

Authors' Response to Referee #1

This manuscript entitled "Measurement report: ---- observations" by Dong et al. presents the comprehensive characterization and seasonality of carbonaceous, and nitrogenous components and inorganic ions as well as the stable carbon and nitrogen isotope ratios of total carbon and nitrogen in PM_{2.5} collected continuously at an urban location and for one month in each season at a sub-urban location in Tianjin, north China over a one year period during 2018-2019. Overall, the data interpretation is logical and the paper is well written. Therefore, I recommend that this manuscript can be published after addressing the following minor remarks.

Response: We thank the referee for his/her critical reading of the manuscript, appreciation of our work and constructive comments and suggestions, which helped to improve the quality of the MS. The MS is revised according to all the comments from the referee. Our point-by-point responses to all the comments are provided below. Please see the revised MS for details of the revisions.

1. Typos and language errors need to be corrected throughout the text. For example: Abstract, L15: '--- water-soluble OC (WSOC ---- '. The bracket should be closed. L20: '---- winter, while biological and/or marine emissions ---' should be changed to "----winter, while terrestrial and/or marine biological emissions ---".

Response: We regret for the typos in the MS text. We took care to rectify all the language errors and typos throughout the text. Please check Lines 15 & 20 and other in the revised MS.

2. Introduction, L36~: I suggest the authors to introduce importance/impacts of specific (bulk) components, after the general introduction of aerosols.

Response: Following the reviewer's suggestion, we substantially improved the introduction on the importance of carbonaceous and reactive nitrogen components in detail in the revised MS (see Lines 40-48 and 75-81).

3. Aerosol sampling: Since each PM_{2.5} sample was collected for relatively longer time (72 hrs), it is important to describe the potential sampling artefacts as well.

Response: Yes, we agree with the referee that there is a possibility of having sampling artefacts due the lengthy sampling period. We describe such possibility in detail in the revised MS (see Lines 140-148).

4. Figures 1 & other: I suggest the authors to depict the seasonal separation as well in the temporal variations, in order to provide the clear visibility to the reader, like in Figure 4.

Response: Following the referee's suggestion, we depicted the seasonal separation in all figures, which showing the temporal variations, in the revised MS.

5. L217-219 & 249-252 ..: Since the annual and seasonal data have been presented in Table 1, it is better to avoid noting the same repeatedly in text, rather referring the Table 1.

Response: Following the referee's suggestion, we removed most of the data presentation in the text in order to avoid such repetition in the revised MS.