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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Measurement report: Exploring the NH_3 behaviours at urban and suburban Beijing: Comparison and implications" *by* Ziru Lan et al.

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The paper present the continuous measurement of mixing ratio of ambient NH3 at an urban site and a suburban site of Beijing, China from January 13, 2018, to January 13, 2019 alongwith its interaction with meteorology (temperature, relative humidity, wind speed and wind direction). It is also reported that the same temperature (relative humidity) at the urban and suburban sites, the NH3 mixing ratios increased with the relative humidity (temperature), whereas a high wind speed promoted a reduction in the NH3 mixing ratio. There are a number of studies on ambient NH3 and its interaction with other trace gases (NO, NO2, CO, SO2, and VOCs etc,) and meteorology

have been carried out over the China, other Asian region and abound the globe. Some of the papers published in Asian regions are highlighted in the Introduction section, however, some of recent publications/studies are mission which is need to be updated. The present paper is not adding much more new scientific information, except location specific information alongwith meteorology.

Some of the suggestions are

- The "mixing ratio" and "concentration" are two different term. Hence, use only mixing ratio of NH3 in entire text.

- "The NH3 mixing ratio increased with the relative humidity (temperature), whereas a high wind speed promoted a reduction in the NH3 mixing ratio" for this statement provide the more appropreate references/support. Apart from the influence of meteorological condition, the source strength of the observational sites are also important, which is not explained in the text.

- In the present study, authors have reported only mixing ratio of NH3 and meteorology. The observations of other precursors gases (NO, NO2, CO, and SO2 etc,) of NH3 is missing in the present study. These precursors gases (NO, NO2, CO, and SO2 etc,) are more important to estimate the mixing ratio of NH3 for a particular loaction.

- Table 1 need to be updated with more study of various megacities of the world. a lot of Informations are available for China and Indian region. Authors may be go through the following review paper for the comparisons of Table 1

"Sharma, S.K., Kotnala, G., and Mandal, T.K., (2020). Spatial variability and sources of atmospheric ammonia in India: a review. Aerosol Science & Engineering, Vol. 4(1), 1-8"

- Some of the explanations are mentioned in terms of "concentration (μg/m3)". Line No. 260: "In 2018, the concentrations of PM2.5, SO2 and NO2 were 50μg/m3, 5μg/m3, 43μg/m3 in Haidian, and 46μg/m3, 6μg/m3, 35μg/m3". Use either mixing ratios or

concentration and convert the values accordingly to make them more informative not confusing term.

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