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Atmospheric Measurement Techniques Discussions

Interactive comment on "Design of a mobile aerosol research laboratory and data processing tools for effective stationary and mobile field measurements" *by* F. Drewnick et al.

Anonymous Referee #3

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This paper describes the design of a mobile air pollution laboratory. Such mobile labs already exist but it is still worth to publish the concept of this new mobile laboratory which can serve as a reference for the work at Mainz but also guidance for other groups building such a lab.

I recommend publication after minor revisions:

- There is little information given on the reasons for the choice of the individual instruments. For some parameters, especially trace gases, instruments with better precision and time resolution exist that were probably not chosen because of money constraints or maybe others like power, etc.

- page 2285 : brand of webcam?

- The Grimm EDM 180 does not really particulate mass but light scattering. It might be regarded as an approximation of the mass. How does the sum of the measured composition compare to the mass derived from the Grimm?

- page 2290/Figure 7: How do the authors explain the high particle number levels upwind of the city? How well do in general the CPC and FMPS data compare?

- page 2291: reformulate: the sulfate distributions reflect the air mass origin: "Sulfate reflect the sulfur emissions where the air mass originates from" .. or similar)

- page 2294, line 4: The best suited instruments/parameters for this purpose depend strongly on the brand and type of instrument. The suitability of other parameters than particle number and carbon dioxide are possible when using other instruments.

- page 2294, line 20: Can this procedure be described a bit more mathematically?

- page 2295: The authors should also compare to the method proposed by Bukowiecki et al. (2002) and that was also used in Bukowiecki et al. (2003). They describe the use of a low percentile in a moving window which should be discussed here as well.

Bukowiecki et al. (2002) A mobile pollutant laboratory - measuring gas phase and aerosol ambient concentrations with high spatial and temporal resolution, Atmos. Environ., 36, 5569-5579.

Bukowiecki et al. (2003) Fine and ultrafine particles in the Zürich (Switzerland) area measured with a mobile laboratory. An assessment of the seasonal and regional variation throughout a year, Atmos. Chem. Phys., 3, 1477-1494.

Interactive comment on Atmos. Meas. Tech. Discuss., 5, 2273, 2012.