

Interactive comment on “Multi-wavelength optical measurement to enhance thermal/optical analysis for carbonaceous aerosol” by L.-W. A. Chen et al.

Anonymous Referee #1

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This MS describes an instrument that combines thermo-optical analysis with spectral light transmission measurements. The addition of several laser diodes to a standard thermo-optical carbon analyzer allows separating the contributions of BC and BrC in analogy to the method described by Sandradewi et al for a multi-wavelength aethalometer. The effect of wavelength on the OC/EC split is investigated and the dependence of a shift in the split with wavelength is attributed to the presence of BrC. Adding the laser diodes is an excellent idea, and the method will help to improve our understanding of reasons for discrepancies between EC measured with different instruments.

The paper is well written and nearly ready for final publication. There are only a few quite minor points that should be addressed.

C3305

Abstract: include an indication on the loading correction already here

p 9177, line 23: LR(λ) and LT(λ) also depend on the optical geometry of the laser / detector setup

p 9179, line 8: edit sentence (a plume doesn't have a flaming or a smoldering component)

p 9180, lines 15 ff: please clarify sentence "this suggests"

p 9180, line 18 - 21: the argumentation is correct, but should be expanded to be accessible also to non-specialist readers. Same for all of the following paragraph (lines 22 - line 1, p 9181)

p 9182, line 21: g is called asymmetry factor, not asymmetric factor

Interactive comment on Atmos. Meas. Tech. Discuss., 7, 9173, 2014.