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Atmospheric Chemistry and Physics Discussions

Interactive comment on "High-resolution sampling and analysis of ambient particulate matter in the Pearl River Delta region of Southern China: source apportionment and health risk implications" *by* Shengzhen Zhou et al.

Anonymous Referee #1

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The authors conducted a high-resolution measurement of ambient particulate matter in the Pearl River Delta region of Southern China with source apportionment and health risk implications analysis. Overall, the manuscript is well organized and the results are clearly presented with comprehensive interpretation. The analysis of high-time-resolution hazardous elements is limited in published papers. The results will be helpful to understand the source and potential risk of aerosol. The results will also provide important information for policy makers thus such study should be encouraged. I recommend it for publication after addressing the following comments.

Major comments:

It would be helpful if the authors can provide more details on the calculation of uncertainties of elements, and the reasons for choosing the number of factors in this study.

Minor comments:

1. P7 Line 8-9: Cr(VI) and Cr(III) has different health effect but only total Cr is available in current study. Then how was the hazard index for Cr calculated? Similar question for As.

2. P8 Line 17: is it organic carbon (OC) or organic compounds? OM should be used for PM reconstruction.

3. P4 Line 14: O3 should be O3.

4. P9 Line 20: a period is missing.

5. P12 Line 1-2: will the stable nocturnal boundary layer/mixing height affect all sources?

6. P13 Line 24-26: since lead was found to be the most risky elements, the authors may need to provide more information regarding the major source of Pb?

7. P14 Line 1: "the PMF sources. . .", "the" should be deleted.

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