

Supplement of

Meteorological effects on PM_{2.5} change over a receptor region in regional transport of air pollutants: observational study of recent year emission reduction in central China

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Table S1 Linear correlation coefficients of the baseline components ($PM_{2.5BL}$) of daily $PM_{2.5}$ concentrations respectively with the baseline components of air temperature (T_{BL}), relative humidity (RH_{BL}), wind speed (WS_{BL}), sea level pressure (SLP_{BL}) and precipitation (Pre_{BL}) in 14 sites over the THB.

Sites	Linear correlation coefficients with $PM_{2.5BL}$				
	T_{BL}	RH_{BL}	WS_{BL}	SLP_{BL}	Pre_{BL}
JZ	-0.81**	-0.26**	-0.43**	0.79**	-0.50**
XN	-0.82**	-0.04	-0.42**	0.79**	-0.37**
XY	-0.88**	-0.25**	-0.24**	0.85**	-0.41**
JM	-0.86**	-0.38**	0.11**	0.83**	-0.58**
YC	-0.84**	-0.29**	-0.11**	0.79**	-0.57**
SZ	-0.84**	-0.20**	0.00	0.82**	-0.43**
WH	-0.85**	-0.06*	-0.10**	0.81**	-0.37**
EZ	-0.79**	-0.04	-0.23**	0.75**	-0.25**
HG	-0.81**	-0.14**	0.08**	0.75**	-0.28**
HS	-0.70**	-0.05*	-0.42**	0.67**	-0.57**
CS	-0.83**	-0.20**	-0.15**	0.84**	-0.43**
YY	-0.84**	-0.26**	-0.24**	0.85**	-0.41**
XG	-0.82**	-0.13**	-0.07**	0.80**	-0.39**
CD	-0.81**	-0.33**	-0.33**	0.81**	-0.55**

** Passing the confidence level of 99%, * Passing the confidence level of 95%.

Table S2 Linear correlation coefficients of the baseline components (SO_{2BL}) of daily SO_2 concentrations respectively with the baseline components of air temperature (T_{BL}), relative humidity (RH_{BL}), wind speed (WS_{BL}), sea level pressure (SLP_{BL}) and precipitation (Pre_{BL}) in 14 sites over the THB.

Sites	Linear correlation coefficients with SO_{2BL}				
	T_{BL}	RH_{BL}	WS_{BL}	SLP_{BL}	Pre_{BL}
JZ	-0.61**	-0.27*	-0.27**	0.61**	-0.30**
XN	-0.16**	0.02	-0.21**	0.19**	-0.12**
XY	-0.73**	-0.44**	-0.12**	0.76**	-0.22**
JM	-0.54**	-0.34**	0.19**	0.50**	-0.25**
YC	-0.50**	-0.08**	0.03	0.48**	-0.25**
SZ	-0.55**	-0.17**	0.18**	0.56**	-0.23**
WH	-0.51**	-0.05*	-0.09**	0.51**	-0.26**
EZ	-0.39**	-0.30**	-0.42**	0.38**	-0.02
HG	-0.23**	-0.30**	0.03	0.28**	-0.15**
HS	-0.38**	-0.22**	-0.14**	0.33**	-0.39**
CS	-0.34**	0.08**	0.05*	0.31**	-0.06**
YY	-0.07**	0.00	0.23**	0.09**	0.07**
XG	-0.61**	-0.14*	0.13**	0.61**	-0.26**
CD	-0.23**	-0.07*	0.21**	0.26**	-0.16**

** Passing the confidence level of 99%, * Passing the confidence level of 95%.

Table S3 Linear correlation coefficients of the baseline components ($\text{NO}_{2\text{BL}}$) of daily NO_2 concentrations respectively with the baseline components of air temperature (T_{BL}), relative humidity (RH_{BL}), wind speed (WS_{BL}), sea level pressure (SLP_{BL}) and precipitation (Pre_{BL}) in 14 sites over the THB.

Sites	Linear correlation coefficients with $\text{NO}_{2\text{BL}}$				
	T_{BL}	RH_{BL}	WS_{BL}	SLP_{BL}	Pre_{BL}
JZ	-0.79**	-0.38**	-0.63**	0.85**	-0.55**
XN	-0.80**	-0.16**	-0.29**	0.85**	-0.54**
XY	-0.81**	-0.38**	-0.41**	0.88**	-0.37**
JM	-0.75**	-0.46**	0.21**	0.79**	-0.58**
YC	-0.76**	-0.29**	-0.17**	0.78**	-0.50**
SZ	-0.87**	-0.40**	-0.21**	0.90**	-0.63**
WH	-0.77**	-0.13**	-0.30**	0.78**	-0.35**
EZ	-0.82**	0.01	0.17**	0.84**	-0.44**
HG	-0.80**	-0.15**	-0.07**	0.83**	-0.39**
HS	-0.81**	0.04	-0.36**	0.80**	-0.68**
CS	-0.80**	-0.16**	-0.21**	0.83**	-0.38**
YY	-0.76**	-0.39**	-0.51**	0.78**	-0.41**
XG	-0.85**	-0.29**	-0.21**	0.85**	-0.37**

CD -0.76** -0.34** -0.21** 0.82** -0.53**

** Passing the confidence level of 99%, * Passing the confidence level of 95%.

Table S4 The linear trends k_{LT} of long-term PM_{2.5}, SO₂ and NO₂ and the linear trends k_{emiss} of emission-related long-term components (Unit: 10⁻² μg m⁻³ d⁻¹), as well as the ratio of k_{LT} and k_{emiss} in the THB.

Sites	PM _{2.5}			SO ₂			NO ₂		
	k_{LT}	k_{emiss}	$\frac{k_{LT}}{k_{emiss}}$	k_{LT}	k_{emiss}	$\frac{k_{LT}}{k_{emiss}}$	k_{LT}	k_{emiss}	$\frac{k_{LT}}{k_{emiss}}$
JZ	-1.51	-1.62	0.93	-0.98	-0.92	1.06	-0.23	-0.18	1.28
XN	-1.12	-1.06	1.06	-0.48	-0.45	1.06	0.33	0.29	1.14
XY	-0.18	-0.07	2.57	-0.09	-0.09	1.00	0.12	0.19	0.63
JM	-0.62	-0.57	1.09	-0.82	-0.82	1.00	-0.07	-0.08	0.88
YC	-1.00	-1.20	0.83	-0.66	-0.56	1.18	-0.33	-0.29	1.14
SZ	-1.35	-1.22	1.11	-0.49	-0.42	1.17	-0.10	-0.13	0.77
WH	-1.30	-1.40	0.93	-0.63	-0.65	0.97	-0.46	-0.53	0.87
EZ	-1.59	-0.99	1.61	-0.70	-0.44	1.59	0.18	0.06	3.00
HG	-1.07	-1.08	0.99	-0.29	-0.28	1.04	-0.22	-0.20	1.10
HS	-1.69	-1.49	1.13	-0.38	-0.32	1.18	0.31	0.30	1.03
CS	-0.84	-1.03	0.82	-0.67	-0.66	1.02	-0.39	-0.41	0.95
YY	-0.61	-0.68	0.90	-1.17	-0.99	1.18	0.07	-0.09	-0.78
XG	-1.16	-1.15	1.01	-0.27	-0.21	1.28	-0.16	-0.16	1.00
CD	-0.66	-0.83	0.80	-0.90	-0.72	1.25	-0.34	-0.27	1.26

Table S5 The linear trends k_{LT} of long-term PM_{2.5} and the linear trends k_{emiss} of emission-related long-term components, as well as the contribution rates Con_{met} of meteorology calculated with Eq.(10) in the THB.

Sites	k_{LT} ($10^{-2} \mu\text{g m}^{-3} \text{d}^{-1}$)	k_{emiss} ($10^{-2} \mu\text{g m}^{-3} \text{d}^{-1}$)	Con_{met} (%)
XY	-0.18	-0.07	61.92
JM	-0.62	-0.07	7.81
JZ	-1.51	-1.62	-6.91
SZ	-1.35	-1.22	9.95
XG	-1.16	-1.15	0.26
WH	-1.30	-1.40	-7.34
XN	-1.12	-1.06	4.72
YC	-1.00	-1.20	-19.81
EZ	-1.59	-0.99	37.31
HG	-1.07	-1.08	-0.44
HS	-1.69	-1.49	11.74
YY	-0.61	-0.68	-12.44
CD	-0.66	-0.83	-24.93
CS	-0.84	-1.03	-23.03