Supplement

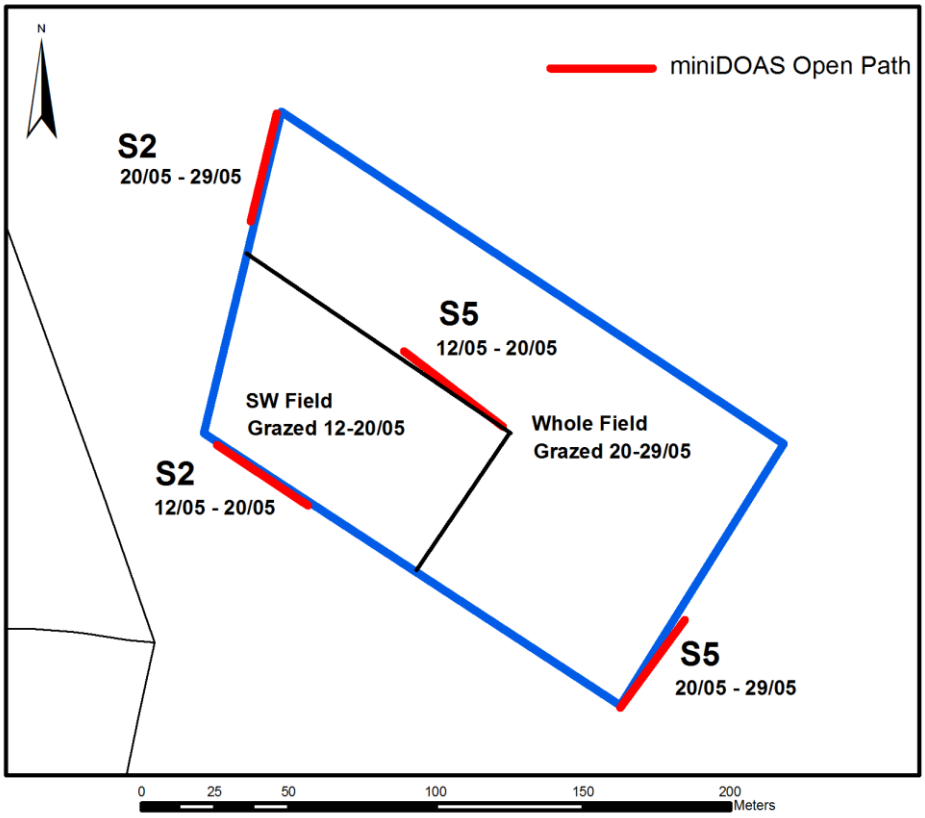

Figure S1: Outline experiment R2.

Figure S2: Overview over experiment W2; green = emission area, red lines = miniDOAS, red tower symbols = impingers.

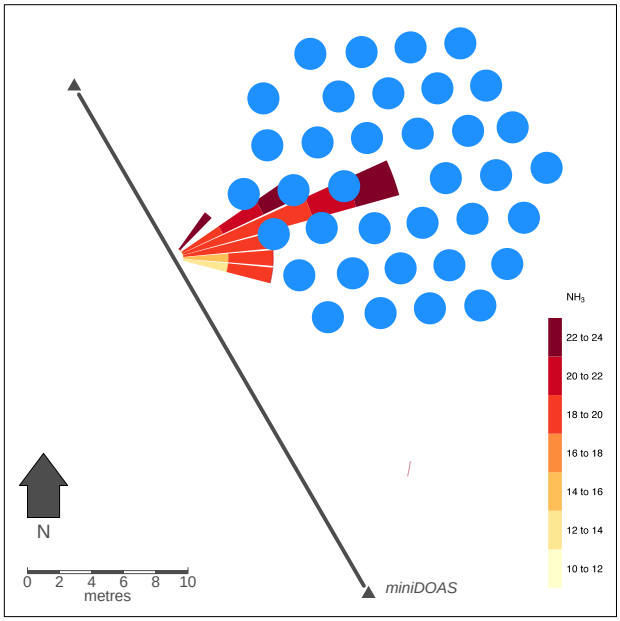

Figure S3: Setup and gradients from artificial gas release experiment W4.

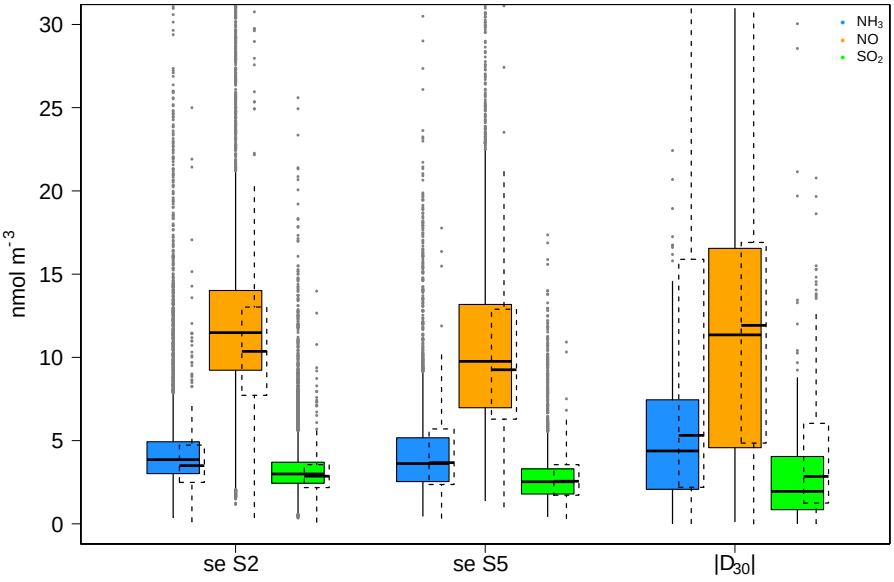

Figure S4: Concentration standard errors for all three gases; ranges of concentration standard errors (1 min spectra) obtained from the R1 inter-comparison experiment (Table 1), including the concentration differences between instrument S2 and S5 for half hourly means ($|\Delta_{30}| = |S2 - S5|$) of 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 (S2 and S5) for NH_3-NO-SO_2 cross interference; both tests were performed indoors over path lengths of 21.4 and 31.4 m for S2 and S5, respectively; se = concentration calculation standard error, concentrations are given in ug m^{-3}.

miniDOAS	**cuvette**	**NH_3**	**NH_3 se**	**SO_2**	**SO_2 se**	**NO**	**NO se**
S2	N_2	0.07	0.03	0.04	0.11	0.12	0.18
S2	NH_3	645	5.9	-0.09	20.8	-15.8	13.6
S2	NO	21.6	5.1	-13.1	20.2	2031	33.8
S2	SO_2	0.5	0.8	239	3.7	-8.4	4.6
S5	N_2	0.08	0.04	0.21	0.12	-0.02	0.18
S5	NH_3	446	0.6	-0.8	1.9	-4.3	2.6
S5	NO	-1.5	0.6	0.5	2.8	1346	3.3
S5	SO_2	-1.5	0.5	173.3	0.9	-25.8	1.8