

Interactive comment on “Analysis of a winter regional haze event and its formation mechanism in the North China Plain” by X. J. Zhao et al.

Anonymous Referee #1

Received and published: 17 January 2013

In this paper, the characters and formation mechanisms of the haze episode occurring in Beijing and surrounding areas from 16 to 19 January 2010 were investigated by analyzing the meteorological conditions, chemical and optical properties of aerosols. Some interesting results were obtained and the descriptions were detailed in the paper. Still, some improvements are needed before this paper can be fully accepted for publication. 1. Much aerosol and trace gas data was used in the analysis. However, it would be better if more detailed descriptions about the data quality control were given in Section 2. 2. In section 2.4, meteorological data description should be more detailed. 3. The comparisons of aerosol optical parameters between the urban observation site and Shangdianzi should be added in section 3.2 in order to reflect the regional characters of aerosol extinction effect during the haze process. 4. In section 3.3, the chemical characteristics of Chengde (CD) was different from the other three other stations. The

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author should explain the reason. Whether it was caused by different sources in different areas of Hebei province? 5. In line 12 of section 2.1.3, "in previously" should be written as "previously" or "in previous study". 6. The regional haze phenomena and observation data were described in detail from several aspects such as meteorological factors, chemical and optical properties of aerosols, but the analysis about the mechanism of the haze formation need be deep. 7. Recently, the regional haze event is not rare in China, especially in winter in north China. What is the difference of the main factors influencing the formation compared to the others such as haze occurring in other seasons? 8. What is the most important conditions influencing the formation of the regional haze in winter in North China? Some suggestions should be added in the discussion section.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 903, 2013.