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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Observations of the diurnal and seasonal trends in nitrogen oxides in the western Sierra Nevada" *by* J. G. Murphy et al.

J. G. Murphy et al.

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The comments of Referee 1 have been addressed in the following way:

General Comments "The paper is relatively long and I would like to encourage the authors explore the possibility of shortening. For example Figure 3 is not really necessary because it is already sufficiently described in the text."

- While the manuscript is long, we do not feel that it will be improved by eliminating Figure 3 or otherwise removing content.

Specific Comments 1. p 4420, line 11 and 14: Temperature to dissociate alkyl nitrates is 350 C (line 11) and the second oven is 330 C (line 14) to make measurements of HNO3. Should not the second oven should be at >=350 C for such measurements?

- The text has been corrected to indicate that in the oven configuration used during this

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measurement campaign, 330 C was found to be adequately hot to completely dissociate all alkyl nitrates measured in the atmosphere. This was confirmed by ambient oven scans carried out over the entire year of sampling.

2. p 4425, line 21: It is maybe worth to mention that another reason why maximum values are measured in winter could also be the fact that the mixing ratio height is much lower during the winter, leading to less dilution and consequently higher values.

- A sentence has been added to acknowledge the possible role of mixing height in higher wintertime concentrations.

3. Figure 4 and 5: Consider to show monthly box plots instead of individual 3-min data points. It should also be considered to merge these two figures into one figure.

- Since not all months have complete coverage and since there is as much variability within some months as within an entire season, we feel that the current method of presentation in Figures 4 and 5 is the most useful. Figures 4 and 5 already contain a great deal of data and we feel that combining them would not clarify the information.

4. Figure 12: The average wind direction should be removed from this figure. Wind direction in degrees cannot simply be averaged.

- Because so little of the wind has a significant northerly component, simply taking the mean of the wind direction in each time bin does not produce unrepresentative values of the average wind, however we acknowledge that it is mathematically incorrect to do so. In the revised version, we have sorted the wind direction into 10 degree bins and the dark symbol reflects the 'mode' or center of the most populated bin of wind direction at that time of day. Less than 1% of the wind direction data occurs within 10 degrees either side of true north. Additionally, the caption for Figure 12 has been corrected to say that the data is hourly.

Interactive comment on Atmos. Chem. Phys. Discuss., 6, 4415, 2006.

ACPD

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Interactive Comment