Supplementary material

Table S1. Lognormal parameterizations of the modeled average particle number size distributions downwind Malmö (Fig. 4a). The parameterization was carried out with the DO-FIT algorithm from Hussein et al. (2005).

Location	Parameter	Mode 1	Mode 2	Mode 3	Mode 4	Mode 5
	D_p (nm)	8.18	20.8	55.4	118	281
Malmö	σ	1.43	1.43	1.54	1.77	1.32
	PN (cm^{-3})	1820	979.6	2128	1648	131.5
	D_p (nm)	10.0	25.9	62.6	118	281
10 km dw. M	σ	1.54	1.54	1.43	1.77	1.32
	PN (cm^{-3})	1014	1111	1487	1602	134.8
	D_p (nm)	12.6	36.1	76.8	213	-
20 km dw. M	σ	1.68	1.68	1.60	1.52	-
	PN (cm^{-3})	875.7	1135	2102	654.9	-
	D_p (nm)	10.0	25.9	62.6	118	281
30 km dw. M	σ	1.52	1.68	1.43	1.77	1.35
	PN (cm^{-3})	280.7	1156	1156	1608	131.9
	D_p (nm)	11.2	30.9	66.2	121	265
40 km dw. M	σ	1.60	1.68	1.43	1.77	1.43
	PN (cm^{-3})	304.8	1103	1008	1462	165.9
	D_p (nm)	17.9	56.7	98.0	224	-
50 km dw. M	σ	1.77	1.68	1.52	1.52	-
	PN (cm^{-3})	629	1702	854.8	586.2	-

Table S2. Lognormal parameterizations of the modeled median particle number size distributions downwind Malmö (Fig. 4b).). The parameterization was carried out with the DO-FIT algorithm from Hussein et al. (2005).

Location	**Parameter**	**Mode 1**	**Mode 2**	**Mode 3**	**Mode 4**	**Mode 5**
	D_p (nm)	11.2	17.8	56.6	138	265
Malmö	σ	1.52	1.43	1.85	1.68	1.27
	PN (cm^{-3})	521.0	110.7	3167	574.1	99.52
	D_p (nm)	10.4	21.2	61.9	124	286
10 km dw. M	σ	1.43	1.93	1.85	1.77	1.27
	PN (cm^{-3})	237.1	458.0	2704	515.8	108.0
	D_p (nm)	10.4	24.4	57.3	114	286
20 km dw. M	σ	1.43	1.85	1.68	1.77	1.27
	PN (cm^{-3})	147.3	580.1	1759	1138	86.72
	D_p (nm)	9.29	26.9	58.6	111	303
30 km dw. M	σ	1.43	1.68	1.52	1.77	1.27
	PN (cm^{-3})	106.5	727.4	1181	1404	75.75
	D_p (nm)	10.0	25.9	62.6	118	281
40 km dw. M	σ	1.43	1.77	1.66	1.77	1.32
	PN (cm^{-3})	59.51	579.5	1605	954.2	115.1
	D_p (nm)	23.2	23.4	61.2	121	265
50 km dw. M	σ	1.10	1.88	1.66	1.77	1.32
	PN (cm^{-3})	15.04	504.6	1531	985.9	90.57

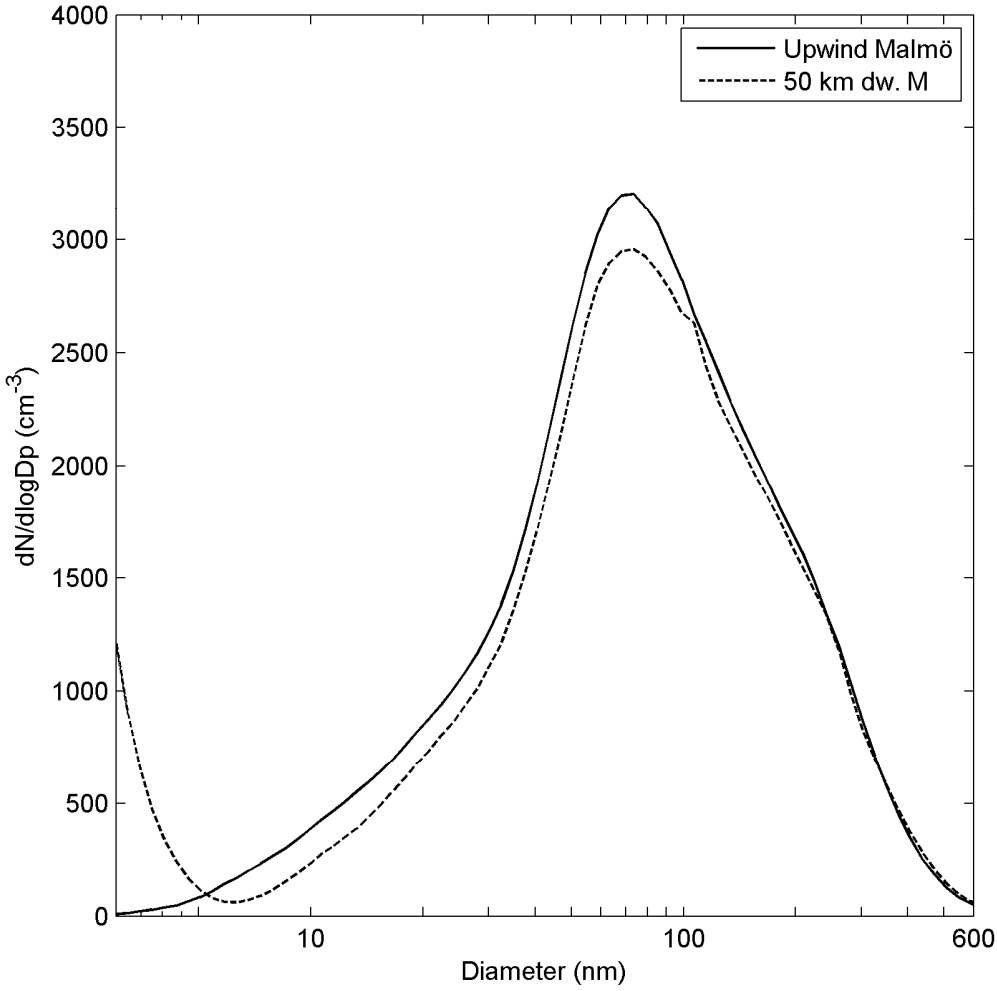

Figure S1. The average background particle number size distribution at Vavihill (50 km downwind Malmö) derived from the modeling of the air mass transport between upwind Malmö and Vavihill (dashed line). The air has not passed Malmö city during this transport. Average upwind Malmö conditions are approximated with Vavihill DMPS size distribution data and denoted with a continuous line.

References

Hussein, T., Dal Maso, M., Petaja, T., Koponen, I. K., Paatero, P., Aalto, P. P., Hämeri, K., Kulmala, M.: Evaluation of an automatic algorith for fitting the particle number size distributions, Boreal Environment Research, 10, 337-355, 2005.