

## Supplement

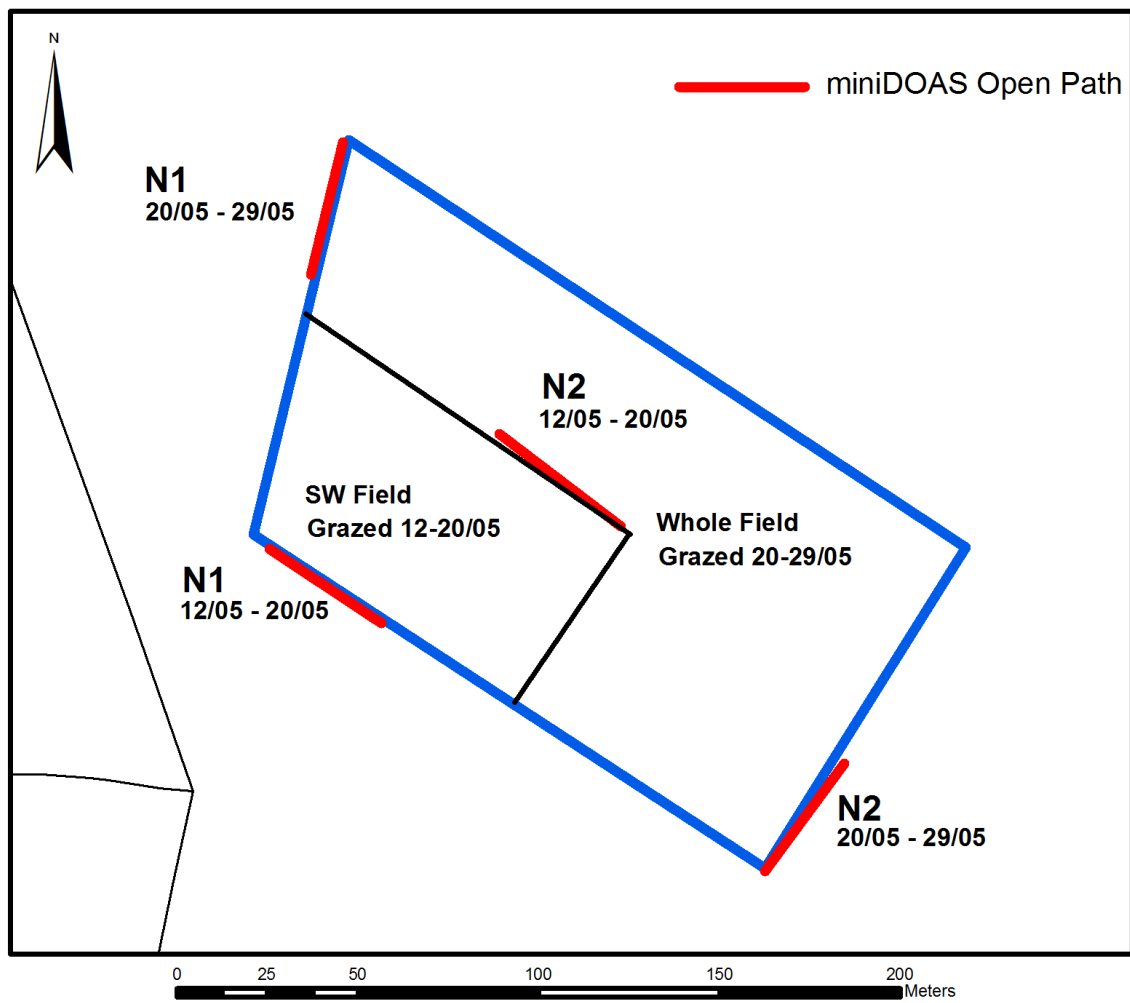


Figure S1: Outline experiment E4.

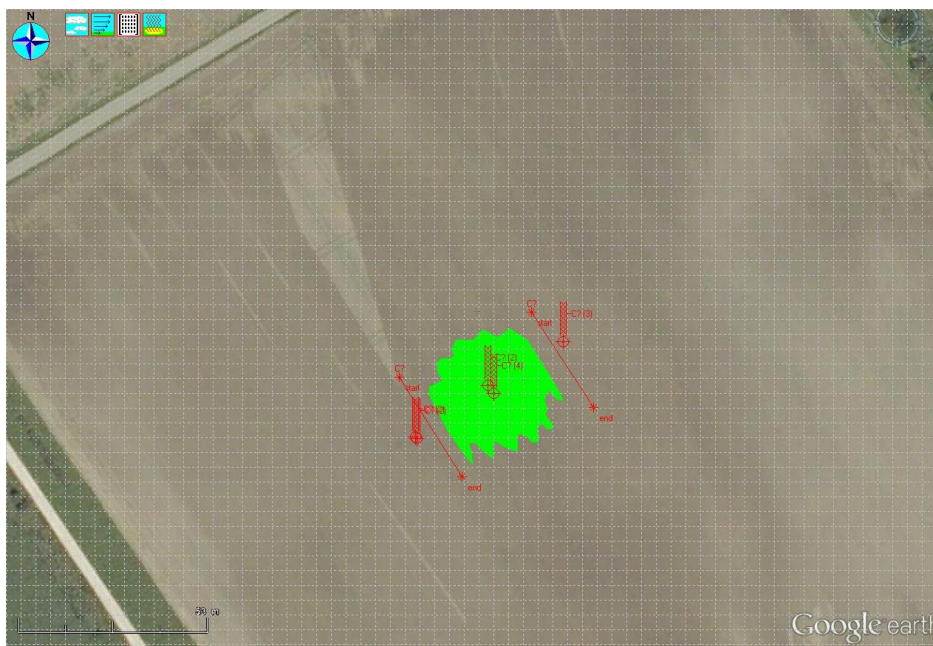


Figure S2: Overview over experiment E1; green = emission area, red lines = miniDOAS, red tower symbols = impingers.

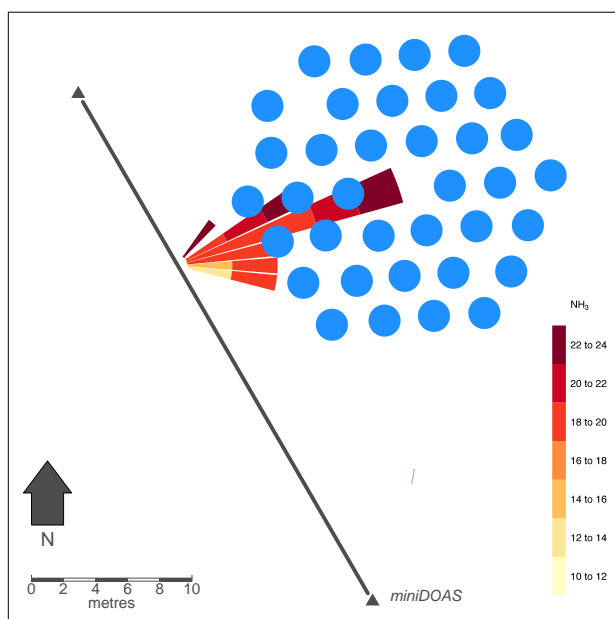


Figure S3: Setup and concentration differences from artificial gas release experiment E2.

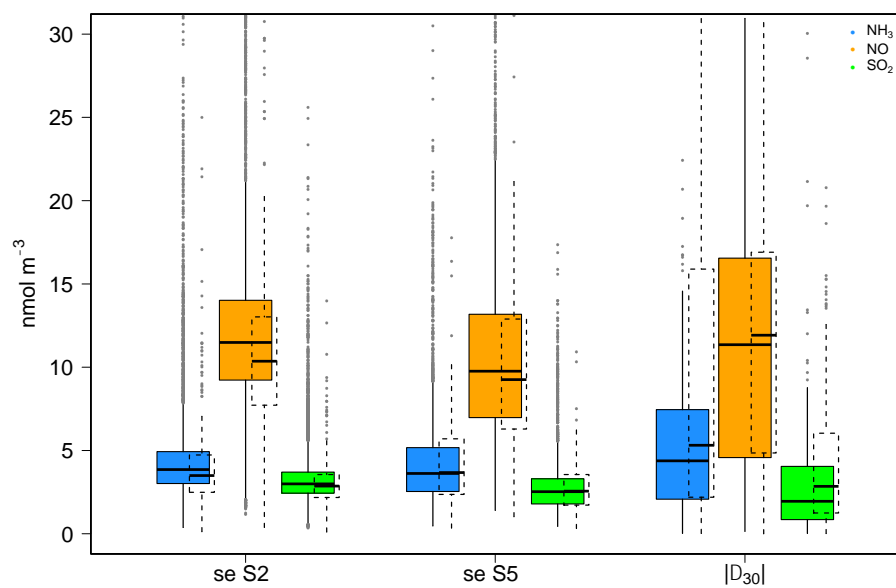


Figure S4: Concentration standard errors  $se_i$  for all three gases; ranges of  $se_i$  (1 min spectra) obtained from the E3 inter-comparison experiment (Table 1), including the concentration differences between instrument N1 and N2 for half hourly means ( $|\Delta_{30}| = |N1 - N2|$ ) of the individual 1 min values; in addition, the respective ranges for 30 min averaged spectra are shown (dashed boxplots).

Table S1: Using calibration cuvettes to test two miniDOAS systems (N1 and N2) for NH<sub>3</sub>-NO-SO<sub>2</sub> cross interference; both tests were performed indoors over path lengths of 21.4 and 31.4 m for N1 and N2, respectively; se<sub>i</sub> = concentration calculation standard error, concentrations are given in ug m<sup>-3</sup>.

miniDOAS	cuvette gas	$\hat{c}_{NH3}$	se <sub>NH3</sub>	$\hat{c}_{SO2}$	se <sub>SO2</sub>	$\hat{c}_{NO}$	se <sub>NO</sub>
N1	N <sub>2</sub>	0.07	0.03	0.04	0.11	0.12	0.18
N1	NH <sub>3</sub>	645	5.9	-0.09	20.8	-15.8	13.6
N1	NO	21.6	5.1	-13.1	20.2	2031	33.8
N1	SO <sub>2</sub>	0.5	0.8	239	3.7	-8.4	4.6
N2	N <sub>2</sub>	0.08	0.04	0.21	0.12	-0.02	0.18
N2	NH <sub>3</sub>	446	0.6	-0.8	1.9	-4.3	2.6
N2	NO	-1.5	0.6	0.5	2.8	1346	3.3
N2	SO <sub>2</sub>	-1.5	0.5	173.3	0.9	-25.8	1.8