

## ***Interactive comment on “Biomass burning combustion efficiency observed from space using measurements of CO and NO<sub>2</sub> by TROPOMI” by Ivar R. van der Velde et al.***

### **Anonymous Referee #2**

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This work has carefully investigated to obtain emission factors for biomass burning combustion from the satellite instruments with a large amount of information provided. I think this work contains useful information on biomass burning, which can specify many types of burning globally. Despite many information provided and careful investigation, it needs to be shortened to focus on the main findings. The lengthy descriptions of each session can distract the main points of the originality of the work.

#### Specific comments

The ratio between XNO<sub>2</sub> and XCO implies not only the information on the surface emissions but also the information of its transport especially considering the longer

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lifetime of CO. How do you think the column comparison can cause the uncertainties of surface emissions? The author may have to comment on this concisely.

Are the types of burning affected by the soil and its condition? I wonder if more factors impact on the burning conditions (XNO<sub>2</sub> and XCO ratios).

I think the information in Figure 11 and 12 is better in the table. The table of EFs would be useful with the regions, types of burning, and seasons. That would be useful for scientific communities.

Are the ratios of deforestation fires different from all types of vegetation fires? Then it means we can capture the deforestation by MDR from space? Please describe the meaning of identifying the deforestation by the satellite sensing.

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