

***Interactive comment on* “Measurement report: PM_{2.5}-bound nitrated aromatic compounds in Xi’an, Northwest China: Seasonal variations and contributions to optical properties of brown carbon” by Wei Yuan et al.**

Anonymous Referee #3

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This work provides a comprehensive report to the variation, sources, origins, and light absorption of nitrated aromatic compounds (NACs) in four seasons in a mega city in Northwest China. The results highlight the elevated concentrations and enhanced light absorption of NACs in winter in East Asia and confirm the dominant contributions from combustions sources including coal combustion, biomass burning, and vehicle exhausts. The manuscript is generally well written with clear logic, full discussion, and fluent language. It can be accepted after addressing a few minor comments.

Specific comments:

1. Line 105-107, are any blank samples collected or obtained in this study?
2. Line 118-119, is any inner standard used when determining the concentrations of NACs?
3. What is the wavelength range of the UV-Vis spectrophotometer used in this study?
4. Line 262-263, it's better to derive some implications to pollution control here.
5. Line 271-275, were the relatively high concentrations of NACs in the air masses from Gansu and Xinjiang mainly caused by the intensive emissions from urban areas along the trajectories?
6. Line 332-333, the difference in the light absorption ability among different NACs is of course the major cause. Suggest elaborating on the differences here, e.g., 4NC has high light absorption ability.

Interactive comment on Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2020-703>, 2020.

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