Figure S1. *PM2.5 flux (dry deposition) of conifer trees per unit ground cover in Berlin, Munich, and Rome*
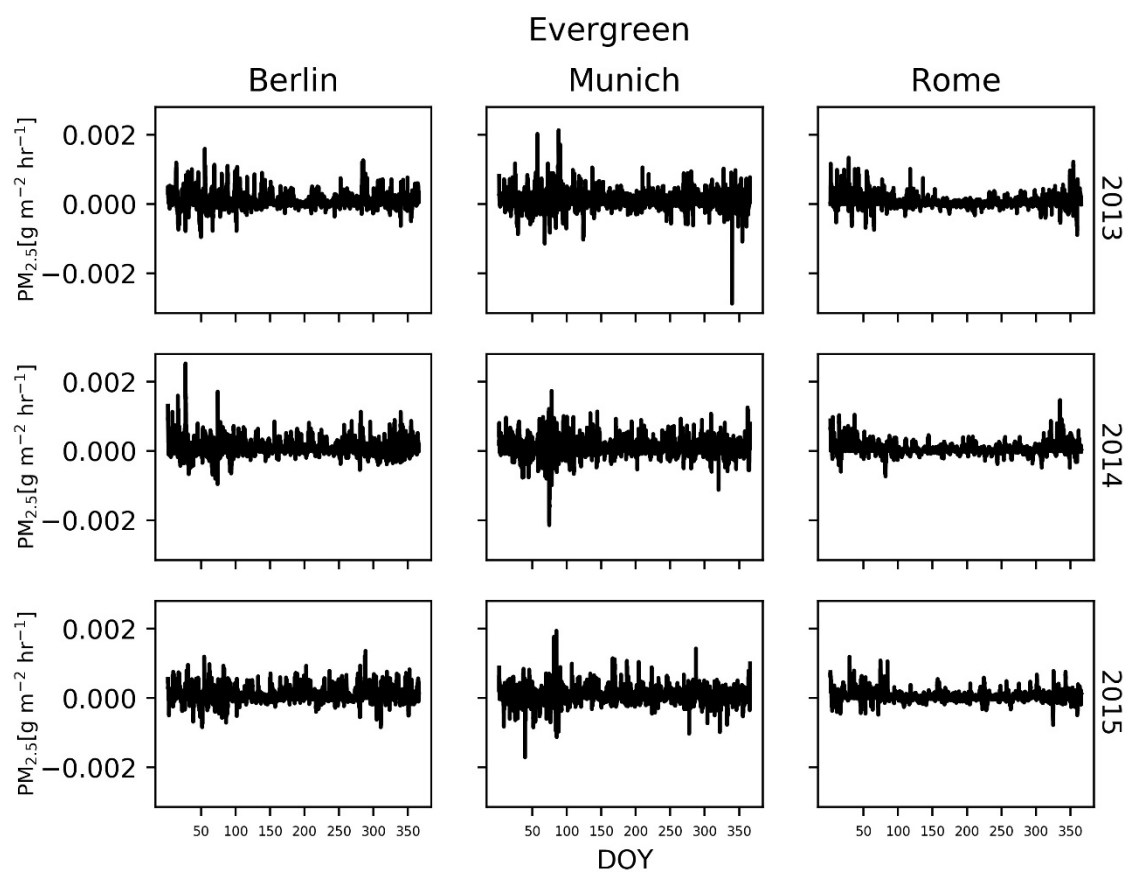
Figure S2. PM2.5 flux (dry deposition) of evergreen trees per unit ground cover in Berlin, Munich, and Rome
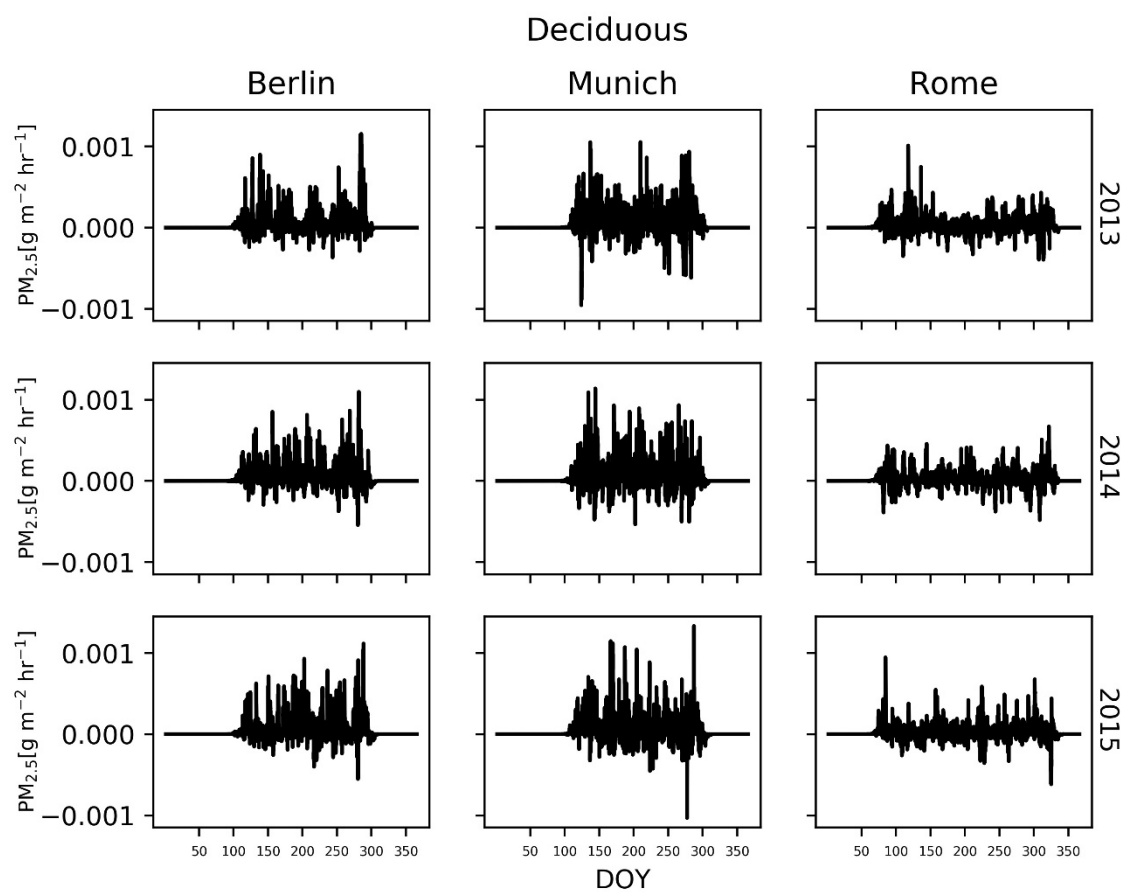
Figure S3. *PM2.5 flux (dry deposition) of deciduous trees per unit ground cover in Berlin, Munich, and Rome*
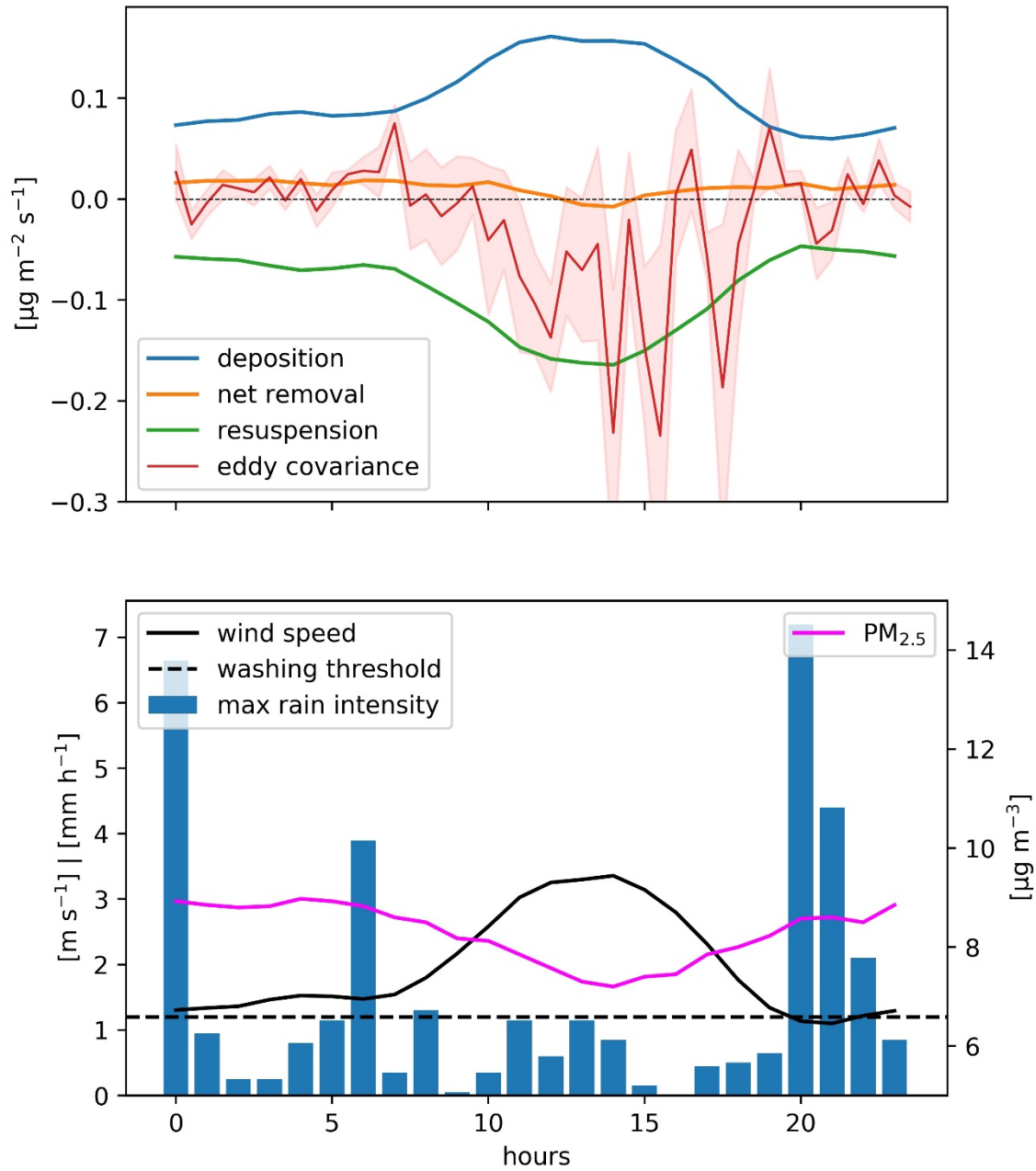
Figure S4. *Top: Diurnal mean removal rate as calculated for broadleaf trees with a LAI of 6 during the vegetation period in Rome in 2014 (DOY 221-263) and 2015 (DOY 133-154; 177-224; 267-279) and comparison with eddy-covariance flux measurements of deposition by Fares et al. (2016) averaged over the same period. [Average standard deviation: deposition ±0.03, net removal ±0.007, resuspension ±0.04]. Bottom: The relative mean wind speed during the day, PM$_{2.5}$ concentration, and maximum precipitation intensity for each hour.*
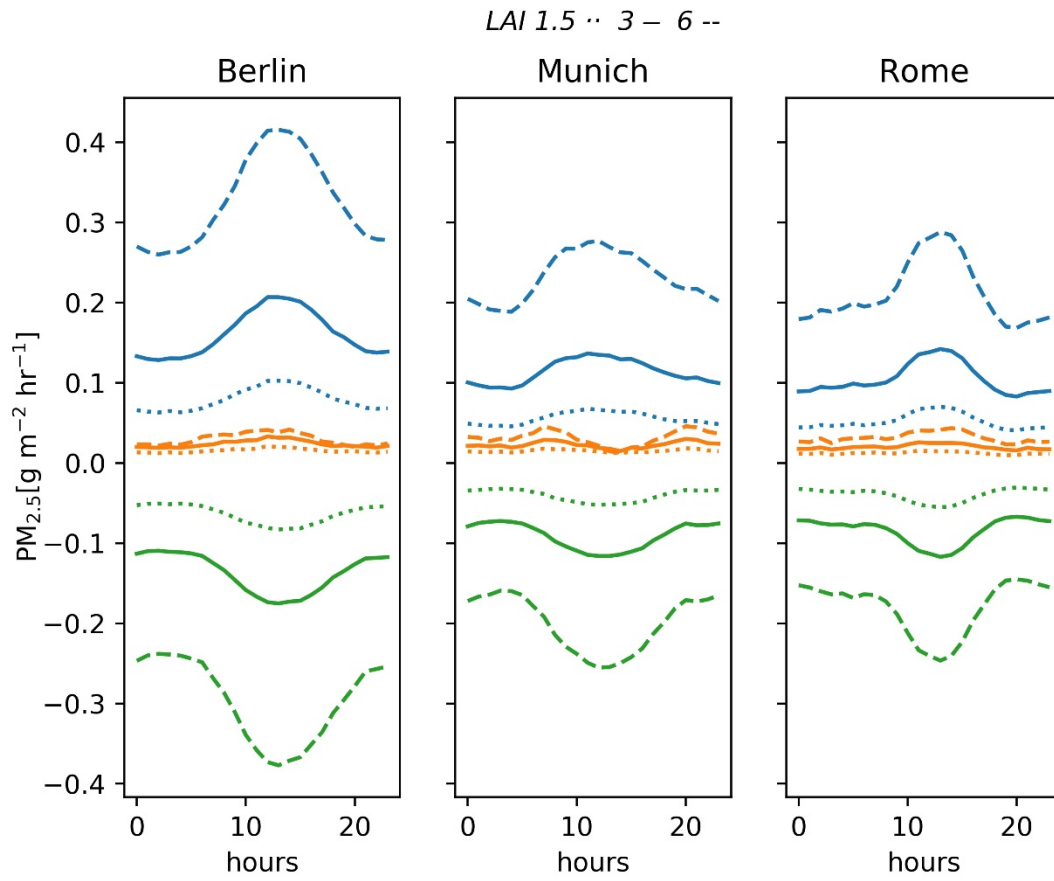
Figure S5. Sensitivity of deposition (blue lines), net removal (orange) and resuspension (green) to parameter changes of potential leaf water storage (*plws*) shown for three different sites. The original parameters have been doubled (broken lines) and halved (pointed lines) for the scenarios. All simulations are carried out for the period of 2013 and presented as the average diurnal cycle.

Figure S6. Sensitivity of deposition (blue lines), net removal (orange) and resuspension (green) to parameter changes of specific deposition velocity (*vds*) shown for three different sites. The original parameters have been doubled (broken lines) and halved (pointed lines) for the scenarios. All simulations are carried out for the period of 2013 and presented as the average diurnal cycle.
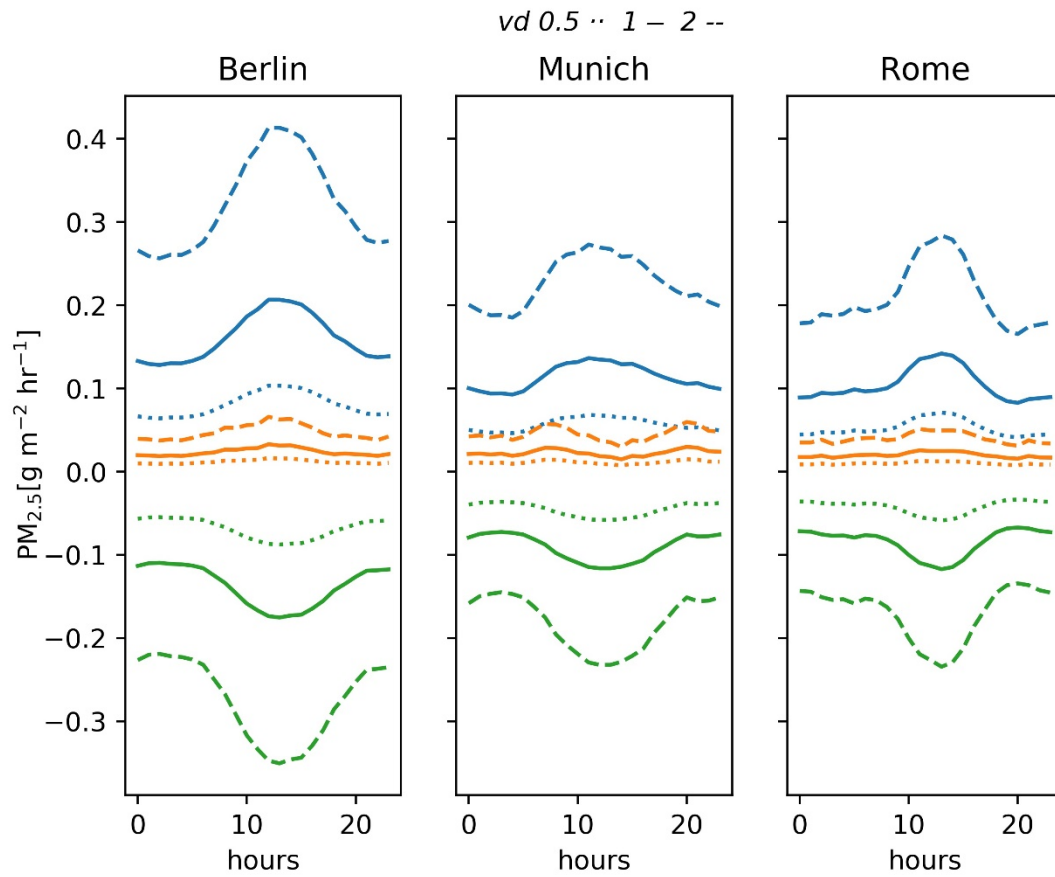
Figure S7. Sensitivity of deposition (blue lines), net removal (orange) and resuspension (green) to parameter changes of wind resuspension rates with wind speed (*rr*) shown for three different sites. The original parameters have been doubled (broken lines) and halved (pointed lines) for the scenarios. All simulations are carried out for the period of 2013 and presented as the average diurnal cycle.
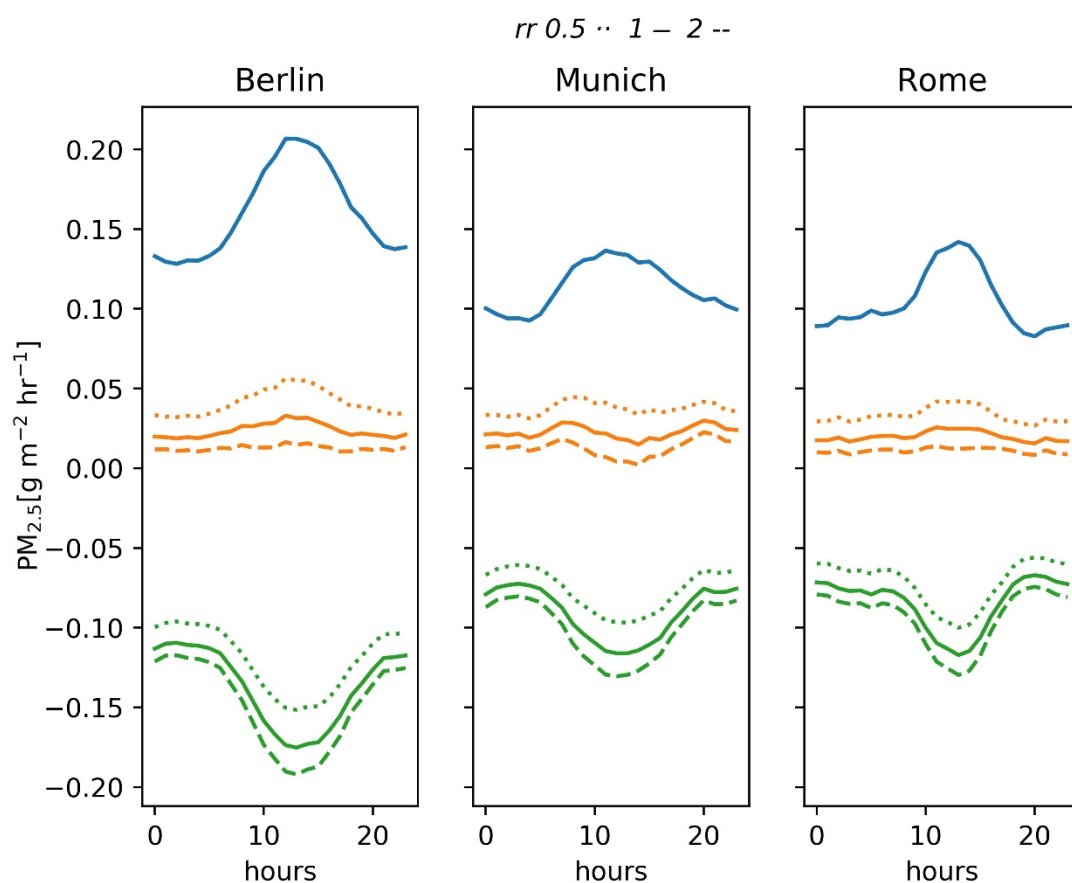
Table S1. Investigated range of sensitivity for variations in leaf area index (LAI), and the parameters potential leaf water storage (*plws*) and specific deposition velocity (*vds*) as used for the calculations presented in Figs. 4 and 5, as well as S5 and S6.

Parameter	Half	Standard	Double
LAI	1.5	3	6
plws	0.1	0.2	0.4
vds	0.0547	0.1094	0.2188

Table S2. Percent resuspension (rr) by wind speed per unit leaf area as used for the calculations presented in Figs. 4 and 5, as well as S7.

Wind speed (m s^{-1})	Half rr (%)	Standard rr (%)	Double rr (%)
0	0	0	0
1	0.75	1.5	3
2	1.5	3	6
3	2.25	4.5	9
4	3	6	12
5	3.75	7.5	15
6	4.5	9	18
7	5	10	20
8	5.5	11	22
9	6	12	24
10	6.5	13	26
11	8	16	32
12	10	20	40
13	11.5	23	46