Atmospheric Measurement Techniques Discussions

Atmos. Meas. Tech. Discuss., referee comment RC1
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Comment on amt-2021-365

Anonymous Referee #1

Referee comment on "Evaluation of aerosol microphysical, optical and radiative properties measured with a multiwavelength photometer" by Yu Zheng et al., Atmos. Meas. Tech. Discuss., https://doi.org/10.5194/amt-2021-365-RC1, 2021

Review of "A new multispectral photometer for monitoring aerosol microphysical, optical, and radiative properties" by Zheng et al.

The manuscript "A new multispectral photometer for monitoring aerosol microphysical, optical, and radiative properties" mainly describes a new multispectral photometer (CW193) proposed in this study. In this study, the design of multispectral photometer combines the merit of low maintenance requirements and being appropriate for the deployment in remote and unpopulated regions. In general, the paper is well written and presented in a logical way. It is a timely and important piece of work, and of general interest for Atmospheric Measurement Techniques related communities. I therefore recommend publication of this paper in Atmospheric Measurement Techniques after minor revisions. My comments are listed as follows:

Specific Comments:

- Line 109-110, In the sentence of “the main pollution sources are derived from urban activities”, the meaning of “source” has been already included in the word “derive”.
- Line 111, a description for is needed.
- In figure 1, I suggest the authors add the map of China as well as the CAMS location. Otherwise, the readers cannot catch the location information of CAMS.
- Line 141, the role of word “respectively” is indistinct in the sentence.

- Line 204, Is the meaning of same as ?
- Line 301 and Table 4, What is the standard of Level I-III? The corresponding information is needed.
- In the bottom description of Figure 7, the sentence "One–one line, linear regression line, and the EE envelopes of ±(0.05 + 10%) are plotted as red dashed, green solid, and black dashed lines" should be changed to "One–one line, linear regression line, and the EE envelopes of ±(0.05 + 10%) are plotted as red dashed, green solid, and black dashed lines, respectively".
- In the calculations of ADRF for CW193 and instruments of CARSNET, and AERONET, does the authors use the same radiation transfer model? If the model is different, the difference of ADRF may not induced by the instrument alone.