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Atmospheric Measurement Techniques Discussions

Interactive comment on "Intercomparison of 15 aerodynamic particle size spectrometers (APS 3321): uncertainties in particle sizing and number size distribution" *by* S. Pfeifer et al.

S. Pfeifer et al.

pfeifer@tropos.de

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We thank the referee for the favourable description and the specific comments. In the following, you will find our comments to the three points:

Page 11519, line 27.
"The results for larger PSL spheres might be influenced by poor counting statistics" Elaborate more, please. Any numbers?

Naturally, the larger the PSL particles are, the more the concentration of PSL de-

creases per unit volume. The relative deviation of the Poisson counting statistics of 3μm PSL was approximately 5%, 10 times higher than for 1μm. We added this to the text.

Section 3.2 and Fig.4. It seems that instruments which deviate from the mean for large particles, reasonably agree with the others for small particles. The opposite (deviations on the left, agreement on the right) seems also true. Comments, please.

For certain instruments this seems to be true. But other instruments did not show this systematic behavior, e.g. ISAC with higher concentration for small and large particles (both samples). Furthermore, while ICPF A and B are both in good agreement for smaller ambient particles, ICPF A is higher and B is lower for larger particles. Therefore, and because no checks of sizing accuracy for particles larger 3μm was carried out, this aspect can not be analysed and discussed further.

Finally: any suggestion for the traceable reference method you call for in the conclusion?

As a logical consequence, we will seek to address this problem. Without attempting to go into detail, for particles smaller than 1μm, an electrometer calibrated CPC seems to be acceptable. For larger particles it is still open.

Interactive comment on Atmos. Meas. Tech. Discuss., 8, 11513, 2015.