Atmospheric
Chemistry
and Physics

Supplement of

Characterization and comparison of $PM_{2.5}$ oxidative potential assessed by two acellular assays

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Table S1. Correlation matrix for various PM components and OP metrics over the one-year sampling period.

	DTT	AA	GSH	WSOC	BrC	SO4	WS-K	WS-Mn	WS-Fe	WS-Cu	WS-Zn	OC	EC
AA	**0.606**												
GSH	0.455	**0.669**											
WSOC	0.524	0.551	0.190										
BrC	0.408	0.357	0.045	**0.602**									
SO4	0.343	0.413	0.374	0.370	0.093								
WS-K	0.174	0.486	0.304	0.071	0.042	0.482							
WS-Mn	0.387	0.377	0.191	0.553	0.380	0.404	0.363						
WS-Fe	0.502	0.472	0.169	0.483	0.137*	0.377	-0.007	0.461					
WS-Cu	0.341	0.500	**0.740**	0.203	-0.078	0.426	0.533	0.294	0.176				
WS-Zn	0.343	0.309	0.314	0.191	0.137*	0.450	**0.907**	0.483	0.179	0.510			
OC	0.546	0.497	0.105	**0.774**	0.426	0.245	0.054	0.437	0.599	0.143	0.223		
EC	0.513	0.488	0.126*	0.584	0.392	0.184	0.093	0.434	0.552	0.173	0.312	**0.833**	
PM mass	0.552	0.555	0.239	**0.747**	0.414	0.554	0.314	0.539	0.511	0.313	0.418	**0.774**	**0.639**

Note: r>0.6 are highlighted. Black without superscript: p-value<0.01; *p-value<0.05; grey: not statistically significant.

Table S2. Correlation matrix for PM components and OP metrics (Summer, Jun-Aug/2017).

Summer	DTT	AA	GSH	WSOC	BrC	SO4	WS-K	WS-Mn	WS-Fe	WS-Cu	WS-Zn	OC	EC
AA	**0.656**												
GSH	**0.695**	**0.784**											
WSOC	0.412	0.244*	0.202										
BrC	0.510	0.330	0.137	**0.818**									
SO4	0.477	0.425	0.350	0.479	0.323								
WS-K	0.464	0.322	0.085	**0.708**	0.566	0.442							
WS-Mn	**0.611**	0.345	0.134	0.457	0.410	0.319	**0.616**						
WS-Fe	0.587	0.428	0.212	**0.683**	**0.762**	0.395	0.500	0.428					
WS-Cu	**0.648**	0.515	**0.791**	0.400	0.300	0.479	0.220	0.312	0.418				
WS-Zn	0.457	0.326	0.110	0.526	0.518	0.168	0.426	0.518	0.573	0.262*			
OC	0.400	0.161	0.030	**0.810**	**0.761**	0.405	**0.643**	0.418	**0.730**	0.266*	**0.624**		
EC	0.386	0.114	0.007	0.442	0.540	0.082	0.233*	0.284	**0.668**	0.197	**0.678**	**0.640**	
PM mass	0.486	0.229*	0.188	**0.606**	0.459	0.578	0.451	0.384	0.455	0.264*	0.312	**0.728**	0.368

Note: r>0.6 are highlighted. Black without superscript: p-value<0.01; *p-value<0.05; grey: not statistically significant.

Table S3. Correlation matrix for PM components and OP metrics (Winter, Jan-Feb/2017 and Dec/2017).

Winter	DTT	AA	GSH	WSOC	BrC	SO4	WS-K	WS-Mn	WS-Fe	WS-Cu	WS-Zn	OC	EC
AA	0.534												
GSH	0.498	**0.616**											
WSOC	0.538	**0.659**	0.383										
BrC	**0.689**	0.514	0.332	**0.758**									
SO4	0.183*	0.332	0.268	0.275	0.067								
WS-K	0.563	0.523	0.333	**0.779**	**0.682**	0.288							
WS-Mn	0.373	0.492	0.284	0.589	0.540	0.220	**0.651**						
WS-Fe	0.483	0.518	0.239	0.422	0.213*	0.294	0.259	0.429					
WS-Cu	0.308	**0.601**	**0.776**	0.437	0.209*	0.339	0.343	0.227	0.294				
WS-Zn	0.309	0.414	0.140	0.461	0.450	0.016	0.368	0.524	0.495	0.185*			
OC	0.501	**0.613**	0.256	**0.748**	0.506	0.152	0.456	0.433	0.508	0.346	0.549		
EC	0.439	0.600	0.282	0.574	0.380	0.110	0.347	0.403	0.481	0.370	**0.667**	**0.874**	
PM mass	0.542	**0.701**	0.361	**0.825**	**0.645**	0.397	**0.720**	0.499	0.513	0.385	0.540	**0.789**	**0.670**

Note: r>0.6 are highlighted. Black without superscript: p-value<0.01; *p-value<0.05; grey: not statistically significant.

Table S4. Pearson's r between mass-normalized OP and mass fraction of PM species.

	Overall			Summer			Winter		
	OP^{AA}	OP^{GSH}	OP^{DTT}	OP^{AA}	OP^{GSH}	OP^{DTT}	OP^{AA}	OP^{GSH}	OP^{DTT}
OP^{GSH}	**0.78****			**0.94****			**0.68****		
OP^{DTT}	**0.74****	0.75**		**0.81****	**0.85****		0.52**	**0.66**	
OC	-0.06	-0.13*	0.07	-0.02	-0.14	0.03	-0.26*	-0.26*	-0.27*
EC	0.17**	0.04	0.22**	0.27*	0.21	0.34**	-0.14	-0.22*	-0.34**
WSOC	0.21**	0.18**	0.20**	0.17	0.06	0.16	0.12	0.16	-0.07
BrC	0.08	0.02	0.12*	0.17	0.05	0.27*	-0.06	-0.02	0.14
SO_4^{2-}	0.19**	0.24**	0.13*	0.35**	0.34**	0.31**	0.29**	0.35**	0.19
WS-K	0.06	0.08	0.11	0.15	0.03	0.22	-0.08	-0.13	-0.10
WS-Fe	-0.04	-0.22**	-0.07	0.10	-0.04	0.14	-0.08	-0.37**	-0.34**
WS-Cu	0.48**	0.49**	0.30**	0.44**	0.58**	0.44**	0.38**	0.49**	0.07
WS-Mn	0.01	0.10	0.01	0.08	-0.02	0.09	0.00	0.03	-0.09
WS-Zn	0.30**	0.21**	0.41**	0.17	0.08	0.19	0.17	0.16	0.25*

Note: **p-value<0.01; *p-value<0.05. Correlations not statistically significant (p>0.05) are in grey, r>0.65 are bold. All metals listed are water-soluble metals.
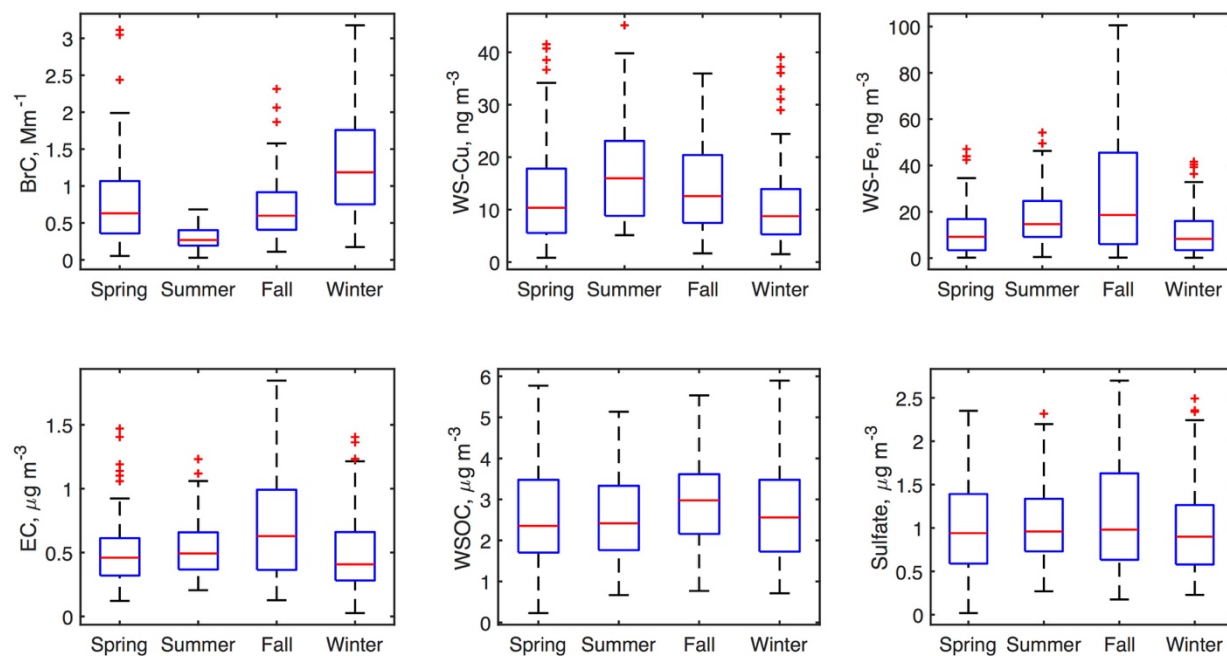

Figure S1. Seasonal variation of PM species. Spring: Mar–May; Summer: Jun–Aug; Fall: Sep–Nov; Winter: Jan–Feb, Dec.
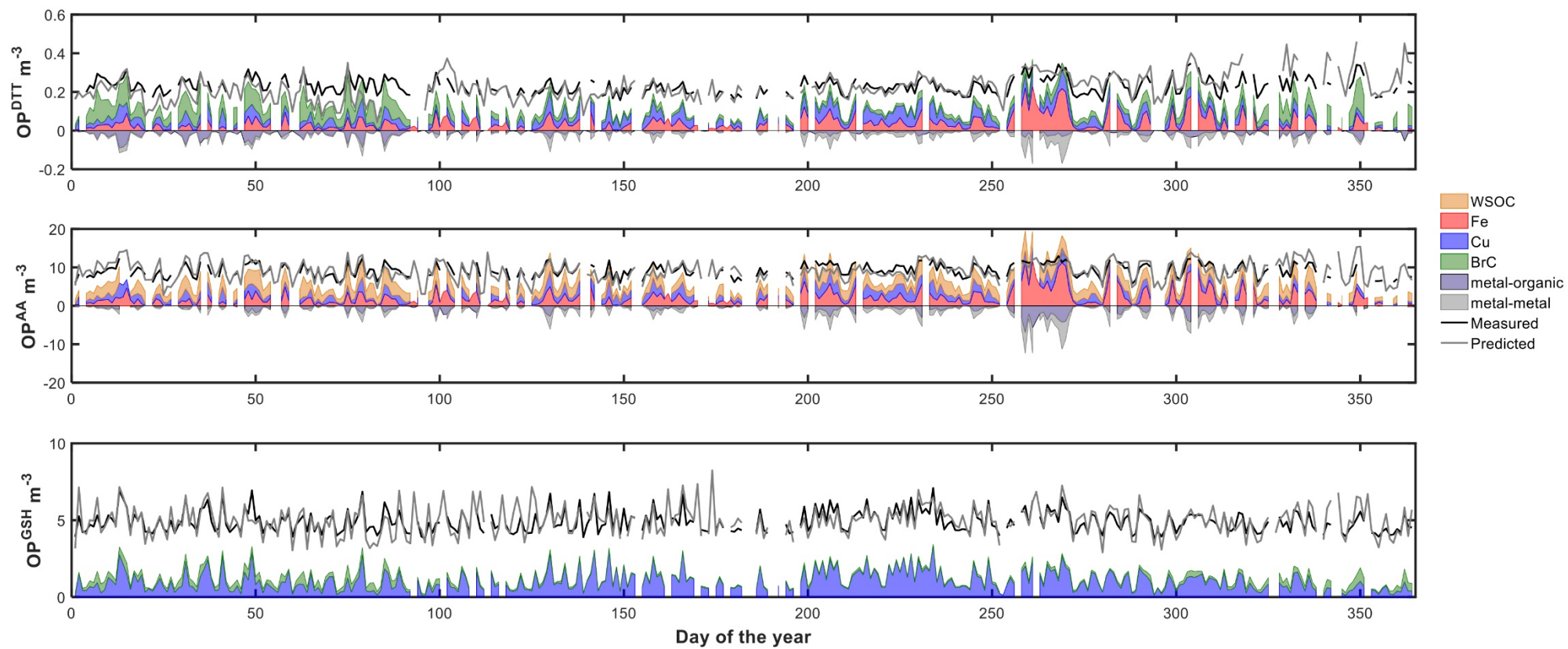
Figure S2. Time series of measured and predicted OP measures and the contributions of model variables to OPs (intercepts are not shown).