

Interactive comment on “Atmospheric reactive nitrogen concentrations at ten sites with contrasting land use in an arid region of Central Asia” by K. H. Li et al.

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“Atmospheric reactive nitrogen concentrations at ten sites with contrasting land use in an arid region of Central Asia” by Li et al. determined the spatial and seasonal characteristics of atmospheric Nr pollution in different ecosystems within the arid Xinjiang region of Northwest China as a typical region for central Asia. This study provided important data and results on atmospheric reactive nitrogen concentrations in arid region. Analysis of spatial and seasonal variations indicated their probable sources and was of high use for local air quality and pollution controls.

Specific comments: 1. Reorganize the ten sites at certain order such as land use type

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(section 2.1 and Table 1) and focus on the different ecosystems as emphasized in this study. Then describe the results according to this sequence and analyze the difference for several sites within the same category, particularly for the farmland sites.

2. As for the “effect of environmental factors on atmospheric Nr concentrations” in Section 3.3 and Figure 6, results should be re-analyzed according to different ecosystems since the environmental factors are secondary to the ecosystem type. Such kind of analysis might be misleading authors for conclusion.

3. Explain the reason for sampling from two weeks in one month for passive samplers and 7-10 days for PM₁₀ collection and the criteria for such period selection.

Technical corrections: P6629 L9 Rewrite as ... “The increasing order of total concentrations...” P6632 L21 “...concentrations each month at both sites...” need rewrite for clarity. P6633L7,9 digital numbers for AKS and BTH are inconsistent among sites. Keep consistent for numbers. Table 1 Provide information on average temperature and precipitation for each site and delete them from the text. Reorganize the ten sites at certain order (land use type?) and accordingly revise them in the manuscript for clarity. Table 2 Put column of PM₁₀ before NH₄⁺ or revise the table title as “Concentrations of secondary particles in PM₁₀ and PM₁₀...” Fig. 4 Delete “in PM₁₀” for figure caption Fig. 4 and 5 can be combined into one figure Fig. 6 Delete “precipitation” for figure caption

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