Atmos. Meas. Tech. Discuss., 5, C3166–C3167, 2012
www.atmos-meas-tech-discuss.net/5/C3166/2012/

Atmospheric Measurement Techniques Discussions

Interactive comment on "Intercomparison Study of the CAPS PM_{ex} (Cavity Attenuated Phase Shift Particle Light Extinction Monitor) with the combination of an Integrating Nephelometer and a Particle Soot Absorption Photometer" *by* A. Petzold et al.

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Received and published: 4 December 2012

If the user multiplies the extinction coefficient reported by the instrument by a factor of 1.05, as recommended by the authors, what is the resulting uncertainty of the measured extinction coefficient? The regressions based on the PSL tests can be interpreted as an assessment of the uncertainty of the CAPS PMex, and it would be very

helpful to users of the instrument if the authors include this assessment in the paper.

I suggest replacing "NEPH-PSAP" with "NEPH+PSAP" throughout the text, just to emphasize the point that the NEPH-PSAP combination is used to derive extinction as the sum of the data from the two instruments. Otherwise, a quick scan of the text might lead the reader to think that they are using the difference of the readings from the two instruments.

Finally, the statement that "the small disagreement between CAPS PMex and NEPH-PSAP is a function of neither aerosol SSA nor relative humidity" is based on a very cursory discussion and examination of the data at high RH. Heating from the nephelometer lamp will reduce the sample RH inside the nephelometer substantially below the RH in the CAPS PMex or the PSAP - this heating is typically around 4°C. If the nephelometer RH is above 80%, as was observed at the end of Episode 1, then the RH in the CAPS PMex could easily have been over 90%, resulting in a significant increase in the extinction coefficient inside the CAPS PMex. I recommend that the authors conduct a separate evaluation of the CAPS PMex vs. NEPH+PSAP for the high-RH cases, and include an assessment of the differences in sample RH in the three instruments.

Otherwise, this is an excellent paper and I recommend publication in AMT.

Interactive comment on Atmos. Meas. Tech. Discuss., 5, 7587, 2012.