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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 #2

General Comments

The authors describe the "The seasonal variations in aerosol optical properties over China". The paper is well-presented and contains data which will be of wide-spread use.

Response: The network data have been widely used in the aerosol satellite retrival and the aerosol radiation effect modeling.

Specific Comments

1) While the quality of presentation is good, the discussion could have "evolved" fur-

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ther from the forerunner JGR paper (Xin et al, 2007). The present paper extends the reported data from 2 years in the JGR paper (2004 - 2005) to only 4 years (2004 - 2007).

Response: The seasonal variation of aerosol optical properties was clearly discovered with 3 years network data, while the JGR paper mainly introduced the construction, calibration, and preliminary data-analysis of the network with only 1 year data.

2) A brief discussion of the hazemeters and calibration techniques should be mentioned in the Methods section, although this already appears in the JGR paper. A discussion of the errors should also be made considering the known difficulties/problems associated with hand-held instruments.

Response: The brief introduction of the hazemeters and calibration techniques was mentioned in the Data section. The detailed calibration methods and error analysis was the main contents of the JGR paper. We think there is no need to repeat discussion.

3) A large part of the discussion is based on describing the angstrom coefficient as a function of the temperature and relative humidity. This is at best very difficult to do for several reasons. The first is due to the inherent error in the angstrom coefficient when based on only 3 wavelengths. The second concerns the interpretation of data in the Figures. For instance, the comment on Page 8436, Line 19 - 22 needs to be re-thought as the quoted conclusions do not follow from Figure 1.

Response: In order to reduce the inherent error in AOD and the Angstrom exponent, the paper used the month-average data. It is surprised and interested to find similar seasonal change at similar regions. To explain the phenomenon, the relativity between AOD, Angstrom exponent and meteorological parameters was be analyzed, which indirectly judged the aerosol source. Then many relevant literatures were referred to proof the source. We think these conclusions are reliable.

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