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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Measuring atmospheric naphthalene with laser-induced fluorescence" *by* M. Martinez et al.

M. Martinez et al.

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We thank both reviewers for their in-depth review of our paper and their helpful suggestions for improvement.

We discovered the naphthalene signal during the campaign in Nashville and identified it to be a naphthalene fluorescence before the New York campaign took place. The reviewer is correct in assuming that the measurements were not optimized for naphthalene, as the main focus of our measurements always was OH.

Answers to specific comments:

1. We included the reviewerŠs argument in the text as a possible explanation for the low quenching efficiency of H2O for naphthalene.

2. We detected the existence of a fluorescence signal on one of the offline wavelengths

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already during the Nashville campaign and therefore used only the other offline signal for the OH evaluation. This is now clarified in the text.

3. We measure the temperature in the fluorescence chamber with a thermistor, as we now indicate in the paper, so the temperature is not just assumed but actual data. The air does cool down during expansion, but then heats up again due to irradiation from the walls.

4. There are indeed correlations with several oxidized hydrocarbons, e.g. butanal and pentane. For the Nashville and the Houston campaigns a very complete set of hydrocarbon data is available, and also for New York some hydrocarbon data have been measured, though with less time resolution. However, we intend this paper to concisely present the information relevant for the new measurement technique for naphthalene, while we are working on a detailed source study based on the correlations of naphthalene with NOx and other hydrocarbons for a future paper.

Technical corrections

1. The pulse repetition frequency is stated to be 3 kHz in section 2, 2nd paragraph. 2. done 3. done 4. done 5. done 6. done 7. done

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Interactive comment on Atmos. Chem. Phys. Discuss., 4, 343, 2004.