Supplementary Information

Title: Substantial changes of gaseous pollutants and chemical compositions in fine particles in

North China Plain during COVID-19 lockdown period: anthropogenic vs meteorological influences

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Number of pages: 7

Number of figures: 3

Number of tables: 3

Figure S1 The performance of the random forest model in predicting the hourly concentrations of gaseous pollutants. The model was constructed with 90% original data and the remained data was applied to validate the model.
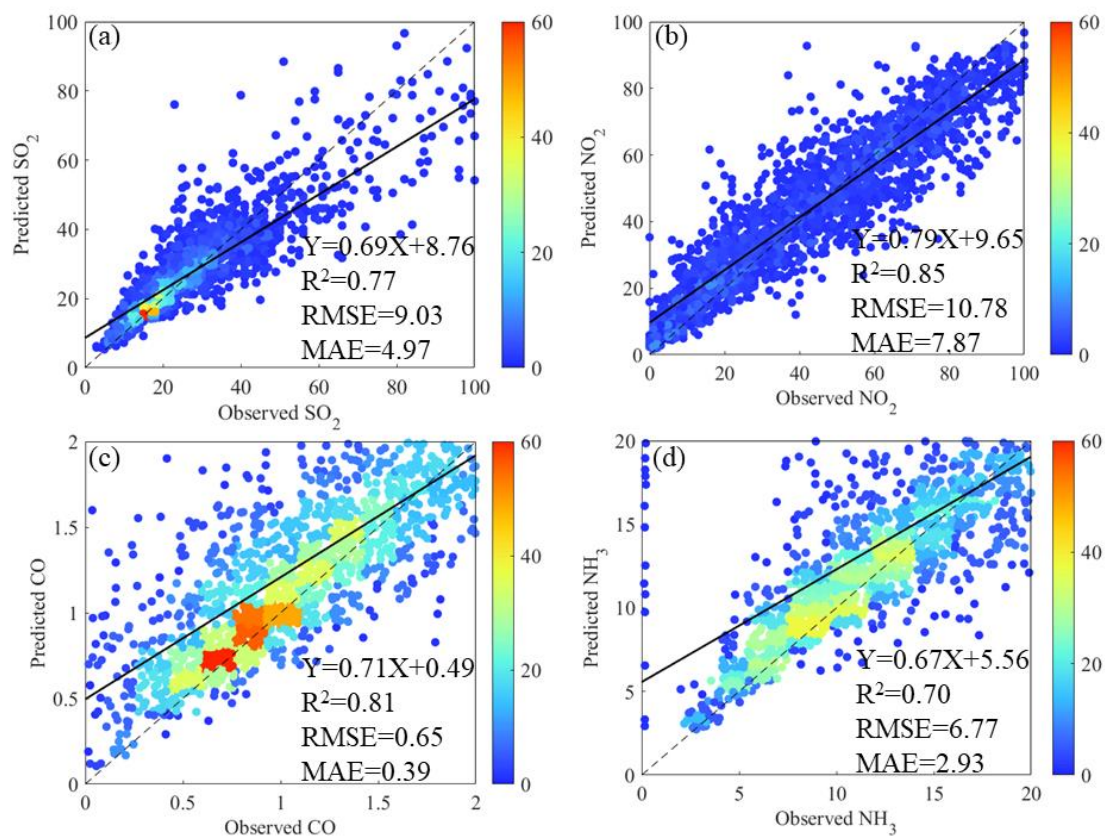
Figure S2 The performance of the random forest model in predicting the hourly concentrations of water-soluble ions in PM$_{2.5}$. The model was constructed with 90% original data and the remained data was applied to validate the model.
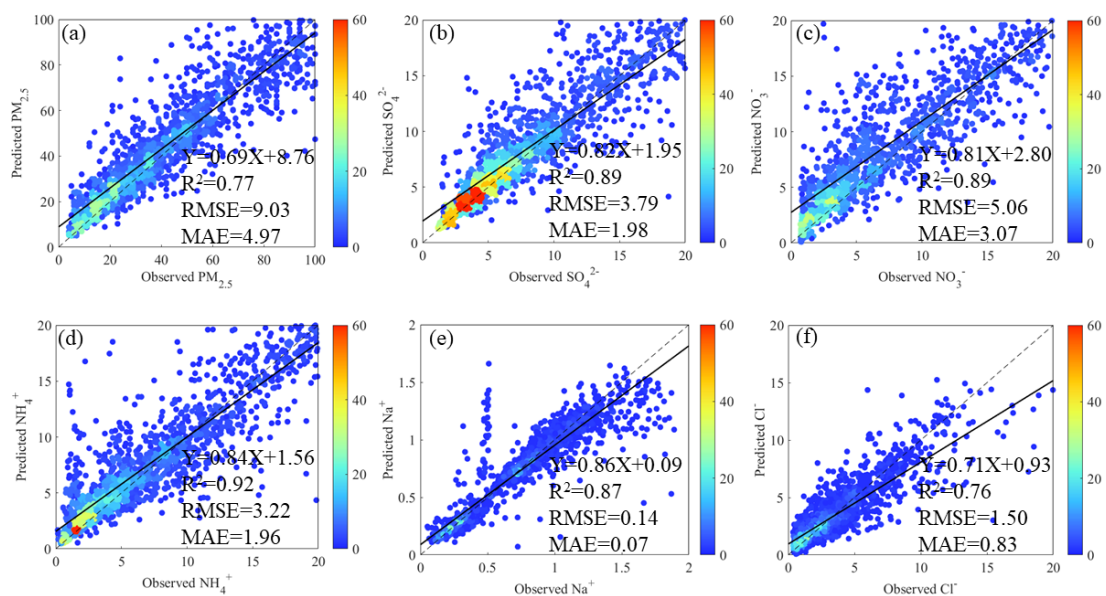
Figure S3 The performance of the random forest model in predicting the hourly concentrations of trace elements in PM$_{2.5}$. The model was constructed with 90% original data and the remained data was applied to validate the model.
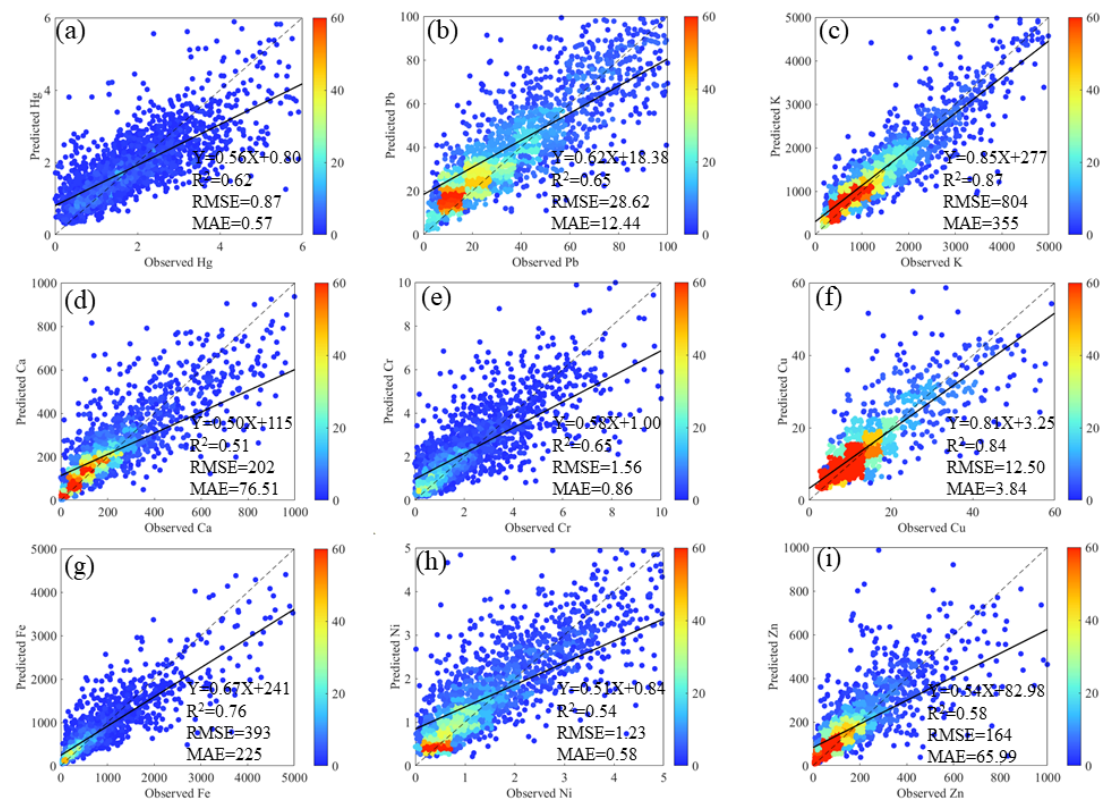
Table S1 Summary of PMF error diagnostics based on DISP.

Error Code:	0				
The largest decrease in Q:	0				
%dQ	0				
Swaps by Factor:	SF	IP	BB	CC	RD
dQmax=4	0	0	0	0	0
dQmax=8	0	0	0	0	0
dQmax=15	0	0	0	0	0
dQmax=25	0	0	0	0	0

Table S2 Summary of PMF error diagnostics based on BS.

BS Mapping (r≥0.6)	SF	IP	BB	CC	RD	Unmapped
SF	100	0	0	0	0	0
IP	0	100	0	0	0	0
BB	0	0	100	0	0	0
CC	0	2	1	96	1	0
RD	0	0	0	0	100	0

Table S3 Summary of PMF error estimation diagnostics from BS-DISP.

% of Cases Accepted:	97%				
Largest Decrease in Q:	-25.4				
%dQ	-0.0083				
# of Decreases in Q:	1				
# of Swaps in Best Fit:	0				
# of Swaps in DISP:	1				
Swaps by Factor:	SF	IP	BB	CC	RD
dQ^{max}=0.5	0	0	1	0	0
dQ^{max}=1	0	0	1	0	0
dQ^{max}=2	0	0	1	0	0
dQ^{max}=4	0	0	1	0	0