Geoscientific Instrumentation Methods and Data Systems Discussions

Geosci. Instrum. Method. Data Syst. Discuss., referee comment RC1
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Comment on gi-2021-3

Anonymous Referee #1

Referee comment on "Intercomparison of photoacoustic and cavity attenuated phase shift instruments: laboratory calibration and field measurements" by Jialuo Zhang et al., Geosci. Instrum. Method. Data Syst. Discuss., https://doi.org/10.5194/gi-2021-3-RC1, 2021

This work presented aerosole optical properties measurement during a field campaign in Yangtze River Delta, East China. Based on the laboratory calibration work, field results were corrected and assured the data quality. The work suits well in the Journal's Scope, but after some following questions and minor corrections it can be published.

- Line42: Need to describe the relation of optical properties, as "Extinction includes scattering and absorption".
- Line66: What is shielding effects? How many correction factors we need? Describe the factors. Weather the "multiple scattering and shielding effects" happened in CRDS or CAPS?
- Line79-84: The description is confusing. You use particles to calibrate extinction and scattering. What is the difference?
- Line99: Is IBBCEAS used to measure NO_2 concentration? Not extinction? (Line 84: "(IBBCEAS) setup was used to measure extinction coefficient of NO_2", and Line 281-282: measured extinction coefficient of ----IBBCEAS).
- Line106: the heat was transferred to the receiving end of the instrument or the wave?
- Line101: What is the time resolution of IBBCEAS? What's the limit of detection and uncertainty in this time resolution?
- Line282: NO2 should be NO_2. The wavelength of CAPS-ALB was 530 nm, the wavelength of IBBCEAS was 355-380 nm, the cross-section of NO_2 was different in different wavelength range, which wavelength you used in comparison?