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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Technical Note: Measuring tropospheric OH and HO_2 by laser-induced fluorescence at low pressure – a comparison of calibration techniques" *by* S. Dusanter et al.

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The recommended IUPAC rates (Atkinson *et al* 2004) (used to determine the lamp flux from N_2O actinometry) do not include recently updated rates for $O(^1D)$ + N_2 and $O(^1D)$ + N_2O, which are included in the JPL evaluation (Sander *et al* 2006). From this, the lamp flux calculated using the JPL rate equations could be considered more appropriate than that calculated using IUPAC rate equations, suggesting the agreement factor between the actinometric methods of 1.5 is more accurate.

These calibrations are carried out at a concentration much higher than ambient OH concentrations. A sensitivity plot of the signal recorded for a given OH concentration would prove useful. Is the sensitivity linear over all concentrations calibrated for? Is there an intercept present if this linear relationship is extrapolated to zero? Using a FAGE instrument and similar wand-type calibration system, I have found that the instrument sensitivity at the high OH concentrations used here is not consistent with that determined from near ambient concentrations of OH.

Figure 5 shows the minimum distance from OH production to sampling of 9 cm.
Why is the sampling point located so far from the the site of OH production? How much internal (within the wand) and external (open to lab air) distance prior to sampling does this include?

“The voltage supplied to the mercury lamp power supply was adjusted from 120 to 30 V during the oxygen cross-section measurements...”
Is the power supply to the mercury lamp maintained at a constant voltage during the calibrations?

Interactive comment on Atmos. Chem. Phys. Discuss., 7, 12877, 2007.