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Interactive Comment

Interactive comment on "Size-resolved source apportionment of particulate matter in urban Beijing during haze and non-haze episodes" *by* S. L. Tian et al.

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This study presents data of size-resolved aerosol chemical components in Beijing and analysis of their sources during the four seasons. While I see its scientific value, I also feel that there are some critical issues that need to be addressed. 1. The study used PM2.1 and PM2.1-9 data to represent fine and coarse parties, respectively, instead of the traditional PM2.5 and PM10. How will this choice affect the final results? Uncertainty assessments can be easily done using known mass size distribution data. 2. Why chose the weighing condition of RH as 10%? Cellulose filter or even quartz filter should be taken with static at such dry condition. Although the filters were eliminated

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static, the results of microbalance should not be stable during the multiple weighing processes. Thus, the uncertainty of aerosol mass should be addressed. 3. QA/QC procedures of sampling process are missed in this manuscript, which are important for a scientific paper presenting the first-hand data. The Anderson sampler should be blocked during heavy pollution conditions, and then the collected samples were not evenly distributed. This phenomenon should affect the chemical analysis, especial for OC and EC (choice of spots). 4. Meteorological parameters seemed to be collected, but was not shown in the manuscript. Aerosol should bound when RH<40%, and thus, samples under these conditions should be removed. 5. In general, results generated from PMF model could be questionable if less than 100 samples were used in the model. 6. Why the percentage contributions for chemical species estimated from the six source profiles are not shown in the manuscript? (Figure 5). 7. Figure 1 and Figure 3 are likely wrong due to the samplers with cut points of 0.43-9.0 μm. 8. Discussions in section 4.4 seemed to be out of the scope of this manuscript.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 9405, 2015.