

Appendix A. Supplementary material

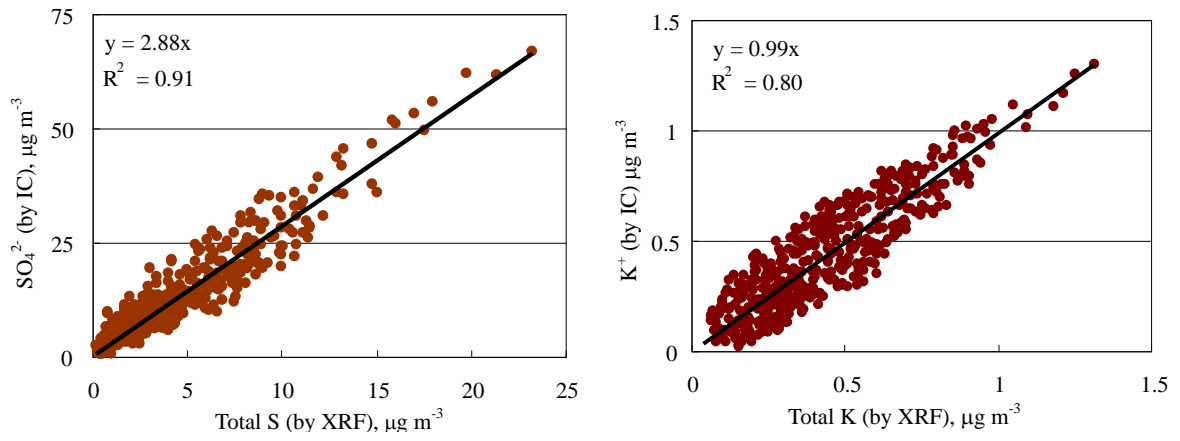


Fig. S1. Scatter plot of (a) SO₄²⁻ vs. total S and (b) K⁺ vs. total K for PM_{2.5}.

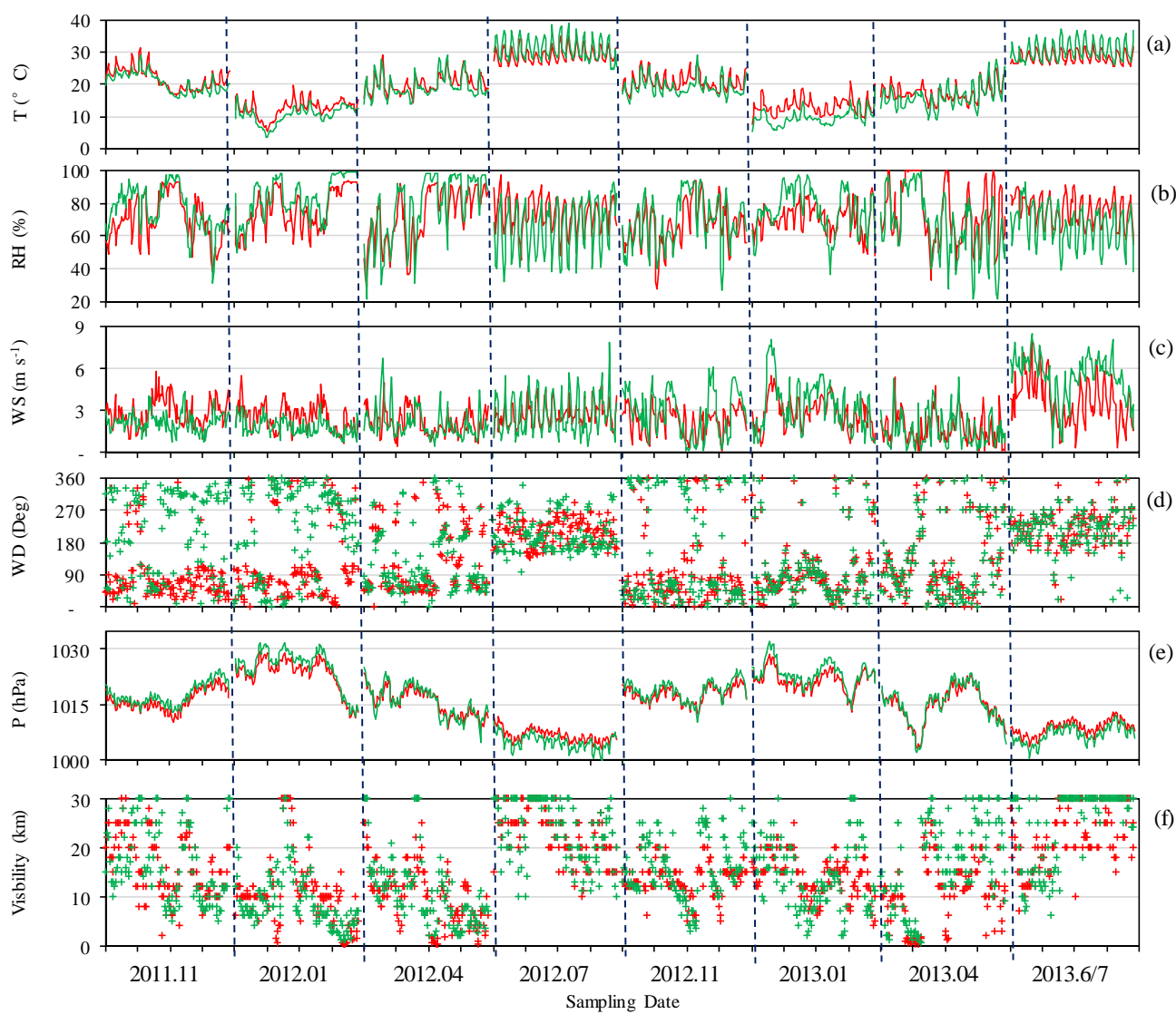


Fig. S2. Time series of hourly average temperature (a), relative humidity (b), wind speed (c), wind direction (d), atmospheric pressure (e), and visibility (f) near XM (red) and FZ (green) sites during the eight sampling campaigns

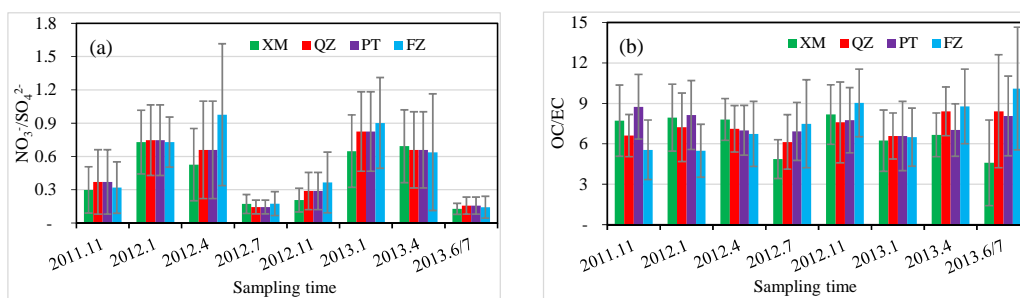


Fig. S3. Seasonal variations of $\text{NO}_3^-/\text{SO}_4^{2-}$ (a) and OC/EC (b) ratios at the four sites.

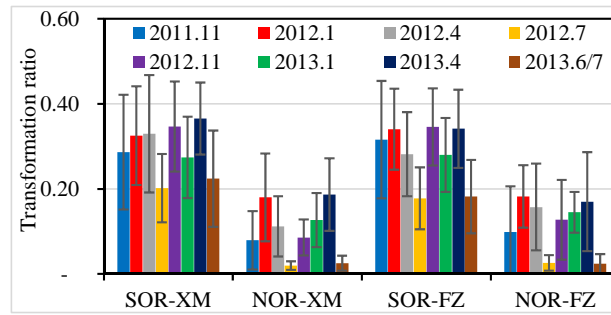


Fig. S4. Seasonal variation of SOR and NOR at XM and FZ sites.

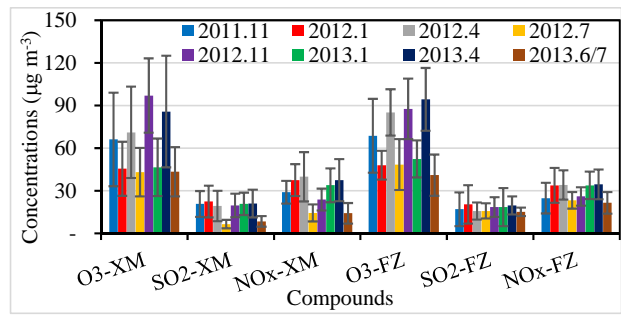


Fig. S5. Seasonal variation of O₃, SO₂ and NO_x at XM and FZ sites.

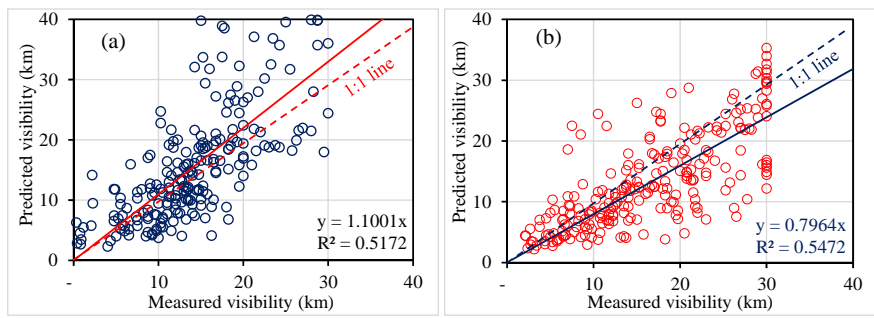


Fig. S6. Cross plot of measured visibility vs. predicted visibility ($=3.912/b_{\text{ext}}$) at XM (a) and FZ (b)

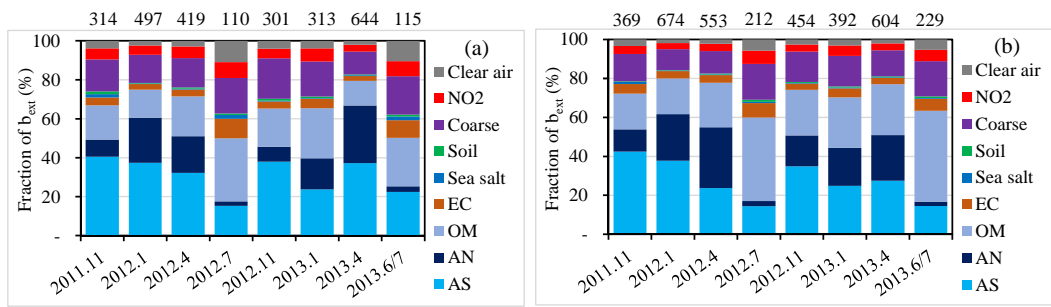


Fig. S7. Contribution of chemical component to light extinction coefficient at XM (a) and FZ (b) sites.

The numbers above the bars represent the average b_{ext} in Mm^{-1} in each sampling period.

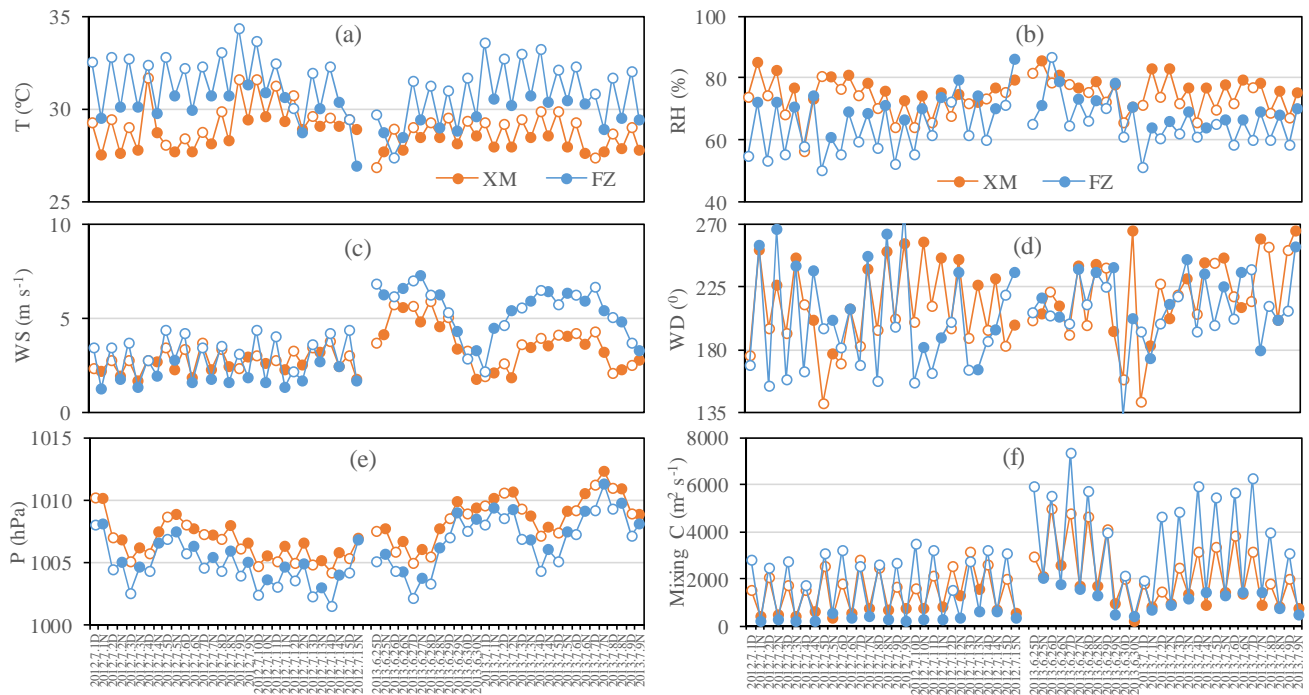


Fig. S8. Diurnal variations of meteorological factors near XM and FZ sites during summer sampling campaigns (day-hollow circle; night-solid circle).

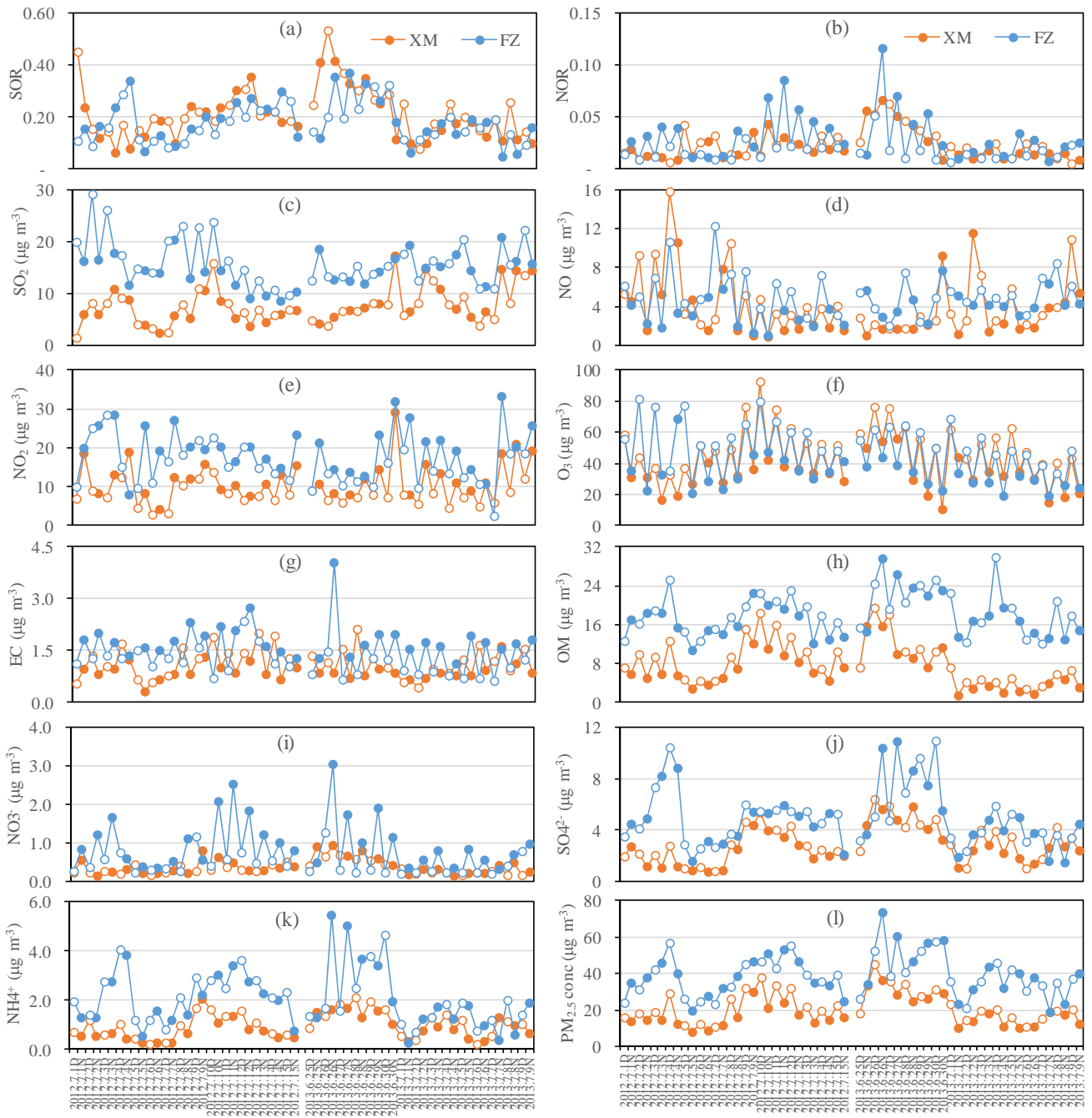


Fig. S9. Diurnal variations of PM_{2.5} major components and precursors at XM and FZ sites during summer sampling campaigns (day-hollow circle; night-solid circle).

Table S1. Correlation matrix of PM_{2.5} and selected components and meteorological parameters at XM site (SS - sea-salt, UN - unidentified).

	PM2.5	SO42-	NO3-	NH4+	OM	EC	Crustal	Kb	UN	SO2	NOx	O3	SOR	NOR	T	RH	WS	P	Visibility
SO42-	.889**	1																	
NO3-	.824**	.642**	1																
NH4+	.907**	.787**	.841**	1															
OM	.852**	.688**	.653**	.685**	1														
EC	.554**	.357**	.444**	.413**	.653**	1													
Crustal	.450**	.393**	.162*	.227**	.459**	.304**	1												
Kb	.791**	.641**	.589**	.651**	.745**	.621**	.480**	1											
UN	.671**	.450**	.438**	.514**	.501**	.346**	.559**	.402**	1										
SO2	.592**	.512**	.423**	.518**	.560**	.428**	.413**	.514**	.402**	1									
NOx	.593**	.407**	.541**	.490**	.617**	.584**	.253**	.631**	.415**	.683**	1								
O3	.332**	.404**		.294**	.288**		.373**	.251**	.210**	.129*	-.167**	1							
SOR	.487**	.607**	.339**	.480**	.354**			.278**	.244**	-.199**		.341**	1						
NOR	.749**	.636**	.910**	.722**	.539**	.266**	.153*	.465**	.395**	.265**	.241**	.241**	.439**	1					
T	-.603**	-.543**	-.588**	-.595**	-.510**	-.210**	-.231**	-.462**	-.299**	-.463**	-.491**	-.250**	-.557**		1				
RH		-.149*	.129*		-.157*		-.438**			-.132*	.184**	-.560**				1			
WS	-.298**	-.237**	-.272**	-.337**	-.148*	-.202**	-0.057	-.392**	-.268**	-.296**	-.473**		-.130*	.208**	-.259**	1			
P	.540**	.528**	.418**	.515**	.475**	.144*	.374**	.331**	.307**	.516**	.370**	.199**	.172**	.433**	-.850**	-.304**	1		
Visibility	-.656**	-.539**	-.591**	-.635**	-.606**	-.334**		-.544**	-.447**	-.389**	-.564**	-0.123	-.402**	-.485**	.553**	-.374**	.331**	-.305**	1
Mixing C	-.218**	-.167**	-.255**	-.263**		-.142*		-.284**	-.207**	-.294**	-.460**	.263**	0.038	-0.127	.168**	-.385**	.812**		.357**

*, Correlation is significant at the 0.01 level (2-tailed).

**, Correlation is significant at the 0.05level (2-tailed).

Table S2. Correlation matrix of PM_{2.5} and selected components and meteorological parameters at FZ site (SS - sea-salt, UN - unidentified).

	PM2.5	SO42-	NO3-	NH4+	OM	EC	Crustal	Kb	UN	SO2	NOx	O3	SOR	NOR	T	RH	WS	P	Visibility
SO42-	.828**	1																	
NO3-	.844**	.648**	1																
NH4+	.905**	.804**	.854**	1															
OM	.751**	.430**	.503**	.550**	1														
EC	.471**	.165*	.402**	.276**	.626**	1													
Crustal	.287**	.168**		.147*	.461**	.147*	1												
Kb	.791**	.575**	.584**	.665**	.727**	.570**	.438**	1											
UN	.663**	.436**	.494**	.497**	.385**	.331**		.488**	1										
SO2	.440**	.554**	.342**	.427**	.243**		.291**	.282**	.149*	1									
NOx	.425**	.329**	.432**	.383**	.358**	.219**	.218**	.342**	.180**	.533**	1								
O3	.393**	.451**	.212**	.401**	.241**		.388**	.381**	.172**	.314**		1							
SOR	.605**	.662**	.494**	.612**	.314**	.264**		.466**	.417**	-.144*		.256**	1						
NOR	.790**	.628**	.924**	.806**	.442**	.387**		.573**	.480**	.179**	.158*	.268**	.610**	1					
T	-.397**	-.379**	-.524**	-.465**		-.196**		-.399**	-.276**	-.185**	-.357**	-.184**	-.359**	-.511**	1				
RH		-.131*	.284**			.354**	-.544**		.146*	-.454**		-.354**	.245**	.326**	-.344**	1			
WS	-.323**	-.259**	-.362**	-.318**	-.229**	-.429**	-0.018	-.390**	-.142*		-.219**	-.194**	-.389**	-.395**	.327**	-.333**	1		
P	.327**	.428**	.382**	.399**				.309**	.216**	.296**	.292**	.224**	.308**	.376**	-.868**		-.221**	1	
Visibility	-.553**	-.414**	-.624**	-.542**	-.323**	-.413**		-.400**	-.399**		-.355**	-.170**	-.438**	-.599**	.565**	-.608**	.403**	-.392**	1
Mixing C	-.248**	-.173**	-.310**	-.244**		-.443**		-.308**	-.190**	.128*	-.177**		-.336**	-.364**	.345**	-.446**	.762**	-.248**	.417**

*, Correlation is significant at the 0.01 level (2-tailed).

**, Correlation is significant at the 0.05 level (2-tailed).

Table S3. Correlation matrix of PM_{2.5} and selected components at QZ site (SS - sea-salt, UN - unidentified).

	PM2.5	SO42-	NO3-	NH4+	OM	EC	Crustal	Kb	UN
SO42-	.848**	1							
NO3-	.832**	.724**	1						
NH4+	.884**	.847**	.899**	1					
OM	.775**	.501**	.523**	.564**	1				
EC	.461**	.210**	.242**	.261**	.648**	1			
Crustal			-.181**	-.136*	.210**	.281**	1		
Kb	.742**	.553**	.478**	.572**	.747**	.564**	.192**	1	
UN	.652**	.434**	.488**	.443**	.395**	.276**		.393**	1

*, Correlation is significant at the 0.01 level (2-tailed).

**, Correlation is significant at the 0.05 level (2-tailed).

Table S4. Correlation matrix of PM_{2.5} and selected components at PT site (SS - sea-salt, UN - unidentified).

	PM2.5	SO42-	NO3-	NH4+	OM	EC	Crustal	Kb	UN
SO42-	.904**	1							
NO3-	.879**	.792**	1						
NH4+	.920**	.842**	.866**	1					
OM	.787**	.611**	.581**	.620**	1				
EC	.543**	.402**	.402**	.458**	.597**	1			
Crustal	.198**	.129*			.418**	.253**	1		
Kb	.790**	.692**	.666**	.747**	.664**	.542**	.309**	1	
UN	.631**	.422**	.434**	.490**	.411**	.318**		.423**	1

*, Correlation is significant at the 0.01 level (2-tailed).

**, Correlation is significant at the 0.05 level (2-tailed).