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Atmospheric Chemistry and Physics Discussions

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 #2

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This study reveals the reasons for severe haze-fog event formation in Jan. 2013 by investigating the changes in major chemical components over recent years in different haze regions. The authors also evaluate the relative contribution of meteorological conditions during the haze process by introducing a parameterized index. The paper presents solid findings that are of interest to the readers to understand the aerosol characteristics and emission sources over a large area in China. The data reported are valuable to validate regional/global models. The paper is of good scientific and well structured, worth of being published in ACP after some revisions.

Major comments:

1. There is no clear statement to describe how to retrieve mineral aerosol or dust mass concentration. A description of the approach to calculate mineral aerosol is necessary.

2. In figure 2, it gives the information of “dust”, but in the text and other tables and figures, the authors use “mineral”. They should keep consistent if they refer to the same component.

3. P17, L4-5, it is not clear that in which winter, the EC concentration is 21 μgm-3.

P18, L27, Dose the 23 μgm-3 refer to the mass concentration of ammonium in winter 2013?

4. P21L5-9, do these processes the author mentioned, coal ash, fugitive dust, etc. have significant seasonal variation, which can be the reason for higher mass concentration of mineral dust in winter?

5. P11, Pragraph 1, it should be clarified that if “PM level” in this section represents the PM10 mass concentration.

The English shall be polished by a native speaker. Some specific points are shown below:

1. In the abstract, the name of “Yangtzi River Delta” is used, but in other sections, it is “Yangtze River Delta”. It should be consistent and “Yangtze River Delta” should be used.

2. P4, L13: “questions was” should be changed as “questions were”.

P8, L15: please keep these parameters, c’$_a ndc_, \beta$’(c) and β(c$_) being consistent.$

P8, L22, “θe” the letter “e” should be the subscript, “θe”.

3. P11, L11, it should be “went up to 160.”

4. P11, L14, it should be “PRD areas”.

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5. P12, L10, “OC accounted 8

P12, L20, “ accounted 33

6. P13, L23, the unit of 2.5, “μm” should be supplemented. It is the same in P28L15.

7. P18, L9, “plenary boundary” should be changed as “planetary boundary layer”.

8. In Figure 2a, the unit of mass concentration should be given in the legend.

9. There are some other grammar mistakes that the authors should pay more attention to.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 19197, 2015.