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Atmospheric Measurement Techniques Discussions

Interactive comment on "Intercomparison of measurements of NO_2 concentrations in the atmosphere simulation chamber SAPHIR during the NO3Comp campaign" *by* H. Fuchs et al.

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Comment pg. 2544 line 7, "This interference..." presumably the percent interference of HONO in an NO_2 measurement depends on the ratio of HONO/NO_2 in ambient air. The ratio used for this calculation could be specified here.

Response The referee is correct that the interference depends on the HONO/NO_2 ratio. However, we only notice the yield of NO from HONO photolysis in the photolytic converter, which is 5% of the yield of NO from NO_2 photolysis. Because of the small yield, HONO is not a significant interference for the detection of NO_2 by CLD for typical atmospheric ratios of HONO/NO_2. We rephrased the sentence, in order to make this

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point clear: “The wavelength averaged quantum yield of NO from HONO photolysis was determined numerically from the emission spectrum of the LEDs, and was found to be less than 5% of the quantum yield of NO from the photolysis of NO_2.”

Comment pg 2559 line 9, "...within the range of several ppbs" add the percent deviation

Response The data suggest that the observed drift does not depend on the absolute NO_2 concentration. Therefore, a description as percentage value may not be adequate. We added a typical number in brackets in the manuscript: “(up to some ten percent of the absolute NO_2 concentration)”

Comment pg. 2560 line 27, change "was" to "were"

Response We thank the referee for noticing the mistake and corrected it.

Comment pg. 2564 lines 9 - 13. This section is confusing. Line 10 change "smaller" to "lower" or "worse". Line 12 change "observed increase" to "this discrepancy" or "this difference" or "the difference in precision between the two versions"

Response We rephrased the section as suggested by the referee.

Comment Figure 5. The authors might consider log-log axes for each panel allowing readers to more easily discern the overall range of NO_2 concentrations used during the experiments.

Response We changed the the axes of Figure 5 to a logarithmic scale.

Interactive comment on Atmos. Meas. Tech. Discuss., 2, 2539, 2009.