

Interactive comment on “Minimizing light absorption measurement artifacts of the Aethalometer: evaluation of five correction algorithms” by M. Collaud Coen et al.

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It's very easy to become confused by the details of the various correction schemes, and lose track of the major points. As I see it, the major points are 1) a correction scheme is needed for filter loading and multiple scattering by the filter, and 2) a simultaneous scattering measurement is preferable.

I would like to suggest adding one summary figure. The purpose of the figure is to let the viewer see at a glance the magnitude of the errors that result from two sub-optimal correction schemes, compared with the recommended scheme (new correction

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based on Schmid). The two sub-optimal schemes are (a) the absorption coefficient (or corresponding BC concentration) calculated with no corrections, and (b) the absorption coefficient (or BC) calculated if no coincident scattering data are available.

I'm sure that there are multiple ways to illustrate these points. One approach to consider is to plot ATN on the x-axis, and the ratio of the absorption coefficient calculated with a sub-optimal scheme to the absorption coefficient calculated with the recommended new scheme on the y-axis. I suggest ATN on the x-axis based on Fig 15 of the Arnott et al (2005) paper.

Many aethalometer users are content to just turn the instrument on, and accept the BC readings as reliable. I was involved in a conference call with the aethalometer manufacturer just two days ago, where he stated that the loading and scattering corrections are of second order. I beseech you to conclude your paper with a summary figure that illustrates the pitfalls of ignoring these corrections. Your Table 5 makes the point, but you know what they say about a picture being worth a thousand words...

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