Review of "Biomass Burning Aerosol Radiative Effects in the Southeast Atlantic Depend Strongly on Meteorological Forcing Method"

Summary

This work tries to elucidate the total radiative effect (TRE) of biomass burning aerosols (BBA) in the SEA region, using simulations performed with a global climate model with different meteorological forcing methods. They consider a specific simulation period and comprehensively compare their results to observations and previous studies. They are able to confirm a total positive TRE effect, assess the TRE components and simulation biases, and recommend meteorological forcing methods. The paper is well written, with an especially clear discussion section. Their results are comprehensive, and understandably, since the topic is highly complex, the analysis can sometimes become a bit lengthy; maybe some general summaries in those sections could help with readability. I only have minor comments and questions, mainly related to the simulation setup and results, listed below.

Line by line comments

- L1 BBA abbreviation seems confusing there

- L49 Would it be helpful to include the ranges of values for each RE?

- L128 About nudging the wind only above the BL: could it enhance wind shear at that level and modify the BL dynamics?

- L129 Nudged simulations: There is no moisture nudging either, correct? Have any previous studies analyzed the effect of nudging the temperature and moisture fields? What is the characteristic nudging time?

- L138 Reinitialized simulations: I don't completely follow the procedure for the whole studied period. Does "1 day reinitialization with 1 day forecasts (1d)" mean that the simulation is 2 days long and only the second day is used? Does it mean that there are N independent 2-day reinitialized runs to cover the N-day period? Or does it mean that there is a full N-day simulation, and every 2 days, all fields are reinitialized? Same question about the other configurations. Later, you mention overlap time; now I'm interpreting that it means there is no spin-up period in the 1 d simulation.

- L207 This is an interesting point. Since cloudiness can affect the results, does any existing research, or could future research consider this? Is it possible to use some cloudiness variable and analyze RE as a function of it?

- L261 Difference in moisture above the BL: Do you mean that this is explained by differences in wind profiles because of advection?

- L263 Regarding the better caption of inversion height, is it 50 m below or above the observations?

- L274 Does the free tropospheric RH correlate well with the height? Or the upper inversion presence?

- Fig. 4,S5,S6 Why do all cases have an initially similar LWP for the remote domain but not for the coastal domain? It would be nice to know when the 5d bb case is being reinitialized. (Same for all the time series)

- L299 Could the difference stem from both decoupling and inversion height mismatch? Could a sensitivity test with finer height resolution help elucidate the difference? (that could be proposed for future research)

- L330 It is interesting that the SWout differences are smaller than for LWP. Is there a way to theoretically extrapolate the difference in LWP to an estimated difference in SWout? Maybe comment on other differences like RH above cloud that could contribute to this diminished bias?

- L389 How do these differences relate spatially to the known biases on cloud thickness?

- L603 Any ideas on a way to modify the formulae to overcome this issue?

- L685 Could the 5d recommendation depend on the wind magnitude for the analyzed days? Do you think that another period with weaker winds would lead to the same conclusion?