

Interactive comment on “Recommendations for the interpretation of “black carbon” measurements” by A. Petzold et al.

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Following the recent volume of work published by Bond et al. (2013) this article is a valuable addition to what is an important yet difficult area of research and measurements. It should be required reading for anyone doing research on carbonaceous particles.

Perhaps it is only a matter of semantics, but I think the title implies a content of the paper that is not the actual focus of this manuscript, i.e. in my opinion, this paper is not recommending methods to "interpret" measurements, but rather a way to present the measurement results in terminology that is unambiguous with respect to the measurement methodology and objective of the measurement. I would prefer that the word

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"interpretation" be changed to "Presentation" or "Reporting". If the authors can make a compelling argument as to why "interpretation" is the better word, then I will withdraw this recommendation.

Secondly, I believe that a very important issue has been left out of this discussion, and that is related to impacts on health. Now that carbonaceous particles have been clearly identified as culprits in health problems, what property of these particles are most important? How should health researcher refer to the damaging particles? If only climate effects are being targeted in this paper, then this should be indicated in the title. Otherwise, health effects should be mentioned in the introduction and then further down when recommending terminology.

Thirdly, the SP2 uses the LII methodology, so referring to one technique as LII and the other s SP-2 is confusing and needs to be rectified by clarifying the difference between the ensemble LII single particle LII.

In Table II, the common filter-based techniques are referred to by their common names, i.e. aethalometer, MAAP, PSAP and COSMOS. The same is true of the SP2. If the commercial instruments are being listed, than the PASS and PAX photoacoustic instruments need listing, as well as any other photoacoustic and LII devices.

In this same table, specifying calibration techniques should be mandatory for all techniques, even when none exist (this is never pointed out for filter based and TOA techniques, but should be).

Minor comments

Page 9489, line 19 - Where does the 0.95 number come from and why?

Page 9491, Line 19 - I think that some of the TOA implementations have measured CH4 instead of CO2

Page 9492, line 14 "There is no overall agreed reference method for measurement of the aerosol light absorption coefficient, because all available methods suffer from

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cross-sensitivity to light-scattering particles and other potential measurement artifacts. However, photoacoustic spectroscopy is a candidate reference method for atmospheric observations and analytical applications...". This needs rewording since photoacoustic is not impacted by light scattering, as mentioned in the following sentence. Perhaps "...because many of the available...".

Page 9495, line 12, Baumgardner, not Baumgartner.

Section 4.2, rBC should be included.

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