Supplementary Materials for

Impact of modified turbulent diffusion of $PM_{2.5}$ aerosol in WRF-Chem simulations in Eastern China

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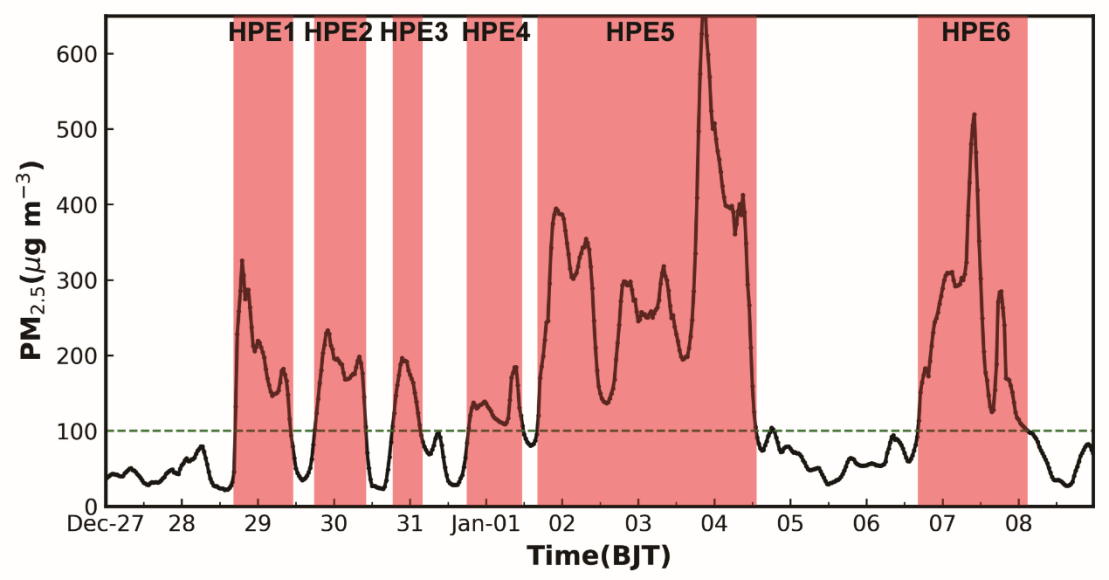

Figure S1. Time series of the $PM_{2.5}$ concentration from 27 December 2018 to 8 January 2019, the shaded areas indicate the heavy pollution episodes (HPEs).

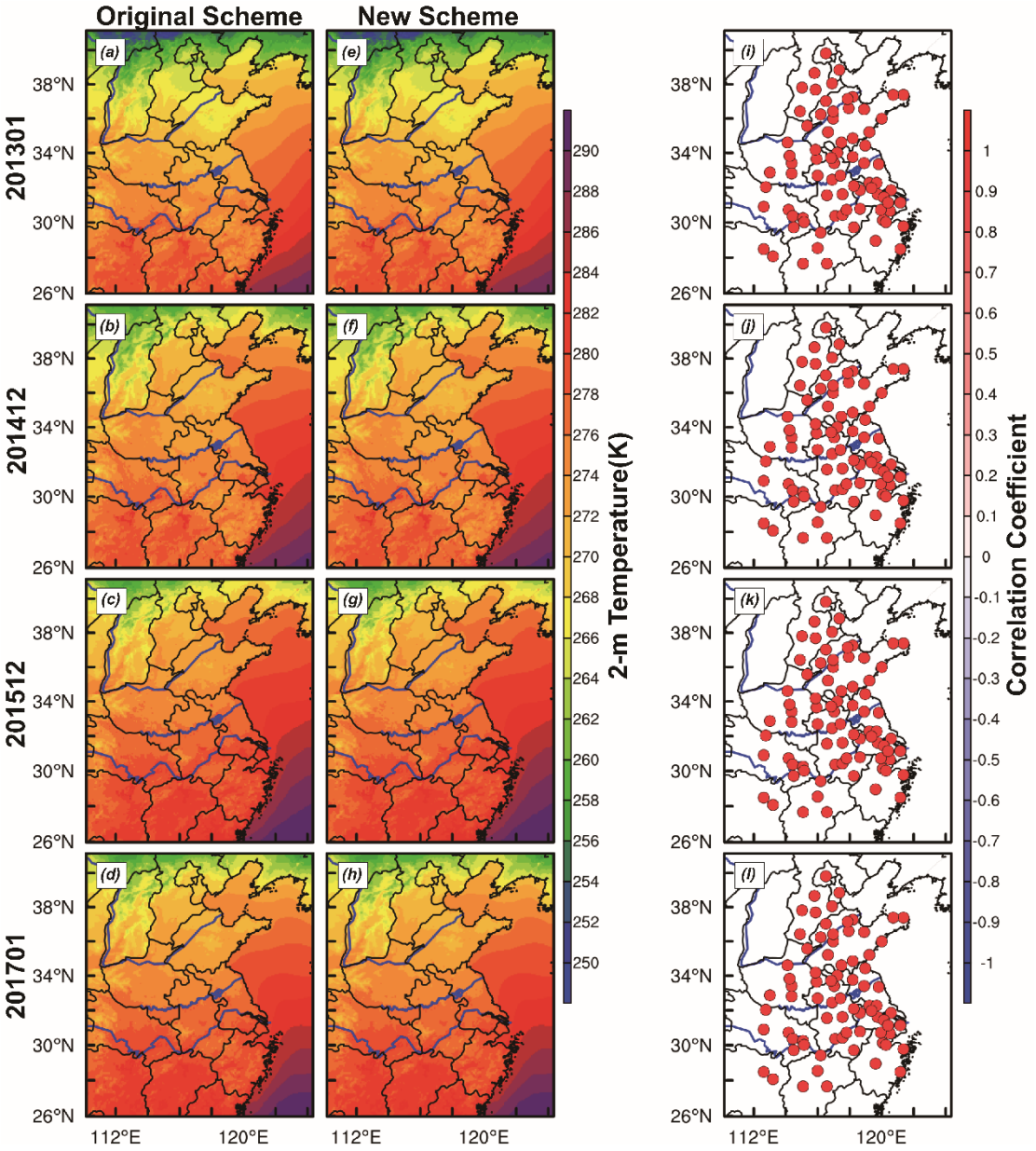

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Figure S2. Comparison of the average value of temperature at 2 m above ground level (AGL) between (a-d) original scheme and (e-h) new scheme at night. (i-l) correlation coefficients of 2-m temperature between original and new schemes.

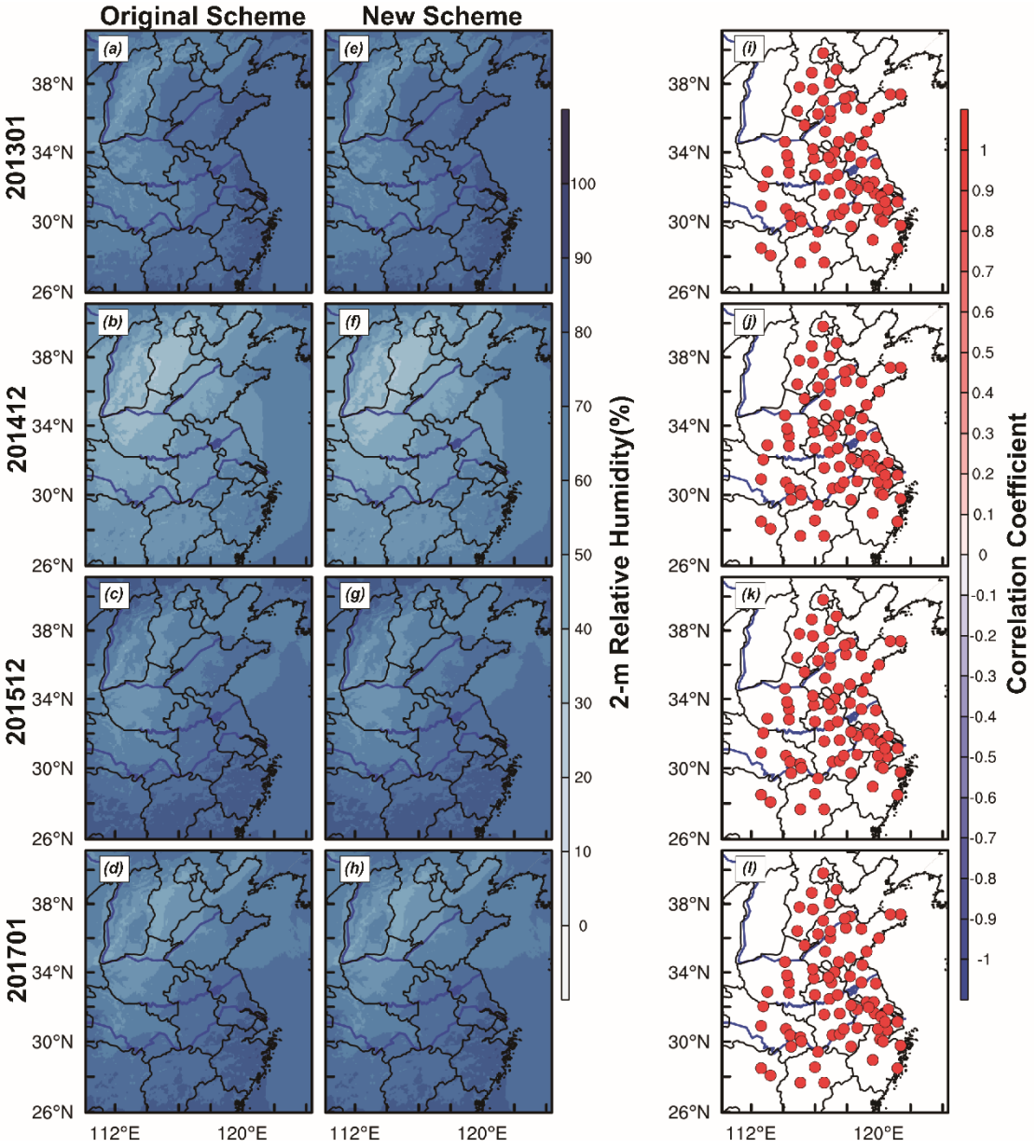

Figure S3. Similar to Figure S2, but for relative humidity at 2 m above ground level (AGL).

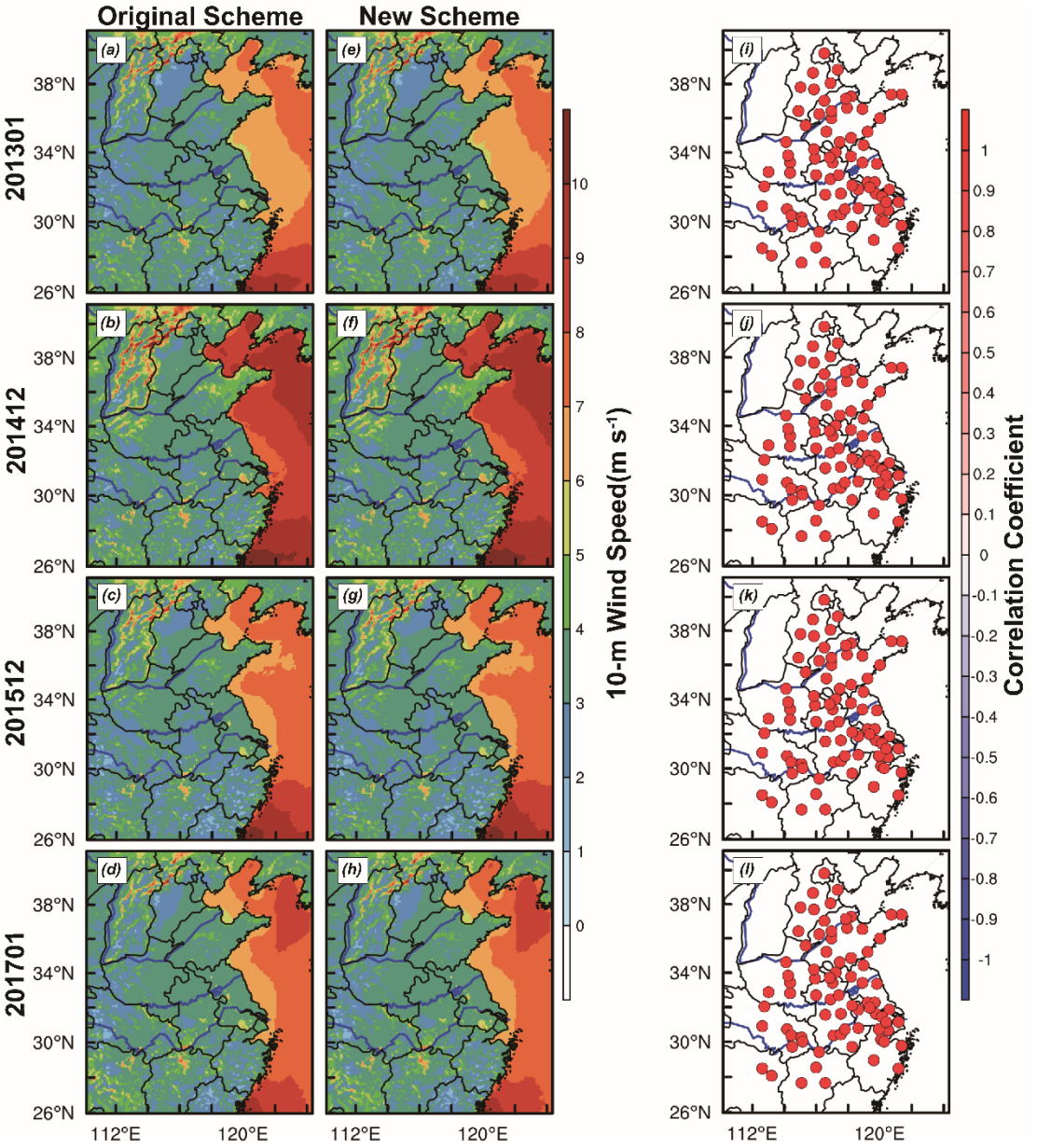

Figure S4. Similar to Figure S2, but for wind speed at 10 m above ground level (AGL).

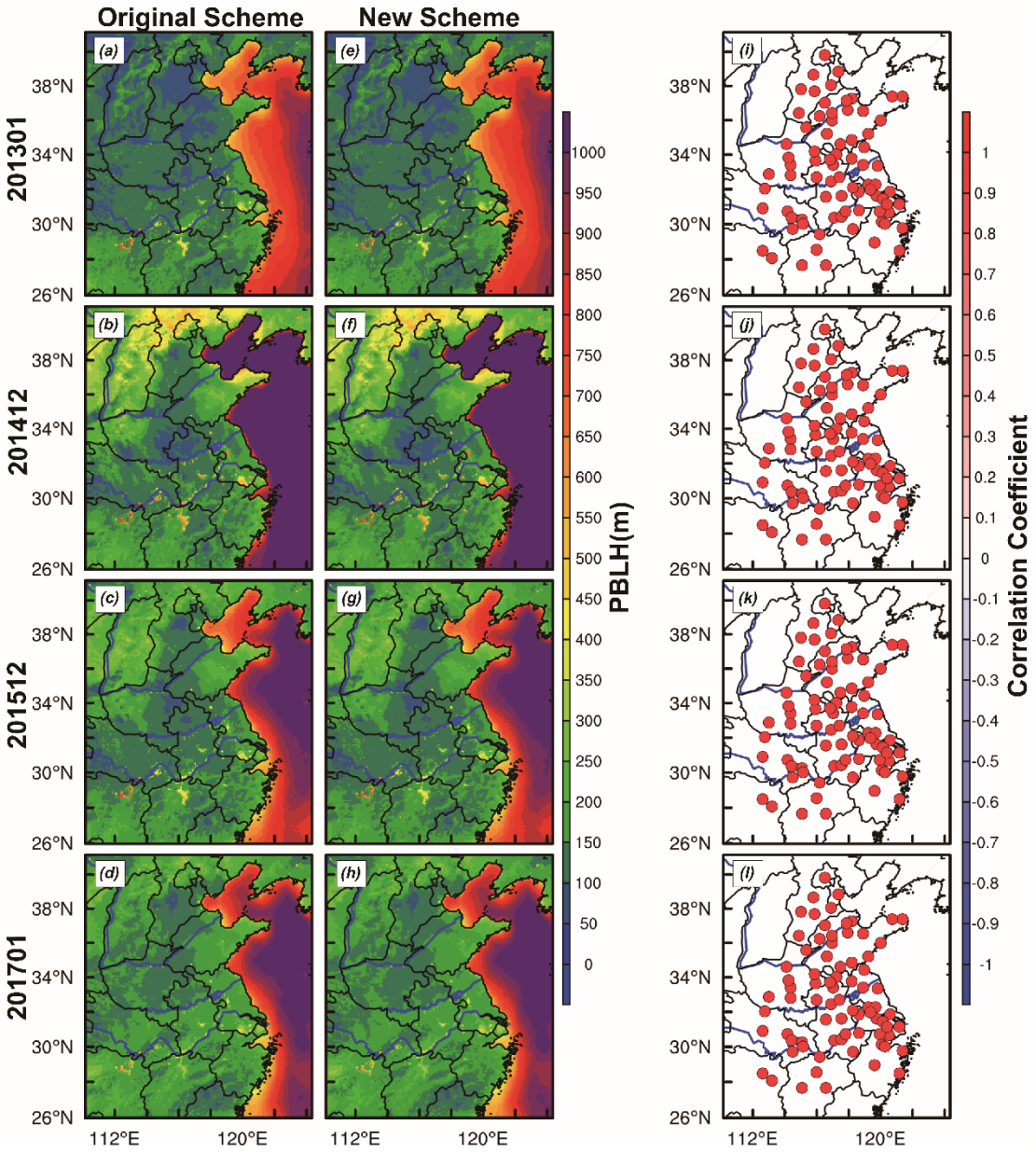

Figure S5. Similar to Figure S2, but for the planetary boundary layer height (PBLH).

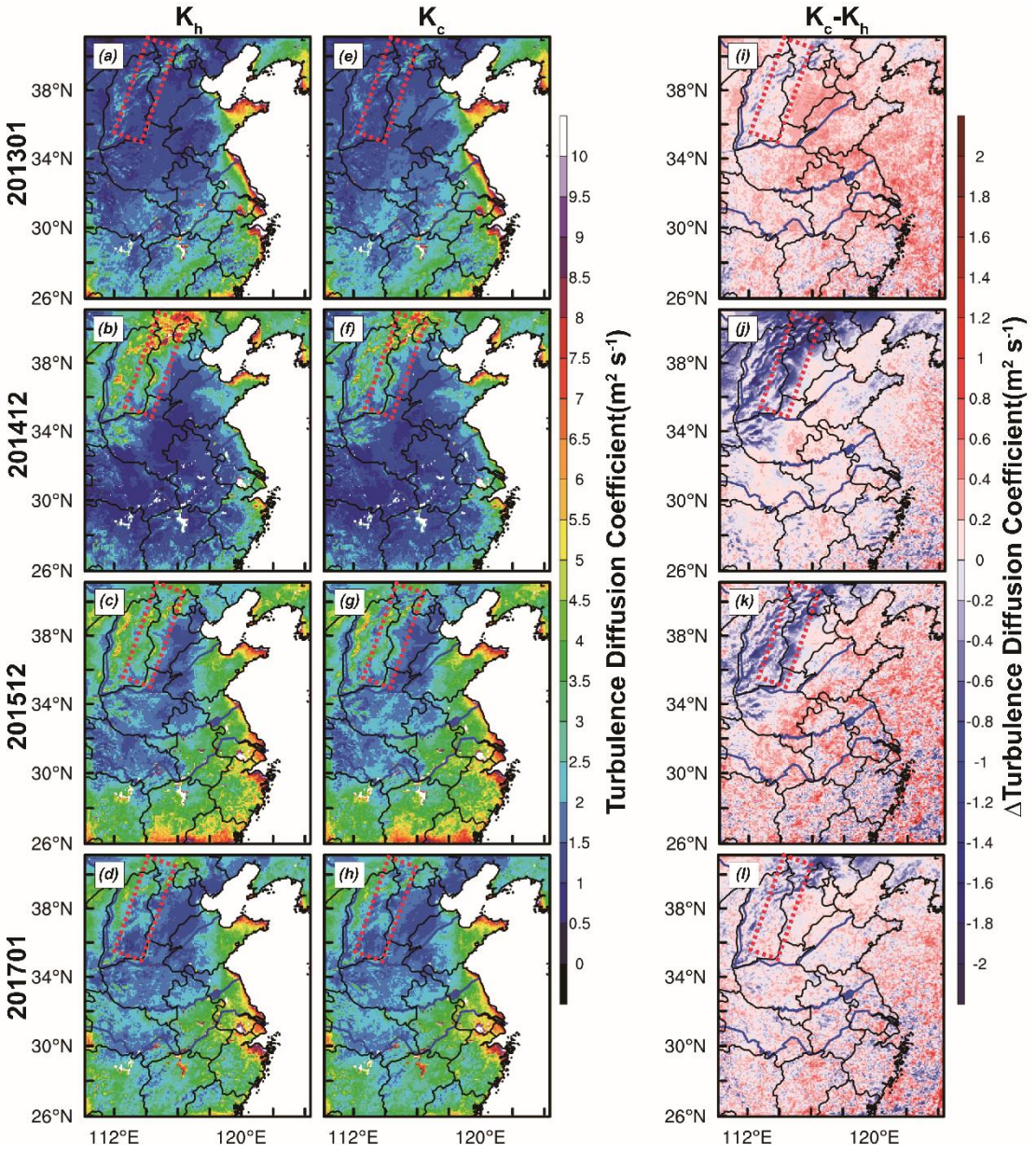

Figure S6. Turbulent diffusion coefficients of (a-d) heat and (e-h) particles, and (i-l) the difference between two turbulent diffusion coefficients.

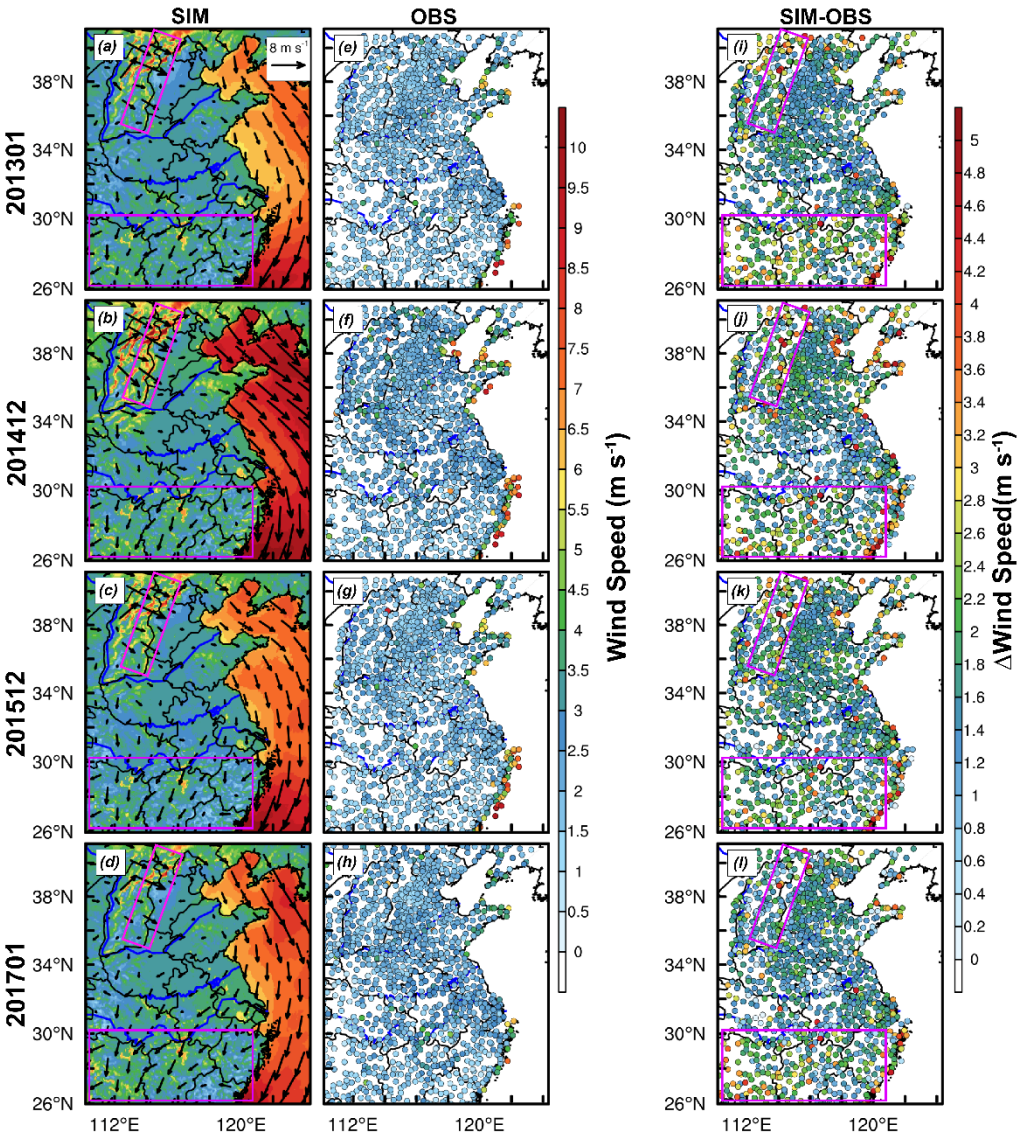

Figure S7. (a-d) Simulated and (e-h) observed wind speed at 10 m above ground level (AGL), and (i-l) the difference of simulated and observed.

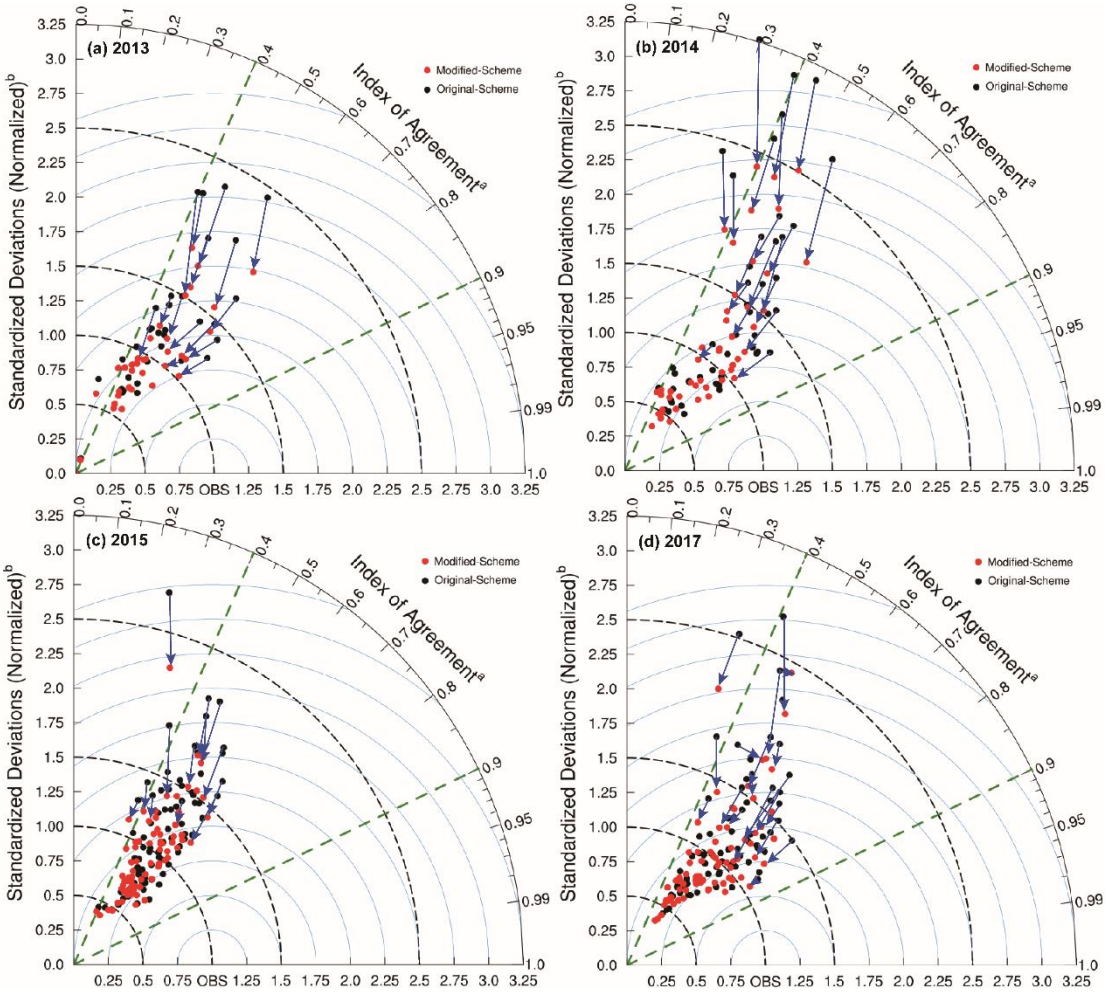

Figure S8. Similar to Figure 5, but for the Taylor diagram of CO concentration.