

Interactive comment on “Multi-Year ACSM measurements at the Central European Research Station Melpitz (Germany) Part I: Instrument Robustness, Quality Assurance, and Impact of Upper Size Cut-Off Diameter” by Laurent Poulain et al.

Anonymous Referee #1

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The study by Poulain et al. presented a comprehensive evaluation of the ACSM measurements based on the inter-comparisons with other collocated measurements for more than 5 years. The robustness, the limits, and the potential sources of uncertainties of the ACSM measurements for different aerosol species were well discussed. The results are very important for broad ACSM users to understand the long-term measurement uncertainties. The manuscript is well written, and I recommend it for publication.

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I have a few comments:

1. The ACSM was calibrated twice at ACMCC, and also could be several times at the TROPOS research station Melpitz. How robust of the relative ionization efficiencies of ammonium and sulfate were. This is also an important information for long-term measurements.
2. The format of ions should be consistent throughout the manuscript, e.g., page 7, line 15 – 25, use “+” for all ions.
3. Page 15, line 25 – 26, “ACMS” to “ACSM”

Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2019-361, 2019.

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