Atmospheric Chemistry and Physics Discussions

Interactive comment on "Seasonal variations in aerosol optical properties over China" *by* Y. Wang et al.

Y. Wang et al.

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Response to Anonymous Referee #3

Thank you for your comments and discussion. Because the comments are merged one paragraph, I classify them to answer, respectively.

1) The network adopted the hazemeter, a hand-held sun-photometer, not CIMEL sun-photometer.

The description has been added in the Data section of the text.

2) The meteorological parameters and aerosol optical exponents have different temporal and spatial representation. The meteorological parameters and aerosol optical exponents have not direct relation. These variables are daily averaged, which they will have similar regional representation. Daily mean is enough to explain seasonal

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variation.

3) The relativity of the scatterplot is just indirect qualitative description of the aerosol sources, no direct quantitative concept. For instance, biomass burning for warming maybe not occurs at the observation time, but fine particles corresponding to the cold days, we can deduce that fine particles come from biomass or fossil burning. Then many relevant literatures were referred to proof the source. Correlation between meteorological parameter and aerosol optical exponents collocated in time is no meaning to explain regional aerosol emission.

4) The network measurements are taken more than 20 times a day, and the observation period is from 10AM to 2PM (local time), encompassing MODIS satellite overpass times (Xin et al., JGR, 2007). At the observation period, the development of local convection is strong. So we think the local PBL effect on AOD and Å is small.

The description has included in the Data section of the paper.

5) We tried to add AOD and Å standard deviation on the Figs, but the Figs will be very confusing for three years data, difficult to identify. If the month mean, the standard deviation is necessary in the paper.

6) 'Analytical backward trajectories' is a useful tool to analysis the specific transmission for one or several sites. For 19 sites and 3 years data, the statistical analysis of the trajectory is unpractical; I don’t think the method is appropriate in the paper which main point is the aerosol seasonal change based on long-term observation data. You may find our next paper about aerosol transmission and distribution based on RegCM modeling over China.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 8431, 2008.

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