



*Supplement of*

## **Development of a laser-photofragmentation laser-induced fluorescence instrument for the detection of nitrous acid and hydroxyl radicals in the atmosphere**

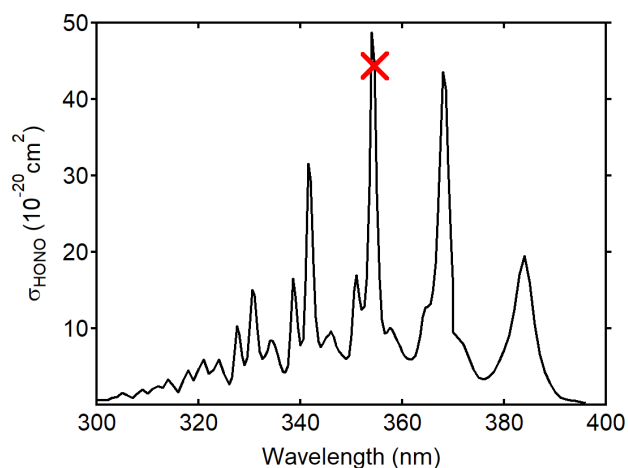
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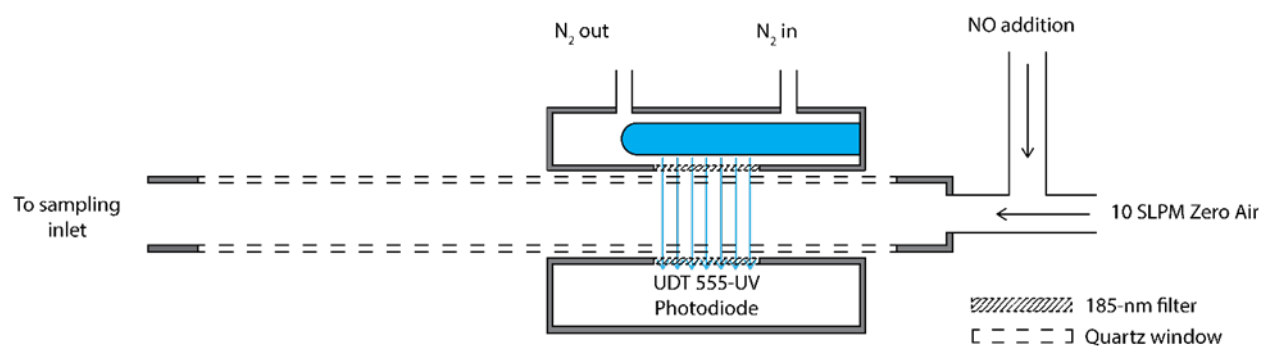
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**Table S1:** Summary of figures of merit for the LP/LIF instrument

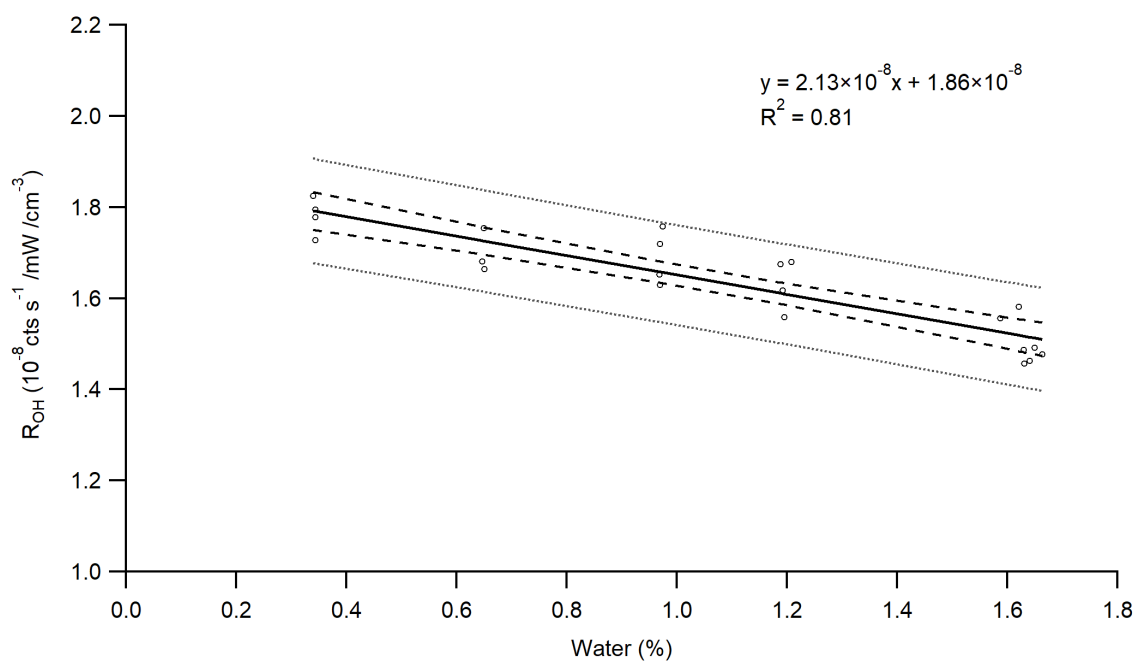
	<i>OH Sensitivity (<math>R_{OH}</math>)</i> <i>counts <math>s^{-1} / (cm^{-3} mW)</math></i>	<i>Photofragmentation</i> <i>Efficiency (PE)</i>	<i>HONO limit of</i> <i>detection</i>	<i>OH limit of</i> <i>detection</i>
<i>Outdoor measurements</i> <i>(Section 3.1)</i>	$3 \times 10^{-8}$	0.25%	18 ppt (10 min)	$\sim 5 \times 10^5 \text{ cm}^{-3}$ (60 min)
<i>Indoor measurements</i> <i>(Section 3.2)</i>	$2.75 \times 10^{-8}$	0.34%	9 ppt (10 min)	$\sim 7 \times 10^5 \text{ cm}^{-3}$ (60 min)



**Figure S1:** Absorption cross section of HONO with the 355-nm emission from the third harmonic of the Nd:YAG laser highlighted.



**Figure S2:** Schematic diagram of the water vapor photolysis calibration source.



**Figure S3:** Plot of instrumental sensitivity to OH ( $R_{OH}$ ) dependence on water vapor. The dashed lines represent a 95% linear fit confidence interval and the dotted lines represent a 95% prediction interval.