Supplement

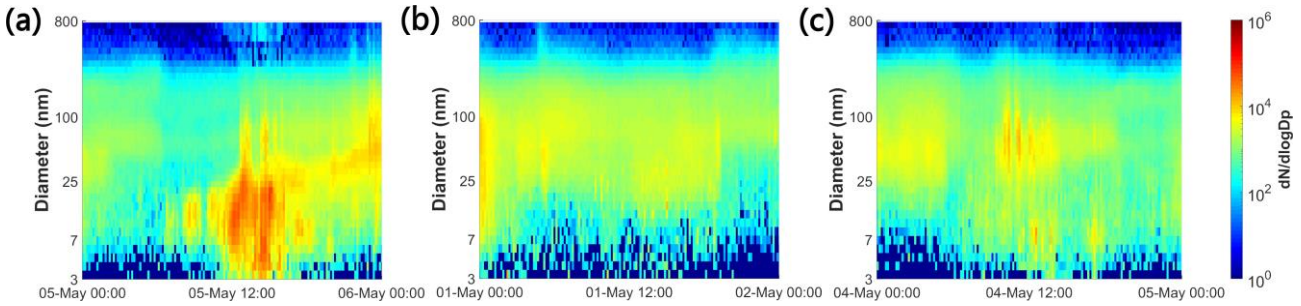


Figure S1. Example of an event (a), non-event (b), and undefined (c) class.

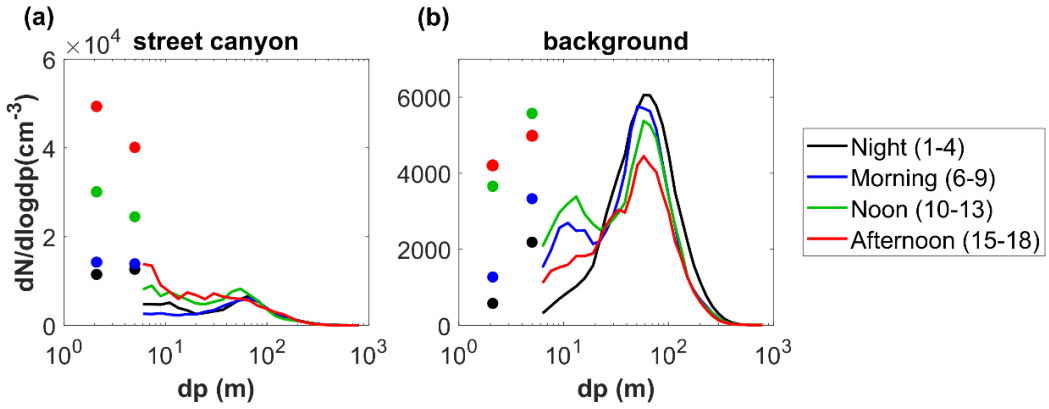


Figure S2. Median size distribution (a) at the street canyon and (b) at the background station. The colors indicate different periods of the day: night (1:00-4:00 LT, black), morning (6:00-9:00 LT, blue), noon (10:00-13:00 LT, green), and afternoon (15:00-18:00 LT, red). Median size distribution was determined by DMPS (particles with sizes between 6-800 nm) marked with solid lines in the figure, UCPC, and CPC (3-7 nm), and PSM and UCPC (1-3 nm) marked with dots. Each subplot has different limits of a y-scale.

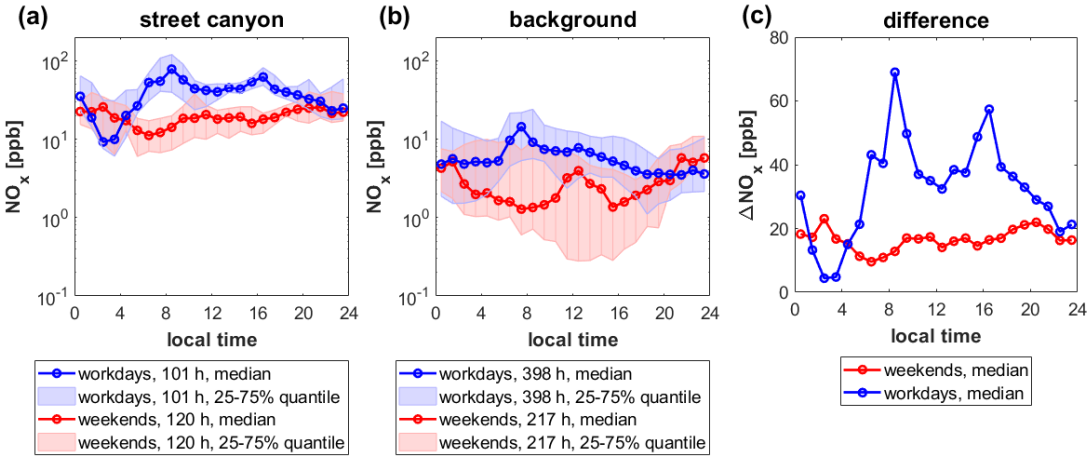


Figure S3. The diurnal variation of NOx concentration during weekends (red) and workdays (blue) (a) at the street canyon and (b) at the background station, and (c) the difference between median NOx concentration at the street canyon site and at the background station. The median diurnal variation is shown as a solid line with markers; the 25th and 75th

percentile range are presented as a shaded area.

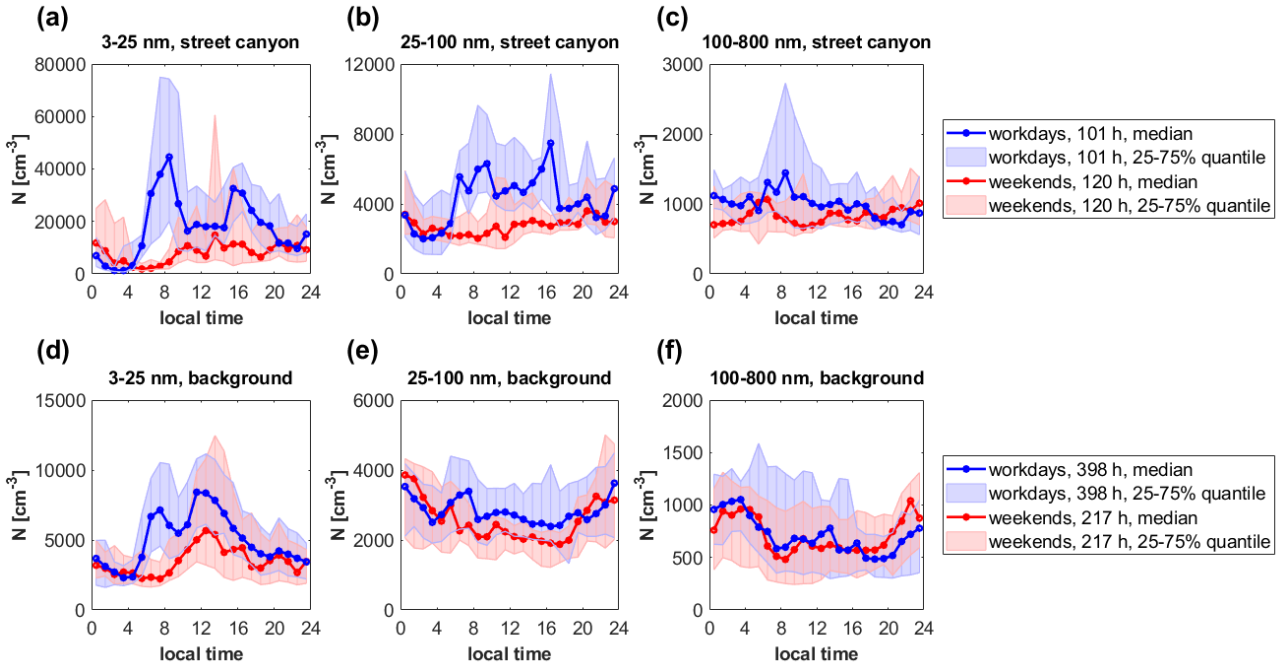


Figure S4. Diurnal variations of nucleation (3-25 nm), Aitken (25-100 nm), and accumulation (100-800 nm) modes particle concentration during weekends (red) and workdays (blue) measured at the street canyon (top) and at the background station (bottom). The median diurnal variation is shown as a solid line with markers; the 25th and 75th percentile range are presented as a shaded area. Each subplot has different limits of a y-scale.

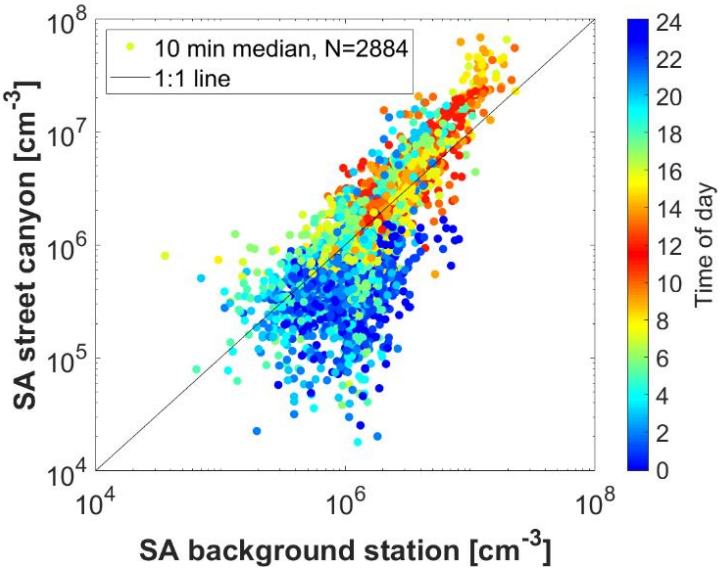
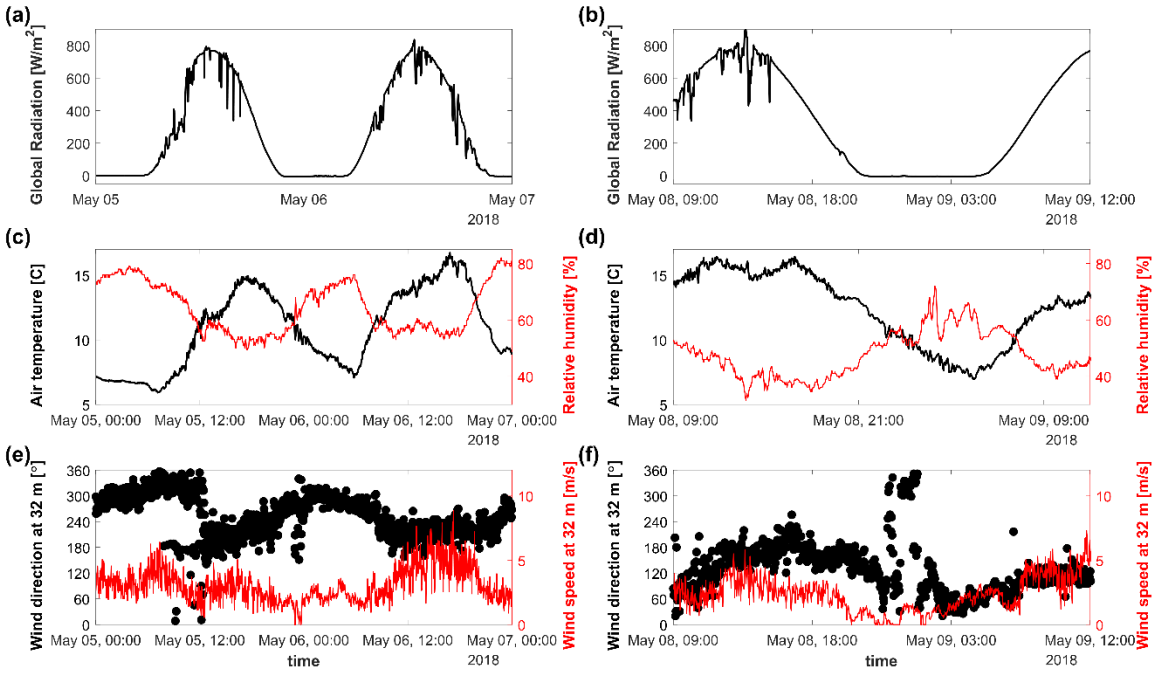
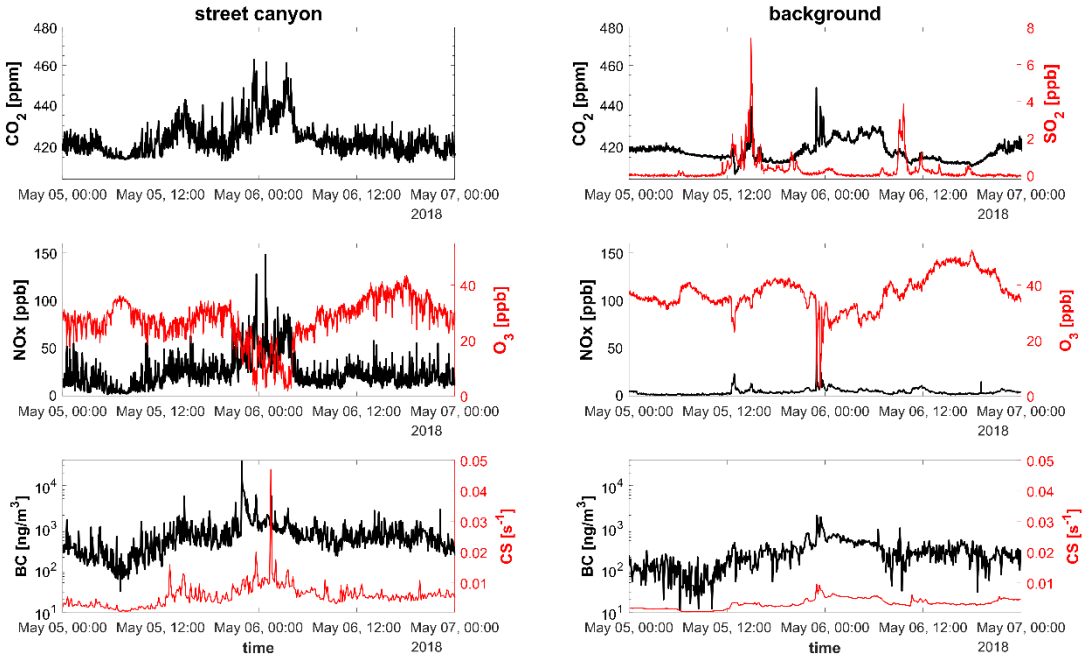


Figure S5. Correlation between the SA measured at the street canyon and at the background station colored by the time of the day. The black line shows a 1:1 line.



20 Figure S6. Time series of meteorological parameters (global radiation: (a) and (b), air temperature and relative humidity:
21 (c) and (d), wind direction and wind speed: (e) and (f)) measured at background station for periods 5 May 2018-7 May
22 2018 LT (left) and 8 May 2018 09:00-9 May 2018 15:00 LT (right).



23 Figure S7. Time series of (a, b) SO_2 and CO_2 concentrations, (c, d) NO_x and O_3 concentrations, (e, f) black carbon
24 concentration (BC) and condensation sink (CS) measured at the street canyon (left) and at the background station (right)
25 for period 5 May 2018-6 May 2018 LT.

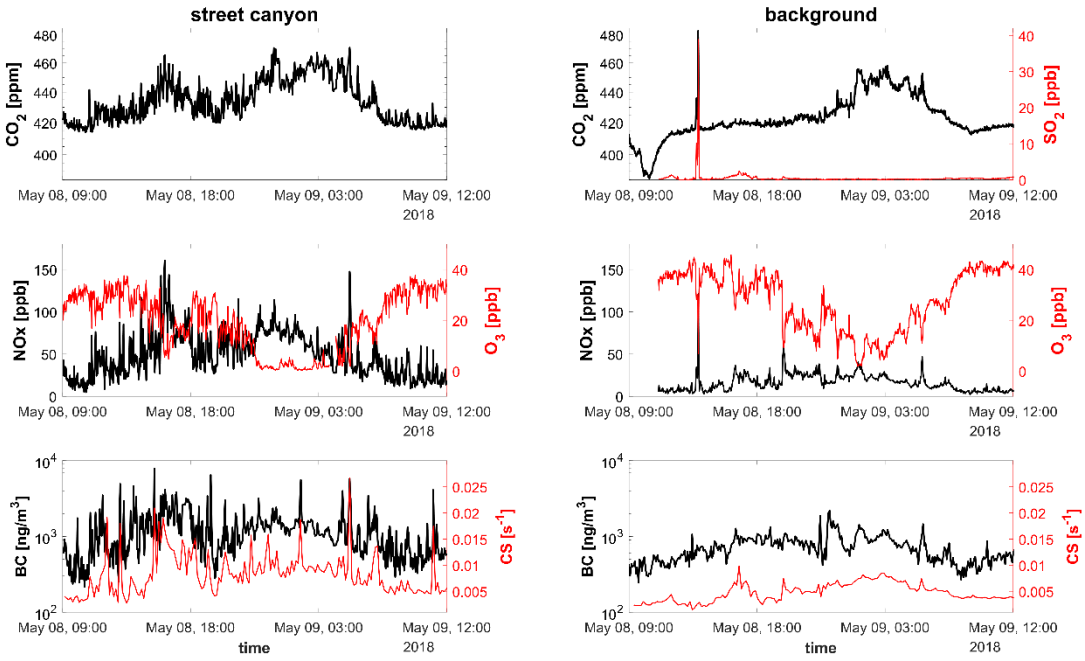


Figure S8. Time series of (a, b) SO_2 and CO_2 concentrations, (c, d) NO_x and O_3 concentrations, (e, f) black carbon concentration (BC) and CS measured at the street canyon (left) and at the background station (right) for period 8 May 2018 09:00-9 May 2018 15:00 LT.

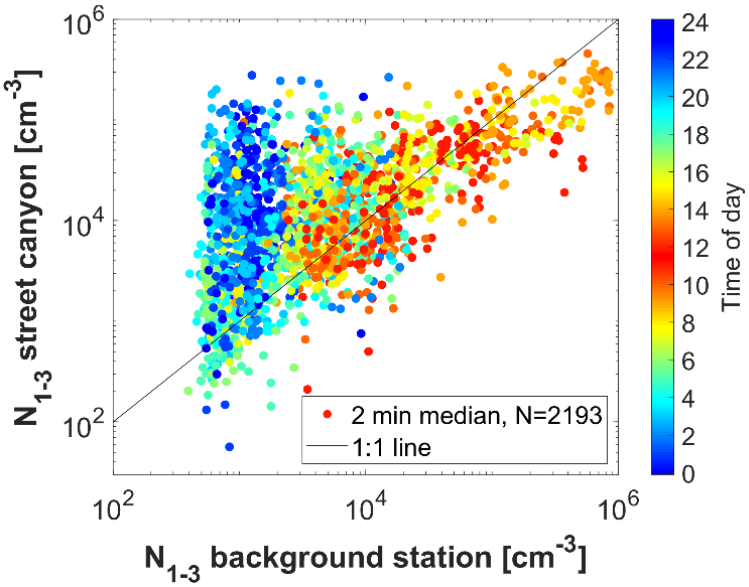


Figure S9. Correlation between the sub-3 nm particles measured at the street canyon site and at the background station colored by the time of the day for the time of both case studies. The black line shows a 1:1 line.

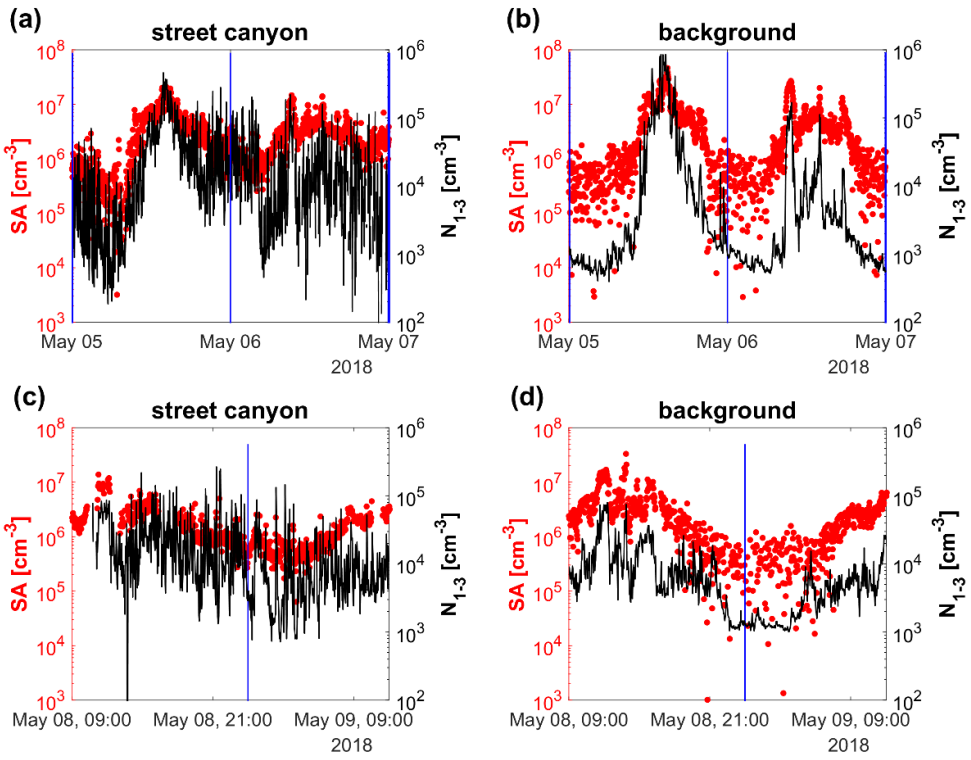


Figure S10. Time series of sub-3 nm particles (black) and SA (red) concentrations at the street canyon (a, c) and at the background station (b, d) during 5 May 2018-7 May 2018 LT (a, b) and 8 May 2018 09:00-9 May 2018 15:00 LT (c, d). Vertical blue lines indicate midnights.

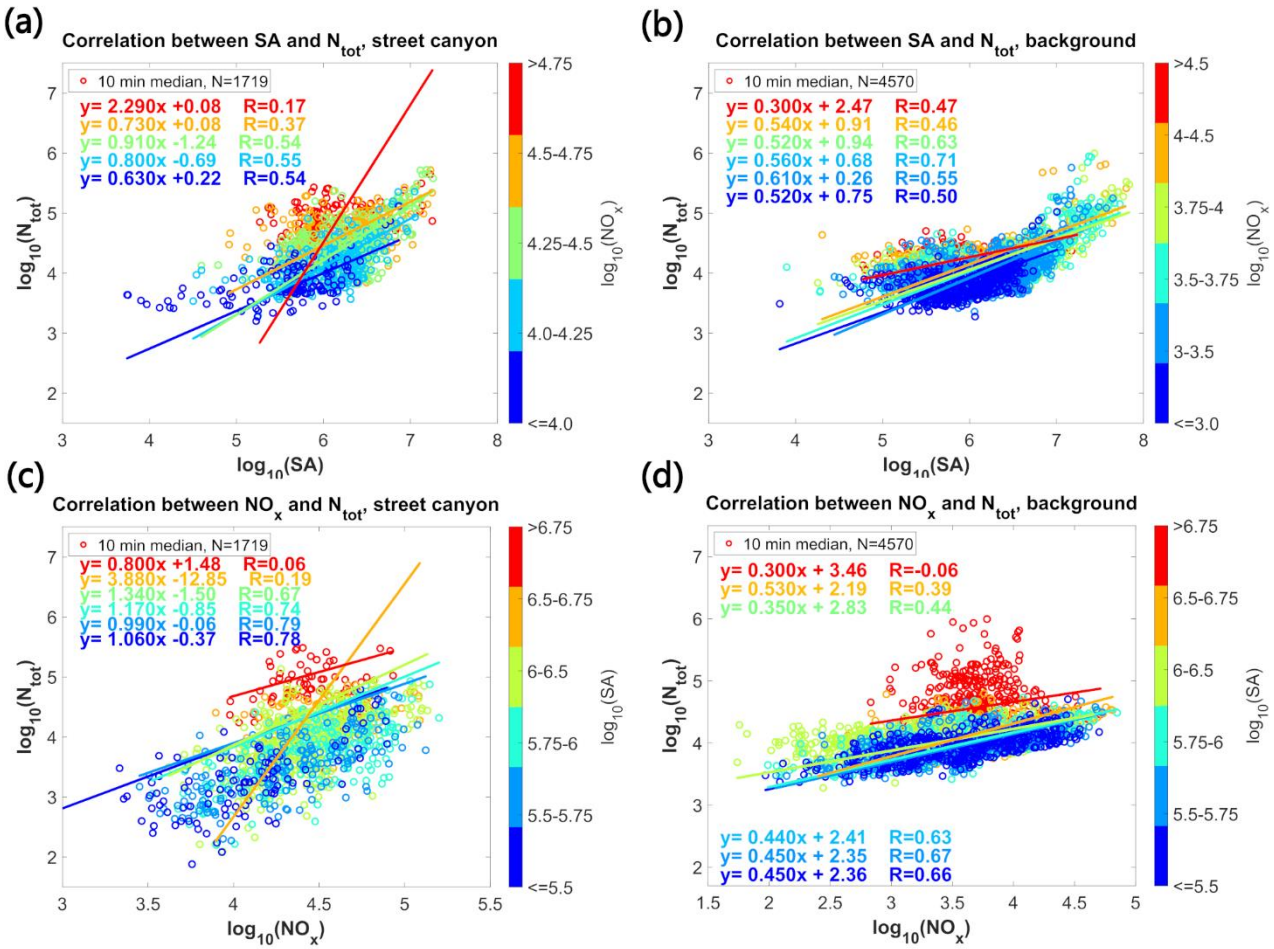


Figure S11. Correlation between the logarithm of SA and the logarithm of the total concentration of particles (N_{tot}) colored by the logarithm of NO_x (a) at the street canyon and (b) the background station, as well as the correlation between the logarithm of NO_x and the logarithm of N_{tot} particles colored by the logarithm of SA (c) at the street canyon and (d) at the background station. Lines represent bivariate fit done to data. The parameters of the fit are presented as an equation on the plot.

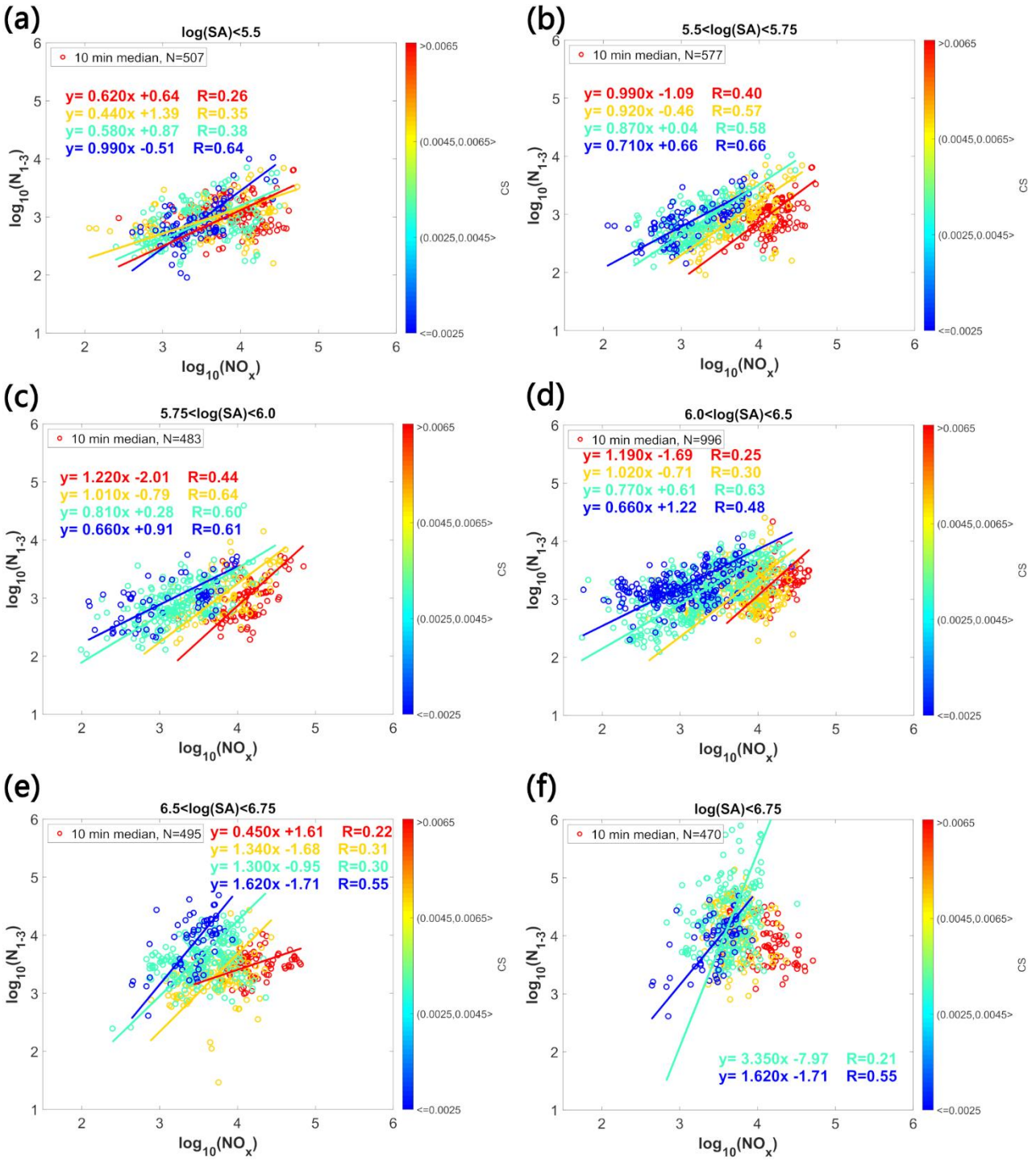


Figure S12. Correlation between the logarithm of NOx and the logarithm of sub-3 nm particles colored by the CS at the background station for data with the logarithm of SA in the range: (a) less than 5.50, (b) 5.50-5.75, (c) 5.75-6.00, (d) 6.00-6.50, (e) 6.50-6.75, and (f) more than 6.75. Lines represent bivariate fit done to data. The parameters of the fit are presented as an equation on the plot.

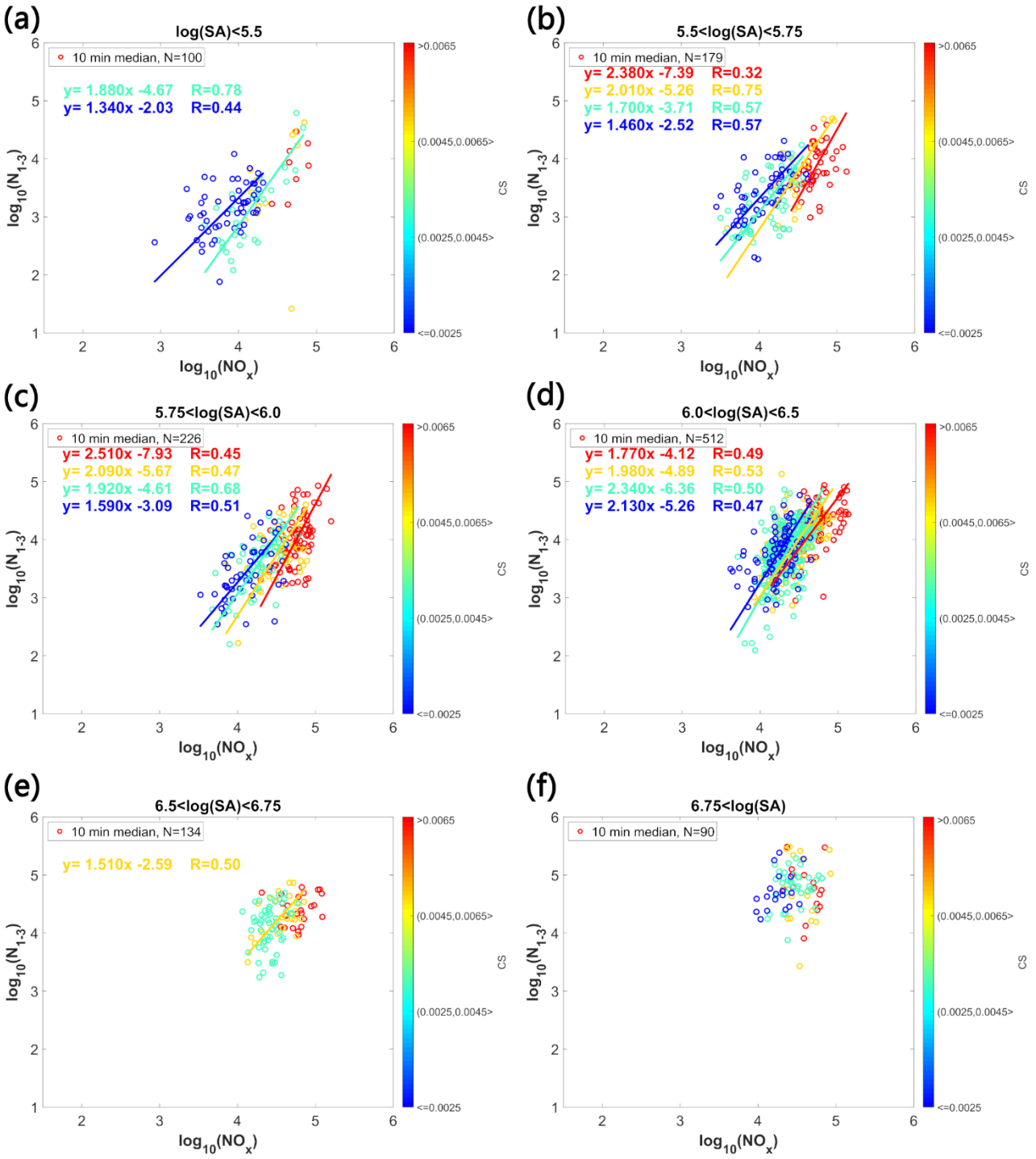


Figure S13. Correlation between the logarithm of NOx and the logarithm of sub-3 nm particles colored by the CS at the street canyon station for data with the logarithm of SA in the range: (a) less than 5.50, (b) 5.50-5.75, (c) 5.75-6.00, (d) 6.00-6.50, (e) 6.50-6.75, and (f) more than 6.75. Lines represent bivariate fit done to data. The parameters of the fit are presented as an equation on the plot.

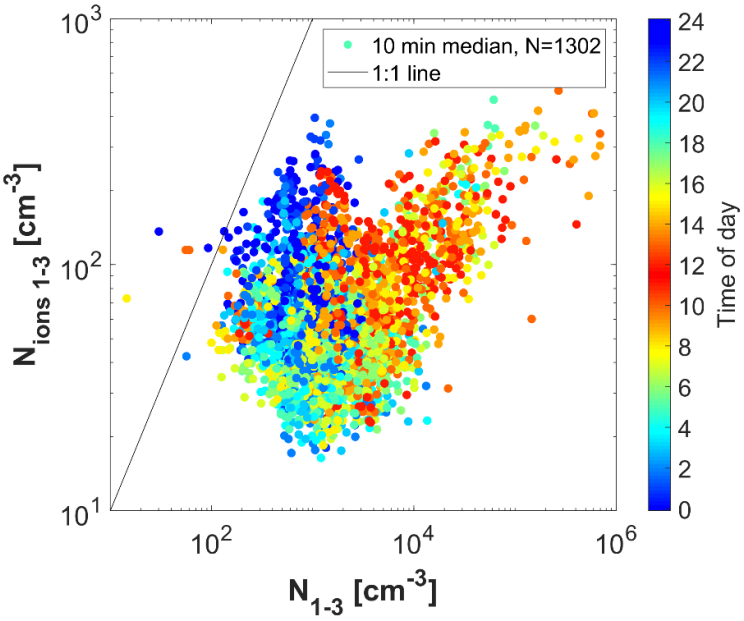


Figure S14. Correlation between the sub-3 nm particles concentration and concentration of ions with a diameter between 1 and 3 nm measured at the background station colored by the time of the day. The black line shows a 1:1 line.

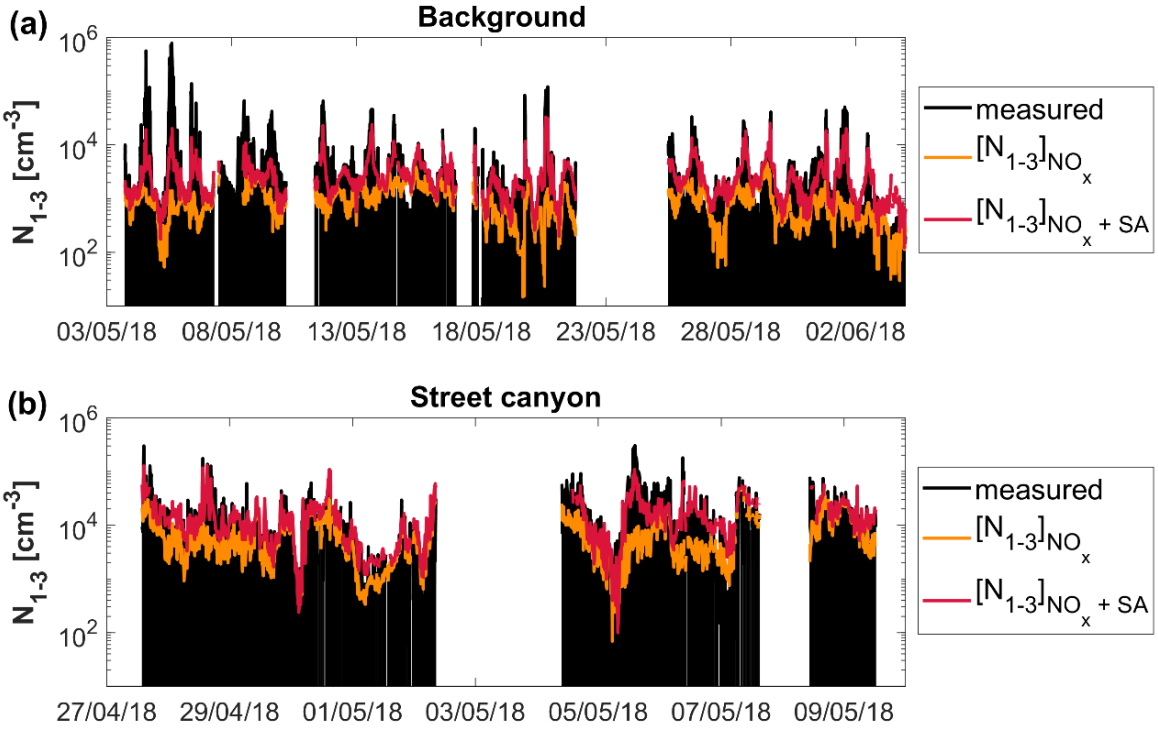


Figure S15. The time series (LT) of sub-3 nm particles concentration measured during the campaign (black) and estimated based on NOx concentration (orange) and NO_x and SA concentrations (red) (a) at the background and (b) at the street canyon station.

Table S1. The number of measured points (N), slope value, P-value, and Pearson correlation coefficient (R) of bivariate analysis result for common logarithms of N_{1-3}, SA, and NO_x concentrations.

Background station					Street canyon site				
Correlation between $\log_{10}(N_{1-3})$ and $\log_{10}(NO_x)$									
$\log_{10}$(SA) bin	N	Slope	P	R	$\log_{10}$(SA) bin	N	Slope	P	R
<= 5.50	507	0.64	<0.001	0.45	<= 5.50	100	1.40	<0.001	0.59
5.50-5.75	577	0.63	<0.001	0.48	5.50-5.75	179	1.29	<0.001	0.66
5.75-6.00	483	0.65	<0.001	0.48	5.75-6.00	226	1.44	<0.001	0.64
6.00-6.50	996	0.62	<0.001	0.41	6.00-6.50	512	1.73	<0.001	0.59
6.50-6.75	495	1.09	0.005	0.13	6.50-6.75	134	2.99	0.04	0.18
>6.75	470	1.07	0.002	-0.14	> 6.75	90	2.28	0.4	0.09
Correlation between $\log_{10}(N_{1-3})$ and $\log_{10}$(SA)									
$\log_{10}(NO_x)$ bin	N	Slope	P	R	$\log_{10}(NO_x)$ bin	N	Slope	P	R
<=3.00	521	0.89	<0.001	0.55	<=4.00	148	1.25	<0.001	0.39
3.00-3.50	940	0.94	<0.001	0.70	4.00-4.25	251	1.19	<0.001	0.54
3.50-3.75	687	0.94	<0.001	0.81	4.25-4.50	373	1.25	<0.001	0.59
3.75-4.00	637	0.92	<0.001	0.73	4.50-4.75	307	1.09	<0.001	0.51
4.00-4.25	469	0.96	<0.001	0.63	>4.75	162	1.32	<0.001	0.34
>4.25	274	0.65	<0.001	0.53	-	-	-	-	-