

Figure Captions:

Fig. S1. Scatter plots of $PM_{2.5}$ and PM_{10} in winter, spring, summer, and autumn.

Table Captions:

Table S1 Mean concentrations of water soluble inorganic ions in $PM_{2.5}$, $PM_{2.5-10}$, and PM_{10} .

Table S2 Spearman correlation coefficients among WSIs in $PM_{2.5}$, $PM_{2.5-10}$, and PM_{10} .

Table S3 Seasonal mean concentrations of element in $PM_{2.5}$, $PM_{2.5-10}$, and PM_{10} .

Table S4 Annual mean concentrations of element in $PM_{2.5}$, $PM_{2.5-10}$, and PM_{10} .

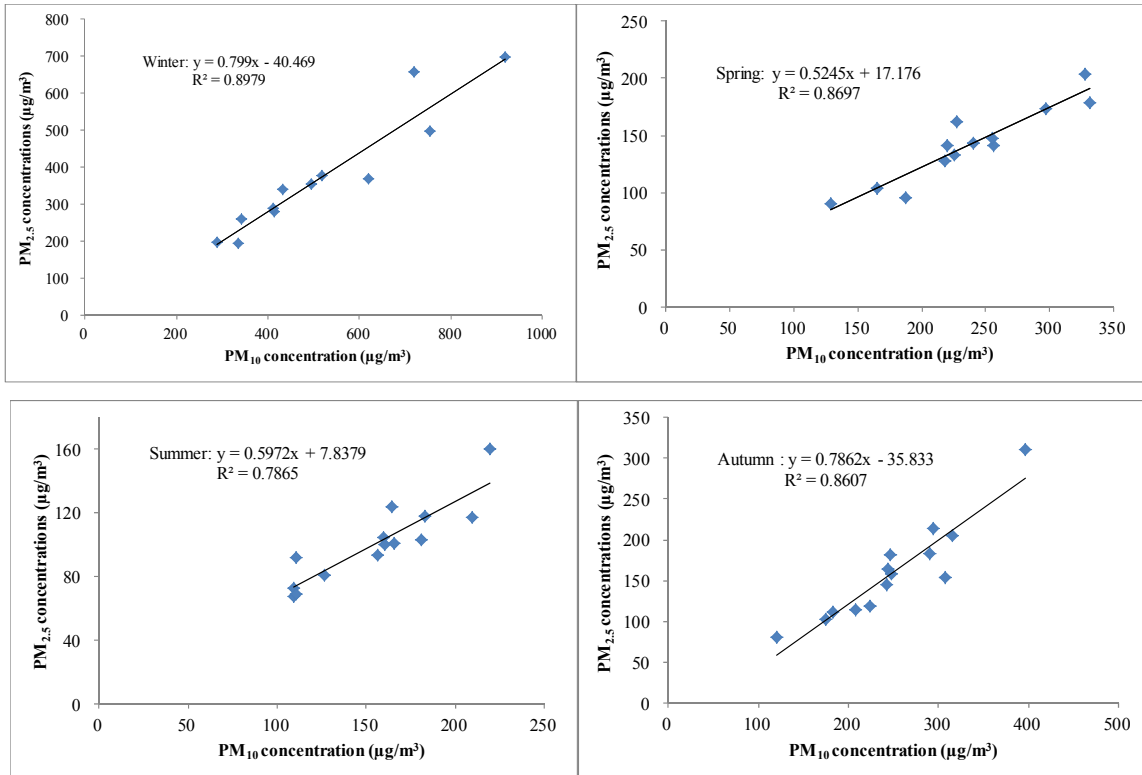


Fig. S1. Scatter plots of PM_{2.5} and PM₁₀ in winter, spring, summer, and autumn.

Table S1 Mean concentrations of water soluble inorganic ions in PM_{2.5}, PM_{2.5-10}, and PM₁₀.

Season	PM	Cations					Anions				∑WSIIs*/PM (%)	∑SIAs**/PM (%)	
		Na ⁺	NH ₄ ⁺	K ⁺	Mg ²⁺	Ca ²⁺	F ⁻	Cl ⁻	NO ₃ ⁻	SO ₄ ²⁻			
PM _{2.5}	Winter (n = 12)	376	1.7 ± 0.5	34.9 ± 16.9	4.9 ± 1.9	0.6 ± 0.2	4.9 ± 2.2	1.5 ± 0.9	20.2 ± 10.0	42.8 ± 20.0	65.3 ± 40.6	46 ± 8	37 ± 9
	Spring (n = 13)	136	0.5 ± 0.3	11.9 ± 7.2	1.4 ± 0.7	0.3 ± 0.1	3.4 ± 1.1	0.5 ± 0.3	2.0 ± 1.4	16.1 ± 11.4	23.1 ± 11.3	44 ± 16	38 ± 16
	Summer (n = 14)	100	0.5 ± 0.3	6.8 ± 2.4	0.5 ± 0.2	0.1 ± 0.0	1.3 ± 0.5	0.1 ± 0.1	0.7 ± 0.4	9.0 ± 5.3	20.5 ± 5.9	40 ± 4	37 ± 4
	Autumn (n = 14)	160	0.4 ± 0.1	9.4 ± 4.5	1.3 ± 0.6	0.2 ± 0.1	2.4 ± 1.1	0.3 ± 0.1	3.4 ± 3.0	19.8 ± 9.3	20.7 ± 10.2	36 ± 8	31 ± 8
	Annual (n = 53)	187	0.8 ± 0.6	15.1 ± 14.1	1.9 ± 1.9	0.3 ± 0.2	2.9 ± 1.8	0.6 ± 0.7	6.1 ± 9.1	21.2 ± 17.3	31.3 ± 27.5	41 ± 10	36 ± 11
PM _{2.5-10}	Winter (n = 12)	149	0.8 ± 0.8	2.1 ± 2.2	0.4 ± 0.1	0.8 ± 1.6	4.2 ± 2.3	1.4 ± 0.7	2.7 ± 1.2	6.5 ± 4.8	13.1 ± 10.8	22 ± 13	15 ± 12
	Spring (n = 13)	90	0.1 ± 0.1	0.4 ± 0.2	0.1 ± 0.0	0.1 ± 0.0	2.0 ± 0.7	0.3 ± 0.1	0.6 ± 0.3	5.9 ± 2.1	2.3 ± 0.7	14 ± 4	10 ± 2
	Summer (n = 14)	55	0.1 ± 0.0	0.2 ± 0.1	0.1 ± 0.0	0.1 ± 0.0	1.7 ± 0.6	0.1 ± 0.1	0.3 ± 0.1	2.9 ± 1.2	1.2 ± 0.4	14 ± 7	9 ± 6
	Autumn (n = 14)	89	0.1 ± 0.1	0.3 ± 0.2	0.1 ± 0.0	0.1 ± 0.0	2.2 ± 0.6	0.3 ± 0.1	0.7 ± 0.3	4.4 ± 1.6	2.7 ± 1.3	12 ± 2	8 ± 2
	Annual (n = 53)	94	0.3 ± 0.5	0.7 ± 1.3	0.2 ± 0.1	0.3 ± 0.8	2.5 ± 1.5	0.5 ± 0.6	1 ± 1.1	4.8 ± 3.0	4.5 ± 6.9	15 ± 8	10 ± 7
PM ₁₀	Winter (n = 12)	524	2.5 ± 1.1	37.0 ± 18.0	5.3 ± 1.9	1.4 ± 1.6	9.1 ± 2.6	2.8 ± 1.2	22.9 ± 10.5	49.2 ± 23.0	78.4 ± 48.2	39 ± 10	30 ± 10
	Spring (n = 13)	237	0.6 ± 0.3	12.3 ± 7.3	1.5 ± 0.8	0.4 ± 0.1	5.3 ± 1.2	0.8 ± 0.3	2.6 ± 1.5	21.9 ± 11.7	25.4 ± 11.6	32 ± 12	27 ± 12
	Summer (n = 14)	155	0.6 ± 0.3	7.0 ± 2.4	0.6 ± 0.2	0.2 ± 0.1	3.0 ± 1.0	0.2 ± 0.2	1 ± 0.5	12.4 ± 5.6	22.4 ± 5.4	31 ± 4	27 ± 5
	Autumn (n = 14)	249	0.6 ± 0.2	9.7 ± 4.6	1.4 ± 0.6	0.3 ± 0.1	4.6 ± 1.3	0.6 ± 0.2	4.1 ± 3.2	24.1 ± 9.8	23.4 ± 10.8	27 ± 6	23 ± 6
	Annual (n = 53)	281	1.0 ± 1.0	15.8 ± 15.0	2.1 ± 2.0	0.6 ± 0.9	5.4 ± 2.7	1.1 ± 1.2	7.2 ± 10.1	26.2 ± 18.8	36.1 ± 33.1	32 ± 9	27 ± 9
Ions-PM _{2.5} / Ions-PM ₁₀ (%)			78	96	90	60	52	50	75	78	89		

*WSIIs represent the nine water soluble ions; **SIAAs represent secondary inorganic aerosols.

All units were in µg/m³ unless otherwise noted.

Table S2 Spearman correlation coefficients among WSIs in PM_{2.5}, PM_{2.5-10}, and PM₁₀.(a) PM_{2.5} (n = 53)

PM _{2.5}	Na ⁺	NH ₄ ⁺	K ⁺	Mg ²⁺	Ca ²⁺	F ⁻	Cl ⁻	NO ₃ ⁻	SO ₄ ²⁻
Na ⁺	1.00								
NH ₄ ⁺	0.51**	1.00							
K ⁺	0.62**	0.79**	1.00						
Mg ²⁺	0.59**	0.65**	0.81**	1.00					
Ca ²⁺	0.51**	0.32*	0.67**	0.83**	1.00				
F ⁻	0.61**	0.50**	0.85**	0.84**	0.87**	1.00			
Cl ⁻	0.64**	0.71**	0.85**	0.68**	0.52**	0.75**	1.00		
NO ₃ ⁻	0.52**	0.87**	0.83**	0.58**	0.33*	0.52**	0.80**	1.00	
SO ₄ ²⁻	0.45**	0.88**	0.60**	0.45**	0.12	0.31*	0.53**	0.77**	1.00

(b) PM_{2.5-10} (n = 53)

PM _{2.5-10}	Na ⁺	NH ₄ ⁺	K ⁺	Mg ²⁺	Ca ²⁺	F ⁻	Cl ⁻	NO ₃ ⁻	SO ₄ ²⁻
Na ⁺	1								
NH ₄ ⁺	0.66**	1							
K ⁺	0.81**	0.84**	1						
Mg ²⁺	0.88**	0.62**	0.80**	1					
Ca ²⁺	0.81**	0.66**	0.80**	0.90**	1				
F ⁻	0.72**	0.74**	0.90**	0.75**	0.71**	1			
Cl ⁻	0.74**	0.82**	0.89**	0.74**	0.68**	0.84**	1		
NO ₃ ⁻	0.38**	0.44**	0.45**	0.32*	0.38**	0.36**	0.51**	1	
SO ₄ ²⁻	0.74**	0.71**	0.80**	0.64**	0.67**	0.72**	0.80**	0.55**	1

(c) PM₁₀ (n = 53)

PM ₁₀	Na ⁺	NH ₄ ⁺	K ⁺	Mg ²⁺	Ca ²⁺	F ⁻	Cl ⁻	NO ₃ ⁻	SO ₄ ²⁻
Na ⁺	1.00								
NH ₄ ⁺	0.50**	1.00							
K ⁺	0.65**	0.78**	1.00						
Mg ²⁺	0.73**	0.70**	0.84**	1.00					
Ca ²⁺	0.73**	0.55**	0.82**	0.92**	1.00				
F ⁻	0.67**	0.60**	0.89**	0.84**	0.88**	1.00			
Cl ⁻	0.65**	0.74**	0.89**	0.78**	0.74**	0.82**	1.00		
NO ₃ ⁻	0.51**	0.87**	0.81**	0.63**	0.56**	0.60**	0.77**	1.00	
SO ₄ ²⁻	0.42**	0.86**	0.58**	0.49**	0.37**	0.40**	0.51**	0.78**	1.00

*. Corr.is significant at 0.05 level 2-tail

**. Corr.is significant at 0.01 level 2-tail

Table S3 Seasonal mean concentrations of element in PM_{2.5}, PM_{2.5-10}, and PM₁₀.

Species	Winter (n = 12 for each size fraction)			Spring (n = 13 for each size fraction)			Summer (n = 14 for each size fraction)			Autumn (n = 14 for each size fraction)		
	PM _{2.5}	PM _{2.5-10}	PM ₁₀	PM _{2.5}	PM _{2.5-10}	PM ₁₀	PM _{2.5}	PM _{2.5-10}	PM ₁₀	PM _{2.5}	PM _{2.5-10}	PM ₁₀
Al	3117 ± 1104	1471 ± 529	4588 ± 1379	1618 ± 770	1420 ± 341	3038 ± 1052	690 ± 229	808 ± 167	1497 ± 347	1277 ± 599	1321 ± 264	2598 ± 808
Fe	2047 ± 1083	1445 ± 470	3492 ± 1139	952 ± 729	1301 ± 380	2252 ± 897	592 ± 192	788 ± 215	1380 ± 319	1019 ± 318	1213 ± 133	2231 ± 393
Zn	1394 ± 768	114 ± 55	1508 ± 812	662 ± 515	51 ± 34	713 ± 548	596 ± 671	44 ± 34	641 ± 703	543 ± 460	47 ± 28	590 ± 486
Mg	804 ± 234	515 ± 172	1320 ± 284	538 ± 283	548 ± 162	1086 ± 390	220 ± 63	160 ± 154	380 ± 163	439 ± 201	637 ± 156	1077 ± 337
Pb	666 ± 242	110 ± 54	776 ± 291	246 ± 223	55 ± 57	301 ± 279	155 ± 69	29 ± 10	183 ± 76	210 ± 68	31 ± 12	241 ± 75
Mn	197 ± 66	33 ± 10	230 ± 72	72 ± 23	28 ± 9	100 ± 28	42 ± 11	19 ± 3	61 ± 12	70 ± 15	28 ± 3	99 ± 17
Ti	82 ± 19	70 ± 27	152 ± 36	52 ± 19	54 ± 17	106 ± 31	24 ± 6	32 ± 8	56 ± 10	58 ± 25	52 ± 13	110 ± 33
Ba	79 ± 43	92 ± 33	171 ± 68	43 ± 22	65 ± 30	108 ± 49	23 ± 6	43 ± 14	65 ± 20	46 ± 20	65 ± 22	111 ± 35
Cu	79 ± 31	10 ± 5	89 ± 36	28 ± 15	6 ± 3	34 ± 17	30 ± 12	9 ± 5	40 ± 16	33 ± 10	7 ± 1	39 ± 12
Sr	32 ± 14	42 ± 15	74 ± 25	19 ± 10	30 ± 12	49 ± 21	8 ± 2	20 ± 7	28 ± 9	17 ± 8	29 ± 12	47 ± 17
As	68 ± 36	4 ± 2	72 ± 38	14 ± 20	2 ± 2	16 ± 21	16 ± 13	3 ± 2	19 ± 13	11 ± 6	2 ± 1	13 ± 7
Sn	24 ± 11	2 ± 1	25 ± 11	10 ± 5	2 ± 1	12 ± 6	7 ± 2	1 ± 0	8 ± 2	10 ± 5	2 ± 0	12 ± 5
Cd	16 ± 6	3 ± 2	19 ± 8	6 ± 5	1 ± 1	8 ± 6	6 ± 7	1 ± 2	7 ± 9	8 ± 5	1 ± 1	9 ± 6
Sb	33 ± 12	3 ± 2	36 ± 13	8 ± 4	1 ± 1	10 ± 4	7 ± 3	1 ± 1	8 ± 4	15 ± 8	2 ± 1	16 ± 8
Se	15 ± 11	0 ± 0	15 ± 11	2 ± 2	0 ± 1	2 ± 3	2 ± 2	0 ± 0	2 ± 2	4 ± 3	0 ± 0	4 ± 3
Ni	10 ± 7	3 ± 1	12 ± 8	3 ± 3	2 ± 0	5 ± 3	2 ± 1	1 ± 0	4 ± 1	7 ± 6	2 ± 0	9 ± 6
Mo	8 ± 2	3 ± 1	11 ± 3	3 ± 4	3 ± 4	6 ± 7	3 ± 2	2 ± 2	5 ± 4	6 ± 3	2 ± 1	8 ± 4
V	9 ± 8	4 ± 1	13 ± 8	1 ± 1	3 ± 1	4 ± 2	6 ± 6	1 ± 1	7 ± 5	1 ± 1	3 ± 0	4 ± 1
Tl	7 ± 3	1 ± 0	8 ± 4	2 ± 1	0 ± 0	2 ± 1	1 ± 0	0 ± 0	1 ± 1	2 ± 1	0 ± 0	2 ± 0
Ag	8 ± 7	1 ± 0	8 ± 7	2 ± 1	0 ± 0	2 ± 1	2 ± 1	0 ± 0	2 ± 1	1 ± 1	0 ± 0	2 ± 1
Co	2 ± 1	1 ± 0	2 ± 1	1 ± 0	1 ± 0	1 ± 0	0 ± 0	0 ± 0	1 ± 0	1 ± 0	1 ± 0	1 ± 0
Be	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0	0 ± 0

All units were in ng/m³.

Table S4 Annual mean concentrations of element in PM_{2.5}, PM_{2.5-10}, and PM₁₀ (n = 53 for each size fraction).

Species	PM _{2.5}	PM _{2.5-10}	PM ₁₀
Al	1622 ± 1131	1244 ± 428	2866 ± 1438
Fe	1122 ± 830	1175 ± 397	2297 ± 1040
Zn	779 ± 683	62 ± 47	842 ± 726
Mg	488 ± 291	462 ± 244	950 ± 464
Pb	307 ± 256	54 ± 50	362 ± 303
Mn	92 ± 68	27 ± 9	119 ± 73
Ti	53 ± 27	51 ± 21	104 ± 44
Ba	46 ± 32	65 ± 30	112 ± 58
Cu	41 ± 27	8 ± 4	50 ± 30
Sr	19 ± 12	30 ± 14	48 ± 24
As	26 ± 31	3 ± 2	29 ± 32
Sn	12 ± 9	2 ± 1	14 ± 9
Cd	9 ± 7	2 ± 2	10 ± 8
Sb	15 ± 12	2 ± 1	17 ± 14
Se	5 ± 8	0 ± 0	5 ± 8
Ni	5 ± 5	2 ± 1	8 ± 6
Mo	5 ± 3	3 ± 2	7 ± 5
V	4 ± 6	3 ± 1	7 ± 6
Tl	3 ± 3	0 ± 0	3 ± 3
Ag	3 ± 4	0 ± 0	3 ± 4
Co	1 ± 1	1 ± 0	1 ± 1
Be	0 ± 0	0 ± 0	0 ± 0

All units were in ng/m³.