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Supplement of

Particle size-resolved source apportionment of primary and secondary organic tracer compounds at urban and rural locations in Spain

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Table S1. Summary of meteorological conditions in Warm and Cold sampling periods in the Rural and Urban site.

		Rural						**Urban**					
		warm			**cold**			**warm**			**cold**		
		mean		*sd*	*mean*		*sd*	*mean*		*sd*	*mean*		*sd*
Temp.	(°C)	20	±	7	4	±	10	22	±	2	10	±	2
Rel.Humidity	(%)	69	±	23	80	±	22	55	±	3	72	±	8
Wind Speed	(m/s)	4	±	4	2	±	4	2	±	0	3	±	1
Wind Dir.	(°)	78	±	40	176	±	126	187	±	23	162	±	103
Atm.Pressure	(mbar)	1014	±	3	1008	±	26	1010	±	3	1005	±	1

Table S2. Selected ions (m/z) for the identification and quantification of molecular organic tracer compounds in the PM filter sample extract in GC-MS (EI).

compound family	compound name	ion *m/z*
acids+polyols	succinic acid (SA)	247
	glutaric acid (GA)	261
	adipic acid (AdA)	275
	pimelic acid (PA)	289
	suberic acid (SbA)	303
	azelaic acid (AzA)	317
	glyceric acid (GyA)	292
	malic acid (MA)	233
	3-hydroxyglutaric acid (3HGA)	349
	3-methyl-1,2,3-butanetricarboxylic acid (MBTCA)	405
	cis-pinonic acid (CPA)	171
	pinic acid (PNA)	171
	2-methylglyceric acid (2MGA)	219
	C5-alkene triols (C5T)	231
	2-methylthreitol (2MT1)	219
	2-methylerythritol (2MT2)	219
	phthalic acid (PhA)	295
	terephthalic acid (TPhA)	295
	C16:0 to C21:0 including C18:1 (oleic acid)	117
saccharides	galactosan (G)	217
	mannosan (M)	204
	levoglucosan (L)	204
	xylitol (X)	217
	mannitol (MaOL	319
	α-glucose (αGL)	204
	β-glucose (βGL)	204
	dehydrabietic acid (DHA)	239
	sucrose (S)	261
	mycose (My)	261
alkaloid	nicotine (NIC)	84
quinones	fluorenone (flo)	180
	phenanthrenequinone (pheno)	208
	anthracenequinone (anto)	208
	benzo[a]fluorenone (baflo)	230
	benzo[b]fluorenone (bbflo)	230
	benzanthrenone (bao)	230
PAH	phenanthrene (phe)	178
	anthracene (ant)	178
	fluoranthene (fla)	202
	pyrene (pyr)	202
	retene (ret)	219
	benz[a]anthracene (baa)	228
	chrysene (chry)	228
	benzo[b+j]fluoranthene (bbjfla)	252
	benzo[k]fluoranthene (bkfla)	252
	benzo[e]pyrene (bep)	252
	benzo[a]pyrene (bap)	252
	indeno[123cd]pyrene (ip)	276
	dibenz[ah]anthracene (dba)	278
	benzo[ghi]perylene (bgp)	276
	coronene (cor)	300
hopanes	17a(H)21β(H)-29-norhopane (norHop)	191
	17a(H)21β(H)-hopane (Hop)	191
n-alkanes	nC20 to nC34	71

Table S3a-b. Summary of organic tracer compound concentrations in Warm and Cold sampling periods in the Rural site.

RURAL	**Warm period**					
	>7.2 µm	7.2 - 3.0 µm	3.0 - 1.5 µm	1.5 - 1.0 µm	1.0 - 0.5 µm	<0.5 µm
(ng/m^3)						
succinic acid (SA)	**4.1** ± 1.1	**4.3** ± 0.6	**6.9** ± 0.4	**10.0** ± 1.5	**11.0** ± 0.9	**37.3** ± 1.2
glutaric acid (GA)	**0.5** ± 0.0	**0.4** ± 0.0	**0.6** ± 0.1	**1.0** ± 0.1	**1.9** ± 1.0	**4.7** ± 0.2
adipic acid (AdA)	**0.8** ± 0.7	**0.2** ± 0.0	**0.3** ± 0.2	**0.5** ± 0.0	**0.7** ± 0.3	**1.6** ± 0.2
pimelic acid (PA)	**0.4** ± 0.1	**0.4** ± 0.2	**0.5** ± 0.0	**0.4** ± 0.1	**0.5** ± 0.1	**1.6** ± 0.5
suberic acid (SbA)	**0.7** ± 0.7	**0.3** ± 0.1	**0.3** ± 0.2	**0.4** ± 0.0	**0.5** ± 0.2	**1.2** ± 0.4
azelaic acid (AzA)	**1.6** ± 1.3	**0.9** ± 0.2	**1.7** ± 0.3	**2.2** ± 0.2	**2.1** ± 0.2	**12.7** ± 2.6
glyceric acid (GyA)	**0.8** ± 0.1	**0.6** ± 0.2	**1.3** ± 0.0	**2.5** ± 1.0	**2.5** ± 0.8	**10.1** ± 0.1
malic acid (MA)	**0.5** ± 0.1	**0.7** ± 0.2	**2.1** ± 1.9	**2.4** ± 1.8	**3.1** ± 1.9	**90.4** ± 8.6
3-hydroxyglutaric acid (3HGA)	**0.1** ± 0.0	**0.1** ± 0.0	**0.2** ± 0.2	**0.4** ± 0.5	**0.9** ± 1.2	**46.5** ± 4.5
MBTCA	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**0.7** ± 0.9	**44.3** ± 3.1
cis-pinonic acid (CPA)	**16.6** ± 7.1	**24.0** ± 9.7	**26.7** ± 9.3	**29.8** ± 10.5	**23.6** ± 22.4	**14.3** ± 1.0
pinic acid (PNA)	**9.2** ± 1.0	**10.0** ± 1.3	**19.0** ± 1.2	**23.9** ± 2.6	**17.7** ± 19.7	**151.8** ± 13.6
2-methylglyceric acid (2MGA)	**6.2** ± 2.7	**7.8** ± 2.3	**16.7** ± 8.2	**18.5** ± 10.9	**7.0** ± 7.9	**41.4** ± 0.1
C5-alkene triols (C5T)	**1.5** ± 0.7	**1.9** ± 0.9	**2.8** ± 1.7	**5.8** ± 2.3	**8.5** ± 10.3	**123.5** ± 20.9
2-methylthreitol (2MT1)	**5.0** ± 1.2	**14.4** ± 7.3	**18.1** ± 9.9	**15.1** ± 8.5	**8.0** ± 9.6	**60.3** ± 2.9
2-methylerythritol (2MT2)	**11.4** ± 2.0	**32.8** ± 19.8	**48.4** ± 32.0	**43.7** ± 19.9	**23.3** ± 28.9	**221.0** ± 35.5
phthalic acid (PhA)	**1.1** ± 0.6	**1.2** ± 0.6	**2.1** ± 1.2	**2.4** ± 1.1	**2.4** ± 2.7	**11.2** ± 4.9
terephthalic acid (TPhA)	**1.9** ± 1.0	**1.9** ± 1.7	**3.5** ± 2.9	**2.7** ± 0.1	**2.7** ± 0.6	**4.3** ± 1.4
nicotine (NIC)	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**0.6** ± 0.7
galactosan (G)	**0.0** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**0.2** ± 0.0	**0.2** ± 0.1	**1.2** ± 0.1
mannosan (M)	**0.0** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**0.2** ± 0.0	**0.1** ± 0.1	**0.6** ± 0.1
levoglucosan (L)	**0.1** ± 0.0	**0.4** ± 0.0	**0.4** ± 0.2	**0.9** ± 0.2	**0.7** ± 0.6	**6.3** ± 0.6
xylitol (X)	**8.4** ± 6.5	**49.7** ± 27.7	**125.2** ± 79.7	**64.6** ± 38.1	**22.3** ± 14.7	**11.5** ± 7.5
mannitol (MaOL	**6.1** ± 4.6	**43.8** ± 15.5	**70.4** ± 2.8	**31.3** ± 4.3	**12.5** ± 5.3	**4.8** ± 2.2
α-glucose (αGL)	**14.9** ± 9.6	**77.6** ± 53.1	**85.8** ± 10.6	**45.2** ± 0.7	**20.4** ± 8.7	**14.6** ± 11.1
β-glucose (βGL)	**18.4** ± 12.6	**88.2** ± 58.4	**98.8** ± 7.6	**53.2** ± 2.7	**21.8** ± 7.2	**15.8** ± 11.6
dehydrabietic acid (DHA)	**0.2** ± 0.0	**0.3** ± 0.2	**0.3** ± 0.0	**0.2** ± 0.1	**0.1** ± 0.1	**0.6** ± 0.3
sucrose (S)	**14.8** ± 6.9	**14.0** ± 9.0	**6.3** ± 7.2	**1.8** ± 1.0	**1.0** ± 0.4	**7.8** ± 1.4
mycose (My)	**1.9** ± 0.9	**34.5** ± 17.5	**46.8** ± 27.1	**11.0** ± 6.9	**2.9** ± 0.5	**2.4** ± 0.9
C16:0	**19.7** ± 12.4	**15.5** ± 1.7	**12.1** ± 0.4	**15.4** ± 0.5	**9.7** ± 2.8	**25.4** ± 3.6
C17:0	**0.8** ± 0.4	**0.5** ± 0.1	**0.5** ± 0.0	**0.5** ± 0.1	**0.4** ± 0.2	**1.2** ± 0.1

C18:1	**2.6**	± 2.4	**2.3**	± 0.9	**1.8**	± 0.5	**1.2**	± 0.6	**0.8**	± 0.3	**1.7**	± 1.4
C18:0	**4.1**	± 1.8	**6.1**	± 0.7	**4.2**	± 0.8	**3.9**	± 0.0	**1.9**	± 0.8	**7.4**	± 2.1
C19:0	**0.1**	± 0.1	**0.2**	± 0.0	**0.2**	± 0.0	**0.2**	± 0.0	**0.2**	± 0.2	**0.5**	± 0.0
C20:0	**0.4**	± 0.2	**0.5**	± 0.2	**0.5**	± 0.1	**0.4**	± 0.0	**0.2**	± 0.2	**1.5**	± 0.0
C21:0	**0.1**	± 0.0	**0.1**	± 0.1	**0.2**	± 0.2	**0.1**	± 0.0	**0.1**	± 0.0	**0.5**	± 0.1
fluorenone (flo)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.01**	± 0.00
phenanthraquinone (pheno)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00
anthracenequinone (anto)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.03**	± 0.00
benzo[a]fluorenone (baflo)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.01**	± 0.00
benzo[b]fluorenone (bbflo)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.01**	± 0.00
benzanthrenone (bao)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.01**	± 0.00
phenanthrene (phe)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.03**	± 0.01
anthracene (ant)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.01**	± 0.00
fluoranthene (fla)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.01**	± 0.00	**0.01**	± 0.00	**0.05**	± 0.01
pyrene (pyr)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.01**	± 0.00	**0.01**	± 0.00	**0.07**	± 0.02
retene (ret)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00
benz[a]anthracene (baa)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.02**	± 0.01
chrysene (chry)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.04**	± 0.02
benzo[b+j]fluoranthene (bbjfla)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.01**	± 0.00	**0.10**	± 0.06
benzo[k]fluoranthene (bkfla)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.03**	± 0.02
benzo[e]pyrene (bep)	**0.00**	± 0.00	**0.01**	± 0.00	**0.01**	± 0.00	**0.01**	± 0.00	**0.01**	± 0.00	**0.13**	± 0.07
benzo[a]pyrene (bap)	**0.00**	± 0.00	**0.01**	± 0.00	**0.01**	± 0.00	**0.01**	± 0.00	**0.01**	± 0.00	**0.08**	± 0.03
indeno[123cd]pyrene (ip)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.01**	± 0.00	**0.01**	± 0.00	**0.11**	± 0.05
dibenz[ah]anthracene (dba)	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.00**	± 0.00	**0.03**	± 0.01
benzo[ghi]perylene (bgp)	**0.01**	± 0.00	**0.01**	± 0.00	**0.01**	± 0.00	**0.01**	± 0.01	**0.02**	± 0.01	**0.15**	± 0.07
coronene (cor)	**0.00**	± 0.00	**0.01**	± 0.00	**0.00**	± 0.00	**0.01**	± 0.01	**0.01**	± 0.00	**0.06**	± 0.03
17a(H)21β(H)-29-norhopane (norHop)	**0.03**	± 0.00	**0.03**	± 0.01	**0.03**	± 0.01	**0.02**	± 0.00	**0.05**	± 0.04	**0.30**	± 0.06
17a(H)21β(H)-hopane (Hop)	**0.03**	± 0.01	**0.03**	± 0.01	**0.02**	± 0.01	**0.02**	± 0.00	**0.04**	± 0.03	**0.27**	± 0.07
nC20	**0.03**	± 0.01	**0.02**	± 0.00	**0.01**	± 0.01	**0.02**	± 0.00	**0.04**	± 0.03	**0.02**	± 0.01
nC21	**0.09**	± 0.05	**0.07**	± 0.06	**0.04**	± 0.04	**0.05**	± 0.00	**0.08**	± 0.05	**0.13**	± 0.03
nC22	**0.09**	± 0.08	**0.06**	± 0.00	**0.03**	± 0.03	**0.07**	± 0.01	**0.13**	± 0.09	**0.06**	± 0.03
nC23	**0.05**	± 0.03	**0.05**	± 0.02	**0.02**	± 0.02	**0.05**	± 0.01	**0.07**	± 0.04	**0.08**	± 0.04
nC24	**0.04**	± 0.04	**0.04**	± 0.00	**0.02**	± 0.01	**0.04**	± 0.01	**0.06**	± 0.04	**0.11**	± 0.04
nC25	**0.15**	± 0.05	**0.18**	± 0.08	**0.10**	± 0.02	**0.18**	± 0.01	**0.24**	± 0.03	**0.27**	± 0.16
nC26	**0.08**	± 0.05	**0.06**	± 0.02	**0.03**	± 0.01	**0.07**	± 0.02	**0.13**	± 0.10	**0.27**	± 0.27
nC27	**0.21**	± 0.04	**0.35**	± 0.15	**0.22**	± 0.02	**0.29**	± 0.04	**0.27**	± 0.02	**0.46**	± 0.36
nC28	**0.08**	± 0.05	**0.08**	± 0.01	**0.04**	± 0.01	**0.08**	± 0.03	**0.06**	± 0.01	**0.16**	± 0.16

nC29	**0.27** ± 0.06	**0.57** ± 0.19	**0.42** ± 0.10	**0.59** ± 0.03	**0.41** ± 0.17	**0.46** ± 0.26
nC30	**0.05** ± 0.03	**0.06** ± 0.02	**0.03** ± 0.01	**0.05** ± 0.01	**0.07** ± 0.03	**0.14** ± 0.09
nC31	**0.16** ± 0.02	**0.39** ± 0.09	**0.23** ± 0.03	**0.38** ± 0.13	**0.24** ± 0.16	**0.39** ± 0.13
nC32	**0.06** ± 0.04	**0.06** ± 0.01	**0.04** ± 0.03	**0.06** ± 0.01	**0.08** ± 0.04	**0.08** ± 0.04
nC33	**0.06** ± 0.02	**0.08** ± 0.02	**0.05** ± 0.02	**0.07** ± 0.00	**0.08** ± 0.02	**0.14** ± 0.05
nC34	**0.05** ± 0.04	**0.04** ± 0.00	**0.02** ± 0.01	**0.04** ± 0.00	**0.03** ± 0.00	**0.04** ± 0.01

	Cold period					
	>7.2 µm	7.2 - 3.0 µm	3.0 - 1.5 µm	1.5 - 1.0 µm	1.0 - 0.5 µm	<0.5 µm
(ng/m^3)						
succinic acid (SA)	**4.1** ± 1.2	**4.7** ± 1.1	**5.8** ± 3.4	**7.5** ± 2.5	**10.5** ± 1.5	**35.8** ± 13.3
glutaric acid (GA)	**1.5** ± 1.0	**1.5** ± 1.2	**2.0** ± 1.4	**2.4** ± 1.2	**2.9** ± 0.0	**11.4** ± 4.1
adipic acid (AdA)	**1.6** ± 1.4	**0.5** ± 0.4	**0.7** ± 0.2	**0.7** ± 0.4	**0.9** ± 0.3	**2.3** ± 0.3
pimelic acid (PA)	**0.3** ± 0.2	**0.2** ± 0.1	**0.3** ± 0.2	**0.4** ± 0.1	**0.5** ± 0.1	**4.0** ± 0.5
suberic acid (SbA)	**0.8** ± 0.7	**0.3** ± 0.2	**0.3** ± 0.1	**0.5** ± 0.2	**0.7** ± 0.2	**4.7** ± 0.6
azelaic acid (AzA)	**2.2** ± 1.8	**1.3** ± 0.7	**1.5** ± 0.6	**2.8** ± 0.9	**5.3** ± 0.9	**63.9** ± 5.4
glyceric acid (GyA)	**2.4** ± 1.2	**1.8** ± 1.6	**2.4** ± 2.6	**2.6** ± 2.4	**3.5** ± 1.9	**11.6** ± 4.4
malic acid (MA)	**0.1** ± 0.1	**0.2** ± 0.1	**0.5** ± 0.1	**0.5** ± 0.3	**0.9** ± 0.3	**25.2** ± 3.9
3-hydroxyglutaric acid (3HGA)	**0.1** ± 0.0	**0.1** ± 0.0	**0.2** ± 0.1	**0.1** ± 0.0	**0.3** ± 0.0	**7.6** ± 1.0
MBTCA	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**0.3** ± 0.3	**6.4** ± 0.3
cis-pinonic acid (CPA)	**4.8** ± 1.0	**9.5** ± 0.4	**8.5** ± 2.7	**9.3** ± 1.6	**9.6** ± 0.1	**6.6** ± 0.6
pinic acid (PNA)	**2.1** ± 2.0	**2.9** ± 2.1	**3.9** ± 3.3	**4.5** ± 2.8	**5.7** ± 3.2	**31.7** ± 15.7
2-methylglyceric acid (2MGA)	**0.4** ± 0.3	**0.7** ± 0.6	**0.8** ± 0.7	**0.8** ± 0.5	**1.0** ± 0.6	**2.6** ± 0.8
C5-alkene triols (C5T)	**0.1** ± 0.1	**0.1** ± 0.1	**0.1** ± 0.0	**0.2** ± 0.2	**0.4** ± 0.3	**1.5** ± 0.2
2-methylthreitol (2MT1)	**0.2** ± 0.0	**0.3** ± 0.2	**0.4** ± 0.2	**0.3** ± 0.0	**0.5** ± 0.2	**0.5** ± 0.1
2-methylerythritol (2MT2)	**0.3** ± 0.0	**0.4** ± 0.0	**0.7** ± 0.3	**0.7** ± 0.2	**1.0** ± 0.6	**5.2** ± 4.4
phthalic acid (PhA)	**3.5** ± 3.8	**4.9** ± 5.1	**4.8** ± 4.8	**5.3** ± 4.9	**7.0** ± 6.0	**7.4** ± 2.4
terephthalic acid (TPhA)	**18.6** ± 17.5	**28.9** ± 34.8	**33.6** ± 40.8	**33.5** ± 36.1	**37.6** ± 30.5	**28.8** ± 13.8
nicotine (NIC)	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**1.7** ± 2.2
galactosan (G)	**0.8** ± 0.1	**1.4** ± 0.1	**2.8** ± 0.1	**6.2** ± 2.3	**18.0** ± 1.4	**160.4** ± 52.3
mannosan (M)	**0.6** ± 0.0	**1.1** ± 0.0	**2.7** ± 0.2	**7.2** ± 2.4	**24.1** ± 8.0	**216.3** ± 22.0
levoglucosan (L)	**4.5** ± 1.5	**9.8** ± 1.6	**20.3** ± 2.0	**63.2** ± 1.9	**173.4** ± 20.4	**1329** ± 275.0
xylitol (X)	**0.6** ± 0.1	**2.8** ± 2.1	**8.0** ± 6.1	**5.9** ± 3.9	**3.9** ± 2.2	**14.5** ± 4.8
mannitol (MaOL	**0.4** ± 0.3	**1.8** ± 1.9	**4.2** ± 3.6	**2.2** ± 1.3	**0.8** ± 0.7	**0.8** ± 0.3
α-glucose (αGL)	**2.4** ± 2.1	**10.6** ± 11.4	**11.5** ± 12.7	**6.0** ± 5.2	**3.4** ± 1.3	**12.5** ± 5.5
β-glucose (βGL)	**3.5** ± 2.3	**14.3** ± 16.0	**13.9** ± 15.2	**8.4** ± 7.4	**4.3** ± 1.6	**14.5** ± 3.1

dehydrabietic acid (DHA)	**1.2**	±	0.8	**4.4**	±	1.1	**6.8**	±	1.7	**24.2**	±	7.3	**81.2**	±	5.7	**350.0**	±	94.1
sucrose (S)	**4.8**	±	2.2	**0.9**	±	0.8	**0.6**	±	0.1	**1.3**	±	0.2	**1.1**	±	0.2	**10.8**	±	2.8
mycose (My)	**0.4**	±	0.2	**2.8**	±	3.7	**2.7**	±	2.6	**1.9**	±	1.2	**0.9**	±	0.5	**1.4**	±	0.4
C16:0	**14.6**	±	13.7	**8.4**	±	1.8	**5.2**	±	2.0	**7.5**	±	2.7	**13.1**	±	2.2	**73.7**	±	3.2
C17:0	**0.7**	±	0.6	**0.4**	±	0.0	**0.3**	±	0.0	**0.6**	±	0.1	**0.9**	±	0.0	**4.4**	±	0.2
C18:1	**9.1**	±	12.1	**1.6**	±	0.7	**1.4**	±	1.0	**1.2**	±	0.6	**3.8**	±	1.6	**17.4**	±	0.8
C18:0	**3.3**	±	3.2	**4.0**	±	0.7	**2.3**	±	0.6	**2.9**	±	0.8	**5.2**	±	0.6	**49.3**	±	2.1
C19:0	**0.2**	±	0.1	**0.2**	±	0.1	**0.1**	±	0.0	**0.4**	±	0.0	**1.1**	±	0.1	**3.4**	±	0.1
C20:0	**0.4**	±	0.4	**0.4**	±	0.1	**0.3**	±	0.0	**0.8**	±	0.2	**2.2**	±	0.6	**12.0**	±	0.5
C21:0	**0.1**	±	0.0	**0.1**	±	0.0	**0.1**	±	0.0	**0.3**	±	0.1	**0.8**	±	0.3	**5.0**	±	0.2
fluorenone (flo)	**0.02**	±	0.01	**0.02**	±	0.01	**0.01**	±	0.01	**0.01**	±	0.00	**0.02**	±	0.00	**0.14**	±	0.09
phenanthraquinone (pheno)	**0.10**	±	0.12	**0.12**	±	0.12	**0.08**	±	0.08	**0.07**	±	0.04	**0.10**	±	0.03	**0.81**	±	0.47
anthracenequinone (anto)	**0.03**	±	0.03	**0.04**	±	0.04	**0.03**	±	0.02	**0.03**	±	0.02	**0.03**	±	0.02	**0.22**	±	0.11
benzo[a]fluorenone (baflo)	**0.02**	±	0.03	**0.04**	±	0.04	**0.02**	±	0.01	**0.01**	±	0.01	**0.03**	±	0.02	**0.59**	±	0.31
benzo[b]fluorenone (bbflo)	**0.02**	±	0.03	**0.04**	±	0.05	**0.01**	±	0.01	**0.01**	±	0.01	**0.03**	±	0.03	**0.79**	±	0.25
benzanthrenone (bao)	**0.04**	±	0.05	**0.08**	±	0.10	**0.03**	±	0.01	**0.03**	±	0.03	**0.07**	±	0.07	**1.15**	±	0.17
phenanthrene (phe)	**0.02**	±	0.02	**0.03**	±	0.03	**0.02**	±	0.01	**0.01**	±	0.01	**0.02**	±	0.01	**0.26**	±	0.12
anthracene (ant)	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.05**	±	0.01
fluoranthene (fla)	**0.08**	±	0.08	**0.14**	±	0.13	**0.06**	±	0.03	**0.05**	±	0.02	**0.08**	±	0.03	**1.23**	±	0.73
pyrene (pyr)	**0.09**	±	0.08	**0.17**	±	0.16	**0.07**	±	0.03	**0.06**	±	0.02	**0.10**	±	0.05	**1.63**	±	0.92
retene (ret)	**0.25**	±	0.30	**0.43**	±	0.48	**0.19**	±	0.17	**0.12**	±	0.00	**0.22**	±	0.01	**2.03**	±	1.49
benz[a]anthracene (baa)	**0.05**	±	0.05	**0.15**	±	0.18	**0.03**	±	0.01	**0.03**	±	0.03	**0.10**	±	0.11	**1.43**	±	0.71
chrysene (chry)	**0.07**	±	0.08	**0.18**	±	0.21	**0.05**	±	0.02	**0.05**	±	0.04	**0.12**	±	0.12	**1.55**	±	0.82
benzo[b+j]fluoranthene (bbjfla)	**0.09**	±	0.10	**0.24**	±	0.29	**0.05**	±	0.01	**0.08**	±	0.09	**0.22**	±	0.26	**2.02**	±	0.47
benzo[k]fluoranthene (bkfla)	**0.02**	±	0.03	**0.07**	±	0.09	**0.01**	±	0.00	**0.02**	±	0.03	**0.06**	±	0.07	**0.73**	±	0.20
benzo[e]pyrene (bep)	**0.07**	±	0.07	**0.15**	±	0.16	**0.05**	±	0.01	**0.06**	±	0.06	**0.13**	±	0.13	**1.04**	±	0.27
benzo[a]pyrene (bap)	**0.07**	±	0.07	**0.17**	±	0.21	**0.04**	±	0.00	**0.06**	±	0.07	**0.16**	±	0.20	**0.99**	±	0.27
indeno[123cd]pyrene (ip)	**0.06**	±	0.06	**0.14**	±	0.16	**0.04**	±	0.00	**0.06**	±	0.07	**0.14**	±	0.16	**1.14**	±	0.29
dibenz[ah]anthracene (dba)	**0.02**	±	0.02	**0.04**	±	0.04	**0.01**	±	0.00	**0.01**	±	0.02	**0.03**	±	0.04	**0.35**	±	0.09
benzo[ghi]perylene (bgp)	**0.06**	±	0.06	**0.13**	±	0.13	**0.05**	±	0.00	**0.06**	±	0.06	**0.13**	±	0.14	**0.82**	±	0.19
coronene (cor)	**0.03**	±	0.02	**0.06**	±	0.06	**0.02**	±	0.00	**0.03**	±	0.03	**0.07**	±	0.07	**0.44**	±	0.09
17a(H)21β(H)-29-norhopane (norHop)	**0.04**	±	0.02	**0.05**	±	0.01	**0.03**	±	0.01	**0.02**	±	0.01	**0.04**	±	0.00	**0.12**	±	0.00
17a(H)21β(H)-hopane (Hop)	**0.03**	±	0.02	**0.03**	±	0.01	**0.02**	±	0.00	**0.02**	±	0.00	**0.03**	±	0.01	**0.13**	±	0.01
nC20	**0.10**	±	0.04	**0.11**	±	0.10	**0.07**	±	0.04	**0.04**	±	0.01	**0.07**	±	0.01	**0.65**	±	0.42
nC21	**0.18**	±	0.00	**0.24**	±	0.09	**0.19**	±	0.10	**0.12**	±	0.10	**0.13**	±	0.04	**1.40**	±	1.07
nC22	**0.17**	±	0.11	**0.28**	±	0.30	**0.09**	±	0.05	**0.07**	±	0.03	**0.12**	±	0.04	**2.16**	±	1.60
nC23	**0.24**	±	0.10	**0.38**	±	0.39	**0.11**	±	0.02	**0.09**	±	0.07	**0.16**	±	0.11	**2.71**	±	1.27

nC24	**0.22** ± 0.16	**0.38** ± 0.43	**0.09** ± 0.03	**0.08** ± 0.07	**0.16** ± 0.13	**2.05** ± 0.75
nC25	**0.29** ± 0.15	**0.45** ± 0.47	**0.12** ± 0.04	**0.12** ± 0.09	**0.20** ± 0.15	**1.74** ± 0.33
nC26	**0.25** ± 0.18	**0.42** ± 0.49	**0.11** ± 0.04	**0.11** ± 0.08	**0.20** ± 0.18	**1.12** ± 0.18
nC27	**0.31** ± 0.13	**0.50** ± 0.35	**0.19** ± 0.01	**0.17** ± 0.15	**0.27** ± 0.19	**1.39** ± 0.11
nC28	**0.24** ± 0.16	**0.38** ± 0.42	**0.11** ± 0.04	**0.12** ± 0.09	**0.19** ± 0.17	**0.96** ± 0.02
nC29	**0.43** ± 0.21	**0.64** ± 0.33	**0.35** ± 0.01	**0.29** ± 0.24	**0.52** ± 0.28	**2.48** ± 1.06
nC30	**0.17** ± 0.15	**0.28** ± 0.29	**0.09** ± 0.04	**0.07** ± 0.05	**0.16** ± 0.13	**0.60** ± 0.16
nC31	**0.30** ± 0.21	**0.49** ± 0.28	**0.25** ± 0.04	**0.22** ± 0.20	**0.48** ± 0.34	**2.43** ± 1.80
nC32	**0.17** ± 0.09	**0.22** ± 0.22	**0.07** ± 0.04	**0.06** ± 0.01	**0.12** ± 0.09	**0.44** ± 0.05
nC33	**0.17** ± 0.06	**0.22** ± 0.21	**0.08** ± 0.04	**0.04** ± 0.01	**0.13** ± 0.06	**0.60** ± 0.08
nC34	**0.14** ± 0.05	**0.16** ± 0.16	**0.06** ± 0.02	**0.04** ± 0.00	**0.06** ± 0.03	**0.19** ± 0.09

Table S2c-d. Summary of organic tracer compound concentrations in Warm and Cold sampling periods in the Urban site.

URBAN	**Warm period**					
	>7.2 µm	7.2 - 3.0 µm	3.0 - 1.5 µm	1.5 - 1.0 µm	1.0 - 0.5 µm	<0.5 µm
(ng/m^3)						
succinic acid (SA)	**0.8** ± 0.6	**1.2** ± 0.4	**2.6** ± 1.0	**3.9** ± 0.2	**6.2** ± 2.2	**9.5** ± 6.5
glutaric acid (GA)	**0.4** ± 0.3	**0.4** ± 0.1	**0.6** ± 0.1	**1.0** ± 0.1	**1.4** ± 0.4	**2.6** ± 2.0
adipic acid (AdA)	**0.2** ± 0.0	**0.2** ± 0.0	**0.3** ± 0.1	**0.3** ± 0.1	**0.5** ± 0.2	**1.1** ± 0.4
pimelic acid (PA)	**0.4** ± 0.1	**0.4** ± 0.1	**0.4** ± 0.1	**0.4** ± 0.1	**0.4** ± 0.1	**1.0** ± 0.5
suberic acid (SbA)	**0.1** ± 0.1	**0.1** ± 0.0	**0.2** ± 0.0	**0.3** ± 0.0	**0.4** ± 0.2	**1.2** ± 0.0
azelaic acid (AzA)	**0.9** ± 0.1	**0.8** ± 0.0	**1.1** ± 0.0	**1.8** ± 0.3	**2.8** ± 1.2	**10.2** ± 1.6
glyceric acid (GyA)	**1.0** ± 0.8	**0.7** ± 0.0	**0.9** ± 0.4	**1.4** ± 0.6	**1.5** ± 0.6	**3.0** ± 1.1
malic acid (MA)	**0.2** ± 0.1	**0.3** ± 0.0	**0.7** ± 0.2	**1.0** ± 0.0	**1.3** ± 0.4	**16.0** ± 7.3
3-hydroxyglutaric acid (3HGA)	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.1	**0.2** ± 0.1	**5.7** ± 1.0
MBTCA	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**0.1** ± 0.0	**7.4** ± 4.2
cis-pinonic acid (CPA)	**6.6** ± 2.0	**8.9** ± 2.6	**12.6** ± 3.8	**12.6** ± 4.9	**12.0** ± 5.9	**10.1** ± 12.5
pinic acid (PNA)	**0.6** ± 0.4	**0.4** ± 0.3	**0.6** ± 0.2	**1.5** ± 1.0	**2.7** ± 1.7	**11.4** ± 4.1
2-methylglyceric acid (2MGA)	**1.7** ± 1.4	**4.5** ± 3.8	**7.4** ± 8.8	**7.0** ± 6.0	**5.4** ± 3.8	**10.2** ± 11.3
C5-alkene triols (C5T)	**0.4** ± 0.3	**0.4** ± 0.2	**0.8** ± 0.7	**1.7** ± 1.6	**5.1** ± 5.3	**21.5** ± 20.5
2-methylthreitol (2MT1)	**2.1** ± 1.6	**8.3** ± 8.1	**7.0** ± 6.0	**2.9** ± 2.2	**1.9** ± 1.4	**5.0** ± 4.4
2-methylerythritol (2MT2)	**8.6** ± 6.6	**26.0** ± 25.0	**30.0** ± 29.7	**15.1** ± 12.7	**9.9** ± 7.5	**21.4** ± 19.2
phthalic acid (PhA)	**0.7** ± 0.3	**1.1** ± 0.4	**3.3** ± 1.3	**5.4** ± 1.1	**6.7** ± 1.9	**4.9** ± 1.5

terephthalic acid (TPhA)	**8.7**	±	4.4	**4.9**	±	2.0	**8.0**	±	2.1	**25.6**	±	10.6	**38.4**	±	11.7	**39.5**	±	14.1
nicotine (NIC)	**0.2**	±	0.1	**0.3**	±	0.1	**0.4**	±	0.2	**0.6**	±	0.5	**1.6**	±	1.7	**12.7**	±	7.2
galactosan (G)	**0.1**	±	0.0	**0.2**	±	0.1	**0.3**	±	0.2	**0.2**	±	0.2	**0.3**	±	0.3	**0.3**	±	0.4
mannosan (M)	**0.0**	±	0.0	**0.1**	±	0.1	**0.2**	±	0.2	**0.2**	±	0.3	**0.4**	±	0.4	**0.6**	±	0.8
levoglucosan (L)	**0.4**	±	0.1	**0.8**	±	0.4	**1.5**	±	1.1	**2.4**	±	2.5	**4.4**	±	6.0	**8.2**	±	10.9
xylitol (X)	**20.3**	±	10.0	**23.3**	±	5.2	**16.1**	±	4.6	**4.1**	±	0.6	**1.5**	±	0.2	**5.7**	±	3.2
mannitol (MaOL	**6.6**	±	1.5	**10.5**	±	3.3	**6.9**	±	2.3	**1.6**	±	0.4	**0.5**	±	0.0	**2.0**	±	0.4
α-glucose (αGL)	**35.4**	±	17.4	**32.1**	±	1.7	**18.1**	±	4.0	**6.1**	±	1.1	**2.3**	±	0.1	**11.6**	±	8.0
β-glucose (βGL)	**35.1**	±	11.4	**30.6**	±	2.3	**18.9**	±	4.0	**6.6**	±	1.4	**2.5**	±	0.1	**12.6**	±	8.1
dehydrabietic acid (DHA)	**1.9**	±	1.0	**1.1**	±	0.4	**0.4**	±	0.1	**0.3**	±	0.0	**0.3**	±	0.1	**1.3**	±	0.9
sucrose (S)	**180.7**	±	58.7	**102.5**	±	28.2	**51.7**	±	21.6	**10.9**	±	3.1	**2.9**	±	1.1	**63.1**	±	37.0
mycose (My)	**35.3**	±	22.1	**34.2**	±	13.1	**14.3**	±	5.4	**2.6**	±	1.0	**0.6**	±	0.3	**4.0**	±	2.0
C16:0	**22.5**	±	5.4	**23.7**	±	6.0	**16.5**	±	3.7	**16.5**	±	2.5	**19.8**	±	5.6	**37.4**	±	10.8
C17:0	**1.6**	±	0.9	**0.8**	±	0.2	**0.7**	±	0.2	**0.8**	±	0.2	**0.8**	±	0.3	**1.8**	±	0.4
C18:1	**8.8**	±	6.0	**3.5**	±	1.3	**3.0**	±	1.3	**2.8**	±	0.9	**5.6**	±	4.4	**2.8**	±	2.0
C18:0	**16.6**	±	4.1	**14.4**	±	5.4	**9.4**	±	3.7	**8.8**	±	3.5	**15.0**	±	11.2	**14.9**	±	4.2
C19:0	**3.8**	±	3.4	**1.4**	±	1.7	**0.2**	±	0.1	**0.2**	±	0.1	**0.3**	±	0.1	**0.9**	±	0.2
C20:0	**2.9**	±	0.8	**2.2**	±	0.7	**1.2**	±	0.4	**0.9**	±	0.3	**1.3**	±	0.8	**2.5**	±	0.2
C21:0	**0.2**	±	0.0	**0.2**	±	0.0	**0.2**	±	0.1	**0.2**	±	0.1	**0.2**	±	0.1	**0.9**	±	0.1
fluorenone (flo)	**0.00**	±	0.00	**0.01**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.04**	±	0.02
phenanthraquinone (pheno)	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.03**	±	0.00
anthracenequinone (anto)	**0.01**	±	0.00	**0.01**	±	0.00	**0.00**	±	0.00	**0.01**	±	0.00	**0.01**	±	0.00	**0.06**	±	0.01
benzo[a]fluorenone (baflo)	**0.00**	±	0.00	**0.01**	±	0.00	**0.00**	±	0.00	**0.01**	±	0.00	**0.01**	±	0.00	**0.07**	±	0.01
benzo[b]fluorenone (bbflo)	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.05**	±	0.01
benzanthrenone (bao)	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.01**	±	0.00	**0.06**	±	0.00
phenanthrene (phe)	**0.01**	±	0.01	**0.02**	±	0.01	**0.01**	±	0.01	**0.01**	±	0.01	**0.02**	±	0.02	**0.12**	±	0.04
anthracene (ant)	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.02**	±	0.00
fluoranthene (fla)	**0.02**	±	0.01	**0.03**	±	0.01	**0.02**	±	0.01	**0.02**	±	0.01	**0.03**	±	0.02	**0.19**	±	0.04
pyrene (pyr)	**0.05**	±	0.02	**0.06**	±	0.04	**0.03**	±	0.02	**0.03**	±	0.02	**0.05**	±	0.04	**0.33**	±	0.08
retene (ret)	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.01**	±	0.00
benz[a]anthracene (baa)	**0.01**	±	0.00	**0.01**	±	0.00	**0.01**	±	0.00	**0.01**	±	0.01	**0.01**	±	0.01	**0.07**	±	0.01
chrysene (chry)	**0.02**	±	0.01	**0.02**	±	0.01	**0.01**	±	0.01	**0.02**	±	0.01	**0.03**	±	0.02	**0.12**	±	0.02
benzo[b+j]fluoranthene (bbjfla)	**0.02**	±	0.01	**0.02**	±	0.01	**0.01**	±	0.01	**0.02**	±	0.01	**0.04**	±	0.03	**0.14**	±	0.02
benzo[k]fluoranthene (bkfla)	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.00**	±	0.00	**0.01**	±	0.00	**0.04**	±	0.01
benzo[e]pyrene (bep)	**0.04**	±	0.03	**0.05**	±	0.02	**0.03**	±	0.02	**0.03**	±	0.02	**0.05**	±	0.04	**0.17**	±	0.02
benzo[a]pyrene (bap)	**0.03**	±	0.02	**0.03**	±	0.01	**0.02**	±	0.01	**0.02**	±	0.01	**0.03**	±	0.02	**0.09**	±	0.02
indeno[123cd]pyrene (ip)	**0.02**	±	0.01	**0.02**	±	0.01	**0.01**	±	0.01	**0.02**	±	0.01	**0.03**	±	0.02	**0.12**	±	0.03

dibenz[ah]anthracene (dba)	**0.01** ± 0.01	**0.01** ± 0.00	**0.01** ± 0.00	**0.01** ± 0.00	**0.01** ± 0.01	**0.04** ± 0.01
benzo[ghi]perylene (bgp)	**0.07** ± 0.04	**0.06** ± 0.03	**0.03** ± 0.02	**0.04** ± 0.02	**0.06** ± 0.04	**0.17** ± 0.02
coronene (cor)	**0.05** ± 0.03	**0.04** ± 0.02	**0.02** ± 0.01	**0.02** ± 0.01	**0.03** ± 0.02	**0.08** ± 0.01
17a(H)21β(H)-29-norhopane (norHop)	**0.26** ± 0.19	**0.22** ± 0.10	**0.11** ± 0.10	**0.10** ± 0.08	**0.13** ± 0.13	**0.27** ± 0.05
17a(H)21β(H)-hopane (Hop)	**0.24** ± 0.16	**0.19** ± 0.08	**0.10** ± 0.06	**0.09** ± 0.06	**0.18** ± 0.23	**0.27** ± 0.05
nC20	**0.15** ± 0.08	**0.19** ± 0.09	**0.14** ± 0.08	**0.15** ± 0.10	**0.19** ± 0.13	**0.12** ± 0.02
nC21	**0.22** ± 0.10	**0.16** ± 0.14	**0.16** ± 0.09	**0.16** ± 0.10	**0.18** ± 0.12	**0.20** ± 0.06
nC22	**0.17** ± 0.09	**0.25** ± 0.13	**0.16** ± 0.10	**0.11** ± 0.10	**0.15** ± 0.11	**0.16** ± 0.04
nC23	**0.54** ± 0.34	**0.56** ± 0.24	**0.32** ± 0.29	**0.25** ± 0.20	**0.29** ± 0.26	**0.43** ± 0.11
nC24	**0.32** ± 0.12	**0.46** ± 0.32	**0.18** ± 0.13	**0.16** ± 0.12	**0.20** ± 0.18	**0.27** ± 0.03
nC25	**1.20** ± 0.49	**1.28** ± 0.61	**0.60** ± 0.25	**0.49** ± 0.17	**0.57** ± 0.40	**0.85** ± 0.19
nC26	**0.42** ± 0.09	**0.61** ± 0.49	**0.20** ± 0.09	**0.20** ± 0.09	**0.27** ± 0.19	**0.32** ± 0.08
nC27	**1.40** ± 0.43	**1.59** ± 0.67	**0.84** ± 0.11	**0.70** ± 0.09	**0.66** ± 0.27	**1.03** ± 0.26
nC28	**0.36** ± 0.03	**0.60** ± 0.47	**0.23** ± 0.04	**0.20** ± 0.03	**0.22** ± 0.12	**0.19** ± 0.03
nC29	**1.64** ± 0.49	**2.40** ± 0.97	**1.56** ± 0.28	**1.28** ± 0.32	**0.88** ± 0.21	**0.83** ± 0.19
nC30	**0.31** ± 0.08	**0.41** ± 0.29	**0.17** ± 0.05	**0.15** ± 0.04	**0.19** ± 0.14	**0.18** ± 0.03
nC31	**1.39** ± 0.44	**2.22** ± 0.99	**1.47** ± 0.23	**1.10** ± 0.18	**0.83** ± 0.28	**0.91** ± 0.14
nC32	**0.22** ± 0.05	**0.29** ± 0.15	**0.16** ± 0.05	**0.13** ± 0.04	**0.17** ± 0.11	**0.16** ± 0.02
nC33	**0.38** ± 0.12	**0.57** ± 0.32	**0.35** ± 0.10	**0.26** ± 0.08	**0.29** ± 0.23	**0.37** ± 0.04
nC34	**0.14** ± 0.02	**0.18** ± 0.08	**0.10** ± 0.03	**0.07** ± 0.03	**0.09** ± 0.07	**0.05** ± 0.00

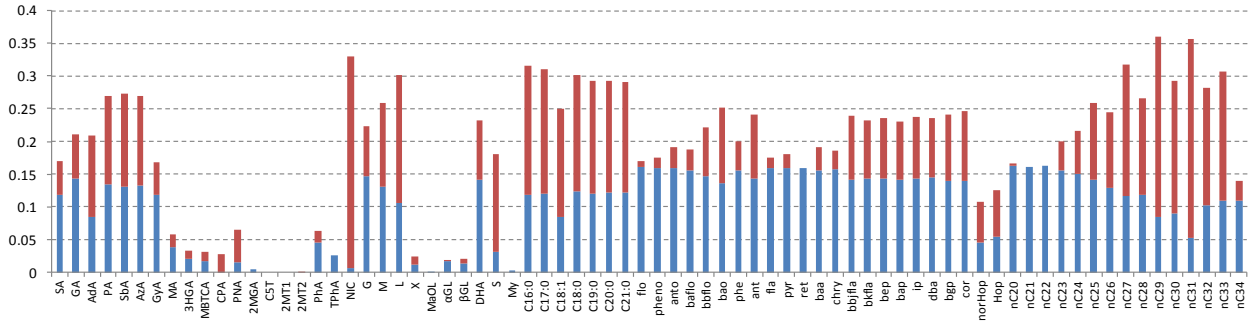
	Cold period					
	>7.2 µm	7.2 - 3.0 µm	3.0 - 1.5 µm	1.5 - 1.0 µm	1.0 - 0.5 µm	<0.5 µm
(ng/m^3)						
succinic acid (SA)	**2.0**	**1.5**	**1.6**	**1.7**	**3.7**	**36.0**
glutaric acid (GA)	**0.3**	**0.3**	**0.3**	**0.5**	**1.2**	**6.7**
adipic acid (AdA)	**0.5**	**0.2**	**0.2**	**0.3**	**0.5**	**1.7**
pimelic acid (PA)	**0.4**	**0.3**	**0.3**	**0.3**	**0.5**	**1.6**
suberic acid (SbA)	**0.7**	**0.1**	**0.2**	**0.2**	**0.3**	**1.4**
azelaic acid (AzA)	**2.3**	**1.2**	**0.9**	**1.2**	**2.4**	**10.6**
glyceric acid (GyA)	**0.8**	**0.4**	**0.9**	**1.9**	**3.1**	**14.2**
malic acid (MA)	**0.2**	**0.1**	**0.1**	**0.2**	**0.6**	**33.4**
3-hydroxyglutaric acid (3HGA)	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**7.0**
MBTCA	**0.1**	**0.1**	**0.1**	**0.1**	**0.1**	**2.8**
cis-pinonic acid (CPA)	**2.3**	**3.4**	**3.9**	**3.7**	**4.3**	**8.3**
pinic acid (PNA)	**0.5**	**0.2**	**0.4**	**0.8**	**1.2**	**9.0**

2-methylglyceric acid (2MGA)	**1.5**	**0.7**	**0.8**	**1.1**	**1.5**	**2.9**
C5-alkene triols (C5T)	**1.0**	**0.1**	**0.1**	**0.2**	**0.2**	**1.2**
2-methylthreitol (2MT1)	**0.3**	**0.1**	**0.1**	**0.3**	**0.3**	**0.8**
2-methylerythritol (2MT2)	**1.0**	**0.4**	**0.6**	**0.7**	**1.4**	**9.7**
phthalic acid (PhA)	**0.6**	**0.7**	**0.8**	**1.4**	**3.5**	**11.5**
terephthalic acid (TPhA)	**26.2**	**10.7**	**20.5**	**38.9**	**53.0**	**21.4**
nicotine (NIC)	**0.1**	**0.1**	**0.1**	**0.4**	**0.6**	**14.6**
galactosan (G)	**0.2**	**0.4**	**0.9**	**1.3**	**2.9**	**9.5**
mannosan (M)	**0.1**	**0.2**	**0.4**	**0.7**	**1.8**	**10.1**
levoglucosan (L)	**1.4**	**2.5**	**4.5**	**9.9**	**27.0**	**110.2**
xylitol (X)	**3.0**	**4.8**	**4.2**	**1.6**	**1.1**	**3.2**
mannitol (MaOL	**0.7**	**0.7**	**0.5**	**0.3**	**0.2**	**0.9**
α-glucose (αGL)	**14.8**	**14.5**	**8.4**	**4.2**	**1.8**	**5.3**
β-glucose (βGL)	**17.7**	**16.5**	**10.9**	**4.9**	**2.2**	**5.6**
dehydrabietic acid (DHA)	**3.2**	**2.7**	**1.1**	**0.9**	**1.8**	**13.5**
sucrose (S)	**52.0**	**60.1**	**45.9**	**10.0**	**6.0**	**16.1**
mycose (My)	**1.4**	**1.9**	**1.3**	**0.4**	**0.2**	**0.4**
C16:0	**40.3**	**23.5**	**13.3**	**10.1**	**12.2**	**44.1**
C17:0	**1.6**	**1.0**	**0.6**	**0.5**	**0.6**	**2.1**
C18:1	**7.8**	**4.2**	**3.5**	**0.9**	**1.1**	**13.1**
C18:0	**26.8**	**20.9**	**12.1**	**4.7**	**5.0**	**34.1**
C19:0	**0.1**	**0.3**	**0.1**	**0.1**	**0.2**	**0.9**
C20:0	**1.7**	**1.1**	**0.6**	**0.4**	**0.6**	**4.1**
C21:0	**0.2**	**0.1**	**0.1**	**0.1**	**0.2**	**1.5**
fluorenone (flo)	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.07**
phenanthraquinone (pheno)	**0.00**	**0.01**	**0.01**	**0.01**	**0.01**	**0.10**
anthracenequinone (anto)	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.11**
benzo[a]fluorenone (baflo)	**0.01**	**0.01**	**0.01**	**0.01**	**0.02**	**0.21**
benzo[b]fluorenone (bbflo)	**0.00**	**0.01**	**0.01**	**0.01**	**0.01**	**0.18**
benzanthrenone (bao)	**0.00**	**0.01**	**0.01**	**0.01**	**0.02**	**0.18**
phenanthrene (phe)	**0.02**	**0.02**	**0.01**	**0.01**	**0.02**	**0.16**
anthracene (ant)	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.04**
fluoranthene (fla)	**0.03**	**0.03**	**0.03**	**0.03**	**0.04**	**0.36**
pyrene (pyr)	**0.05**	**0.06**	**0.05**	**0.04**	**0.06**	**0.62**
retene (ret)	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.08**
benz[a]anthracene (baa)	**0.01**	**0.01**	**0.01**	**0.01**	**0.02**	**0.27**
chrysene (chry)	**0.01**	**0.02**	**0.02**	**0.03**	**0.05**	**0.44**

benzo[b+j]fluoranthene (bbjfla)	**0.01**	**0.02**	**0.02**	**0.03**	**0.07**	**0.48**
benzo[k]fluoranthene (bkfla)	**0.00**	**0.00**	**0.00**	**0.01**	**0.02**	**0.15**
benzo[e]pyrene (bep)	**0.03**	**0.04**	**0.03**	**0.04**	**0.08**	**0.43**
benzo[a]pyrene (bap)	**0.02**	**0.02**	**0.02**	**0.03**	**0.06**	**0.33**
indeno[123cd]pyrene (ip)	**0.02**	**0.02**	**0.02**	**0.02**	**0.05**	**0.40**
dibenz[ah]anthracene (dba)	**0.01**	**0.01**	**0.01**	**0.01**	**0.02**	**0.11**
benzo[ghi]perylene (bgp)	**0.05**	**0.05**	**0.04**	**0.04**	**0.08**	**0.43**
coronene (cor)	**0.04**	**0.03**	**0.02**	**0.02**	**0.04**	**0.22**
17a(H)21β(H)-29-norhopane (norHop)	**0.22**	**0.20**	**0.11**	**0.08**	**0.08**	**0.45**
17a(H)21β(H)-hopane (Hop)	**0.21**	**0.21**	**0.11**	**0.07**	**0.08**	**0.41**
nC20	**0.14**	**0.14**	**0.10**	**0.09**	**0.08**	**0.32**
nC21	**0.17**	**0.22**	**0.14**	**0.14**	**0.11**	**0.45**
nC22	**0.18**	**0.19**	**0.11**	**0.09**	**0.12**	**0.63**
nC23	**0.28**	**0.30**	**0.17**	**0.16**	**0.20**	**1.13**
nC24	**0.22**	**0.25**	**0.15**	**0.16**	**0.22**	**1.10**
nC25	**0.35**	**0.40**	**0.23**	**0.26**	**0.35**	**1.55**
nC26	**0.26**	**0.28**	**0.16**	**0.16**	**0.22**	**0.66**
nC27	**0.50**	**0.59**	**0.35**	**0.36**	**0.48**	**1.46**
nC28	**0.29**	**0.36**	**0.19**	**0.14**	**0.15**	**0.26**
nC29	**0.51**	**0.70**	**0.56**	**0.38**	**0.45**	**0.91**
nC30	**0.31**	**0.32**	**0.19**	**0.12**	**0.11**	**0.24**
nC31	**0.53**	**0.67**	**0.52**	**0.33**	**0.37**	**1.11**
nC32	**0.32**	**0.32**	**0.19**	**0.11**	**0.09**	**0.21**
nC33	**0.29**	**0.28**	**0.22**	**0.15**	**0.13**	**0.46**
nC34	**0.18**	**0.16**	**0.13**	**0.07**	**0.05**	**0.09**

Figure S1. Two potential Biomass Burning Organic Aerosol component loadings (1) and scores (2) from separate MCR-ALS analysis of the data from the Rural site. R_COLD_1.x are the fall samples, while and R_COLD_2.x are the winter samples. The x.6 samples are the PM<0.5µm fraction of the samples.

1)



2)