

Table S1. Average ($\pm\sigma$) concentrations (ng m^{-3}) of 33 trace elements and their EFs in $\text{PM}_{2.5}$ and $\text{PM}_{2.5-10}$ during the sampling period.

Elements	$\text{PM}_{2.5}$		$\text{PM}_{2.5-10}$		Elements	$\text{PM}_{2.5}$		$\text{PM}_{2.5-10}$	
	Mean	EF	Mean	EF		Mean	EF	Mean	EF
Se	4.9 \pm 4.5	11333	0.6 \pm 0.6	394	K	2788 \pm 2529	15	869.3 \pm 700	1
Sb	7.9 \pm 6.7	4546	2.6 \pm 2.1	403	Mn	96.4 \pm 90.6	12	68.7 \pm 62.8	2
Pb	202 \pm 195	1867	26.2 \pm 30.7	66	Nb	2.1 \pm 1.8	12	6.9 \pm 5.0	11
Cd	2.7 \pm 2.3	1565	0.6 \pm 0.5	87	V	8 \pm 6.8	7	7.0 \pm 6.4	2
Ag	0.7 \pm 0.8	1227	0.1 \pm 0.2	64	Ba	21.7 \pm 22.1	6	61.6 \pm 53.1	5
Tl	2.4 \pm 2.2	624	0.4 \pm 0.4	28	Na	1105 \pm 765.3	5	1204 \pm 1081	2
As	9.2 \pm 8.5	590	2.1 \pm 2.0	37	Co	1.2 \pm 0.9	5	2.2 \pm 2.0	3
Sn	9 \pm 6.7	519	3.2 \pm 2.8	50	U	0.1 \pm 0.1	5	0.2 \pm 0.1	2
Zn	291 \pm 228	481	91.2 \pm 87.2	41	Ca	1226 \pm 1578	3	7941 \pm 7016	6
Mo	3.1 \pm 2.7	237	2.0 \pm 1.7	42	Sr	10.2 \pm 8.9	3	34.5 \pm 27	3
Ge	2.5 \pm 2.2	191	0.4 \pm 0.3	8	Fe	1436 \pm 1336	3	3728 \pm 3963	2
Cu	42.8 \pm 29.8	90	21.1 \pm 17.2	12	Mg	348 \pm 332	2	1269 \pm 945	2
Cs	1.8 \pm 1.8	68	0.4 \pm 0.4	4	Zr	2.4 \pm 1.9	2	6.6 \pm 5.3	1
Ni	32.4 \pm 86.6	50	12.3 \pm 12.7	5	Ti	59.2 \pm 53	1	202 \pm 158	1
Ga	5.5 \pm 4.5	43	2.9 \pm 2.3	6	Y	0.3 \pm 0.3	1	1.3 \pm 0.9	1
Cr	19.2 \pm 11.1	22	18.1 \pm 15.5	6	Al	712 \pm 683	1	2627 \pm 2005	1
Rb	14.6 \pm 14.6	19	4.6 \pm 3.9	2					

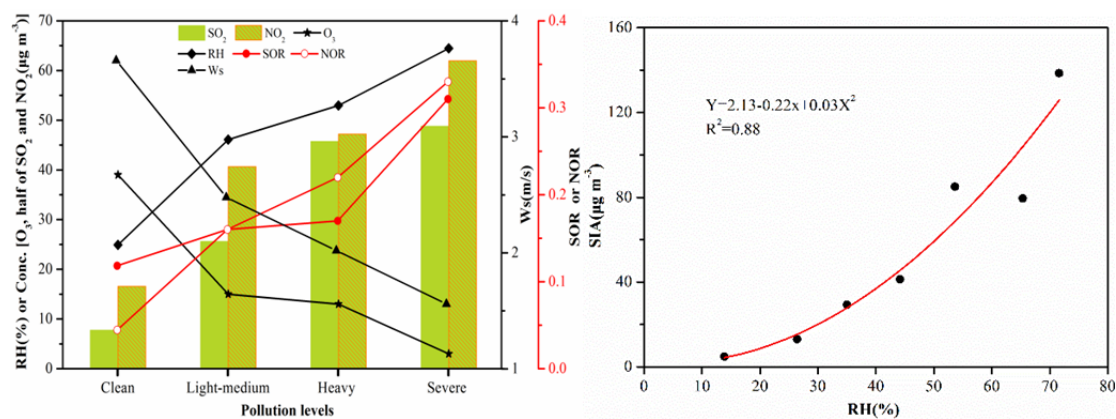


Fig.S1. (a) Mean values of Ws, RH, O₃, NOR and SOR at different pollution level, (b) the relation between SIA and RH. Note that SOR was chemical conversions of the precursors of SO₂ to Sulfate (SO₄²⁻) and NOR was chemical conversions of the precursors of NO₂ to nitrate (NO₃⁻). SOR and NOR are defined as: $\text{SOR} = \frac{n\text{SO}_4^{2-}}{(n\text{SO}_4^{2-} + n\text{SO}_2)}$; $\text{NOR} = \frac{n\text{NO}_3^-}{(n\text{NO}_3^- + n\text{NO}_2)}$. where n represents the molar concentrations of the species.

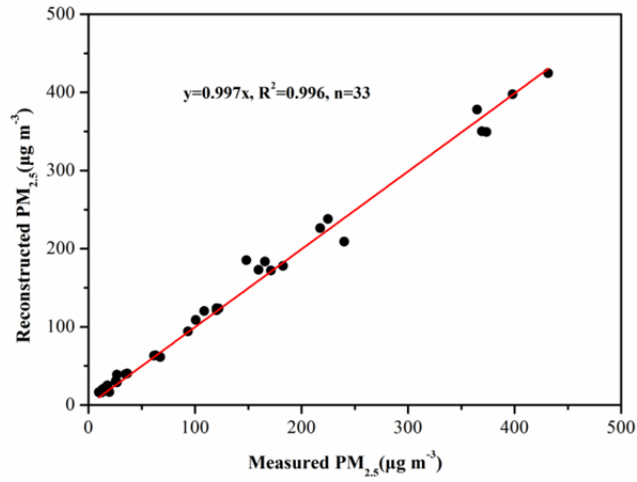


Fig. S2. Correlations between reconstructed and measured PM_{2.5} mass concentrations during the sampling period. The former obtained from the chemical mass balance method and the latter obtained from gravimetric measurement. Linear regression lines are shown with equations.

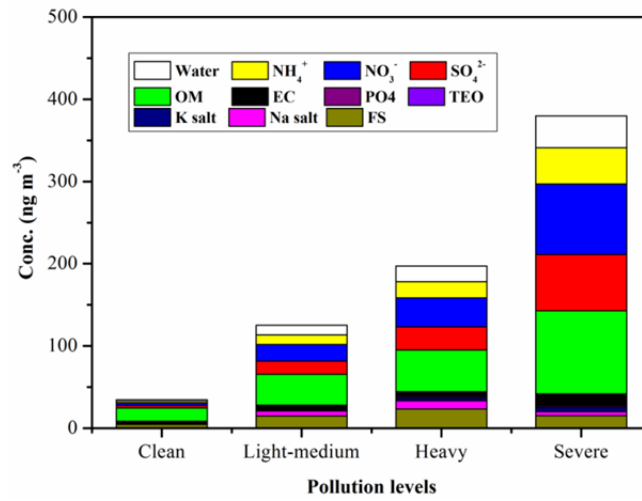


Fig. S3. Chemical components of PM_{2.5} at different pollution levels.

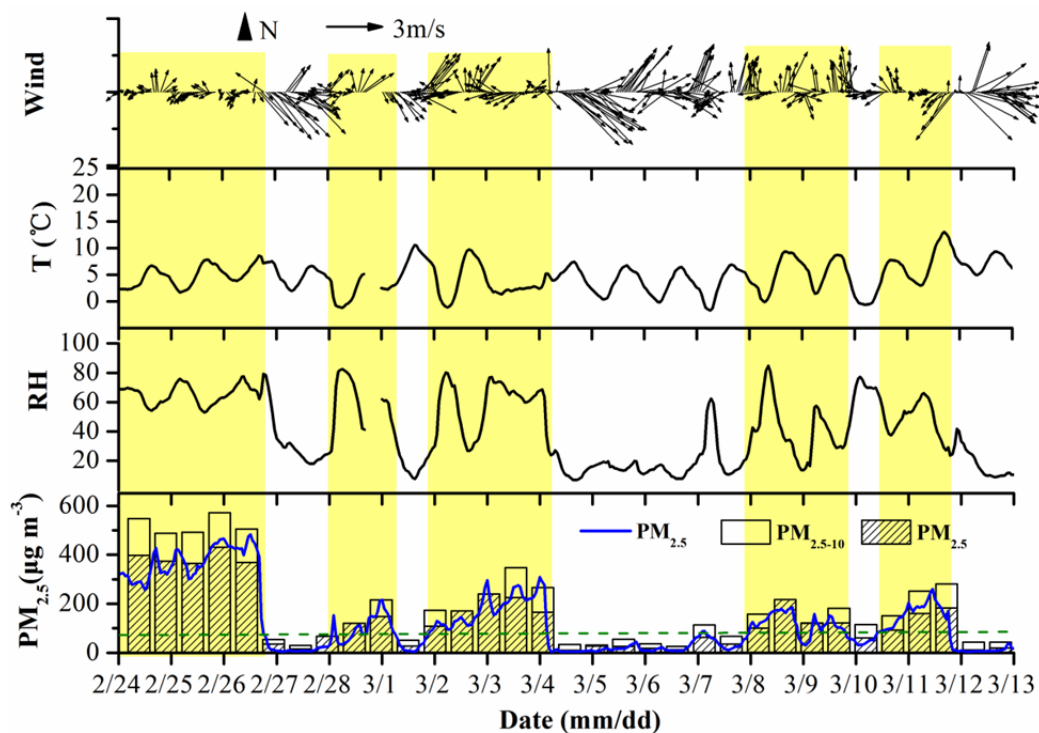


Fig S4. Meteorological conditions (wind, temperature and relative humidity) and PM_{2.5} mass concentrations Between 24 February and 12 March in 2014. The green dashed line represents a PM_{2.5} value of 75 µg m⁻³. Yellow shadows represent the five haze pollution events during the observed period.