

***Interactive comment on “Dust events in Beijing, China (2004–2006): comparison of ground-based measurements with columnar integrated observations” by Z. J. Wu et al.***

**Anonymous Referee #1**

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The paper presents discussion on the dust events observed in Beijing, China during 2004 – 2006 and compared few parameters observed from ground and AERONET.

I would like to bring out following comments, I hope the authors may address these comments for smooth reading of their paper.

Abstract – There is need to define spring months in the abstract. The abstract needs to be rewritten, authors may consider to quantify some of the parameters, e.g. strong wind speeds? How strong?

Interactive  
Comment

In the abstract, authors have mentioned two different types of dust based on the aerosols index and aerosol optical depth. For the benefit to the readers, aerosol index must be defined. The characteristics of dust events in terms of aerosol index and aerosol optical depth must be given separately. The AERONET provides number of parameters and authors have included AOD at 440 nm and normalized particle volume. The authors may consider to give plots showing the changes in AOD, angstrom exponent, and real and imaginary parts of the Refractive Index which will provide characteristics of the two type of dust events. These parameters are important in the evaluation of climate effect due to dust. Currently, it is very difficult to visualize the background value of aerosols parameters over Beijing when the dusts are absent. The authors may consider to show aerosol parameters obtained by AERONET for the whole year to visualize the effect of dusts. It is not very clear, if the authors have analyzed radio-sounding data over Beijing or elsewhere to study the stability of the boundary layer!

The authors have shown back-trajectories of the dust events but it is not very clear to visualize to find out the source of dusts. Based on radio-sounding data, authors may include discussion about the changes in the temperature at different pressure level due to dust events.

The present structure of the paper needs to be restored so that readers must see the characteristics of the aerosol parameters over the years and changes associated with the dust events. A detailed table showing changes in the aerosol parameters due to each dust events may be given which are easily available through AERONET.

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Interactive comment on Atmos. Chem. Phys. Discuss., 9, 11843, 2009.

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