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Supplement of

Measurement of non-volatile particle number size distribution

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1 Instrumentation

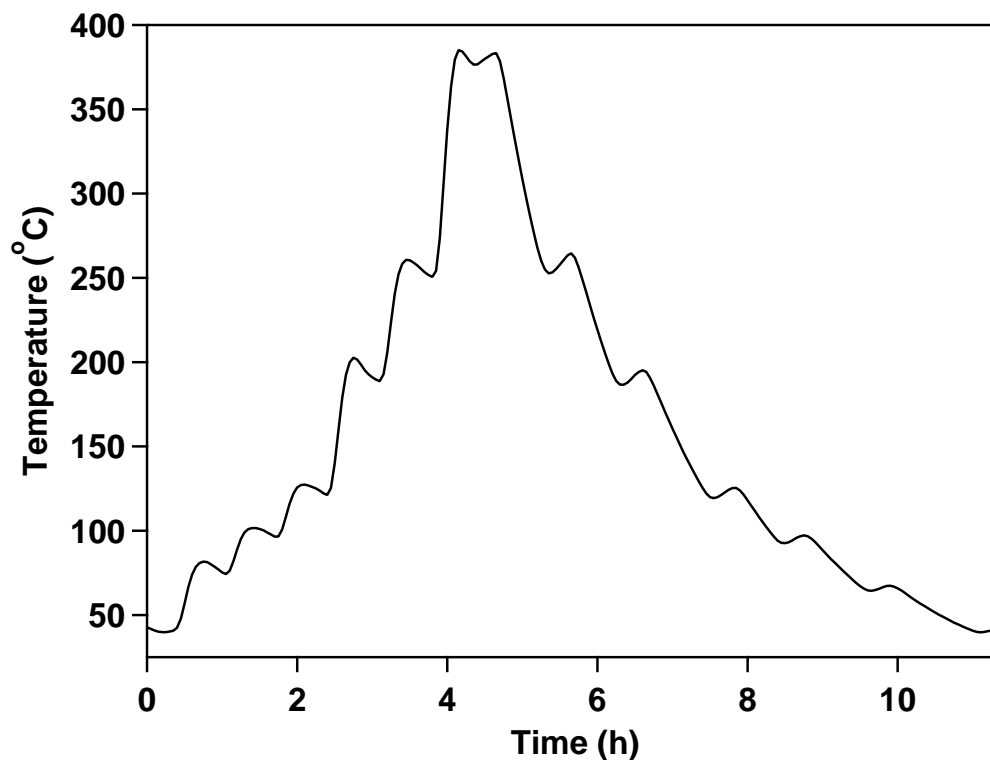


Figure S1: Temperature profile of a TD cycle during the campaign.

2 Biomass burning periods

Table S1: Average contribution of the different pollution sources for the four representative biomass burning periods, for ambient measurements (BP) and after 400 °C (TD), based on the PMF analysis, in $\mu\text{g m}^{-3}$. The % mass fraction remaining after 400 °C is also given.

Mode*	Mass concentration ($\mu\text{g m}^{-3}$)(% of OA)			
	BBOA	HOA	OOA	COA
BP	23 (76 %)	1.5 (5 %)	2.4 (8 %)	3 (10 %)
TD	2.1 (47 %)	0.5 (10 %)	1.8 (40 %)	0.1 (3 %)
Mass fraction remaining (%)	9	33	75	3

* BP and TD results have a 13 % and 20 % unexplained organic mass from the PMF analysis, respectively.

Table S2: Average mass concentration of the major species (in $\mu\text{g m}^{-3}$) for the biomass burning periods, given for both modes (BP for ambient conditions and TD after 400 °C), during the Athens–2013 campaign. Number fraction remaining (NFR) for each event and the average mass fraction remaining of each species are also provided.

Date	Mode	Mass concentration (in $\mu\text{g m}^{-3}$) (Percentage of PM ₁)					NFR
		Organics	Sulfate	Nitrate	Ammonium	BC ^a	
1. (13.Jan.2013 03:45)	BP	47 (75 %)	1.1 (2 %)	1.8 (3 %)	0.8 (1 %)	12 (19 %)	0.86
	TD	9 (42 %)	0.3 (1 %)	0.2 (1 %)	0.05 (< 1 %)	12 (56 %)	
2. (13.Jan.2013 22:45)	BP	65 (76 %)	2.4 (3 %)	2.1 (2 %)	1.5 (2 %)	14.7 (17 %)	0.92
	TD	11 (41 %)	0.7 (3 %)	0.3 (1 %)	0.2 (< 1 %)	14.7 (55 %)	
3. (14.Jan.2013 23:05)	BP	6.7 (62 %)	0.7 (6 %)	0.5 (5 %)	0.45 (4 %)	2.4 (23 %)	0.57
	TD	1.2 (31 %)	0.2 (4 %)	0.09 (2 %)	0.05 (1 %)	2.4 (62 %)	
4. (24.Jan.2013 04:15)	BP	16.2 (71 %)	1.2 (5 %)	1.0 (4 %)	0.6 (2 %)	4 (18 %)	0.86
	TD	2 (32 %)	0.2 (3 %)	0.13 (2 %)	0.04 (< 1 %)	4 (62 %)	
		Average mass fraction remaining (%) at 400 °C					
		17	25	13	9	100	80

^a Assuming zero evaporation of BC at 400 °C

3 Traffic periods

Table S3: Average contribution of the different pollution sources for the three representative traffic periods, for ambient measurements (BP) and after 400 °C (TD), estimated by PMF analysis, in $\mu\text{g m}^{-3}$. The % mass fraction remaining after 400 °C is also given.

Mode*	Mass concentration ($\mu\text{g m}^{-3}$)(% of OA)			
	BBOA	HOA	OOA	COA
BP	0.5 (11 %)	3 (70 %)	0.5 (12 %)	0.3 (6 %)
TD	0.2 (2 %)	0.6 (57 %)	0.4 (38 %)	0.03 (3 %)
Mass fraction remaining (%)	40	20	76	10

* BP and TD results have a 12 % and 24 % unexplained organic mass from the PMF analysis, respectively.

Table S4: Average mass concentration of the major species (in $\mu\text{g m}^{-3}$) for the representative traffic periods, given for both modes (BP for ambient conditions and TD after $400\text{ }^\circ\text{C}$), during the Athens–2013 campaign. The number fraction remaining (NFR) for each event and the average mass fraction remaining of each species and NFR are also provided.

Date	Mode	Mass concentration (in $\mu\text{g m}^{-3}$) (Percentage of PM_{10})					NFR
		Organics	Sulfate	Nitrate	Ammonium	BC ^a	
1. (14.Jan.2013 09:10)	BP	10.5 (48 %)	1.1 (5 %)	1.2 (5 %)	0.65 (3 %)	8.5 (39 %)	0.62
	TD	2.5 (22 %)	0.2 (2 %)	0.2 (2 %)	0.08 (< 1 %)	8.5 (74 %)	
2. (15.Jan.2013 08:40)	BP	2.3 (29 %)	0.7 (9 %)	0.5 (6 %)	0.4 (5 %)	4 (51 %)	0.5
	TD	0.8 (16 %)	0.13 (2 %)	0.1 (2 %)	0.05 (< 1 %)	4 (79 %)	
3. (17.Jan.2013 07:20)	BP	1.8 (30 %)	0.3 (5 %)	0.2 (3 %)	0.1 (1 %)	3.7 (61 %)	0.43
	TD	0.5 (11 %)	0.07 (2 %)	0.05 (1 %)	0.01 (< 1 %)	3.7 (86 %)	
		Average mass fraction remaining (%) at $400\text{ }^\circ\text{C}$					
		26	19	18	12	100	52

^a Assuming zero evaporation of BC at $400\text{ }^\circ\text{C}$

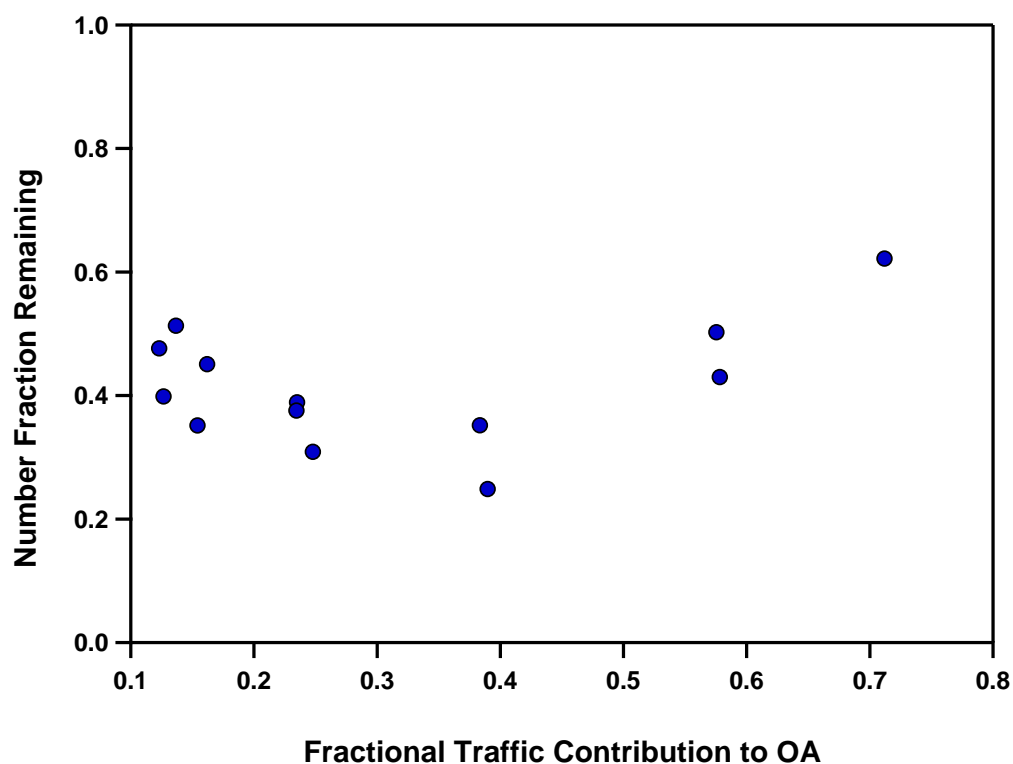


Figure S2: The number fraction remaining as a function of the fractional contribution of traffic to the organic aerosol mass. Each point corresponds to 0.5-1.2 hours.