Supplement of:

Distinctions in source regions and formation mechanisms of secondary aerosol in Beijing from summer to winter

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Table S1. Summary of mass concentrations of aerosol species, gaseous pollutants and meteorological parameters during entire study and different seasons. PM_1 chemical composition during clean days (C), M-polluted days (M) and H-polluted days (H) in different seasons are also shown.

Species	Entire study	Late Summer			Autumn				Early Winter			
		Entire	C	M	Entire	C	M	H	Entire	C	M	H
Aerosol species (μg m^{-3})												
PM_1	44.7	21.6	15.6	46.9	43.3	9.3	54.2	110.5	64.3	8.1	43.5	109.7
OA	22.4	13.8	10.5	28.1	21.2	5.8	25.5	50.8	29.6	4.5	20.4	49.4
HOA	2.2	1.8	1.3	3.9	2.1	0.4	2.5	6.1	3.3	0.2	1.2	6.4
COA	3.9	1.4	1.5	2.0	4.3	1.9	4.6	8.1	4.7	1.1	4.3	6.9
CCOA	3.1	0.7	0.5	1.7	2.0	0.6	2.3	4.6	7.7	1.1	5.3	12.8
LSOA	9.0	3.2	2.2	6.7	9.2	1.5	10.2	25.4	12.1	1.5	7.5	20.7
RSOA	4.2	6.6	5.0	13.8	3.8	1.5	5.9	6.6	1.8	0.6	2.0	2.5
SO_4	5.6	3.1	1.9	8.0	4.8	0.8	7.6	11.0	9.6	1.5	6.5	16.5
NO_3	8.7	1.3	0.9	3.3	9.5	0.6	12.5	27.6	12.9	0.7	8.7	23.0
NH_4	3.8	1.5	0.9	3.8	3.5	0.5	3.7	11.0	6.4	0.7	4.4	9.9
Chl	0.8	0.2	0.05	0.5	0.8	0.1	0.7	2.2	1.8	0.2	1.3	3.3
BC	3.4	1.7	1.4	3.3	3.5	1.5	4.3	7.7	3.9	0.4	2.2	7.7
Gaseous pollutants												
SO_2 (ppb)	5.0	3.0	2.7	3.5	4.4	3.0	4.4	6.2	7.9	3.7	5.2	11.7
CO (ppm)	0.9	0.5	0.6	0.4	0.7	0.3	0.8	1.2	1.7	0.2	0.9	3.0
NO (ppb)	19.1	4.7	3.7	4.2	18.1	8.9	15.5	28.2	32.7	4.3	18.9	55.9
NO_2 (ppb)	29.9	18.7	14.6	23.1	32.0	22.3	32.3	48.7	34.0	11.9	25.5	49.1
O_3 (ppb)	18.0	35.4	31.5	54.1	17.5	27.2	16.1	20.8	5.7	19.7	4.9	2.7
Meteorological parameters												
RH (%)	72.5	71.1	71.4	64.5	69.6	56.7	82.3	75.9	73.9	34.3	79.4	82.7
T (℃)	12.7	23.9	24.2	27.0	14.4	17.9	14.9	14.5	1.5	-3.0	1.3	2.8
WS (m s^{-1})	0.95	0.88	0.89	0.93	0.97	1.23	0.63	0.55	1.26	3.60	1.12	0.63

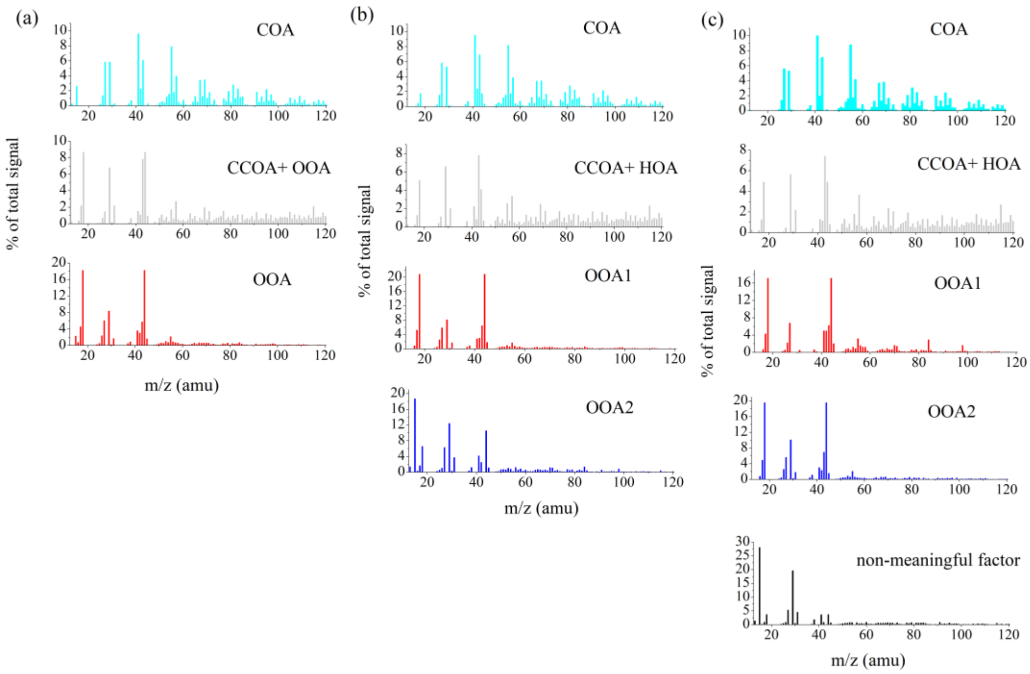

Figure S1. PMF profiles of OA sources for 4, 5 and 6 factor solutions.

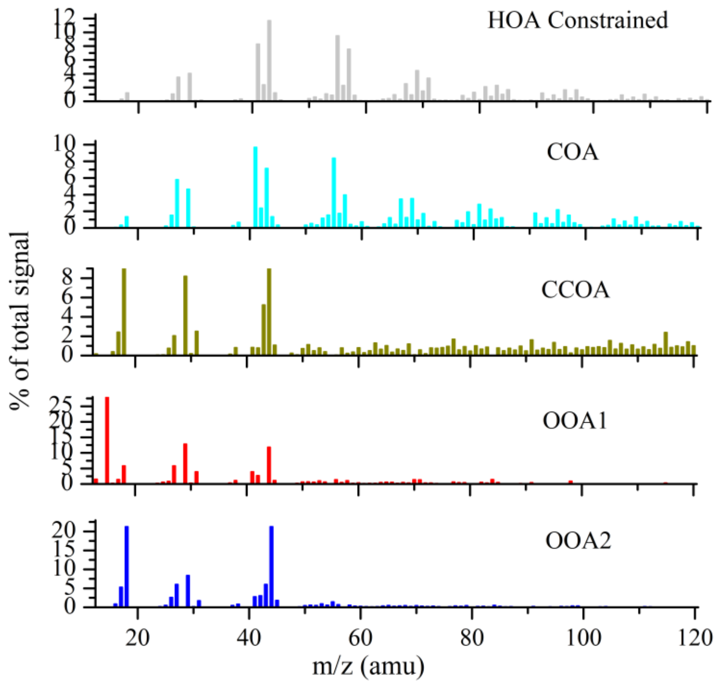

Figure S2. ME-2 profiles of OA sources. The HOA profile is from that of Ng et al. (2011b), and the COA profile is from 4-factor PMF result. The others are unconstrained factors.

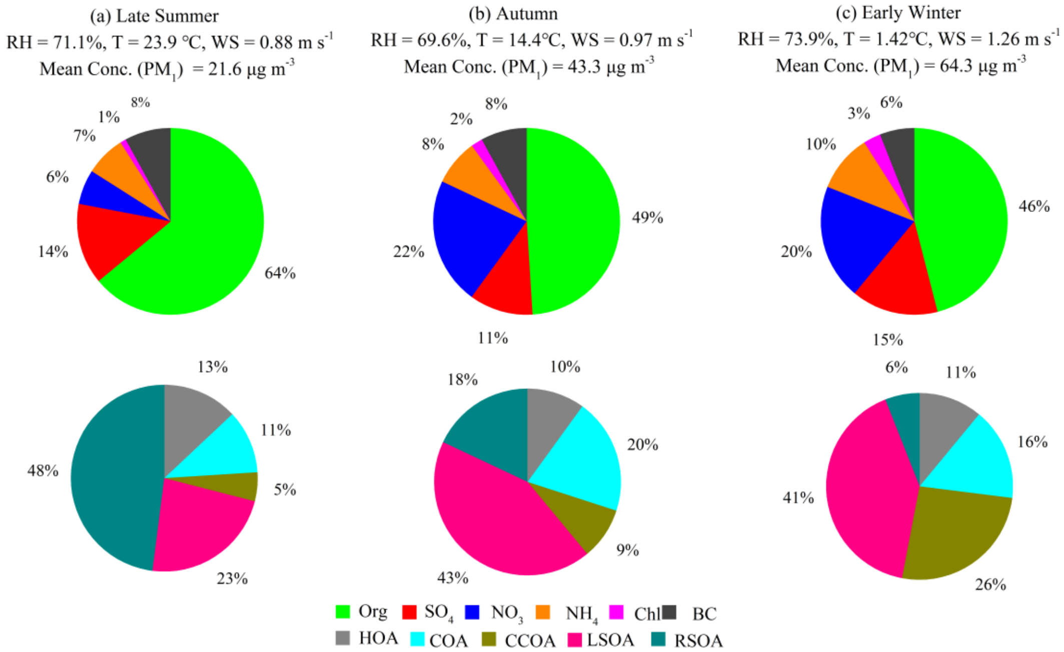

Figure S3. Mass fraction of PM_1 species and OA factors in later summer (a), autumn (b) and early winter (c).

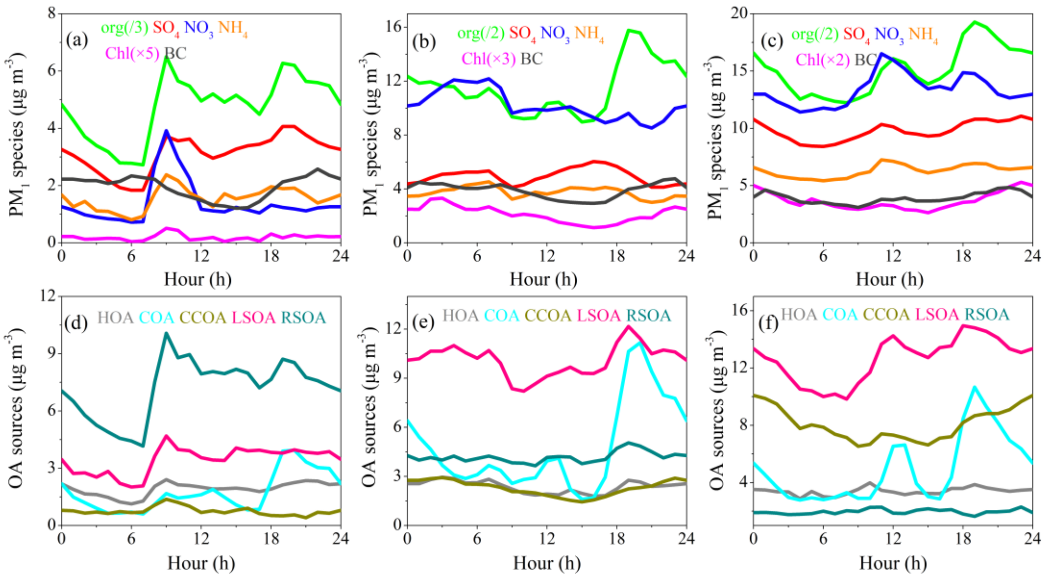

Figure S4. Diurnal cycles of PM_1 species and OA factors during late summer (a, d), autumn (b, e) and early winter (c, f).