

Interactive comment on “Aerosol-climate interactions in the Norwegian Earth System Model – NorESM” by A. Kirkevåg et al.

Dr. Zhang

kai.zhang@zmaw.de

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Dear Alf,

The manuscript is very interesting to me. I would be appreciated if you could provide more detailed information about the water uptake (hygroscopic swelling) scheme used in NorESM. It will be a useful reference for related studies.

In your manuscript, it is motioned: "Hygroscopic swelling is calculated with the Koehler equation". My questions are:

1. Do you use a similar method as in Liu et al. (2012, link below)?
2. If so, what are the hygroscopicity values (κ) you assumed for various species?

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3. What's the maximum RH value (RH ceiling) assumed in the aerosol water uptake calculation?

4. When calculating the aerosol water uptake, do you use the grid-box mean RH or the clear-sky portion RH value?

Thank you!

Kai

Kai Zhang (kai.zhang@zmaw.de)

Pacific Northwest National Laboratory

Reference: Liu et al. (2012) : Toward a minimal representation of aerosols in climate models: description and evaluation in the Community Atmosphere Model CAM5.

<http://www.geosci-model-dev.net/5/709/2012/gmd-5-709-2012-supplement.pdf>

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