

The knowledge of source profiles in China is significantly inadequate. In this manuscript, the authors aimed to reviewed the characteristics and evolution of source profiles in China from 1987 to 2017, which would provide very necessary information for source apportionment and evaluation of health effect from different sources. But, ACP as one of the high level paper at area of atmosphere research, the manuscript should be revised largely to deep discussed the evolution of source profiles. The latest version was considered without compact structure and profound discussion. I would like to review again after some major revision done.

Major:

1. Although it was reported that 3244 chemical profiles was discussed in this study, the authors should consider how could those database of profiles be used by other researchers? The latest version couldn't show the huge amount of data. It seems that some table for profiles were better than figure.
2. The structure of manuscript was not compact, etc. part 2.1. The manuscript should be written more logic.
3. One of the most important aims of this manuscript is to evolution the changes of profiles from 1987 to 2017. However, some profiles like coal combustion couldn't shown this trend. It should be better discussion from some aspects like source profiles variation from different years, processing and sampling methods.
4. It seems that some source profiles in China were not included in this review. I suggested that the authors should search more carefully. For example, the amount of source profiles for diesel emission published already would never be so small.
5. Many sentences were long and complicated, which were hard to understand. Some short and simple sentence should be better (etc. lines50-53; 59-63; 79-80; 124-126...).
6. It would be better that give some review about source profiles with organic matter, isotopes and size distribution (according to line 71-75).

Minor:

1. Line 65-66: add more typical research about source profiles. Line 71-73: add references.
2. Line 96-100: changed the sentence into passive "...were used as the key words...", and delete "searching for papers and dissertations".
3. Line 100: delete "the source profile data were compiled".
4. There is not shown the size distribution in Figure 1 (lines 106-108).
5. How about the source profiles detected in different areas?(part 2) (give the data marked in map is better)
6. Line 120: is it source profile research not source apportionment research? What the meaning of catch?
7. Variations of sampling methods during different periods were more important (Figure 2).
8. Line 181: check the format of comma.
9. Check the format of citation all of the manuscript.

10. Line 333-336: I wondered that the precursors of NO_3^- and NH_4^+ were VOC?
11. Check line 337, lines 339-340. Some sentence seems were copy by other places, which color was different with the normal.
12. Figure 8: please explain why the trend of Mn was increasing after 2005?
13. It would be better that some tables or figure to comparing the difference of source profiles between China and EPA (lines 360-370).
14. Figure 14 was hard to read.
15. It would be better to give the fractions of typical species to PM for each profiles, which could be evaluated whether the dominant species could be used as biomarker.
16. Please rewrite the conclusion.