

Interactive comment on “Sensitivity of aerosol concentrations and cloud properties to nucleation and secondary organic distribution in ECHAM5-HAM global circulation model” by R. Makkonen et al.

R. Makkonen et al.

Received and published: 14 October 2008

We thank all reviewers for useful comments and suggestions, which helped to improve the manuscript. Details on specific comments are on separate author comments; here we list some general issues.

The data from satellite observations is now included in the manuscript, which makes the comparison much easier. We have also added two additional experiments, which are only used in comparison with satellite data.

Averaging of some variables was revisited. For CN10 and CN100 in table 2, we now

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give median values of CN10 and CN100, instead of concentrations of $d_p > 10\text{nm}$ and $d_p > 100\text{nm}$ for median size distribution. Although both model and observation data was already averaged in a similar way, the method used now is more generally used. This averaging also gave us the possibility to include data from ACE-1 and ACE-2 campaigns.

For the modeled CDNC data, presented values in discussion paper were averaged over cloudy and non-cloudy grid boxes. While experiments were comparable to each other, this kind of averaging makes it difficult to compare to observations. All CDNC data in the revised manuscript is now averaged over cloudy grid boxes only. This naturally makes CDNC values higher; hence the good correlation with satellite observation is partially lost. However, this discrepancy is largely attributed to the cloud droplet activation parameterization used.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 10955, 2008.

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