

Atmos. Chem. Phys. Discuss., referee comment RC1  
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## Comment on acp-2020-1017

Anonymous Referee #1

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Referee comment on "Insight into PM<sub>2.5</sub> sources by applying positive matrix factorization (PMF) at urban and rural sites of Beijing" by Deepchandra Srivastava et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2020-1017-RC1>, 2021

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The discussion paper has been enhanced largely. Some comments are included below before publication.

- Lines 39-40. The contributions to PM<sub>2.5</sub> in both IAP and PG are suggested to be given in specific values.
- Lines 465-466. I think soil dust has seasonal variation that high contribution in March due to the high wind speed and sand storm.
- The format of the paper still needs to be improved. Such as, lines 356-357, Cl<sup>-</sup>; lines 703, NO<sub>3</sub><sup>-</sup>.
- Line 380-382. The value in this work was much lower than the other published value (22-24% v.s. 44%). The authors should explain why so large difference were obtained, such as uncertainties of model, etc.
- Line 427. "This factor makes a major contribution to crustal species, such as Na<sup>+</sup>, Al and Fe". Na<sup>+</sup> is not the source marker of dust, why it got so high fraction in this factor? Maybe the uncertainty of the model?
- Line 457-458. "urban, winter: r<sup>2</sup> = 0.51" 0.51 is moderate high.
- Line 490-491. "The use of Si in PMF could provide a better understanding on these dust related sources. However, it is not used in the present PMF input due to high number of missing data points" As discussion by the authors, Si is an important marker for dust. Missing Si might lead to underestimate the contribution of dust. It should be mentioned in the main text.
- 599-600 "This suggests the oxygenated fractions from AMS and secondary inorganics are subject to similar controls in the atmosphere". The authors should present more discussion for how to obtain this conclusion.
- 706-707 "Thus, it is clear that these metals could belong to several sources and their proper assignment to respective sources is difficult in the complex environment". I agree with the authors that the metals maybe relate to other sources (factors), not the industrial activities.
- Figure 3. The figure should be revised. It is not clear to march the sources.