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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Sensitivities of NO_x transformation and the effects on surface ozone and nitrate" *by* H. Lei and J. X. L. Wang

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I think that this manuscript shows something unique and examine some basic processes in detail. It could be a good research article in ACP. However, I think that the structure of this manuscript fails. The writing makes readers hardly catch valuable points after reading it for several times. The poor structure downgrade the value of this paper. Therefore, I suggest a totally rewriting.

NOx transformation is a well discussed issue. Starting from this issue is not a wise choice. In addition, a manuscript that heavily relies on model experiments may be problematic. At least, the meaning of result is highly suspected. I found that the most valuable points in this manuscript is from the observational analysis rather than the

modeling analysis. Therefore, I would suggest that authors rewrite the draft following a sequence below:

1. the title should be changed. Not discussing the sensitivity of NOx reactions. But focusing on the variation of Nitrate aerosols over typical VOC or NOx limited regions.

2. the method part, authors can start from the analysis of measurements. Then give the core point on nitrate aerosol change. Put a hypothesis to explain the conclusions from measurements.

3. doing sensitivity experiments based on what ever the model you use. It is better that the model could be evaluated first.

4. reduce the conclusions from modeling experiments and give supports by linking any conclusion with observational analysis or others' works.

The revision may not need much extra works on analysis, but the manuscript should be totally rewritten. Anyway, I would suggest authors reading the book"Eloquent Science: A Practical Guide to Becoming a Better Writer, Speaker, & Atmospheric Scientist" by David M. Schultz. to improve further organization of your drafts.

Interactive comment on Atmos. Chem. Phys. Discuss., 13, 21961, 2013.