

Dear Editor,

Thank you very much for handing this manuscript. We are very grateful to you and the two reviewers for the positive comments on our response and revision. We have addressed the additional comments raised by the referee #2 and revised the manuscript accordingly as follows (start with A: in blue font).

Response to Referee #2:

- Regarding comment 4 in the previous round of revisions, please add the model resolution and time step to section 2.4 on model setup in the manuscript.

A: Added in line 291 of the revision.

- It may also be worthwhile to mention in the manuscript some of your answer to comment 21 previously, on the difference in size and number concentrations of MOA and sea salt (just a sentence or two perhaps), and/or include the discussion in the supplement.

A: Thank you very much for the good suggestion. We add several sentences (in line 1034-1037 of section 4.4) to explain why IRE_{MOA} is stronger than $IRE_{sea\ salt}$ as “Although the hygroscopicity of sea salt is larger than that of MOA, because the mean radius of MOA (0.05 μm) is smaller than the radius of sea salt (0.1 μm for fine mode), the number concentration of MOA is larger than that of sea salt, leading to larger activated cloud droplet number concentration and IRE by MOA than those by sea salt” in the revised version.

- Thanks for clarifying the aerosol species included. It is fine to call it “all aerosols” if all aerosol species in the model are included (the previous version just implied that mineral dust and other natural aerosol in the model were not included in the sum), though “total aerosols” is also fine.

A: Thank you for the comment, we would like to use “total aerosols” in the revised version.

- An additional comment regarding figure 11: for clarity, please state “DRE_ari” and “IRE_aci” in the figure caption as well.

A: Added.