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## ***Interactive comment on “Biomass burning contribution to Beijing aerosol” by Y. Cheng et al.***

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Introduction lines 67-70 - one does not understand the implication of the acetone-extraction diminution of the wavelength dependence. Please elaborate on the subject. Why is it important? lines 113-116: in this discussion on the levoglucosan to OC ratio, a reference is missing for Europe, see C. Gonçalves, C. Alves, M. Evtyugina, F. Mirante, C. Pio, A. Caseiro, C. Schmidl, H. Bauer and F. Carvalho, *Atmos. Environ.*, 2010, 44, 4474–4480. lines 116-126: besides the high degree of variation in the levoglucosan to OC ratio, another problem is the fact that the OC mass between the different phases is dynamic (the implications of this fact for the SOA production was treated in the lines 42-64), see *Evolution of organic aerosols in the atmosphere* JL Jimenez, MR Canagaratna, NM Donahue... - *Science*, 2009 lines 127-135: in this discussion, a reference to principal components analysis is missing. lines 155-156: the assumption that pollu-

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tants' emission in China is higher than in other countries should be based on a source. line 164: reword yeas to years lines 169-176: in this comparison of previous attempts to quantify the sources of PM in Beijing, the differences in methodologies should also be discussed.

Methods lines 219-226: see Caseiro and Oliveira, JEM 2012 for a discussion on the presence of levoglucosan in the coarse mode

Results and discussion line 296: reword Caseiro and oliveirac to Caseiro and Oliveira. Please note that the results reported in that study "must be seen as a lower limit", since no recovery factor was applied to the GC-MS methodology line 380: the section title is hard to understand line 395-406: shouldn't the variables entering the PMF analysis be independent? Since WSOC and levoglucosan overlap to some extent (Levoglucosan-C is part of WSOC), these are not independent. Please justify. line 619: section 3.3.3. is not really needed. Please shorten.

K<sup>+</sup> also originates from other sources besides fireworks (e.g. biogenic sources, sea salt, ... ) it is difficult to say that the discrepancy between the levoglucosan and K<sup>+</sup> trends is due to fireworks

There are no statistical tests throughout the study, although standard deviations are presented. Confidence intervals should be reported for linear regression assessments, and hypothesis testing should be conducted when comparing average values, at least for the most significant comparisons, those leading to assumptions.

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Interactive comment on *Atmos. Chem. Phys. Discuss.*, 13, 8387, 2013.

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