

Interactive comment on “Evidence for a larger contribution of smoldering combustion to boreal forest fire emissions from tower observations in Alaska” by Elizabeth B. Wiggins et al.

Anonymous Referee #3

Received and published: 6 March 2020

The authors present an impressive set of CO, CH₄ and CO₂ measurements in boreal forest fire smoke to calculate emission factors for CO and CH₄. Such accurate data are necessary to soundly test models used to quantify the impact of big fires on the air quality and climate. Therefore, the paper is highly suitable to be published in this journal.

Yet, due to error in the emission factors calculation I suggest a revision of this manuscript. Re-interpretation of results should be done by the authors before resubmission.

Firstly, Eq 2 on Page 4 should be revised, using e.g. Eq. 1 and 2 in Yokelson et al.

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JGR1999.

I'm looking forward to review the revised manuscript in detail. I add here only a potential useful comment. Are there any other measurements of specific tracers to be used to quantify the smoldering/flaming contributions? Flaming is likely under-represented in the used sampling height.

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2019-1067>, 2020.

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