

Interactive comment on “Hygroscopic growth of sub-micrometer and one-micrometer aerosol particles measured during ACE-Asia” by A. Massling et al.

A. Massling et al.

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Title: Hygroscopic growth of sub-micrometer and one-micrometer aerosol particles measured during ACE-Asia

Comment on the comments of referee 2:

The air mass classification used in this manuscript is based on trajectory analysis using the Hysplit model. It is right, that the absolute uncertainty of analysis is increasing with the length of the calculated trajectory. Actually, period 4 was classified by only one day to define a period, that was showing clear volcano imprinting. During this period, the boundary layer was stable and low with less than 500m. No precipitation was observed and the lower level trajectories (100m - 500m) showed a clear flow over the volcano.

**Interactive
Comment**

During period 3, the situation for the boundary layer was similar to that in period 4. Within this period, the boundary layer was decreasing from about 1 km down to less than 500m. Low level trajectories (100m - 500m) showed the air circulating over Japan for several days. The authors will describe this more detailed in a revised version of the manuscript to emphasize, that the periods were showing clear volcano imprinting and anthropogenic imprinting, respectively. Please have in mind, that the classification of air masses encountered on the ship was based on the publication of Bates et al. cited in the manuscript.

This is a good comment to label the hygroscopic particle fraction as sea salt or sulfate in Figure 6. Then, the description will consider the statements, that are given in the text. Also, your second comment is supporting our assumption, that these very hygroscopic particles were sulfate particles and not sea salt particles. But, please note, that sea salt particles also occurred in the submicrometer size range during the marine period. But here, the growth factors for 250 and 350nm particles were about 8% higher with values larger than 2.0 than during the volcano period indicating, that those were most probably sea salt particles. A revised version of the manuscript will include your supporting arguments.

Acknowledgement

In general, I want to thank the referee for his supporting comments on the manuscript.

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 12267, 2006.

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