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Atmospheric Measurement Techniques Discussions

Interactive comment on "Estimation of particulate organic nitrates from thermodenuder-aerosol mass spectrometer measurements in North China Plain" *by* Weiqi Xu et al.

Anonymous Referee #1

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The manuscript by Xu et al. developed a method for estimation of particulate organic nitrates (pON) from the measurements of high-resolution aerosol mass spectrometer coupled with a thermodenuder based on the volatility differences between inorganic nitrate and pON. Generally, the pON loading and pON to OA were compared in detail during three different campaigns in NCP. In addition, NOx+ ratio of organic nitrates was determined and showed considerable differences between day-night and clean-polluted periods, highlighting the complexity of pON compounds from different chemical pathways (e.g., OH and NO3 oxidation) and sources. The topic fits well within the scope of AMT. This manuscript is generally well written. Before its publication, the following comments need to be addressed.

Specific Comments: 1. I noticed the extremely high NO3,org from the "NOx method" at high RH in Fig.4, yet not in "TD-AMS method". What accounts for this extremely high value? Please elaborate. 2. How about the size distributions of NO3 in different TD temperature? I suppose that if the NO3,inorg evaporated completely at T = 90 âĎČ, the size distributions would be different at T > 90 âĎČ and T < 90 âĎČ. 3. What is the time of a sampling cycle in Gucheng? 4. Are N-containing ions the same in three campaigns? Separation and quantification of N-containing ions are more challenging in V-mode. What are the N-containing ions in CxHyNz+ and CxHyOzNp+? Please elaborate. 5. I suggest adding pON loading and pON to OA in table.1 so that the readers can see them clearly.

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