

Interactive comment on “Characterization of Submicron Organic Particles in Beijing During Summertime: Comparison Between SP-AMS and HR-AMS” by Junfeng Wang et al.

Anonymous Referee #1

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This manuscript presents chemical analysis results of submicron organic aerosols in Beijing during summer. It mainly uses two types of aerosol mass spectrometers and compares the measurement results with each other. Due to different detection schemes, the authors found that the OA determined by SP-AMS are quite different from that of HR-AMS OA. In particular, vehicle-related OA might be detected more by SP-AMS; cooking OA, was not associated with BC; a unique biomass burning OA, on the other hand, was only significantly observed on BC cores. The work provides valuable contribution into understanding the chemical behaviors and therefore the impacts on air quality and climate of OA. It can be accepted for publication in ACP, this reviewer has however a few minor comments as listed below: (1) There are a few typos, gram-

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mar or format errors in the manuscript that should be corrected, for example, in Line 38, Line 67, Line 79, Line 235-236, Line 299, etc. (2) Line 114: it is not clear what is the "BC-free species" referring to. (3) Line 114-116: Explain a bit more why HR-AMS can measure Type I and II, and SP-AMS for Type II and III. (4) Line 150-155: Did you perform corrections, for example, on elemental ratios, between the two AMS as you state there could be some mass spectral differences due to measurement schemes? (5) Line 248: I suggest to delete this sentence. (6) Line 280-282: As you state that HOA quantification might be influenced by the changes of collection efficiency. Can you explain a bit more about the possible influences of the collection efficiency on other OA factors? (7) Line 320: Is it possible that the A-BBOA fraction (for example, <5%) in total NR-PM1 is too low to be resolved by the PMF? (8) Figure 6: It is better to put the legends adjacent to the HR-AMS and SP-AMS plots directly in d, to make it clear.

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