

Interactive comment on “Measurements of optical properties of atmospheric aerosols in Northern Finland” by V. Aaltonen et al.

V. Aaltonen et al.

Received and published: 1 February 2006

1) After reading the referee comments, we feel that the differences in scattering between the three Arctic sites are too small to rank them in any order, especially when considered that the measurements at the sites are from different time periods. As a result, we modified the text on page 11709 (lines 23-26) into the following form: "These values are comparable to those measured at other Arctic sites, including three years of measurements in Barrow, Alaska (Delene and Ogren, 2002) and measurements made in spring 1994 in Ny-Ålesund, Svalbard (Beine *et al.*, 1996). Much larger, typically 1-2 orders of magnitude, scattering coefficients have been measured in sites affected by urban or continental pollution (e.g. Cabada *et al.*, 2004, Vrekoussis *et al.*, 2005)."

2) Figures 5b and c remind each other but are not similar. The text was modified in the

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

following way on page 11711 (lines 18-20): "The connection between σ_{sp} and Aitken mode reminds that between σ_{sp} and nucleation mode, even though the envelope type pattern is less clear (Fig. 5c). No clear connection between σ_{sp} and total particle number concentration could be seen (Fig. 5d)."

3) Indeed in autumn when scattering values are low (and \AA is high) there is also a minimum in large particle population measured with LPC as well as in number of accumulation mode particle population, and also in total particle concentration. In autumn Pallas have also one maximum in rain frequency, and the wash out efficiency of particles increases as a function of size (for particles larger than 100-200 nm). This would at least partly explain high \AA values. Hence this would need considerable analysis of the size distributions, which would be a paper by itself, we feel that this speculation is enough.

Interactive comment on Atmos. Chem. Phys. Discuss., 5, 11703, 2005.

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper