

Interactive comment on “Water content of aged aerosol” by G. J. Engelhart et al.

Anonymous Referee #3

Received and published: 9 November 2010

Referee Comment:

General scientific comment:

The manuscript presents interesting comparisons of how the amount of particulate water can be investigated. Generally, the manuscript is worth for publication in ACP, but I would like the authors to address the very detailed scientific comments, which have been published by other referees. Comments on the use of AMS data were beyond my level in this area and seem to open up new questions. In any case, even if the uncertainties of AMS results will be difficult to quantify in this context, I will encourage the authors to add an extra paragraph to the manuscript summing up the weakness of the approach used.

Detailed scientific comments:

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(I will only address a few points as other referees have submitted a number of comments, which I can support.)

Introduction

Page 21654, line 25: This does not influence effects on visibility, but rather visibility itself. Please make this more clear.

Page 21654, line 26: This is a repetition. Please make the structure of the whole paragraph more clear.

Page 21656, line 9: Please mark that the drying in H-TDMAs may also lead to evaporation of certain species of the aerosol sample – as a disadvantage!

Page 21656, line 29: The fact, that the DAASS measures water content in PM_{0.5}, PM₁, etc. is not an advantage, but rather more a disadvantage compared to the detailed data from H-TDMAs (detailed size information, state of mixture, etc.). I see the advantage of the DAASS more in the integral information of certain size fractions, which is delivered with high time resolution. Please comment!

Page 21657, line 10: Which state do you mean?

I generally recommend to shorten the introduction.

Experimental

I like to encourage the authors to estimate the uncertainty, which is related to the VGF retrieved from the DAASS system. Is the uncertainty mostly defined by the described sampling bias or by the stability of the control RH, flows, etc. . . . ?

Results and discussion

Page 21663, line 6: What do you mean with high, give a certain value!

The comparison between the DAASS water measured and AMS water measured is in my view not reasonable. As discussed by another referee, the systems were measur-

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ing under different conditions, while those of the AMS are not detailed documented. The paper can clearly show, that experimental results from the AMS and experimental results from the DAASS (by using the AMS chemistry) can be verified by model results independently. The combination of these two systems may be a future way to monitor ambient particulate water.

Conclusions

Page 21667, line 9: This sentence stands alone without any concluding remarks!

General comment on the manuscript style:

The manuscript is written in good English style. The figures are easy to understand and figure captions are also clear.

Detailed comments on the manuscript style:

Page 21653: Write "Patras"!

Abstract:

Page 21654, line 8: Write "periods"!

Page 21654, line 15: Write "during" instead of "of"!

Experimental

Page 21658, line 14: Write "sheath to aerosol flow ratio"!

Page 21658, line 15: Write "particle measurements"!

Page 21658, line 23: Write "sheath air line"!

Page 21659, line 23: Write "sheath air flow rate"!

Results and discussion

Page 21662, line 26: Write "downstream" instead of "after"!

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Page 21663, line 6: Write "short" instead of "brief"!

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 21653, 2010.

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