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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Characteristics of the main primary source profiles of particulate matter across China: from 1987 to 2017" *by* Xiaohui Bi et al.

Anonymous Referee #4

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This manuscript presented detailed characteristics of the main primary source profiles of PM in China. The conclusions here can provide clear evidences for the source apportionment and environmental management. Reviews of evolutions of sampling methods, chemical analytical methods and source profiles were also given. Besides, the authors also proposed future requirements for the development of source profiles in China. However, some descriptions in the manuscript need to be further improved, and more tracer characteristics of the sources need to be discussed. This manuscript can be considered for publication in Atmospheric Chemistry and Physics after major revision. Specific Comments: 1. Line 79-80, rewrite the sentence. 2. Line 96-97, except the key words listed in the manuscript, have you ever considered other key

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Discussion paper

words, such as coal combustion, industrial emissions... for the literature research? 3. Section 2.2.1, it was shown in Figure 1 that residential coal combustion contributed 20 literatures, but it has been completely neglected in this section. So far as I know, PM emitted from residential coal combustion is quite different from IBW and PPW. Please give further discussion about residential coal combustion. 4. Figure 4, Only OC, EC and Ca were described in line 221-225, however, other components such as NO3-, Cl-, and Ca2+ also varied significantly between EP and EBCC, please give more descriptions; Only SO42-, Ca and OC were described in line 226-234, how about other components such as NH4+, Na+ and Cl-? Ca and Ca2+ showed opposite tendencies between DD and WFGD, please give reasonable explanation. 5. Line 246-247, it is said that Si, OC and EC from RSM are significantly higher than DTSM, however, it is showed from Figure 5 that Si and OC had almost the same medium value and average value for RSM and DTSM, I do not agree about this conclusion. 6. Line 263, a total of 71 literatures are showed in Figure 1, why said “rarely” here? 7. Mn and Pb in Figure 7 showed characteristics only can correspondence with gasoline vehicles in 2015 (Figure 8). So, are the data in Figure 7 and Figure 8 from the same data source? And which year? Can they represent the vehicle emissions? Are the vehicles in Figure 8 gasoline vehicles? 8. Line 337, a space is missed between “also” and “varied”. 9. Line 396, full names of SD and RD should be given for the first appearance. 10. Line 441-443, rewrite the sentence. 11. Line 434, it was mentioned that the relatively sufficient oxygen content could help for the OC formation, and in Line 449, the complete combustion was considered can reduce the production of OC, please give reasonable explanation. 12. Line 452, check the spellings. 13. Section 2.2, characteristics of PM from several sources were discussed here, however, in my opinion, it is better to give more tracers or distinguished features of each source, which can make it easier to identify different sources.

Please also note the supplement to this comment:
https://www.atmos-chem-phys-discuss.net/acp-2018-687/acp-2018-687-RC2-

supplement.pdf

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