

Response to 'Comment on acp-2022-233' by Editor Paquita Zuidema

We thank the Editor for her time and her constructive comments. We have complied with most of the proposed changes. In the following, the comments made by the Editor appear in black, while our replies are in blue.

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? **Changed.** The sentence is now: "Hodzic and Duvel (2018) found reduced deep convection over a tropical island and convergence of water vapor toward the island for moderately absorbing BBAs and increased deep convection for more strongly absorbing BBAs."

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/>). **Added**

fig. 4 e and f: wind vectors difficult to read. **We improved the readability of wind vectors.**

p. 12 line 258: remove 'there'. **Done**

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? **It is indeed a nighttime cooling effect in the LW mostly due to water vapor. The changes in water vapor mixing ratio and cloud fraction along longitude are now shown in Fig. 10.**

p. 15 line 309: an → a. **Changed**

P. 19 line 386: 'In consistency with a' → 'consistent with'. **Changed**

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. **We added these two references in the introduction.**