ACP once my comments are addressed by the authors.

Specific comments:

- P18, L1-12: In addition to the potential impact of metals for neurodegenerative diseases, iron is important to marine biota potentially leading to biogeochemical feedbacks. Considering the exceptional strength that Indonesian peat fires can have, could you comment on the potential importance of the emitted iron on the regional ocean fertilization? Compared to other iron sources in this region, can you estimate the relative importance of these fires?
- P20, L36-37: The work of Graham et al. is currently not available yet. Please provide further information on these fires, measurements, and the methodology used. Are these findings from the same, similar, or different locations/fires? Since you refer multiple times to this work in preparation, it would be helpful if the work of Graham et al. would be available before this work is published (at least in some sort of discussion like ACPD).
- In your study, you exclude extratropical peat fire emission data. Can you draw any conclusion from your extensive dataset to also constrain extratropical peat fire emissions or provide suggestions (e.g., for other measurement campaigns) to do so?