

## ***Interactive comment on “Highly time-resolved characterization of carbonaceous aerosols using a two-wavelength Sunset thermo/optical carbon analyzer” by Mengying Bao et al.***

### **Anonymous Referee #3**

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As far as I understood it is for the first time real-time measurement of OC EC determination using a dual wavelength Sunset. The method is a milestone for a new technical to study EC or brown carbon. The paper is well structured and present a very new dataset which may be helpful for the scientific community. I recommend for a publication in AMT after they may address the following comments.

Method: because the most important work in this study should be new instrument set-up of new type of Sunset, I would suggest move this part to the very beginning part of method.

A typical thermogram of analysis including information of temperature, NDIR values

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(CO<sub>2</sub>) and transmittance in two wavelengths should be added.

Figure 3: high dEC/OC was found in winter (Jan, Feb), whereas high OC/EC was found in late spring and summer. Such a different seasonal (and diurnal in Figure 4) trend indicate dEC/OC is not an indicator for SOC but rather an indicator of anthropogenic tracer. The seasonal variation of different carbonaceous should be discussed more carefully. Monthly and diurnal cycles of dEC may be added.

The source of dEC may be linked to BrC, but this remains unclear. I suggest the authors should include study outlook to resolve this problem.

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