

Interactive comment on “Changes in chemical components of aerosol particles in different haze regions in China from 2006 to 2013 and contribution of meteorological factors” by X. Y. Zhang et al.

Anonymous Referee #1

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General Comment: Based on chemical composition of aerosol in different haze regions in China from 2006 and 2013 with 24h filter samples collected at 13 CAWNET stations, the authors discuss the sources of PM₁₀ and contribution of meteorological factors especially during haze episodes in key regions of China. As this dataset is obtained from a well-organized and continuously running network and filter samples have gone through the same analytical protocol and quality control, results from different sites and years are comparable, which provides valuable spatial and temporal trend information of PM₁₀ composition and sources in China. To understand sources of China is very

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much needed in China now in order to improve air quality and visibility. It provides a more complete picture of aerosol in China and valuable dataset for future study. The authors carry out detailed analysis of data and provide important and interesting results. Therefore, I would recommend to publish this manuscript. Some comments and suggestions are provided below to improve the quality of the manuscript.

Specific Comments: 1) One of the key conclusion of this work is that dust is important source in PM₁₀ in China. Dust is probably calculated by the oxides of Al, Si, Fe etc. As these “crustal” elements are also found in coal fly ash, I would recommend the authors to show the equation for calculating dust and try to differentiate the contribution from dust and coal fly ash. If not possible, at least coal combustion during winter cold season in the northern China should be emphasized. 2) Page 19219: the last paragraph in section 3, the authors suggest the contribution from biomass burning and motor vehicle simply based on EC/OC ratio. This ratio is not very specific to sources. Even for the same source type, e.g., biomass burning, this ratio can have a range under different fuel types and combustion conditions. Therefore, it should be careful in such discussion if it is only based on EC/OC ratio. 3) The discussion and description in this manuscript contain many numbers and details. It would be easier to read if it is better organized and more clear after revision. 4) The summary is too detailed and long. It should contain key points and conclusions from this work.

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