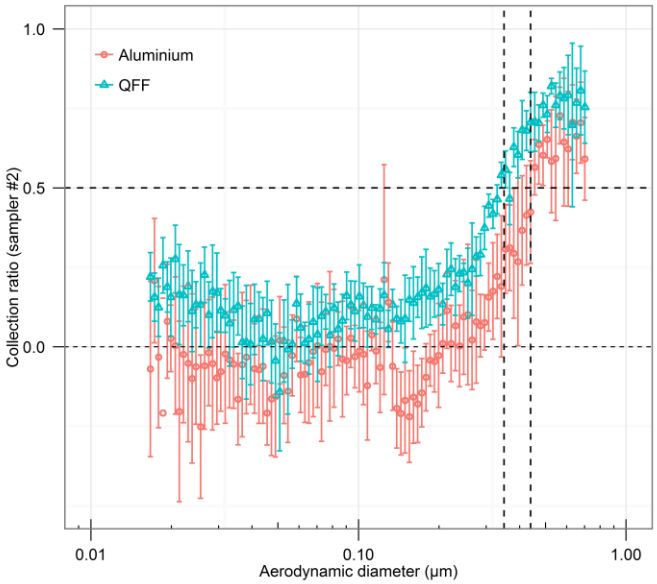

Fig.S1 Collection characteristics of RDI #1 using QFF or aluminum as substrate (mean ± sd)

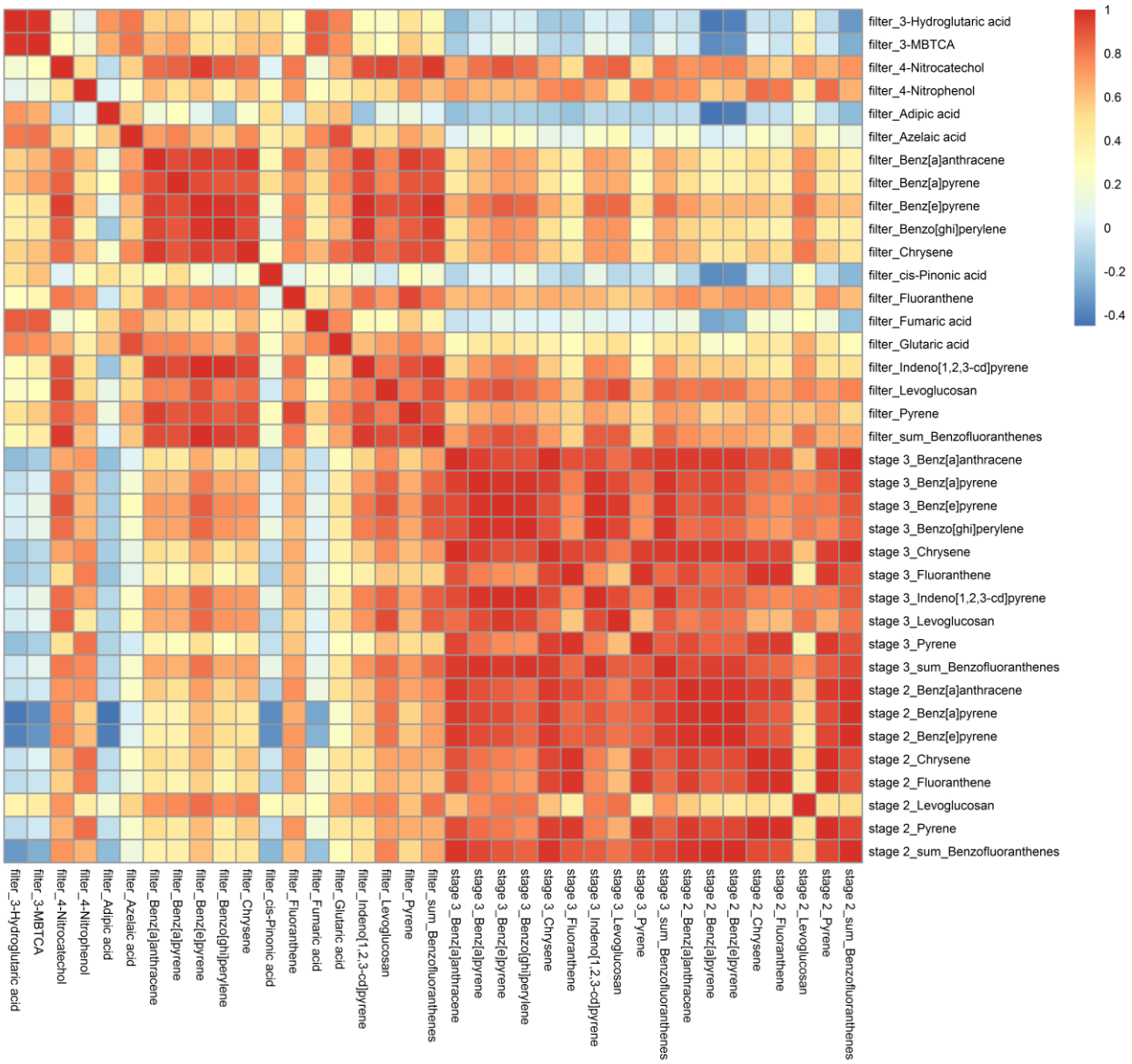

Fig. S2 Correlation matrix of measured compounds from different PM size fractions (stage 2, 1 - 2.4 µm; stage 3, 0.36 - 1 µm; filter, < 0.36 µm)

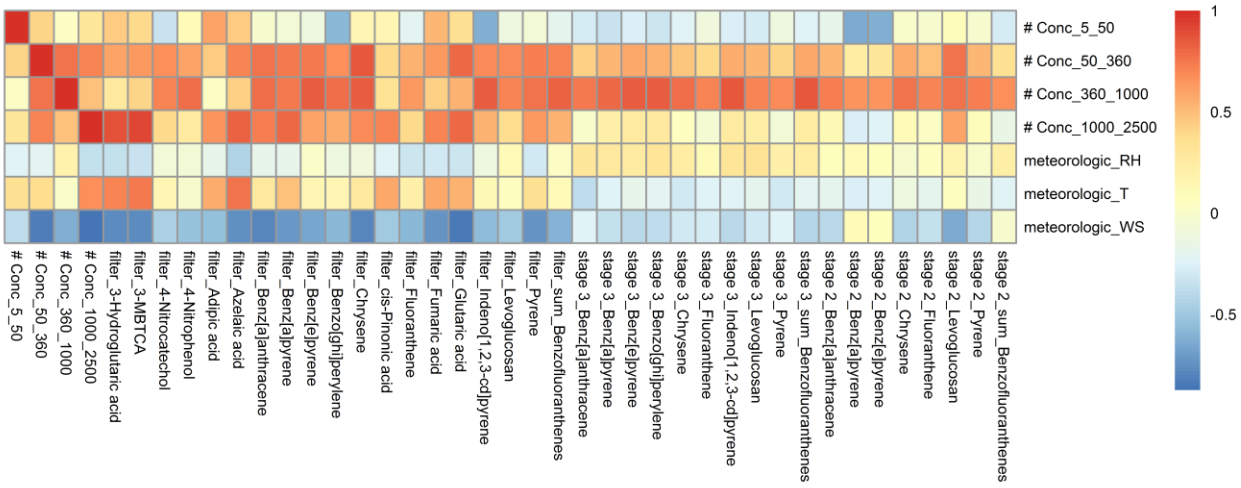

Fig. S3 Correlation matrix between different meteorological parameters, PNC and measured chemical concentrations from different PM size fractions (stage2, 1 - 2.4 µm; stage 3; 0.36 - 1 µm; filter, < 0.36 µm; WS, wind speed; T, temperature; RH, relative humidity; # Conc_5_50, # Conc_50_360, # Conc_360_1000, and # Conc_1000_2500 corresponding to concentration of PM in size range 5 - 50 nm, 50 - 360 nm, 360 - 1000 nm and 1000 -2500 nm, respectively

Table S1 Sample number and corresponding sampling start time

Sample #	Sampling start time	Weekdays
1	3/25/2014 17:00	Tuesday
2	3/26/2014 17:00	Wednesday
3	3/27/2014 17:00	Thursday
4	3/28/2014 17:00	Friday
5	3/29/2014 17:00	Saturday
8	4/1/2014 10:20	Tuesday
9	4/2/2014 10:20	Wednesday
10	4/3/2014 10:20	Thursday
11	4/4/2014 10:20	Friday
14	4/7/2014 12:10	Monday
15	4/8/2014 12:10	Tuesday
16	4/9/2014 12:10	Wednesday

Table S2 Limit of quantification (LOQ) of the quantified compounds

Quantified compounds	LOQ (ng)
Fluoranthene	0.007
Pyrene	0.006
Chrysene	0.010
Benz[a]anthracene	0.007
Benz[a]pyrene	0.013
Benz[e]pyrene	0.013
sum-Benzofluoranthenes	0.001
Indeno[1,2,3-cd]pyrene	0.008
Benzo[ghi]perylene	0.013
Levoglucosan	0.117
3-Hydroxyglutaric acid	0.052
4-Nitrocatechol	0.070
4- Nitrophenol	0.016
Adipic acid	0.200
Azelaic acid	0.187
cis-Pinonic acid	0.029
Fumaric acid	0.240
Glutaric acid	0.088

Table S3 *T* test summary of PAHs and levoglucosan, mean difference represents the mean of RDI #1 subtracted by mean of RDI #2. (* $P<0.05$)

	< 0,36 µm		0.36-1 µm		1-2.5 µm	
	Mean difference	P	Mean difference	P	Mean difference	P
Fluoranthene	-0.015	0.008*	-0.001	0.673	0.002	0.222
Pyrene	-0.010	0.011*	-0.003	0.471	0.000	0.865
Chrysene	0.008	0.262	0.002	0.493	0.000	0.376
Benz[a]anthracene	-0.002	0.154	0.001	0.248	0.000	0.502
Benz[a]pyrene	0.000	0.846	0.000	0.920	0.000	0.173
Benz[e]pyrene	-0.005	0.139	0.001	0.774	0.000	0.482
sum-Benzofluoranthenes	-0.008	0.121	0.008	0.102	0.001	0.368
Indeno[1,2,3-cd]pyrene	-0.001	0.634	-0.002	0.672		
Benzo[ghi]perylene	-0.002	0.424	0.006	0.137		
Levoglucosan	-6.796	0.165	1.559	0.502	0.211	0.558

Table S4 *T* test result of polar compounds (* $P<0.05$)

	Mean difference	P
3-Hydroxyglutaric acid	-0.073	0.535
3-MBTCA	-0.003	0.994
4-Nitrocatechol	-0.302	0.122
4-Nitrophenol	-0.035	0.172
Adipic acid	0.148	0.672
Azelaic acid	0.483	0.537
cis-Pinonic acid	0.161	0.679
Fumaric acid	-0.034	0.745
Glutaric acid	0.033	0.889

Table S5 Descriptive summary of the quantified compounds

Size ranges (µm)	Organic compounds (ng m^{-3})	Mean	Median	SD	Min	Max
< 0,36	3-Hydroxyglutaric acid	1.015	0.812	0.903	0.09	2.943
< 0,36	3-MBTCA	2.846	2.5	2.403	0.256	6.651
< 0,36	4-Nitrocatechol	1.669	1.101	1.801	0.331	6.727
< 0,36	4-Nitrophenol	0.499	0.474	0.103	0.359	0.669
< 0,36	cis-Pinonic acid	10.046	7.683	10.202	1.614	36.537
< 0,36	Adipic acid	3.105	2.935	1.552	1.082	6.506
< 0,36	Azelaic acid	3.427	3.274	1.737	0.956	5.821
< 0,36	Benz[a]anthracene	0.033	0.03	0.018	0.012	0.07
< 0,36	Benz[a]pyrene	0.044	0.033	0.032	0.007	0.109
< 0,36	Benz[e]pyrene	0.07	0.059	0.052	0.009	0.195
< 0,36	Benzo[ghi]perylene	0.059	0.053	0.031	0.026	0.121
< 0,36	Chrysene	0.165	0.175	0.087	0.041	0.337
< 0,36	Fluoranthene	0.229	0.225	0.073	0.133	0.395
< 0,36	Fumaric acid	0.945	0.955	0.501	0.338	1.874
< 0,36	Glutaric acid	1.616	1.458	0.718	0.74	2.86
< 0,36	Indeno[1,2,3-cd]pyrene	0.027	0.023	0.014	0.011	0.056
< 0,36	Levoglucosan	72.0	70.4	38.3	22.6	177
< 0,36	Pyrene	0.168	0.164	0.065	0.094	0.314
< 0,36	sum-Benzofluoranthenes	0.178	0.154	0.117	0.048	0.477
0.36-1	Benz[a]anthracene	0.026	0.023	0.021	0.006	0.069
0.36-1	Benz[a]pyrene	0.058	0.049	0.045	0.008	0.168
0.36-1	Benz[e]pyrene	0.086	0.076	0.065	0.01	0.25
0.36-1	Benzo[ghi]perylene	0.064	0.055	0.049	0.008	0.176

0.36-1	Chrysene	0.086	0.075	0.067	0.017	0.224
0.36-1	Fluoranthene	0.102	0.091	0.074	0.03	0.263
0.36-1	Indeno[1,2,3-cd]pyrene	0.033	0.032	0.024	0.004	0.087
0.36-1	Levoglucosan	52.5	38.8	41.9	9.77	160
0.36-1	Pyrene	0.079	0.067	0.052	0.023	0.184
0.36-1	sum- Benzofluoranthenes	0.184	0.17	0.129	0.025	0.475
1-2.5	Benz[a]anthracene	0.005	0.003	0.004	0.001	0.013
1-2.5	Benz[a]pyrene	0.011	0.009	0.008	0.004	0.028
1-2.5	Benz[e]pyrene	0.016	0.011	0.01	0.006	0.039
1-2.5	Chrysene	0.018	0.015	0.012	0.004	0.042
1-2.5	Fluoranthene	0.041	0.032	0.029	0.012	0.099
1-2.5	Levoglucosan	12.9	13.5	4.81	5.19	22.1
1-2.5	Pyrene	0.023	0.019	0.016	0.007	0.054
1-2.5	Sum--Benzofluoranthenes	0.031	0.023	0.024	0.006	0.083

Method, brief description of IDTD-GC-TOF-MS method:

A 27 mm^2 size strip of filter samples or one fifth (2 mm) of sampled drum strips was placed in a glass-liner and spiked with isotope-labeled internal standard mixtures for quantification. An autosampler (Combi PAL, CTC Analytics AG, Zwingen, Switzerland) was programmed to moisten the filter with 10 µl silylation reagent N-methyl-N-trimethylsilyl-trifluoroacetamide (MSTFA) and insert the liner into the GC-injector (Optic 3, GL Sciences, Eindhoven, The Netherlands). Organic compounds were thermally extracted from the filter strip at 300 ºC. During the desorption step the carrier gas was enriched with MSTFA to ensure the continuous derivatisation. The GC (Agilent 6890, Agilent, USA) was connected to a Time of Flight Mass Spectrometer (Pegasus III, LECO, USA). The capillary column for separation (BPX5, 25 m, 0.22 mm ID, 0.25 um film, SGE, Australia) was kept at 70 ºC to focus the desorbed molecules during desorption time, heated up to 130 ºC after the thermal desorption by a temperature ramp at 80 ºC·min^{-1} and then subjected to an 8 ºC min^{-1} ramp up to 330 ºC followed by holding for 30 min. The column flow and split flow after desorption were set to 0.7 ml min^{-1}. The recorded mass range for TOFMS was 35 - 500 m/z with an acquisition frequency 25·s^{-1}.