

## Supplementary Materials

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**Table S1.** Operating parameters of ICP-QMS (ELAN 9000, Perkin-Elmer SCIEX) for the determination of element concentrations.

Nebulizer gas flow (L/min)	0.95	RF power (W)	1100
Analog stage voltage (V)	-1700	Lens voltage (V)	6.5
Pulse stage voltage (V)	900	Ac rod offset (V)	-6
Discriminator threshold (V)	70	Scan mode	Peak hopping
Speed of peristaltic pump (rpm)	26	Detector	Pulse
Sweeps/Reading	50	Replicates	2
Sampler/Skimmer cones	Nickel	Dwell Time (ms)	25
Spray chamber	Ryton® Double-pass Scott-type spray chamber		
Nebulizer	Gem-tip Cross-Flow pneumatic nebulizer		

**Table S2.** Operating parameters of ICP-OES (Optima 5300DV, Perkin-Elmer SCIEX) for the determination of element concentrations.

Plasma argon flow	15 L/min
Auxiliary argon flow	0.2 L/min
Nebulizer argon flowm	0.8 L/min
Sample flow rate	1.50 mL/min
Spray chamber	Cyclonic spray chamber
Nebulizer	Concentric glass (Meinhard) nebulizer
Viewing position	(15, 0)

**Table S3.** Average concentrations of trace elements in different size fractions of size-segregated aerosol samples from Gulou and Pukou sampling site (ng/m<sup>3</sup>) (n = 70).

		Al	Ca	Fe	K	Mg	Na	As	Cd	Cr	Cu	Ni	Zn	Pb	Mn	Ti
> 9.0	Min	86.7	347	101	23.2	39.1	7.3	0.19	0.08	0.62	1.12	0.49	4.64	0.62	1.13	9.37
	Max	1244	5897	1687	351.4	502	332	1.48	0.37	6.12	18.0	7.25	132	14.5	33.3	53.8
	Mean	462	1818	644	137.9	193	90.7	0.66	0.20	2.63	6.12	2.42	22.0	4.91	12.7	29.8
	S.D.	274	1231	359	79.5	115	69.8	0.31	0.07	1.21	3.68	1.32	17.2	2.77	8.1	9.8
9.0–5.8	Min	129	455	110	29.3	42.4	18.4	0.21	0.08	0.72	1.33	0.66	3.09	0.68	1.23	11.6
	Max	1339	3598	1759	436.9	580	284	1.39	0.50	6.82	17.5	8.60	92.3	15.8	33.8	70.1
	Mean	451	1555	636	137.4	187	113	0.74	0.22	2.70	6.62	2.94	27.0	5.72	12.8	30.1
	S.D.	242	765	325	74.6	101	65.3	0.28	0.08	1.34	3.80	1.77	16.7	3.09	7.7	13.0
5.8–4.7	Min	47.2	148	69.7	19.1	22.6	4.2	0.17	0.06	0.36	1.06	0.53	2.4	1.08	1.10	7.19
	Max	819.6	3575	3061	375.4	355	240	2.76	0.51	4.07	20.5	7.75	58.5	15.4	48.2	108.8
	Mean	260.8	813	386	92.1	107	75.1	0.57	0.19	1.83	4.67	2.51	20.5	3.98	9.80	22.0
	S.D.	191.4	638	383	68.3	77	60.2	0.37	0.08	0.81	3.63	1.71	13.9	2.81	6.99	14.5
4.7–3.3	Min	94.2	217	73.5	41.3	36.7	17.9	0.31	0.10	0.74	1.57	0.59	9.1	1.32	1.38	9.04
	Max	877	2017	934	581.0	377	392	2.22	0.62	5.25	21.7	9.97	110	16.0	33.1	50.6
	Mean	324	884	433	118.2	132	118	0.81	0.26	2.18	5.91	2.79	40.3	6.18	11.8	22.2
	S.D.	173	447	217	80.3	73	85	0.36	0.11	0.94	4.21	1.90	25.8	3.47	5.7	7.1
3.3–2.1	Min	86.5	174	73.2	23.8	29.8	16.5	0.29	0.13	0.70	0.76	0.80	6.2	1.08	1.94	7.56
	Max	970	1498	1607	447.9	544	318	2.82	1.22	20.5	25.3	7.29	370	31.9	32.0	55.6
	Mean	290	642	411	122.2	121	120	1.09	0.38	2.29	6.74	2.86	92.1	9.45	12.6	22.5
	S.D.	162	328	254	75.8	81	70.9	0.53	0.19	2.40	5.04	1.68	81.6	5.85	7.1	9.4
2.1–1.1	Min	77.3	78.9	73.7	24.8	28.5	5.55	0.53	0.22	0.81	1.47	0.80	19.2	2.11	3.15	9.18
	Max	552	803	1371	597.6	768	302	8.33	2.26	10.5	23.0	8.98	579	100	52.7	36.3
	Mean	190	309	324	215.7	94	126	2.55	0.87	2.71	8.54	3.30	200	30.8	20.0	19.2
	S.D.	105	144	197	121.1	96	66	1.63	0.45	1.82	5.00	2.14	147	19.9	12.3	6.5
1.1–0.7	Min	11.0	28.1	18.6	30.1	12.3	13.1	0.43	0.18	0.33	1.04	0.70	11.5	4.17	4.12	5.43
	Max	207	551	734	651.7	588	165	7.22	2.60	6.35	16.3	7.19	445	98.6	55.9	53.6
	Mean	67.0	134	184	274.3	42.7	78.0	2.70	0.91	2.16	7.36	2.61	125	37.0	18.6	15.6
	S.D.	37.7	94	131	140.8	68.4	41.0	1.59	0.50	1.19	3.86	1.69	92	20.7	11.3	8.7
0.7–0.4	Min	1.54	25.3	17.4	40.2	5.72	10.1	0.51	0.19	0.35	1.19	0.75	9.6	4.60	1.74	4.23
	Max	161	329	350	441.2	118	121	4.93	2.32	3.94	15.8	8.29	158	72.6	27.7	35.9
	Mean	36.2	97.7	113	207.7	21.9	45.2	1.99	0.73	1.54	5.95	2.29	55.2	32.7	11.3	13.5
	S.D.	25.2	64.1	70	88.5	15.7	24.4	0.96	0.38	0.82	3.19	1.69	34.0	17.8	5.9	6.3
<0.4	Min	8.67	22.2	21.2	64.7	2.8	4.49	0.79	0.23	0.39	1.04	0.67	12.9	12.3	1.46	4.84
	Max	90.2	395	249	621.3	120	117	6.27	1.90	5.24	19.7	7.94	191	143	31.9	89.3
	Mean	39.5	95.2	89.4	231.2	22.4	47.2	2.42	0.85	1.70	8.51	2.65	46.2	40.3	10.1	17.3
	S.D.	20.4	66.5	48.1	121.3	16.8	28.5	0.96	0.36	0.91	3.92	1.59	31.3	26.0	6.2	12.6

**Table S4.** Seasonal variations of average concentrations of elements in nine size fractions of size-segregated aerosol samples (ng/m<sup>3</sup>) (n = 70).

	Al	Ca	Fe	K	Mg	Mn	Na	Ti	Cr	As	Cd	Cu	Ni	Zn	Pb
> 9.0															
2010-May	435	1260	498	102	133	8.48	51.9	26.1	1.94	0.57	0.20	4.25	2.03	13.6	3.63
2010-Jun	300	1132	448	99.4	114	7.11	46.2	34.4	1.74	0.56	0.16	5.21	2.29	10.9	2.50
2010-Jul	314	1519	625	102	136	10.4	40.5	40.0	2.37	0.60	0.21	5.29	1.73	17.7	3.74
2010-Aug	268	1453	460	77.4	106	8.24	68.2	26.1	2.09	0.57	0.20	3.97	1.28	14.9	3.82
2010-Sep	215	1279	298	68.6	95.3	7.73	74.8	25.6	1.60	0.38	0.19	4.66	1.54	15.8	3.52
2010-Oct	327	1450	746	105	144	8.3	132	27.0	3.07	0.64	0.17	6.21	3.05	19.7	3.89
2010-Nov	525	1988	637	178	242	13.9	138	28.5	3.60	0.72	0.19	4.70	2.13	26.7	4.15
2010-Dec	576	2352	828	190	287	14.8	110	27.6	2.64	0.83	0.22	8.12	2.69	26.7	6.62
2011-Jan	612	2238	864	191	280	18.7	114	31.8	2.92	0.79	0.21	6.63	3.65	21.4	6.15
2011-Feb	532	1789	635	147	184	13.0	115	25.5	3.49	0.69	0.21	10.8	2.80	25.2	7.48
2011-Mar	830	2954	950	220	334	22.7	97.1	39.8	3.16	0.89	0.23	8.36	2.98	46.1	7.51
2011-Apr	565	2233	706	162	233	17.4	85.2	28.0	2.74	0.68	0.21	4.92	2.74	22.2	5.26
9.0–5.8															
2010-May	439	1541	623	121	147	9.81	82.3	31.6	2.27	0.73	0.19	4.81	2.63	24.1	5.32
2010-Jun	269	842	374	84.0	90	6.21	47.4	31.7	1.66	0.59	0.17	4.38	2.81	14.9	3.04
2010-Jul	260	1169	569	69.8	110	8.60	35.5	45.1	2.35	0.74	0.25	6.73	2.21	21.3	4.57
2010-Aug	282	1110	515	83.7	108	8.29	81.6	33.9	2.17	0.65	0.22	4.25	1.40	20.1	5.19
2010-Sep	222	912	365	78.3	96	6.27	123	21.2	1.74	0.42	0.15	5.39	1.83	13.2	3.16
2010-Oct	385	1228	627	118	161	9.72	175	26.8	3.79	0.67	0.18	5.73	2.17	24.2	5.14
2010-Nov	707	2188	886	218	306	19.2	90.6	32.8	4.44	0.99	0.24	6.14	3.54	41.0	5.99
2010-Dec	702	1950	760	209	264	16.6	136	38.0	2.80	0.91	0.28	7.72	2.91	30.8	7.41
2011-Jan	560	1842	800	166	254	17.9	134	29.3	2.63	0.80	0.23	9.28	2.88	27.7	6.54
2011-Feb	394	1508	720	146	175	13.3	206	24.0	3.23	0.76	0.22	12.25	4.99	34.3	7.27
2011-Mar	648	2397	710	193	285	20.4	108	25.0	2.45	0.80	0.24	8.01	3.45	44.3	7.69
2011-Apr	484	1793	631	142	216	15.9	113	24.2	2.62	0.74	0.23	4.36	4.36	25.8	6.63
5.8–4.7															
2010-May	197	543	338	60.0	68.4	5.25	31.6	19.4	1.51	0.49	0.17	2.54	1.81	13.5	3.41
2010-Jun	111	339	129	42.5	39.7	5.99	16.4	22.3	0.83	0.34	0.14	3.11	1.14	4.54	1.55
2010-Jul	109	439	361	40.0	51.7	7.49	30.2	25.2	1.78	0.49	0.24	3.61	1.68	15.1	3.70
2010-Aug	108	411	208	52.4	44.2	6.16	47.8	14.6	2.15	0.52	0.20	2.27	1.46	11.7	2.95
2010-Sep	102	385	182	40.1	43.4	5.78	50.8	15.3	1.89	0.26	0.15	2.66	2.28	8.37	2.05
2010-Oct	233	640	344	74.8	89.9	7.75	105	19.6	2.01	0.56	0.14	4.27	2.04	22.7	3.67
2010-Nov	429	1230	482	148	184	8.70	121	22.2	2.19	0.75	0.18	3.78	2.40	36.6	4.16
2010-Dec	441	1522	928	163	196	17.3	91.5	30.5	2.35	1.06	0.29	8.94	3.44	29.8	8.01
2011-Jan	360	1086	331	127	156	16.2	117	17.2	1.57	0.60	0.17	5.95	3.69	25.2	4.58
2011-Feb	235	702	352	118	106	15.1	140	21.5	1.97	0.57	0.20	9.29	2.55	26.7	4.28
2011-Mar	396	1317	523	128	163	12.2	54.1	20.0	1.74	0.65	0.22	5.88	3.09	31.8	5.43
2011-Apr	359	998	406	94.1	120	8.68	78.9	36.6	1.81	0.51	0.23	3.26	4.19	16.7	3.50
4.7–3.3															
2010-May	326	742	412	90.5	96.5	6.57	64.8	22.0	2.07	0.77	0.23	3.07	3.00	25.9	4.37

	Al	Ca	Fe	K	Mg	Mn	Na	Ti	Cr	As	Cd	Cu	Ni	Zn	Pb
2010-Jun	172	420	230	61.4	51.3	6.09	48.7	29.1	1.28	0.53	0.18	3.62	1.76	14.9	2.54
2010-Jul	184	673	437	74.0	77.8	11.2	46.6	25.0	2.20	0.82	0.29	4.89	2.36	36.6	5.66
2010-Aug	199	671	398	81.1	88.7	9.98	103	20.3	2.95	0.70	0.26	3.70	1.89	29.5	6.70
2010-Sep	172	540	269	64.3	74.7	8.73	121	16.7	2.06	0.43	0.19	3.78	1.74	22.1	3.29
2010-Oct	271	731	368	91.5	109	9.49	142	19.0	1.79	0.82	0.19	4.94	2.07	37.4	5.92
2010-Nov	565	1390	631	206	234	10.6	180	25.7	2.74	1.09	0.25	5.25	2.31	69.4	7.48
2010-Dec	416	1225	552	169	189	14.0	129	22.5	2.33	1.22	0.37	8.84	2.86	49.3	9.29
2011-Jan	388	992	503	130	157	17.8	95.6	22.5	2.19	0.74	0.25	7.55	4.06	39.1	6.94
2011-Feb	274	772	371	178	140	18.9	252	20.9	2.55	0.88	0.28	13.05	4.89	54.6	7.86
2011-Mar	462	1264	564	134	184	15.1	75.5	21.5	2.00	0.84	0.29	7.70	4.07	65.0	7.54
2011-Apr	413	1081	431	121	161	12.0	140	22.4	1.84	0.84	0.30	4.01	2.18	35.2	5.87
3.3-2.1															
2010-May	281	517	359	94.0	87.1	6.91	64.1	21.1	1.73	0.90	0.28	4.13	2.39	46.9	5.92
2010-Jun	159	321	205	65.1	47.9	5.67	61.8	28.8	1.18	0.60	0.23	2.89	1.92	24.1	3.54
2010-Jul	139	444	352	69.1	63.8	10.5	59.3	27.4	1.91	0.84	0.35	4.39	2.20	61.9	6.93
2010-Aug	153	401	310	62.2	65.9	8.93	112	21.0	2.51	0.75	0.29	3.76	2.23	47.1	7.55
2010-Sep	143	347	254	58.9	59.3	8.72	107	16.6	1.96	0.56	0.25	4.75	2.31	41.5	5.38
2010-Oct	233	463	346	94.4	87.5	9.68	129	18.8	1.74	1.05	0.27	4.96	2.53	71.2	8.42
2010-Nov	499	1017	707	212	247	13.4	140	22.4	2.43	1.49	0.39	6.37	2.53	187	10.3
2010-Dec	409	950	442	190	176	16.2	173	27.9	2.34	1.88	0.65	10.3	2.66	105	16.1
2011-Jan	335	774	398	149	141	19.6	108	18.0	1.82	1.13	0.44	9.65	3.43	121	10.6
2011-Feb	298	748	584	195	143	22.0	233	27.3	5.97	1.39	0.43	14.9	5.13	131	15.0
2011-Mar	431	880	510	141	161	15.8	111	23.5	1.91	1.17	0.44	9.02	3.66	171	12.2
2011-Apr	350	751	421	118	145	12.2	121	19.4	1.75	1.17	0.51	4.68	3.06	79.3	9.98
2.1-1.1															
2010-May	212	283	255	149	67.9	10.4	92.5	21.3	1.87	1.47	0.54	4.49	2.56	125	13.7
2010-Jun	123	182	185	141	34.6	5.56	60.2	28.0	1.33	1.03	0.38	3.40	3.10	56.8	8.36
2010-Jul	97.9	247	291	116	49.0	12.2	73.7	20.0	2.10	1.60	0.61	5.63	2.04	129	21.8
2010-Aug	98.6	206	237	82.9	45.7	10.3	135	19.0	2.72	1.47	0.53	5.61	2.73	107	19.0
2010-Sep	94.7	168	251	102	42.7	13.0	95.9	16.9	2.66	1.22	0.49	6.14	2.21	98.9	16.6
2010-Oct	151	227	301	213	64.2	17.5	135	19.6	2.38	2.55	0.70	7.62	3.44	174	26.2
2010-Nov	329	544	456	332	154	21.2	149	17.6	2.92	3.42	1.08	10.80	2.91	333	40.2
2010-Dec	228	389	313	363	132	29.8	158	17.3	2.29	5.00	1.33	11.35	2.10	223	46.2
2011-Jan	181	313	332	330	87.6	33.8	146	15.1	2.93	2.58	1.12	11.42	4.26	260	39.8
2011-Feb	271	293	540	325	218	38.6	235	23.5	6.80	4.48	1.19	15.95	7.12	246	55.2
2011-Mar	238	422	333	215	113	25.3	90.7	16.3	1.97	2.83	1.17	11.71	3.81	373	46.3
2011-Apr	229	399	371	190	108	18.4	120	17.2	2.21	2.54	1.16	7.02	3.08	242	31.2
1.1-0.7															
2010-May	58.8	95.5	148	158	26.8	9.68	42.9	17.6	1.60	1.47	0.52	3.85	1.68	73.9	18.8
2010-Jun	44.9	118	92.5	181	21.1	6.20	35.4	23.3	1.10	1.13	0.38	2.53	2.08	45.7	11.8
2010-Jul	56.1	166	165	153	32.1	14.3	58.5	26.2	2.25	2.51	0.81	5.73	3.25	101	33.9
2010-Aug	37.4	85.5	96.8	162	19.0	10.1	60.8	17.1	2.17	1.94	0.73	6.17	1.70	70.8	36.7
2010-Sep	33.4	100	114	178	18.7	14.4	65.2	12.2	2.27	1.65	0.53	7.27	2.30	66.2	28.2

	Al	Ca	Fe	K	Mg	Mn	Na	Ti	Cr	As	Cd	Cu	Ni	Zn	Pb
2010-Oct	62.3	82.8	282	358	27.3	25.5	92.0	16.9	2.76	4.08	1.00	7.31	3.61	131	39.7
2010-Nov	87.2	193	218	416	47.1	16.2	99.3	13.2	2.14	3.89	1.16	9.89	1.91	197	51.7
2010-Dec	90.4	145	164	461	55.5	26.0	123.5	15.8	2.06	4.74	1.55	9.52	1.29	128.4	45.5
2011-Jan	62.1	126	172	335	36.1	24.1	96.3	11.1	1.86	1.91	0.77	6.62	2.25	117	33.8
2011-Feb	100	203	374	348	139	28.8	118	14.9	4.07	3.10	0.90	11.8	4.53	157	42.8
2011-Mar	69.3	146	191	225	41.3	21.9	55.7	9.3	1.42	2.50	1.03	8.60	3.55	224	49.7
2011-Apr	96.4	151	177	280	43.8	23.3	78.3	12.3	2.06	3.24	1.46	7.96	3.13	173	46.7
0.7-0.4															
2010-May	35.7	82.5	118	234	15.7	11.5	41.9	15.9	1.66	2.01	0.68	5.29	1.79	54.8	29.4
2010-Jun	31.9	88.3	96.2	222	13.5	7.09	42.3	21.0	1.06	1.47	0.59	3.92	2.67	34.2	23.5
2010-Jul	34.7	103	154	207	22.9	12.19	40.8	16.9	2.22	3.18	1.00	6.75	1.53	80.4	48.9
2010-Aug	30.7	116	80.0	205	16.8	9.09	51.2	15.8	2.07	2.11	0.84	6.74	1.62	51.0	44.5
2010-Sep	23.6	62.6	68.9	138	10.9	9.71	35.1	10.1	1.46	1.34	0.43	6.39	2.24	29.5	23.8
2010-Oct	15.8	55.8	109	220	11.0	10.8	34.8	10.8	1.37	2.19	0.60	5.13	3.46	40.7	27.0
2010-Nov	33.9	107	90.2	236	24.4	4.76	49.9	12.2	1.27	2.00	0.60	5.24	1.21	79.0	28.9
2010-Dec	39.5	101	74.5	184	27.7	10.0	49.3	14.0	1.25	1.95	0.71	5.35	1.80	36.8	32.4
2011-Jan	30.8	78.1	77.3	195	19.4	13.4	43.5	12.4	1.41	1.25	0.49	4.13	2.52	38.9	18.6
2011-Feb	55.9	98.2	141	235	39.5	17.2	56.1	14.6	1.79	2.01	0.64	8.04	2.63	56.6	30.8
2011-Mar	44.8	158	199	196	29.3	14.2	50.6	9.9	1.36	1.92	0.90	6.63	2.27	84.7	44.8
2011-Apr	55.6	121	151	223	30.4	15.4	45.3	10.0	1.53	2.59	1.32	7.59	3.69	76.2	41.1
< 0.4															
2010-May	28.0	71.5	97.9	247	14.8	7.96	48.7	17.5	1.90	2.66	0.86	8.67	2.23	36.9	40.6
2010-Jun	50.4	91.2	73.5	264	20.3	7.62	47.0	26.7	1.54	1.83	0.72	6.15	2.71	30.0	37.5
2010-Jul	46.6	82.0	124.8	207	25.5	10.1	44.6	16.0	2.06	3.48	1.12	10.28	2.56	48.8	60.2
2010-Aug	20.1	61.0	81.0	174	11.5	7.70	38.1	27.7	2.62	2.24	0.96	8.70	2.01	40.5	65.8
2010-Sep	33.8	85.4	76.1	140	13.9	9.65	36.2	15.3	1.65	1.91	0.55	8.29	2.00	28.0	25.2
2010-Oct	23.7	66.3	97.3	229	10.1	8.28	22.4	12.4	1.35	2.04	0.64	6.34	3.16	31.7	25.5
2010-Nov	40.9	89.7	85.9	372	21.8	5.52	60.5	12.9	1.85	3.14	0.89	9.12	2.12	88.4	40.0
2010-Dec	50.8	108	64.2	237	28.2	12.0	54.7	11.6	1.12	2.87	0.92	6.33	2.43	46.2	39.1
2011-Jan	45.7	87.5	95.0	298	24.0	15.4	86.2	12.4	1.41	2.33	0.83	8.39	2.95	50.3	34.0
2011-Feb	42.3	106	95.6	238	45.1	15.5	50.7	18.7	2.29	2.06	0.75	8.53	3.34	43.7	39.5
2011-Mar	51.1	179	94.1	204	30.4	11.7	48.9	13.0	1.41	2.51	0.98	9.84	2.27	69.7	46.0
2011-Apr	43.6	112	91.0	165	22.9	9.69	27.8	24.7	1.27	2.00	1.01	11.39	4.00	37.5	33.0

**Table S5.** Average concentrations of trace elements in nine size fractions of size-segregated aerosol samples from Gulou sampling site ( $\text{ng}/\text{m}^3$ ) ( $n = 35$ ).

		Al	Ca	Fe	K	Mg	Na	As	Cd	Cr	Cu	Ni	Zn	Pb	Mn	Ti
> 9.0	Min	176	827	233	46.0	69.1	11.9	0.31	0.08	0.91	1.31	1.06	6.36	1.27	6.90	17.7
	Max	1244	5897	1451	351	502	332	1.48	0.36	5.44	18.0	7.25	60.6	14.5	33.3	52.0
	Mean	587	2655	749	176	246	132	0.83	0.22	2.68	6.30	2.50	22.1	6.03	17.1	31.5
	S.D.	296	1219	377	87	127	75	0.31	0.07	1.04	3.63	1.35	12.0	3.00	7.6	8.8
9.0–5.8	Min	129	455	110	29.3	42.4	18.7	0.21	0.08	0.72	1.37	0.79	5.14	1.08	3.97	14.0
	Max	963	3598	1105	334	412	259	1.39	0.50	5.23	15.5	6.75	41.3	15.8	24.5	70.1
	Mean	448	1776	564	139	182	120	0.74	0.22	2.29	5.40	2.68	20.7	5.66	13.1	28.9
	S.D.	216	821	273	72	95	66	0.29	0.09	0.80	3.22	1.74	10.0	3.31	5.6	12.9
5.8–4.7	Min	65.0	269	69.7	30.4	29.2	7.68	0.20	0.06	0.36	1.21	0.68	2.44	1.17	2.60	10.1
	Max	820	3575	3061	375	355	240	2.76	0.51	4.07	20.5	6.82	48.4	15.4	48.2	109
	Mean	335	1115	434	114	130	91.0	0.67	0.22	1.82	5.04	2.59	19.2	4.66	10.3	25.4
	S.D.	216	737	504	81	88	59.0	0.45	0.10	0.78	4.31	1.77	12.1	3.39	7.9	18.7
4.7–3.3	Min	118	301	74	43.6	36.7	17.9	0.31	0.11	0.74	1.57	0.72	9.05	1.49	2.85	10.6
	Max	877	2017	934	581	377	392	2.22	0.62	5.25	21.7	9.97	86.8	16.0	22.7	50.6
	Mean	366	1080	441	137	149	136	0.89	0.29	2.38	6.23	2.79	34.7	6.8	11.6	22.3
	S.D.	190	496	236	99	82	98	0.42	0.13	0.99	4.86	1.96	20.4	4.21	4.6	7.2
3.3–2.1	Min	86.5	224	73.2	23.8	29.8	16.5	0.29	0.13	0.70	0.76	0.88	6.23	1.08	1.94	7.56
	Max	550	1498	781	448	368	265	2.82	1.22	20.5	25.3	7.29	163	31.9	32.0	55.6
	Mean	282	680	366	128	116	123	1.10	0.42	2.45	6.68	2.89	62.8	10.3	11.2	22.8
	S.D.	144	330	189	87	70	73	0.57	0.24	3.22	5.27	1.92	37.4	6.9	5.8	11.3
2.1–1.1	Min	77.3	129	73.7	24.8	28.5	5.55	0.53	0.22	0.81	1.47	0.80	19.2	2.11	5.27	9.18
	Max	534	610	637	547	768	256	6.95	2.26	10.5	23.0	7.44	337	75.4	41.2	35.0
	Mean	190	308	261	205	96.1	118	2.58	0.90	2.64	7.94	2.92	136	29.6	17.3	19.1
	S.D.	107	128	141	127	123.8	68	1.71	0.54	2.08	5.52	2.05	82	20.7	9.8	6.8
1.1–0.7	Min	24.7	45.5	18.6	30.1	13.8	13.1	0.43	0.18	0.54	1.04	0.70	11.5	4.17	4.74	6.24
	Max	186	275	426	652	588	165	7.22	2.60	5.92	16.3	7.19	206	71.7	40.7	53.6
	Mean	69.0	133	146	262	48.0	79.0	2.81	0.96	2.13	6.97	2.58	88.4	34.6	15.5	16.4
	S.D.	31.8	57	99	152	94.9	44.6	1.76	0.62	1.17	4.47	1.77	45.0	20.7	7.9	10.7
0.7–0.4	Min	12.8	25.3	17.4	56.8	6.66	10.3	0.89	0.25	0.35	1.19	0.80	14.5	4.60	2.41	4.23
	Max	161	329	350	401	118	121	4.83	2.32	3.94	15.8	7.67	98.1	72.6	24.5	33.2
	Mean	42.3	113	96	199	23.0	47.0	2.14	0.78	1.57	5.46	2.29	44.2	32.7	10.0	12.6
	S.D.	26.2	76	70	83	18.8	26.0	0.94	0.45	0.87	3.34	1.61	19.6	18.4	5.2	6.6
< 0.4	Min	15.6	32.4	21.2	64.7	6.18	4.49	0.79	0.23	0.39	1.04	0.67	17.5	12.3	1.46	4.84
	Max	90.2	395	156	338	120	109	3.68	1.40	2.72	11.9	6.95	72.4	95.8	13.1	60.9
	Mean	45.4	124	70.3	172	26.0	42.3	2.10	0.73	1.36	6.26	2.02	34.1	31.3	7.61	17.5
	S.D.	18.2	75	31.0	70	20.3	27.0	0.71	0.31	0.58	2.24	1.29	12.0	17.9	3.10	11.2

**Table S6.** Average concentrations of trace elements in nine size fractions of size-segregated aerosol samples from Pukou sampling site (ng/m<sup>3</sup>) (n = 35).

		Al	Ca	Fe	K	Mg	Na	As	Cd	Cr	Cu	Ni	Zn	Pb	Mn	Ti
> 9.0	Min	86.7	347	101	23.2	39.1	7.34	0.19	0.09	0.62	1.12	0.49	4.64	0.62	1.13	9.37
	Max	820	1636	1687	253	332	125	1.11	0.37	6.12	17.6	6.57	132	8.76	21.5	53.8
	Mean	338	981	540	100	139	49.4	0.50	0.18	2.58	5.94	2.34	21.8	3.78	8.26	28.2
	S.D.	182	384	311	48	70	28.4	0.21	0.06	1.38	3.77	1.31	21.4	1.99	5.82	10.5
9.0–5.8	Min	180	486	201	44.8	57.4	18.4	0.28	0.10	1.08	1.33	0.66	3.09	0.68	1.23	11.6
	Max	1339	2684	1759	437	580	284	1.38	0.34	6.82	17.5	8.60	92.3	13.9	33.8	69.4
	Mean	454	1335	709	136	191	106	0.73	0.21	3.11	7.83	3.21	33.4	5.78	12.5	31.3
	S.D.	269	642	359	78	108	65	0.28	0.07	1.63	3.99	1.79	19.6	2.89	9.4	13.1
5.8–4.7	Min	47.2	148	98.7	19.1	22.6	4.19	0.17	0.09	0.78	1.06	0.53	3.41	1.08	1.10	7.19
	Max	619	1234	789	227	297	230	1.06	0.32	3.89	10.2	7.75	58.5	8.11	27.3	39.9
	Mean	187	511	338	70.5	83.2	59.3	0.47	0.17	1.84	4.30	2.43	21.8	3.30	9.33	18.6
	S.D.	129	309	196	43.8	56.4	57.8	0.23	0.06	0.84	2.80	1.68	15.5	1.88	6.08	7.1
4.7–3.3	Min	94	217	86.0	41.3	51.2	21.4	0.31	0.10	0.87	1.59	0.59	13.0	1.32	1.38	9.04
	Max	816	1302	879	326	367	304	1.20	0.41	4.94	13.9	8.71	110	10.5	33.1	42.0
	Mean	282	689	426	99.4	116	100	0.73	0.22	1.98	5.59	2.78	46.0	5.52	12.0	22.0
	S.D.	144	282	199	51.3	60	67	0.27	0.07	0.85	3.49	1.87	29.4	2.40	6.7	7.0
3.3–2.1	Min	117	174	103	37.4	44.6	18.0	0.42	0.15	0.83	1.57	0.80	14.1	2.18	2.15	8.71
	Max	970	1316	1607	363	544	318	2.39	0.69	6.28	18.8	6.13	370	22.6	28.9	42.8
	Mean	298	603	457	117	125	117	1.07	0.33	2.13	6.80	2.82	121	8.56	14.0	22.2
	S.D.	179	326	302	63	92	70	0.49	0.12	1.14	4.89	1.43	102	4.44	8.0	7.3
2.1–1.1	Min	77.8	78.9	122	77.4	37.1	37.4	0.87	0.36	1.24	3.22	1.12	54.6	10.4	3.15	10.5
	Max	552	803	1371	598	295	302	8.33	1.68	8.82	19.5	8.98	579	100	52.7	36.3
	Mean	190	309	388	226	92.9	134	2.52	0.84	2.78	9.14	3.69	265	32.1	22.6	19.3
	S.D.	104	161	226	115	58.8	64	1.58	0.34	1.53	4.43	2.19	169	19.2	14.0	6.4
1.1–0.7	Min	11.0	28.1	89.3	116	12.3	20.7	1.08	0.39	0.33	2.53	0.86	43.2	7.47	4.12	5.43
	Max	207	551	734	631	87.2	164	7.05	1.85	6.35	16.2	6.70	445	98.6	55.9	31.2
	Mean	65.0	135	223	286	37.5	77.0	2.60	0.86	2.19	7.75	2.64	162	39.4	21.7	14.7
	S.D.	43.2	121	149	130	20.9	37.8	1.43	0.35	1.23	3.16	1.63	111	20.8	13.3	6.3
0.7–0.4	Min	1.54	30.2	55.2	40.2	5.72	10.1	0.51	0.19	0.50	1.51	0.75	9.55	8.17	1.74	6.00
	Max	113	198	291	441	52.4	108	4.93	1.43	3.34	14.9	8.29	158	68.6	27.7	35.9
	Mean	30.0	82.0	130	216	20.8	43.3	1.85	0.68	1.50	6.44	2.29	66.2	32.7	12.6	14.3
	S.D.	22.9	46.2	67	94	12.0	22.9	0.97	0.30	0.77	2.99	1.79	41.4	17.5	6.3	5.9
< 0.4	Min	8.67	22.2	34.6	92.3	2.8	8.2	1.17	0.29	0.74	3.78	1.02	12.9	13.1	2.18	6.96
	Max	82.2	172	249	621	50.9	117	6.27	1.90	5.24	19.7	7.94	191	143	31.9	89.3
	Mean	33.6	66.5	109	291	18.8	52.1	2.73	0.97	2.05	10.8	3.27	58.2	49.3	12.6	17.1
	S.D.	21.1	41.5	55	133	11.5	29.4	1.08	0.38	1.05	4.0	1.64	39.4	29.7	7.4	14.1

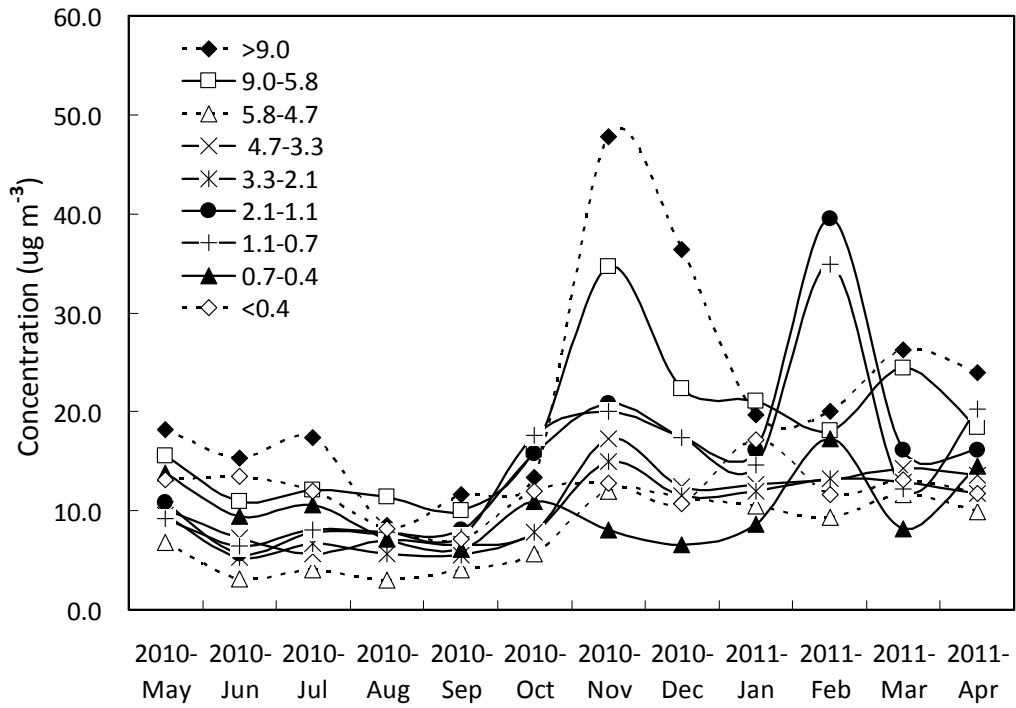


**Table S7.** Model summary of linear regression for PCA/APCS.

R	R Square	Adjusted R Square	Std. Error of the Estimate
1.00	0.9927	0.9922	0.0337

**Table S8.** Coefficients of linear regression model for PCA/APCS.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.72	0.004		1190	0.000
Factor score 1	0.26	0.004	0.68	64.76	0.000
Factor score 2	0.24	0.004	0.62	58.90	0.000
Factor score 3	0.06	0.004	0.16	15.57	0.000
Factor score 4	0.14	0.004	0.36	34.18	0.000



**Fig. 1.** Seasonal variations of average mass concentrations of particulates in different size fractions of size-segregated aerosol samples ( $\mu\text{g}/\text{m}^3$ ) ( $n = 70$ ).