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Comment on Tang et al.

Anonymous Referee #1

Referee comment on "Measurement report: Long-emission-wavelength chromophores dominate the light absorption of brown carbon in aerosols over Bangkok: impact from biomass burning" by Jiao Tang et al., Atmos. Chem. Phys. Discuss., https://doi.org/10.5194/acp-2021-175-RC1, 2021

This manuscript by Tang et al. represents a in-depth analysis of chromophores and fluorophores present in filter samples collected for an entire year in Bangkok. The authors use Excitation Emission Matrix, parafactor analysis (PARAFAC) and multiple linear regression (MLR) to provide insights into the contribution of potential sources to light absorbing organic compounds (BrC) in the samples collected. The chemical and data analyses were conducted with cautions. A year-round data from Bangkok serves as a precious case study for the community to understand light-absorbing organic compounds and their climate impact. I recommend publication in ACP after addressing the following minor comments.

- Figure 1 - the color scale is not explained. Is it normalized to 1 for the highest intensity among all the factors?
- Figure 3 and related discussion. Although I agree with the authors in that the ratio of Abs365 and WSOC/MSOC is consistent, I also see that Abs365 is enhanced relative to WSOC/MSOC during the non-monsoon seasons. I wonder if the authors can investigate the ratios and discuss whether WSOC is more absorbing during BB-affected seasons?
- Line 387~ I think a little more discussions regarding the MLR results can be helpful for the community. Can the authors conclude that Abs365 in both WSOC and MSOC is dominated by a single factor (P4 for WSOC, C4 for MSOC). Is this result consistent with previous EEM and PARAFAC studies?
- Related to my previous comment, for WSOC, both P3 and P4 have an excitation maximum at around 365 nm. However, only P4 has a significant coefficient after MLR analysis. Meanwhile, P3 had a negative coefficient. Why is this?