

Supplementary Material

Characterization, Fate, and Re-suspension of Aerosol Particles (0.3–10 μm): the Effects of Occupancy and Carpet Use

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Figure Map corresponds to the sampling sites in offices A1, A2, B1 and B2 as well as outdoor sampling.

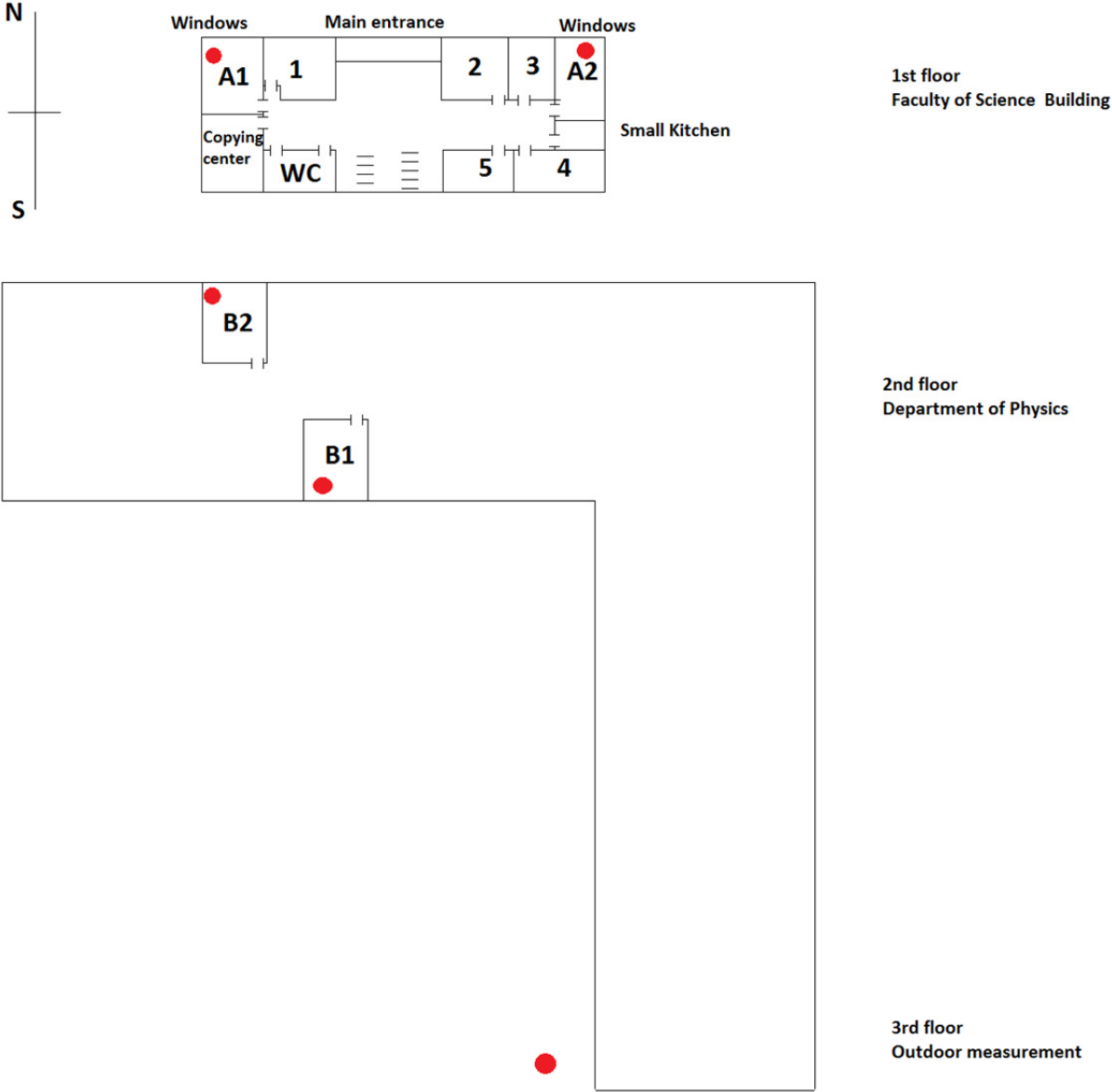


Figure S1: Map of the sampling sites. The red circles correspond to the exact sites of sampling.

Tables S1 and S2 summarize the daily averages of the particulate mass [PM $\mu\text{g}/\text{m}^3$] and particle number [PN cm^{-3}] concentrations inside the regularly occupied and carpeted Offices A1 and A2 and inside the unoccupied and uncarpeted offices B1 and B2, respectively. *Table S3 summarizes the particulate mass [PM $\mu\text{g}/\text{m}^3$] and particle number [PN cm^{-3}] concentrations of the outdoor air surrounding the environment where the indoor measurements were done.*

Table S1: Daily averages of the particulate mass [PM $\mu\text{g}/\text{m}^3$] and particle number [PN cm^{-3}] concentrations inside the regularly occupied and carpeted Offices A1 and A2. *The PN concentrations were calculated by integrating the measured particle number size distributions and the PM was calculated by assuming spherical particles with unit density. This table is based on the measured 1-minute size distributions.*

	Weekday	Date	PM _{10-0.3}	PM _{1-0.3}	PM ₁₀₋₁	PN _{10-0.3}	PN _{1-0.3}	PN ₁₀₋₁
Office A1	Thursday	19-09-2013	28.7	1.8	26.9	60.0	58.4	1.6
	Friday	20-09-2013	8.5	1.6	6.9	52.4	51.4	1.0
	Saturday	21-09-2013	6.1	1.1	5.0	39.6	39.0	0.6
	Sunday	22-09-2013	16.4	0.8	15.6	24.9	24.0	1.0
	Monday	23-09-2013	18.7	0.9	17.8	30.9	30.0	0.9
	Tuesday	24-09-2013	24.1	1.3	22.8	45.1	43.9	1.2
	Wednesday	25-09-2013	14.0	0.8	13.2	25.5	24.7	0.8
	Thursday	26-09-2013	43.2	6.6	36.6	181.8	180.1	1.9
	Friday	27-09-2013	6.9	1.5	5.4	54.5	54.0	0.6
	Saturday	28-09-2013	4.4	1.1	3.3	44.0	43.7	0.3
	Sunday	29-09-2013	18.2	1.1	17.1	44.0	43.3	0.7
	Monday	30-09-2013	29.6	2.0	27.6	75.6	74.3	1.3
	Office A2	Wednesday	02-10-2013	32.3	2.5	29.8	97.4	95.9
Thursday		03-10-2013	36.7	2.8	33.9	92.8	90.7	2.1
Friday		04-10-2013	1.8	0.5	1.3	17.8	17.5	0.3
Saturday		05-10-2013	11.3	0.6	10.8	21.8	21.1	0.7
Sunday		06-10-2013	26.6	1.0	25.6	36.6	35.4	1.2
Monday		07-10-2013	20.7	3.6	17.1	126.6	125.8	0.9
Tuesday		08-10-2013	33.5	2.1	31.4	68.2	66.7	1.5
Wednesday		09-10-2013	35.3	1.9	33.4	55.2	53.4	1.8
Thursday		10-10-2013	43.2	2.4	40.8	76.5	74.3	2.2
Friday		11-10-2013	9.2	1.4	7.8	44.4	43.3	1.1
Saturday		12-10-2013	9.3	1.2	8.1	42.0	41.2	0.8
Monday		13-10-2013	3.5	1.0	2.5	34.8	34.5	0.4
	Monday	14-10-2013	4.7	1.6	3.1	56.3	55.7	0.6

Table S2: Daily averages of the particulate mass [PM $\mu\text{g}/\text{m}^3$] and particle number [PN cm^{-3}] concentrations inside the occasionally occupied and uncarpeted Offices B1 and B2. *The PN and PM were calculated in a similar way as in Table 1.*

	Weekday	Date	PM _{10-0.3}	PM _{1-0.3}	PM ₁₀₋₁	PN _{10-0.3}	PN _{1-0.3}	PN ₁₀₋₁
Office B1	Friday	25-10-2013	3.7	1.1	2.6	36.7	36.3	0.4
	Saturday	26-10-2013	12.1	2.1	10.0	71.6	70.6	1.0
	Sunday	27-10-2013	9.4	2.3	7.1	79.0	78.1	0.9
	Monday	28-10-2013	10.8	1.8	9.0	61.8	60.9	0.9
	Tuesday	29-10-2013	59.9	3.0	56.9	78.0	71.7	6.3
	Wednesday	30-10-2013	123.0	4.2	118.8	110.6	99.9	10.7
	Thursday	31-10-2013	48.1	3.5	44.6	103.7	98.7	5.0
	Friday	01-01-1900	20.8	2.3	18.5	68.2	65.0	3.2
	Saturday	02-11-2013	14.0	1.8	12.2	57.2	55.2	2.0
	Sunday	03-11-2013	35.7	4.5	31.2	142.9	140.2	2.7
Office B2	Wednesday	06-11-2013	9.5	2.8	6.7	93.1	91.9	1.2
	Thursday	07-11-2013	5.4	1.9	3.5	65.1	64.3	0.8
	Friday	08-11-2013	3.0	1.1	1.9	40.0	39.6	0.4
	Saturday	09-11-2013	4.1	1.1	3.0	38.1	37.6	0.5
	Sunday	10-11-2013	10.1	1.7	8.4	59.2	58.3	0.9
	Monday	11-11-2013	8.9	2.6	6.3	90.5	89.5	1.0
	Tuesday	12-11-2013	8.2	3.0	5.2	101.2	100.4	0.8
	Wednesday	13-11-2013	4.9	2.3	2.6	76.1	75.7	0.4
	Thursday	14-11-2013	5.6	2.4	3.2	78.8	78.3	0.5
	Friday	15-11-2013	3.4	1.9	1.5	61.6	61.3	0.3
Saturday	16-11-2013	12.6	3.3	9.4	113.9	113.1	0.8	

Table S3: Daily averages of the particulate mass [PM $\mu\text{g}/\text{m}^3$] and particle number [PN cm^{-3}] concentrations in the outdoor air. *The PN and PM were calculated in a similar way as in Table 1.*

	Weekday	Date	PM _{10-0.3}	PM _{1-0.3}	PM ₁₀₋₁	PN _{10-0.3}	PN _{1-0.3}	PN ₁₀₋₁
Outdoor	Thursday	21-11-2013	18.9	7.2	11.7	254.4	253.3	1.1
	Friday	22-11-2013	24.5	4.3	20.2	144.3	143.0	1.3
	Saturday	23-11-2013	27.4	2.9	24.5	97.9	96.4	1.5
	Sunday	24-11-2013	46.9	4.9	42.0	163.0	159.7	3.3
	Monday	25-11-2013	58.5	4.9	53.6	161.2	157.7	3.5
	Tuesday	26-11-2013	58.6	3.1	55.5	89.2	86.0	3.2
	Wednesday	27-11-2013	40.4	1.6	38.8	42.3	39.9	2.4
	Thursday	28-11-2013	40.6	2.2	38.4	59.4	56.6	2.8
	Friday	29-11-2013	14.1	1.4	12.7	44.6	43.1	1.5
	Saturday	30-11-2013	25.3	1.2	24.1	38.0	36.5	1.5
	Sunday	01-12-2013	196.9	3.2	193.7	80.2	70.1	10.1
	Monday	02-12-2013	127.6	4.2	123.4	114.5	106.6	7.9
	Monday	02-12-2013	54.0	2.8	51.2	86.1	82.5	3.6

Figures S1 and S2 include the daily patterns of particles inside the offices and outdoors in terms of $PM_{10-0.3}$ and $PN_{10-0.3}$, respectively.

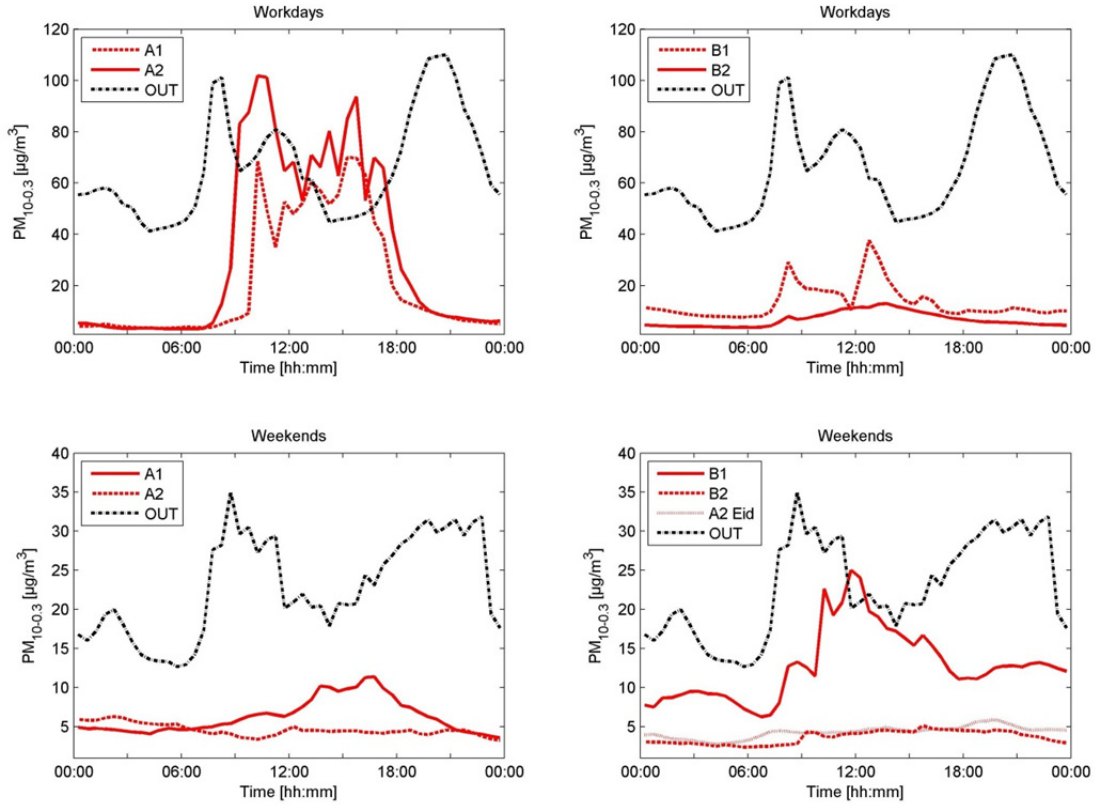


Figure S1: Daily patterns of $PM_{10-0.3}$ inside the offices and also outdoors (upper) on workdays and (lower) on weekends and holidays. The special events of smoking and dust episodes were excluded. Sampling in office A1 took place between September 19 and 30, in A2 between October 2 and 14, in B1 between October 25 and November 3, in B2 between November 6 and 16 and outdoors between November 21 and December 2.

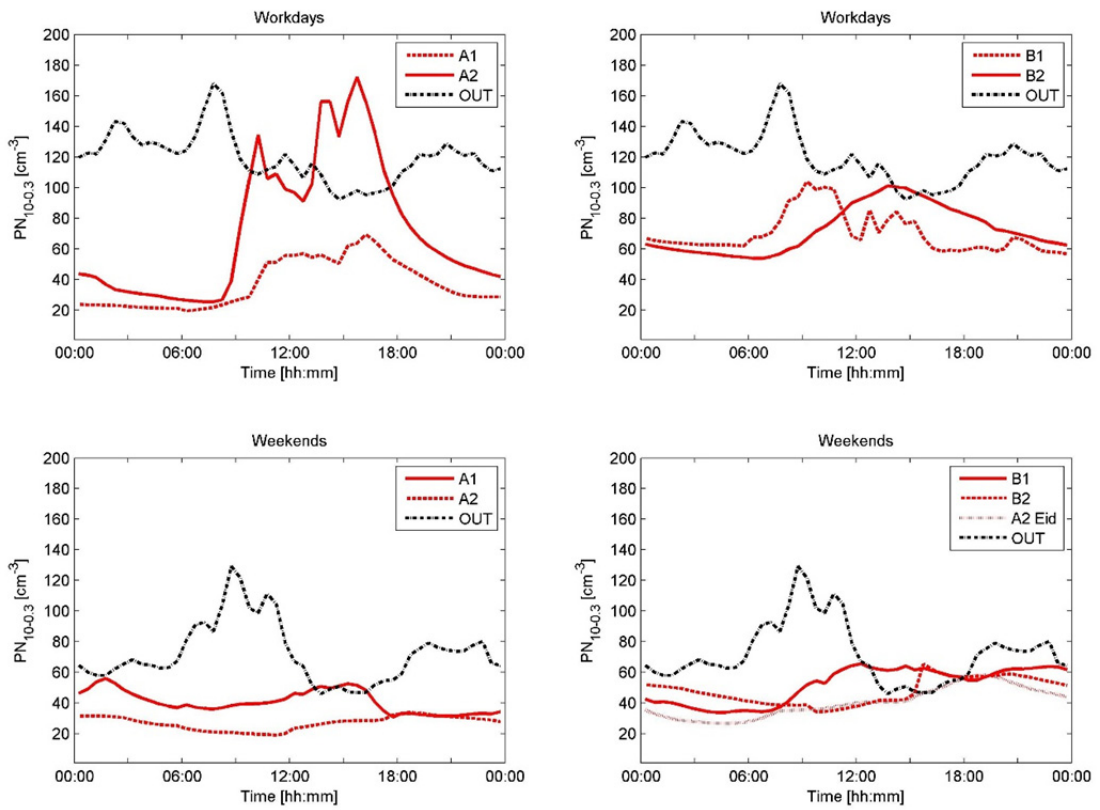


Figure S2: Daily patterns of $PN_{10-0.3}$ inside the offices and also outdoors (upper) on workdays and (lower) on weekends and holidays. The special events of smoking and dust episodes were excluded. Sampling in office A1 took place between September 19 and 30, in A2 between October 2 and 14, in B1 between October 25 and November 3, in B2 between November 6 and 16 and outdoors between November 21 and December 2.

Figures S3 and S4 provide an estimation about the aerosol sources (infiltration $P\lambda O$ and re-suspension Re) and re-suspension source rate (Re), respectively, with respect to the indoor aerosol concentrations.

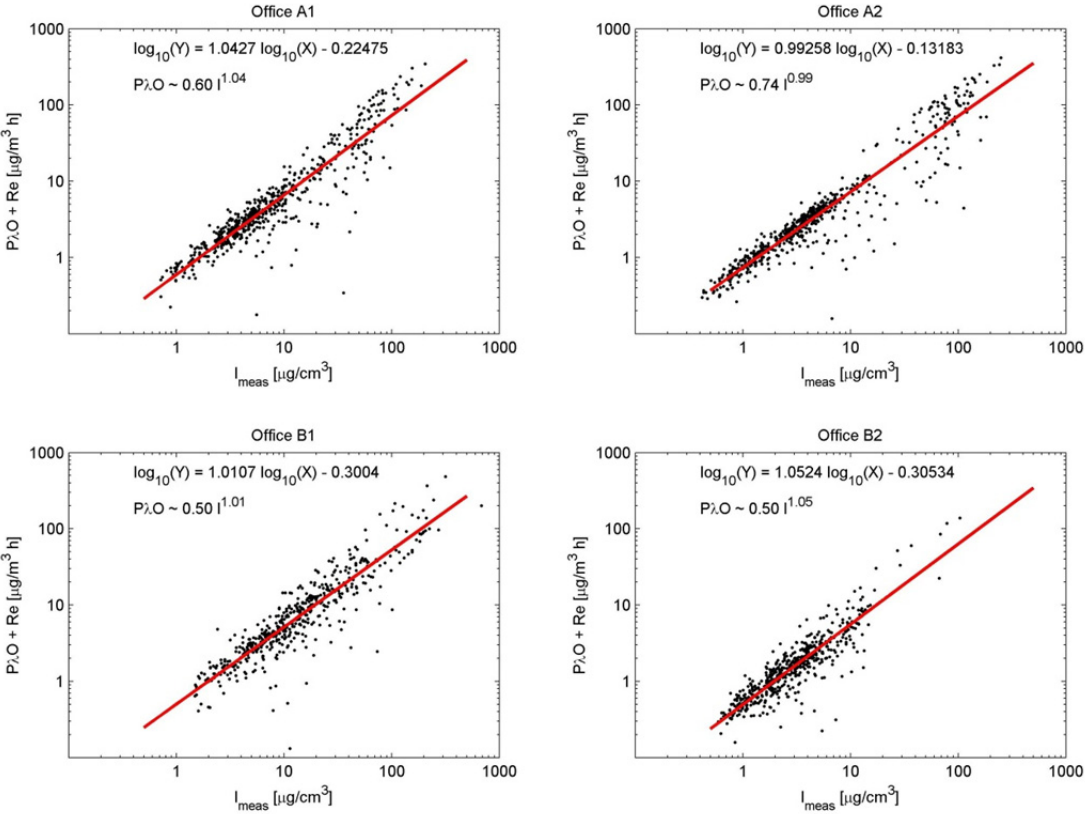


Figure S3: An estimate for the indoor aerosol sources (infiltration $P\lambda O$ and re-suspension Re) with respect to the indoor aerosol concentrations.

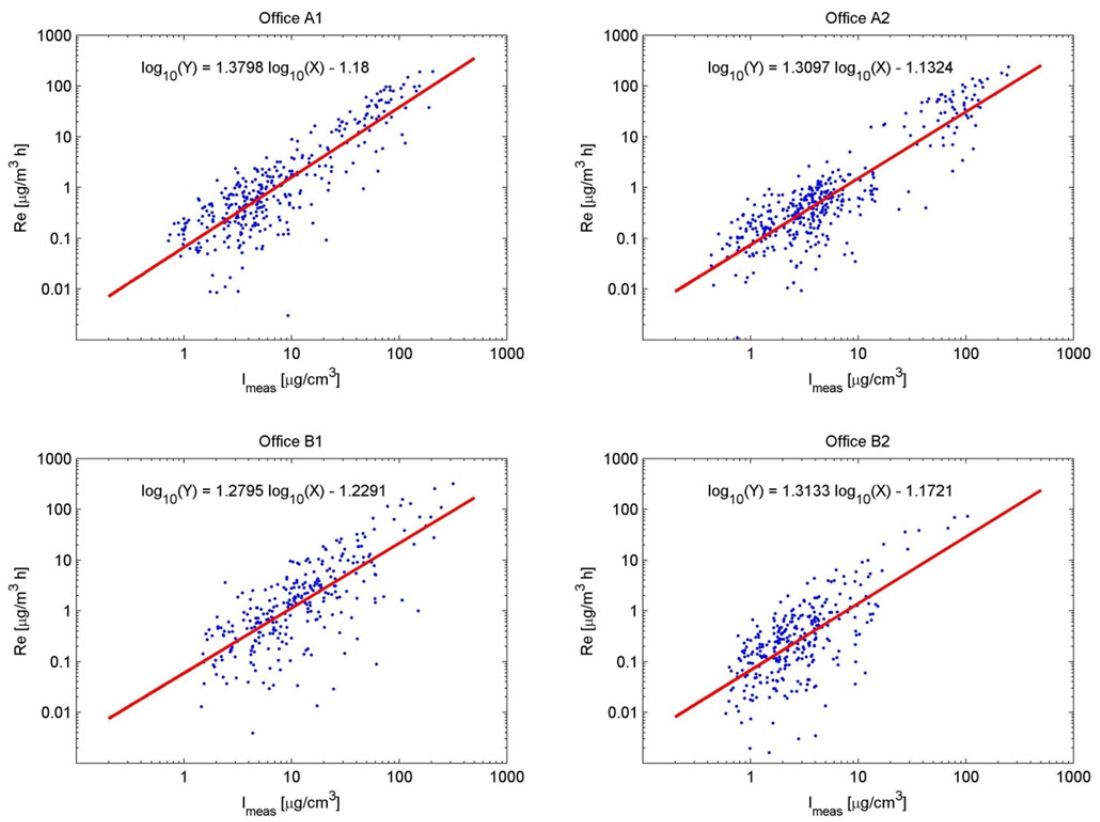


Figure S4: An estimate for the re-suspension source rate (Re) with respect to the indoor aerosol concentrations.