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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Emission of trace gases and aerosols from biomass burning – An updated assessment" *by* Meinrat O. Andreae

Nic Surawski

nicholas.surawski@uts.edu.au

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Firstly, I would like to concur with Dr Ichoku that the current contribution represents a timely addition to the biomass burning literature in light of recent contributions by Akagi et. (2011) and Yokelson et al. (2013) both of which were published in Atmospheric Chemistry and Physics. My main criticism with the current contribution involves the activity data that is used to report the final emissions factor in the supplied tables. The authors report the emissions factor per unit of dry fuel consumed (i.e. g/kg dry fuel consumed) whereas I believe that for certain combustion scenarios, especially for charcoal making, it would be more worthwhile to report them as a percentage of total burnt carbon. A fairly recent paper by Surawski et. al. (https://www.nature.com/articles/ncomms11536) demonstrates the biases that are

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likely to ensue from neglecting the change in carbon concentration associated with the combustion process. Given the importance of charcoal making in certain parts of the world e.g. Africa, this may be worth revisiting. Apart from referring the authors to my own paper, I find it strange that emissions factors are reported the way they are by Andreae et al. (2019) given that the alternative approach we cite was indeed developed by the Max Planck Institute for Chemistry in the late 1980s/early 1990s (sensu Jürgen Lobert). The benefits of reporting biomass burning emission factor as a percentage of burnt carbon appear clear to my group (and others) so was hoping to see this approach reflected in a revised manuscript.

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