

Comment on acp-2022-465

Anonymous Referee #1

Referee comment on "Chromophores and chemical composition of brown carbon characterized at an urban kerbside by excitation–emission spectroscopy and mass spectrometry" by Feng Jiang et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2022-465-RC1>, 2022

This work reported the pollution characteristics and molecular composition of atmospheric chromophores in a certain city. Especially, based on previous studies, some conclusions were obtained in the study of organic aerosols by using EEMs and MS method. Generally speaking, it is interesting and can be considered for publication after dealing with the following problems.

1. Abstract: The content describes the results too much and summarizes the conclusions or significance too little.
- 2.L85: Chen's series of studies have promoted the application of EEM methods in the field of atmosphere, and his recent studies have also combined typical sources and molecular substances with EEM (2021). The author should objectively confirm the use of these work in this study. In addition, EEM method is a comprehensive characterization method, and its advantage lies in its systematicness and integrity. Mass spectrometry and EEM methods can be complementary.
- 3.L06: unscientific expression of "~".
- 4.L26: I noticed that the observation time was almost a month, but the high resolution mass spectrometry results did not see so much data.
- 5.L138: The height of the sampling point is a little low, so it is easy to be affected by the ground or a small range.
- 6.L162: What is the collection efficiency of CIMS? How to calibrate?
- 7.L197: Why Ex. From 240?
- 8.L270: Title too simple.
- 9.L327: The author did not identify the origin of OA and chromophore, because LV-OOA and SV-OOA cannot be considered as the source.
- 10.L365: Why did the author not analyze PAHs and OH-PAHs?
- 11.L405: Correlation analysis with molecular composition determines that the molecular composition of EEM is one-sided and must be explained in absolute quantities, otherwise the type of chromophores can only be said to be similar substances or sources.
12. Fig.2: Why MAE and AAE diagrams are made? Aren't they mathematically correct? What is the reason for the higher uncertainty of the red line in the AB diagram?
13. Fig.3: There are weak signals around $E_m=290$ in C3, why?
14. Fig.5: Comparison of recommendations with previous studies.

15. Fig.7: I can't understand what the author wants to express in this figure.