

## ***Interactive comment on “Characterization and source apportionment of organic aerosol using offline aerosol mass spectrometry” by K. R. Daellenbach et al.***

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Received and published: 21 October 2015

In general this paper is a very interesting and detailed extension of the utility of the AMS factor analysis methods.

The main issue that I have with it is the treatment of sampling artifact which will result from varying collection efficiencies due to volatility and solubility. I think that more information should be shown to demonstrate that the techniques is OK to go off on its own. The comparison of log-log data shows very large point to point differences in the calculated/measured masses of OA between both techniques. The non-appearance

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of the OOA2 factor in the offline solution (it looks like very oxidized OA offline) might suggest that a volatility artifact sneaks through to the final results.

Comments in addition to reviewer one. More confidence in potential artifacts caused by variations in the filter sample collection and nebulization could be provided by studying the sampling method using OA components of known solubilities and testing the procedure to see if the predicted behavior is observed.

Have the authors tested the OA remaining on the filters by extraction using another solvent? Some sort of mass balance recovery could be made.

Is the non-appearance of the OOA2 factor from the offline in comparison with the online solution an indication that collection efficiency artefacts are appearing in the data? The statement on line 14 page 8612 that the “technique can capture a large part of the organic fraction” is all very well, but can it capture OA without temperature and humidity dependent biases which will affect the final data and be interpreted as real changes in volatile to oxidised fractions measured by the offline technique. I do not think the paper covers this issue well enough.

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Interactive comment on Atmos. Meas. Tech. Discuss., 8, 8599, 2015.

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