

***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 the reviewer for the suggestions and comments. Please see also author’s comment “general comment”.

1) We have added yearly BSOA emissions obtained from our model simulations in the beginning of section 3.3, together with comparison with values obtained from other global model studies. We have also rewritten section 2.4 in order to explain better our approach for modeling BSOA formation and to discuss the resulting uncertainties. It is mentioned in chapter 2.1 that one-year simulation results are used for analysis (except for one five-year experiment). All presented results are averaged over one

S8219

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper



year. Chapter 2.1 was slightly modified to be clearer on this issue.

2) Although there are both "soluble" and "insoluble" Aitken and accumulation modes in ECHAM5-HAM, all these modes may contain individual compounds that are either soluble or insoluble in water. Since insoluble particles are gradually converted into soluble ones as they age in the model, the information about the water-solubility of individual compounds like organic matter will be lost. As a result, we cannot really make any comparisons with respect to the water solubility of organic matter, or its distribution over the particle size distribution.

3) Fig 2b seems to have an error in pressure-axis. All subfigures in figure 2 should have pressure-range 0-1000 hPa. Parameter in Fig. 9 is CDNC, and figure caption was rephrased to be clearer. Color order in Fig. 10 was modified. Reference list was revised, and missing references were added.

---

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

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

