

Interactive comment on “Primary aerosol emission trends for China, 1990–2005” by Y. Lei et al.

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Thank you very much for your kindly and comprehensive comments and suggestions that help us to clarify some vague issues and improve the quality of our manuscript. Taking all the comments and suggestions into careful consideration, we carried out some further analysis and made some revisions. Following are the detailed responses to your questions:

1. It is not clear which sources were included (and excluded) in the emissions inventory presented. I understand that the authors considered antropogenic sources, both stationary and mobile, excluding for example (i) all the off road mobile sources and (ii) fugitive emissions from the energy and industrial sectors. It would be interesting to include a list of all of the sectors included (for example expanding the Table 1 where
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the source of activity data is presented).

Answer: Thanks for suggestion. We have added the word “anthropogenic” to the title to clarify the objective of our study. Actually off-road mobile sources and fugitive emissions from the energy and industrial sectors are included into our inventory. We also expanded the Table 1 as suggested.

2. The authors included emissions from metals, namely Ca and Mg, based on a publication (in Chinese) that indicates “anthropogenic emissions of Ca and Mg might be larger than natural sources”. I am surprise about that, mainly because the inventory presented does not include sources related with construction activities. It would be good to expand this point presenting a more detailed discussion and perhaps considering other elements related with the activities analyzed (only as an example I can mentioned Pb, Cd and Zn, as was analyzed by Hsu et al, 2005).

Answer: We agree. We removed this statement from the revised paper. Our estimates of Ca and Mg emissions could be underestimated because we do not include fugitive emissions from construction activities. We noted this in Sect 4.1.3 of our revised manuscript. In this work, we tried to focus more on the emissions of Ca and Mg from industrial processes, but not to compare the emissions of Ca and Mg from anthropogenic sources and natural sources. We are also very interested in the emissions of metal elements in PM but this will beyond the scope of this paper because that work will need a comprehensive survey of PM profiles. We are preparing another paper to present speciated PM emissions in China.

3. A description of the stages 1 and 2 included in table 8.

Answer: Stage 1 and Stage 2 are the emission standards for on-road vehicles. They are equivalent to Euro I and Euro 2, respectively. To keep the terms in this paper constant, we changed stage 1 and 2 in Table 8 into Euro I and II, respectively.