

Interactive comment on “Source apportionment of atmospheric ammonia before, during, and after the 2014 APEC summit in Beijing using stable nitrogen isotope signatures” by Y. Chang et al.

Anonymous Referee #1

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The manuscript by Chang et al. studied the sources of atmospheric ammonia before, during, and after the 2014 APEC summit in Beijing using stable nitrogen isotope signatures coupled with an isotope mixing model. The source contributions of traffic, waste, livestock, and fertilizer were quantified and compared. The results showed a substantial decrease (58.7%) of traffic emission during the APEC period with strict emission controls. The results also showed that non-agricultural sources (traffic and waste) of NH₃ play an important role in particle pollution in the megacity of Beijing, which has important implications for future air pollution mitigating strategies. This is a pioneer study by applying isotopic measurements into source apportionment of NH₃. Such an approach could be very powerful in future source apportionment studies particularly if

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combining with more collocated measurements. I recommend it for publication after addressing the following two comments.

Comments:

1. One of the assumptions of this study is that the contribution of biomass burning is considered minimal. The authors need to address the uncertainties of this assumption because Xu et al. (2015) showed that biomass burning contributed 12 – 19% to total organic aerosols before and during APEC in Beijing.

2. Coal combustion is the dominant source of aerosol particles during the heating season in Beijing. Unfortunately, such a source is missed in this study, which will affect the source apportionment results.

References:

Xu, W. Q., et al.: Aerosol composition, oxidation properties, and sources in Beijing: results from the 2014 Asia-Pacific Economic Cooperation summit study, *Atmos. Chem. Phys.*, 15, 13681-13698, 10.5194/acp-15-13681-2015, 2015.

Interactive comment on *Atmos. Chem. Phys. Discuss.*, doi:10.5194/acp-2016-432, 2016.

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