

Interactive
Comment

***Interactive comment on* “Characteristics of PM_{2.5} speciation in representative megacities and across China” by F. Yang et al.**

Anonymous Referee #2

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Comment on the paper ACPD-11-1025-2011: Characteristics of PM_{2.5} speciation in representative megacities across China, By F. Yang et al.

The paper contains relevant data on PM_{2.5} levels and speciation which may be of interest for the scientific community. However, the data presentation needs work to get the standards for an ACP paper. I suggest publishing the paper after a major revision following the comments below.

1. **IMPORTANT.** You should describe the levels of PM_{2.5} according the type of environment: Regional background, urban background, traffic, industrial, ... Giving single ranges (ie. 34 to 193) for all sites do not gives relevant information. Modify this in abstract, text and conclusions.

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Interactive Discussion

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2. IMPORTANT, describe inter-annual trends in PM2.5 where long time series are available.
3. IMPORTANT, distinguish between sulfate and nitrate instead of using SNA for descriptions. Sources, seasonal and interannual trends may differ considerably.
4. Use OM instead of POM, since it makes confusion with Primary Organic Mater possible.
3. In the methodology section you should describe for every site the type of instrument used for measuring PM2.5 levels and compare filter-gravimetry results with the other methods used.
5. Spell out YDR.
6. IMPORTANT. The data you used for comparison is arising from measurements in Los Angeles 1995. There are a lot of more recent data compilations available in science journals for PM levels and speciation in Europe and USA. Have a look in Journals such as ACP and Atmospheric Environment. See specially crustal load in PM2.5 in southern Europe.
7. Vehicle population replace by Vehicle fleet at several parts of text.
8. End of page 1038. In summer high sulfate, and not high SNA are usually recorded. Ammonium nitrate may volatilize due to high temperatures during summer?
9. Row 21 page 1039: PM2.5 mass seasonally, by PM2.5 mass.

Interactive comment on Atmos. Chem. Phys. Discuss., 11, 1025, 2011.

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