

Interactive comment on “Chemical characterization of fine particulate matter emitted by peat fires in Central Kalimantan, Indonesia, during the 2015 El Niño” by Thilina Jayarathne et al.

Anonymous Referee #1

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Jayarathne et al. characterized in-situ particulate matter emitted from 18 peatland fire plumes in Indonesia. The authors have performed thorough and careful analysis of their samples, including an impressive suite of organic and inorganic chemical analyses. They determined that PM emissions from peat fires are overwhelmingly composed of organic carbon that is largely hydrophobic and with a lower OM:OC than observed in other biomass burning experiments. The paper is well written and will be of interest to the scientific community. I recommend publication following the minor corrections and clarifications noted below.

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Specific comments: Page 3, line 2: “Thus, a mobile lab...” The end of this paragraph feels out of place and would fit better merged with the last paragraph of the Introduction.

Page 4, line 3: Missing space in “spreadslowly”.

Page 4, line 8: ‘which’ should be ‘with’.

Page 7, line 11: “The samples were collected directly from visible plumes in smoldering peat.” Approximately how far from the smoldering peat were the samples collected? This is relevant later in the text when comparing measured EFs to laboratory studies of peat fires (e.g., pg 15, line 7).

Page 8, line 4: “the plume of smoke cooled to near-ambient temperature, to allow for gas-particle partitioning to equilibrate prior to sample collection.” Gas-particle partitioning will continue to change at ambient temperature due to plume dilution. Please rephrase the sentence.

Pg 14, lines 8-10: “The percent difference across duplicate samples was 57%, 37%, and 8% for plumes E, F, and W, respectively, indicating temporal variability in emissions from a single plume as the peat fire progresses.” Please add further details regarding the timing of the duplicate samples. “Duplicate” implies parallel sampling, whereas the quoted discussion suggests sequential sampling.

Pg. 20, line 17: Missing space “emissionsfrom”

Pg 21, lines 13-17: Has the VA:SA ratio been measured in smoke from other fuel types? Is a ratio of ~ 1.9 specific to peat smoke or biomass burning smoke in general?

Pg. 27, line 12: typo “peatl”

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