

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

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The Author is to be commended for taking on the task of assembling, digesting, and tabulating reported biomass burning emission factors (EFs). However, the author’s large-scale dismissal of laboratory studies that present EFs seems limiting and unjustified. The reasoning of the author seems to be based mostly on one completely unrealistic study, but many other studies have shown how to harmonize the lab studies with field studies including Yokelson et al., (2013), Stockwell et al., (2015), and Selimovic et al., (2018). While some of these studies have been used, the methodology there-in could have been applied to many other recent state-of-the-art studies. Instead the fuel-specific info for a wealth of important compounds not measured in the field is lumped into a large “lab average category.” Over reliance on field data mean that fast

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chemistry may not be captured properly, e.g. HONO, and perhaps other fast actors such as 2,3-butanedione, especially for large fires that could not be sampled close-up. In addition, this arbitrary decision has resulted in the Author missing (omitting) several new developments in BB emissions measurements. The work of Sekimoto et al. 2018 that found that most of the variability in VOC emissions was explained by just two factors, related to low and high temperature pyrolysis, and that are valid for a variety of fuels, was not mentioned. No mention was made of the importance of isocyanic acid (HNCO), an N-compound of emerging health interest (Roberts et al., 2011) and which Koss et al., (2018) have shown to often be more abundant than HCN in laboratory fires. These new features/results do not yet have field measurements of EFs to back them up, but soon will. Strangely, 25+ year old laboratory results from the Mainz group were included in several cases in the main table (Table 1), while important new results were overly consolidated and relegated to the SI spreadsheet (e.g. the I/SVOC work of Hatch et al., 2015), or not listed at all (HNCO; Hatch et al., 2017; 2018).

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