

Atmos. Chem. Phys. Discuss., editor comment EC1 https://doi.org/10.5194/acp-2022-233-EC1, 2022 © Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.

Comment on acp-2022-233

Paquita Zuidema (Editor)

Editor comment on "Acceleration of the southern African easterly jet driven by the radiative effect of biomass burning aerosols and its impact on transport during AEROCLO-sA" by Jean-Pierre Chaboureau et al., Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2022-233-EC1, 2022

Dear authors -

Both reviewers recommended major revisions, with the 2nd referee suggesting an additional review. As such I am asking the same referees to reevaluate the manuscript. I personally think you have done a good job addressing the referee concerns. The writing is more polished, and the additional work of adding in additional simulations to generate ensembles is valuable and appreciated. I do have some small additional comments of my own on the revised version, listed below.

P. 2 line 35: 'an increase' in what?

p.2 line 39: the changes in regional circulation also affects aerosol transport over the SEA of course....e.g. the ability to reach south America (Holanda et al., 2020, ACP https://acp.copernicus.org/articles/20/4757/2020/).

fig. 4 e and f: wind vectors difficult to read.

p. 12 line 258: remove 'there'

P. 15 line 300: What is the night-time cooling effect? Smoke doesn't have a long wave signature. Is this from water vapor? Is an altered water vapor transport also a feature of the AEJ-S in these simulations?

p. 15 line 309: an -> a

p. 15, line 318: is this really self-lofting, or is the air within the AEJ-S more vertically mixed, so that there is less thermal stratification discouraging the same buoyancy? I can't quite tell from the potential temperature lines.

P. 19 line 386: 'In consistency with a' -> 'consistent with'

the authors may also want to consider how this work relates to Kuete et al., 2021 https://link.springer.com/article/10.1007/s00382-019-05072-w. In addition Ryoo et al 2021 https://acp.copernicus.org/articles/21/16689/2021/ provides some climatological context for the focus on September 2017 (mainly shows September 2017 had a slightly weaker AEJ-S than the climatological mean.) should that be of interest.