



Supplement of

Anthropogenic and natural causes for the interannual variation of PM_{2.5} in East Asia during summer monsoon periods from 2008 to 2018

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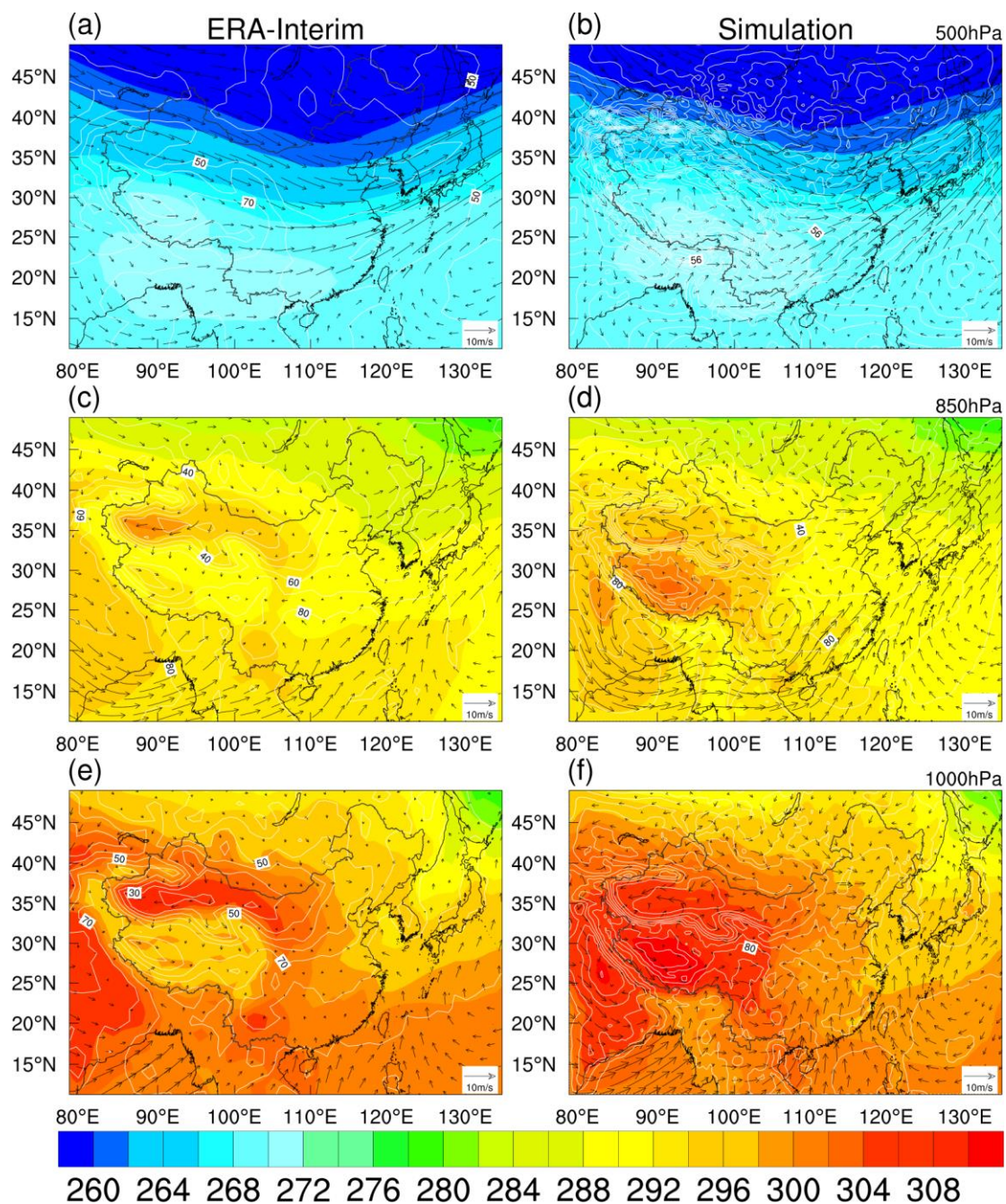


Figure S1. Comparisons between the simulated (right) and reanalysis (left) mean temperature (shading, units: K), wind (vectors, units: m/s), and relative humidity (contours, units: %) at 500 hPa (a, b), 850 hPa (c, d) and 1000 hPa (e, f) during the EASM period in 2015.

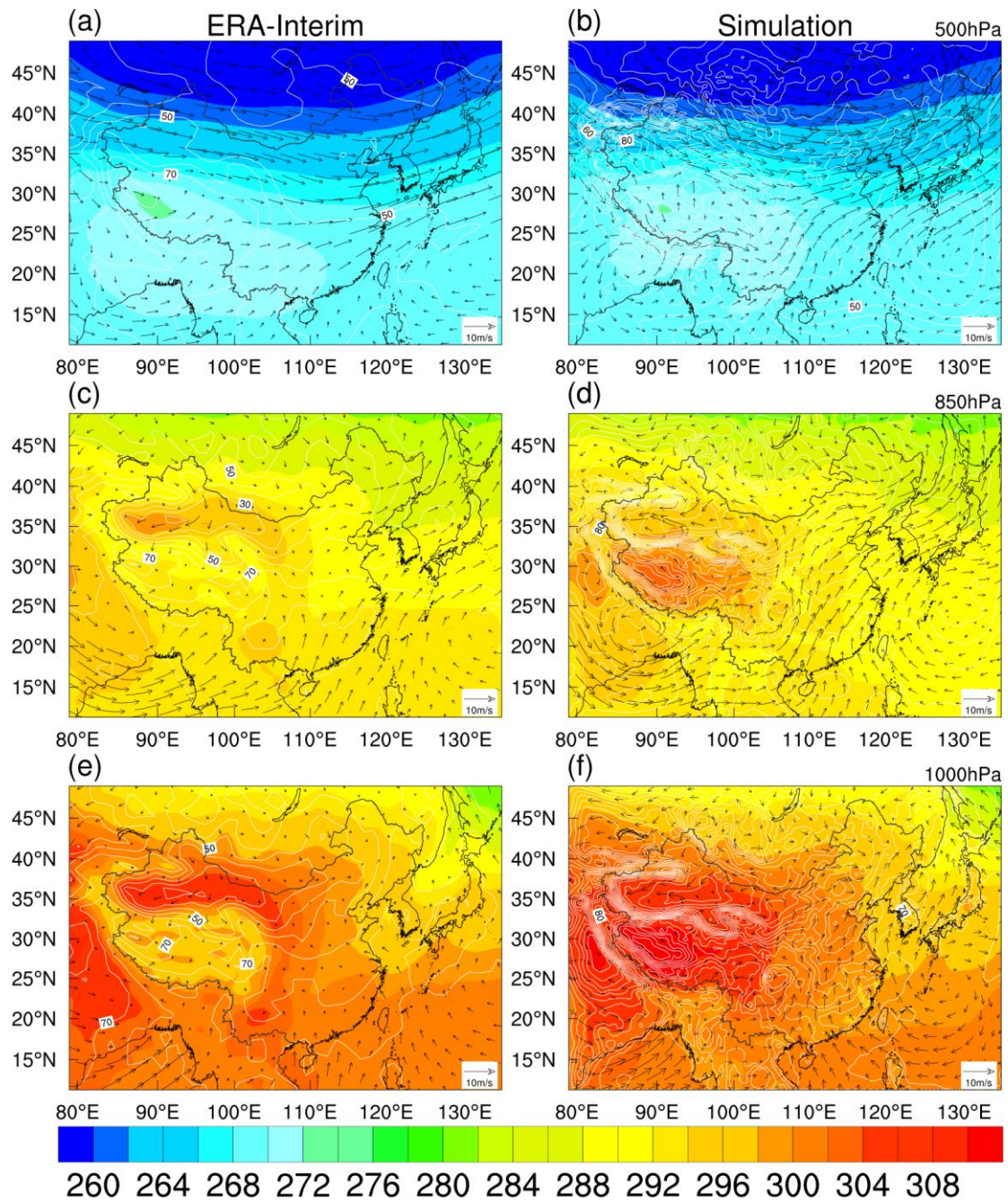


Figure S2. Comparisons between the simulated (right) and reanalysis (left) mean temperature (shading, units: K), wind (vectors, units: m/s), and relative humidity (contours, units: %) at 500 hPa (a, b), 850 hPa (c, d) and 1000 hPa (e, f) during the EASM period in 2016.

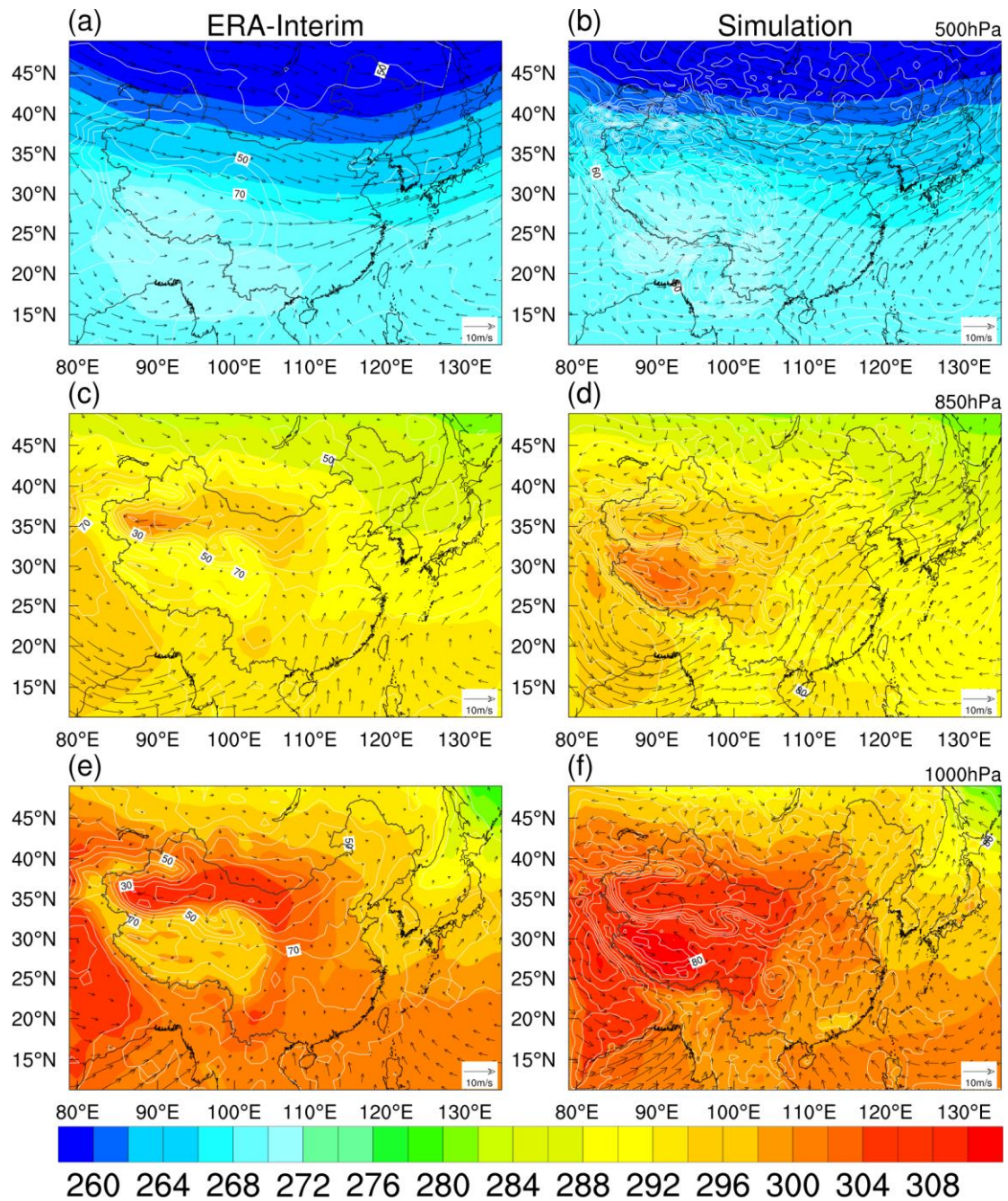


Figure S3. Comparisons between the simulated (right) and reanalysis (left) mean temperature (shading, units: K), wind (vectors, units: m/s), and relative humidity (contours, units: %) at 500 hPa (a, b), 850 hPa (c, d) and 1000 hPa (e, f) during the EASM period in 2017.

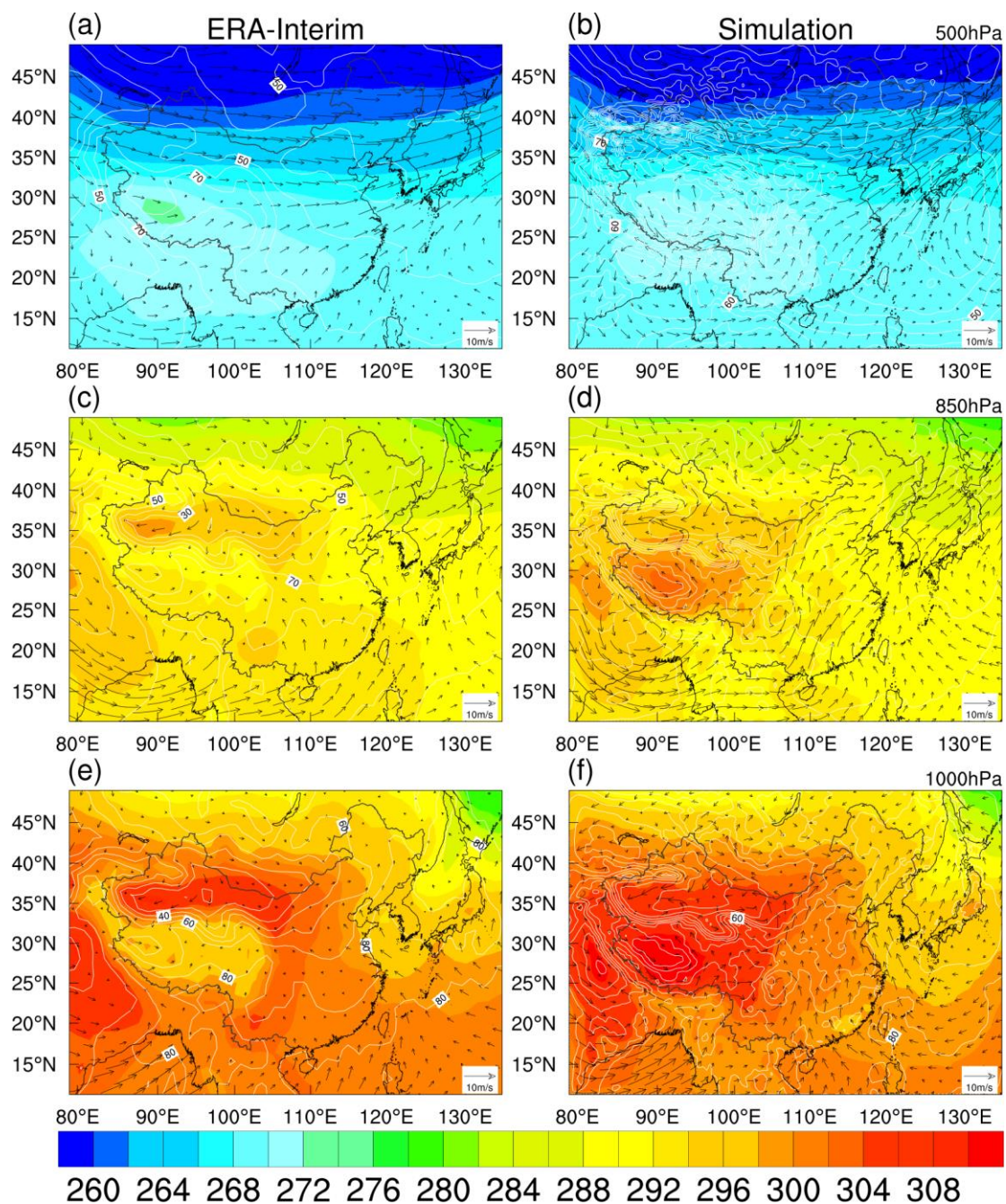


Figure S4. Comparisons between the simulated (right) and reanalysis (left) mean temperature (shading, units: K), wind (vectors, units: m/s), and relative humidity (contours, units: %) at 500 hPa (a, b), 850 hPa (c, d) and 1000 hPa (e, f) during the EASM period in 2018.

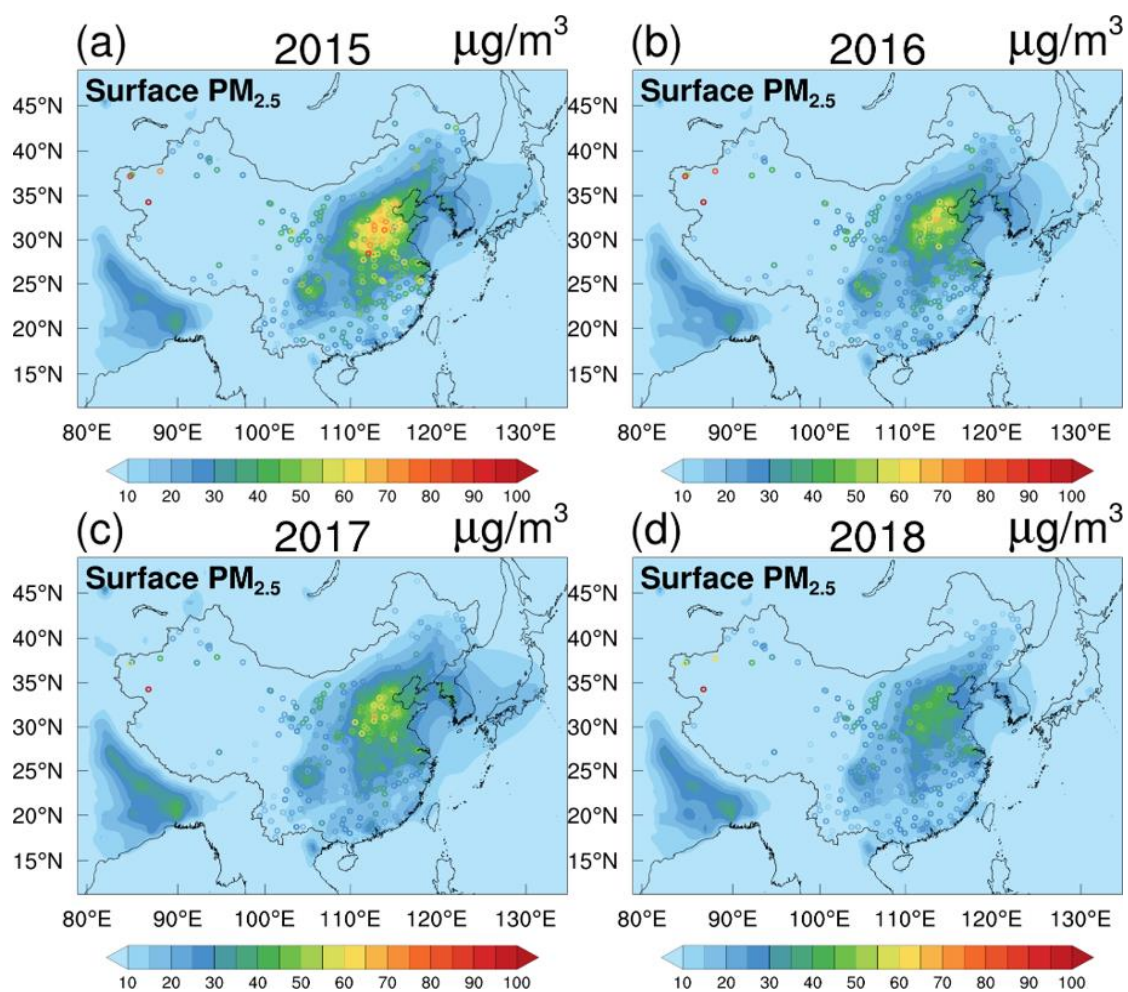


Figure S5. Comparisons between the simulated and observed near-surface $\text{PM}_{2.5}$ concentrations (units: $\mu\text{g}/\text{m}^3$) during the EASM period in (a)2015, (b)2016, (c)2017, (d)2018. Colored circles represent the observations.

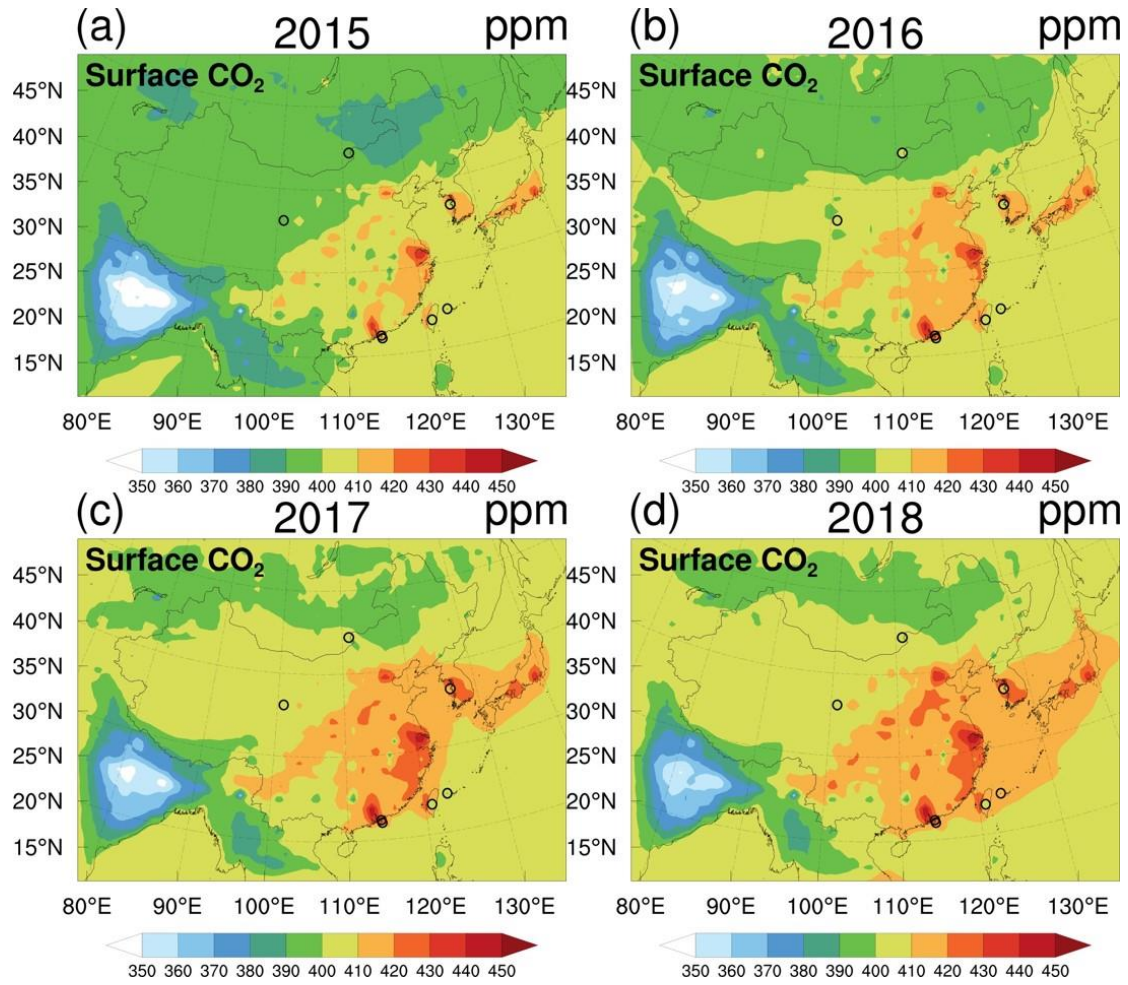


Figure S6. Comparisons between the simulated and observed near-surface CO₂ concentrations (units: ppm) during the EASM period in (a)2015, (b)2016, (c)2017, (d)2018. Colored circles represent the observations.

Table S1. Interannual trends of near-surface PM_{2.5} concentrations ($\mu\text{g}/\text{m}^3/\text{year}$) during the PreG period (2009–2013) and PostG period (2014–2018) relative to 2008 over the NCP, FWP, YRD, PRD, and SCB regions.

Year	NCP	FWP	YRD	PRD	SCB	Average
PreG	-0.69	-2.84	-0.71	-1.55	-3.44	-1.84
PostG	-4.94	-2.49	-2.63	-0.56	-3.86	-2.90