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Geoscientific Model Development Discussions
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Interactive comment on "Historic global biomass burning emissions based on merging satellite observations with proxies and fire models (1750–2015)" *by* Margreet J. E. van Marle et al.

Anonymous Referee #1

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This paper provides a description of the biomass burning emissions that are provided for the upcoming CMIP6 simulations. The authors have done an excellent job of providing in-depth description of the methodologies used to generate the emissions. This was a gargantuan task and the authors should be congratulated to achieving this. I have a small number of minor comments below. My main complaint is that the emissions are showing fairly significantly different trends from the CMIP5 dataset and it would have been very useful if some model simulations (or at least estimates of radiative forcing) had been performed to understand the consequences of these different trends. I understand that this probably beyond the scope of this paper, but it is still a shortcoming worth mentioning.

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Discussion paper

Minor comments

Page 2, line 23: CMIP is not part of IPCC. It is part of WCRP (see Eyring et al., GMD, 2016)

Page 11, line 13: how large was the scaling when applied? Might be good to mention the scaling algorithm (Eq. 1) at this point. Since 1997 was such a large emission year, has its role been evaluated?

Section 2.3: it seems that it would be useful to have more details on the methods used to extract emissions from visibility data? How does this work in anthropogenically-polluted areas?

Page 17, lines 16-27: any suggestions on how models could integrate that recommendation?

Page 18: change link to emission factors to an actual description in supplement. Web link will break over time

Comparison with CMIP5: it would be greatly helpful if regional comparisons were also shown, maybe simply in the supplemental material

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