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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Intercomparison between aerosol optical properties by a PREDE skyradiometer and CIMEL sunphotometer over Beijing, China" *by* H. Che et al.

Anonymous Referee #3

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The authors compared the PREDE skyradiometer and CIMEL sunphotometer aerosol optical properties over Beijing, China and analyzed three different aerosol events over Beijing. The optical thicknesses have very good correlation between skyradiometer and sunphotometer measurements. The results are relevant for the algorithm comparison. The paper shows the consistency of the AOD and discrepancy of other aerosol optical properties. I feel it is a pity that the authors did not explain more details about the algorithms and what kind of differences we could expect in the aerosol optical properties due to the differences in algorithms. Do the differences found by the authors agree with the previous comparisons?

Specific comments

In Fig. 1, some aerosol optical thicknesses are too high. Is it possible there are some cloud contaminations? In Fig. 10 the maximum optical thickness at 440 nm on the dust day is about 1.5. Comparing to the optical thickness in Fig. 1, 1.5 is about the middle of the values. Can we expect there are so many dust days in Beijing?

The authors explained that the difference between two patterns of the volume size distributions probably due to the difference algorithm, using combines spherical and spheroid particle or only spherical particles. Are there any comparison of the algorithm using the simulated aerosol measurements? Are values of the differences as expected from the algorithm?

In Fig. 6 the m_i from the skyradiometer at all wavelengths are systematically lower than those by sunphotometer. How to explain it from the algorithm?

In Fig. 10 the single scatter albedo have a large variation in the clean day but relative stable in the dust and haze day. The angstrom exponent and AOD on clear day do not show much variations comparing to the dust and haze day. Is the variation of single scattering albedo real or because of the retrieval algorithm?

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 16023, 2007.

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Interactive Comment

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