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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Quantification of aerosol chemical composition using continuous single particle measurements" *by* C.-H. Jeong et al.

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Short Comments by C. Emerson (chrisemerson111@gmail.com)

This work provides a quantiïňĄcation of aerosol chemical composition using Single particle MS. The results were given as scaled values from single particle composition, but it is in correlation with other measurement. The results in AMS particularly show that ATOFMS is in consistent with measurements by AMS. I know some other references showed no correlation between them (I suggest the authors to make a literature search on the results ATOFMS vs AMS). Then the method in this paper may be very useful in future studies, but the assumptions made indeed need to be discussed in very

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details for readers to catch it. But overall, this is a good and important paper.

- We thank Emerson for providing helpful comments.

(1) I agree with referee 1 that the abstract should be reïňĄned.

- The abstract section was carefully revised as the reviewers suggested.

(2) More related ATOFMS ïňĄeld studies should be mentioned in the introduction part. For example: Zhao et al., JGR,2005,110(D7).

- Other field works related ATOFMS and quantification studies using RSMS and ATOFMS single particle analysis were added in the revised manuscript. (e.g., Reinard et al., Atmos. Environ, 2007; Beddows et al., J. Environ. Monitor., 2004; Zhang et al., JGR, 2009)

(3) About amine particles, a very important paper by Angelino et al., EST ESt, 35, 3130-3138 is missing. Recently, i noticed a good review by Ge et al., AE, 2011,524-546 on this topic, and a companion paper (AE, 2011, 561-577) tried to explain the gas/particle partitioning based on equilibrium thermodynamics, those probably should be mentioned.

- The review paper by Ge et al. (2011) and Angelino's work were discussed in the revised manuscript. We have examined the behaviour of amines within this data in a separate manuscript which has now also been referenced.

(4) I think meteorologic conditions associated with these observations should be provided and discussed.

- Many other papers related the BAQS-Met 2007 campaign have been published in a ACP special issue (http://www.atmos-chem-phys-discuss.net/special_issue120.html) and PM episodic events and possible sources with the effect of meteorology have been discussed elsewhere (e.g., McGuire et al., 2011). In this work we have focused on the inter-comparison of scaled ATOFMS data with other collocated continuous measure-

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ments. Possible effects of meteorological parameters were more discussed to identify causes of some discrepancies between the measurements in sections 3.2 and 3.2 in the revised manuscript.

(5) The consistency between ATOFMS and AMS is worthy to be highlighted, of course, also more detailed explanation and data treatment are required.

- As discussed in the first reviewer's comment, correlation plots between the ATOFMS and AMS for each species were added and we thoroughly revised the comparison section. Possible explanations for uncertainties were also discussed with a supporting material in the revised manuscript.

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