Supplement of Atmos. Chem. Phys., 21, 16827–16841, 2021
https://doi.org/10.5194/acp-21-16827-2021-supplement

Atmospheric Chemistry and Physics
Open Access

Supplement of

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

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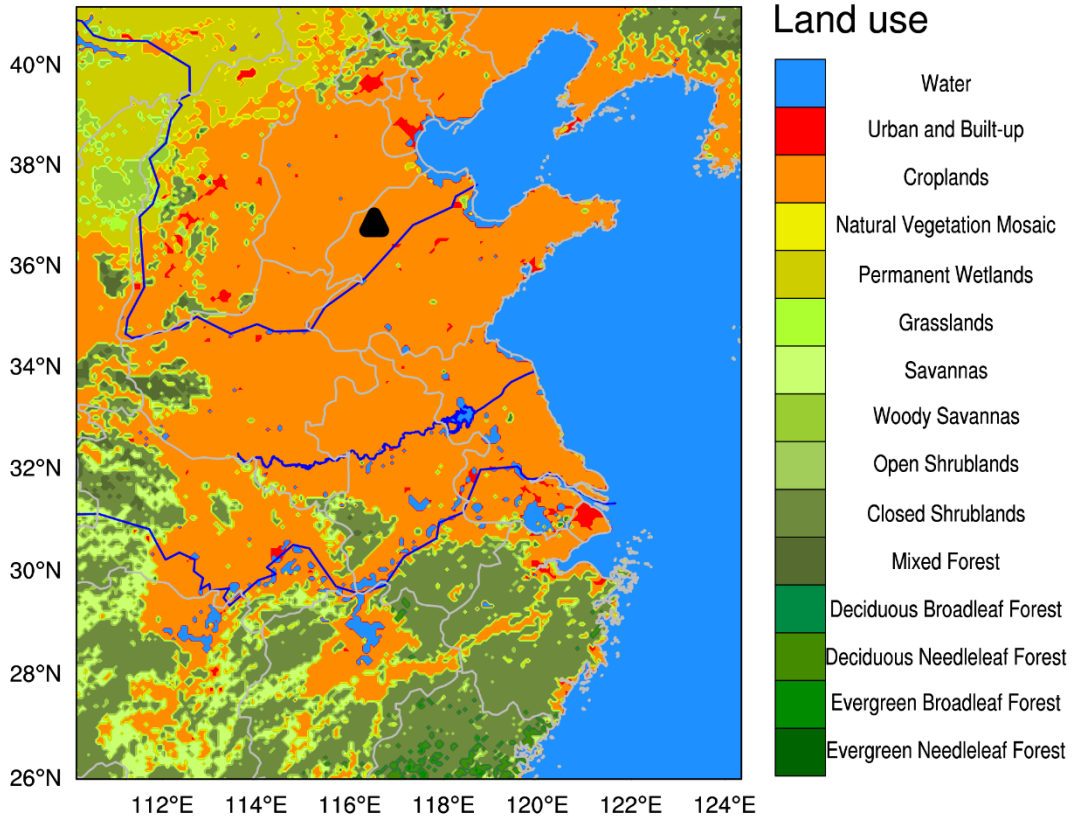

Figure S1: Land use categories in domain 2 and the location of observational turbulence is indicated by a black triangle. The blue lines represent the Yellow River, Yangtze-Huaihe and Yangtze River from top to bottom, respectively.

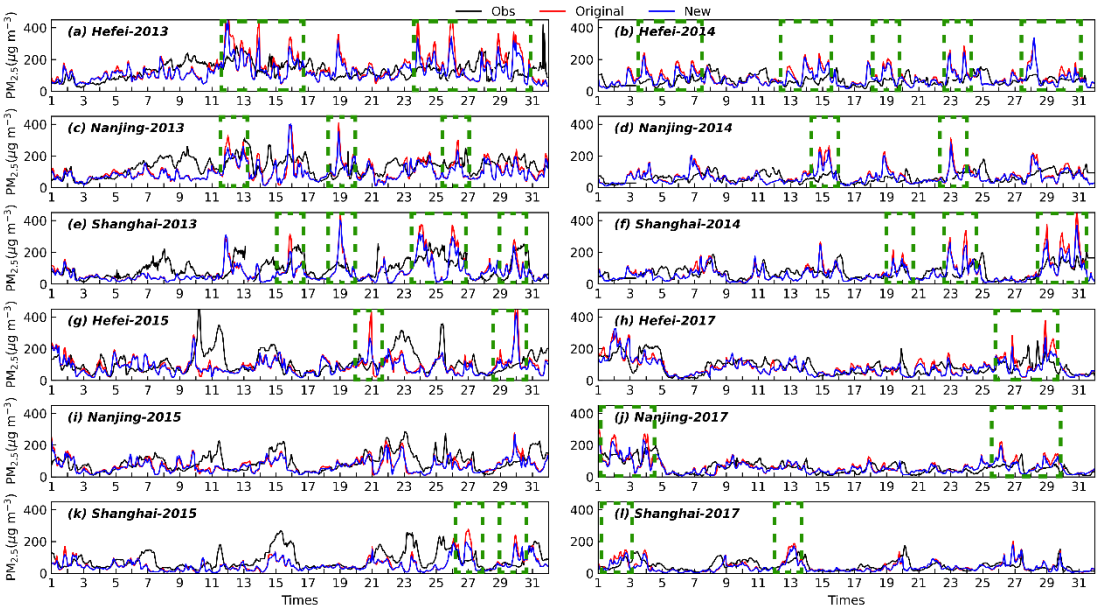

Figure S2: Time series of $PM_{2.5}$ concentration in Hefei, Nanjing and Shanghai from 2013 to 2017. The black, red and blue lines represent the results of observation, original scheme and scheme, respectively. The green dashed box indicates the period when the new scheme has significantly improved.

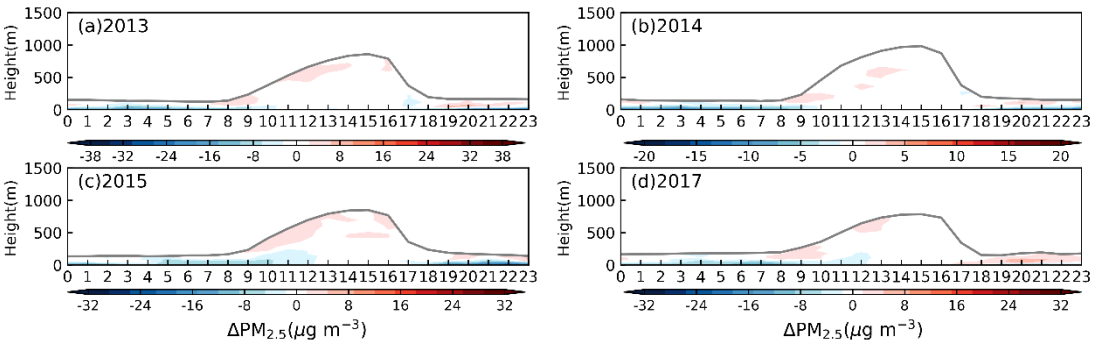

Figure S3: Time-height cross sections for the difference of $PM_{2.5}$ concentration between original and new schemes (i.e., the new scheme minus the original scheme) within the PBL in Hefei from 2013 to 2017. The gray line indicates the PBLH.

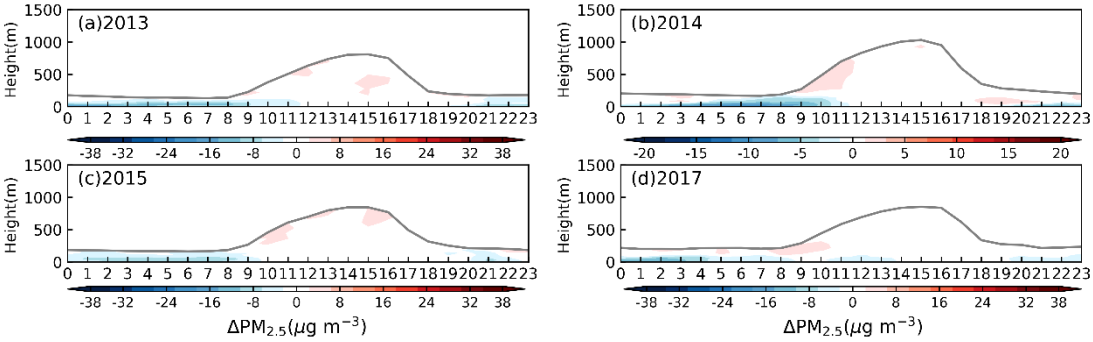

Figure S4: Similar to Figure S3, but in Nanjing.

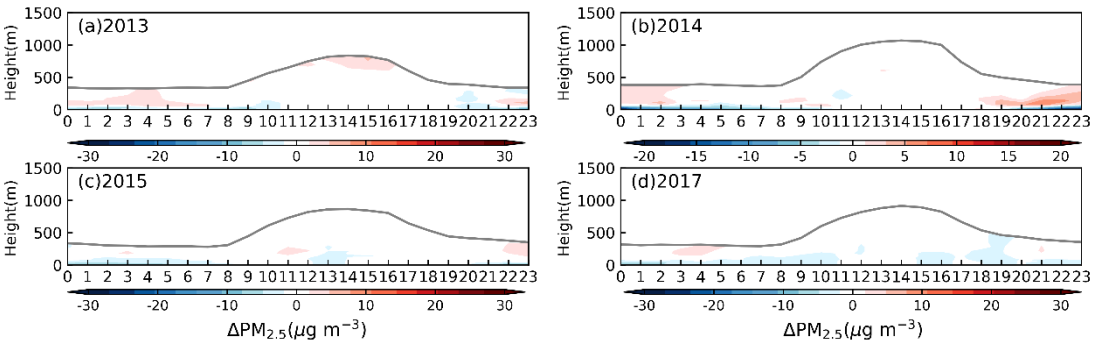

Figure S5: Similar to Figure S3, but in Shanghai.

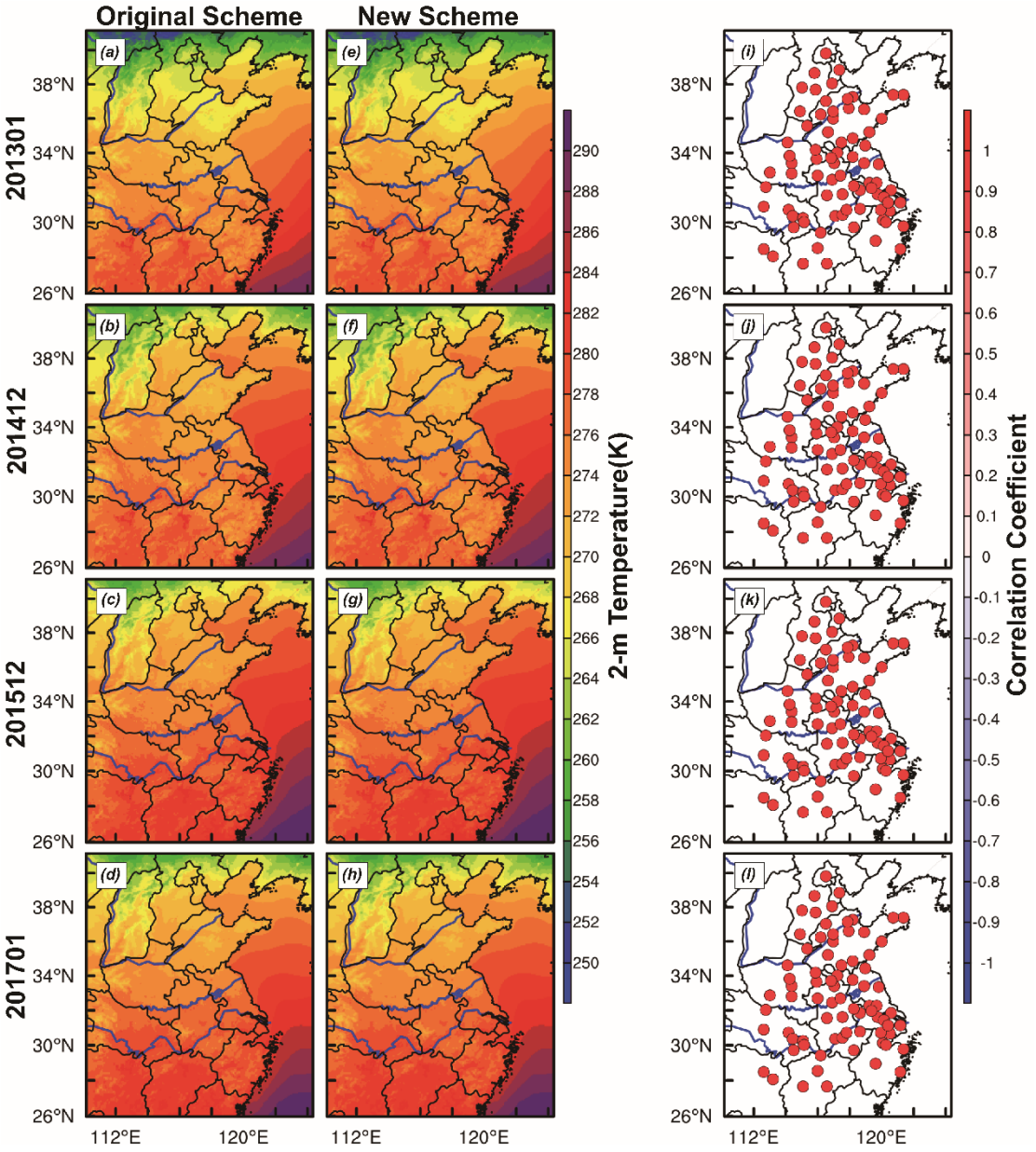

Figure S6: Comparison of the average value of temperature at 2 m above ground level (AGL) between (a-d) original scheme and (e-h) new scheme at night. (i-l) correlation coefficients of 2-m temperature between original and new schemes.

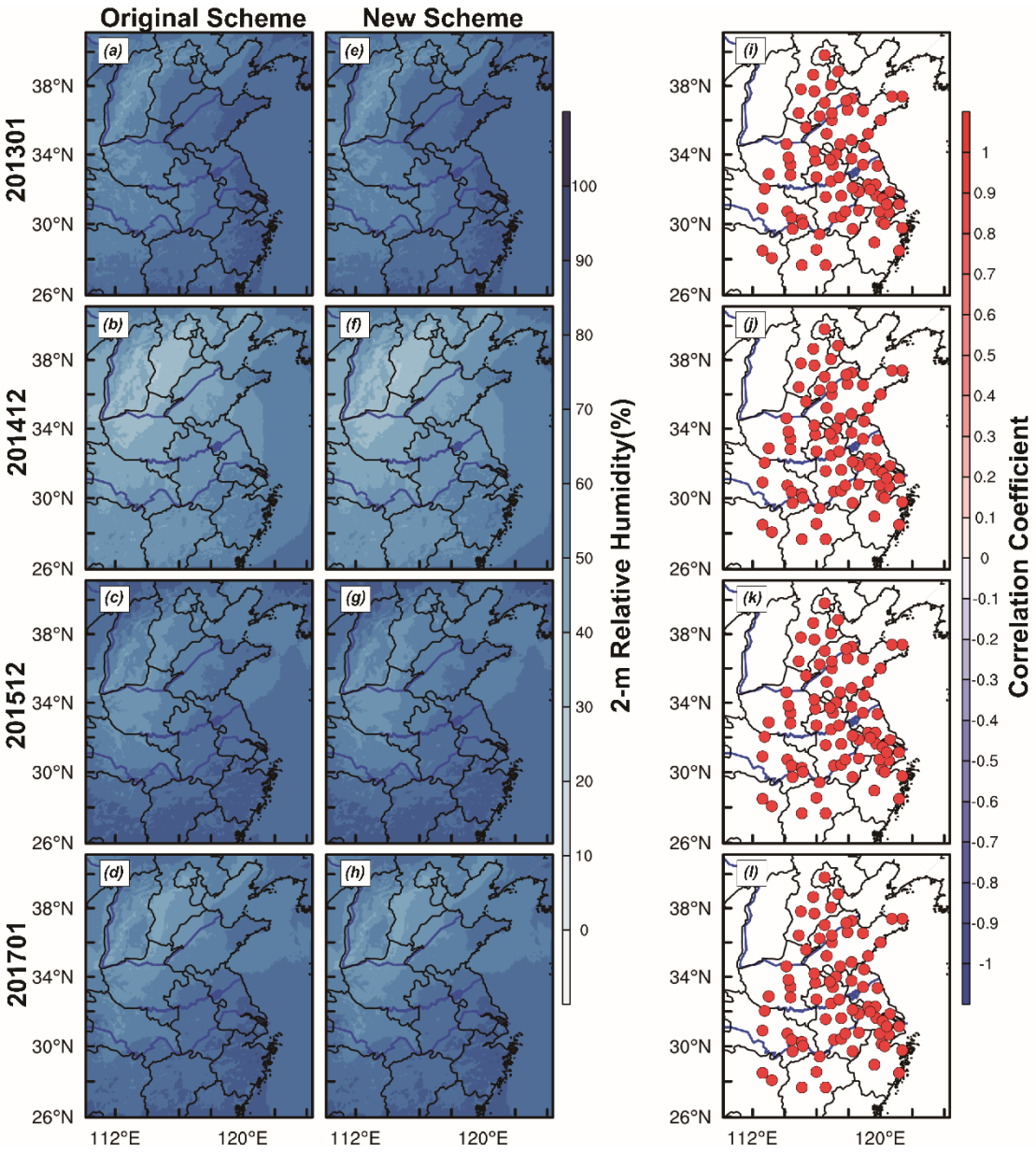

Figure S7: Similar to Figure S6, but for relative humidity at 2 m above ground level (AGL).

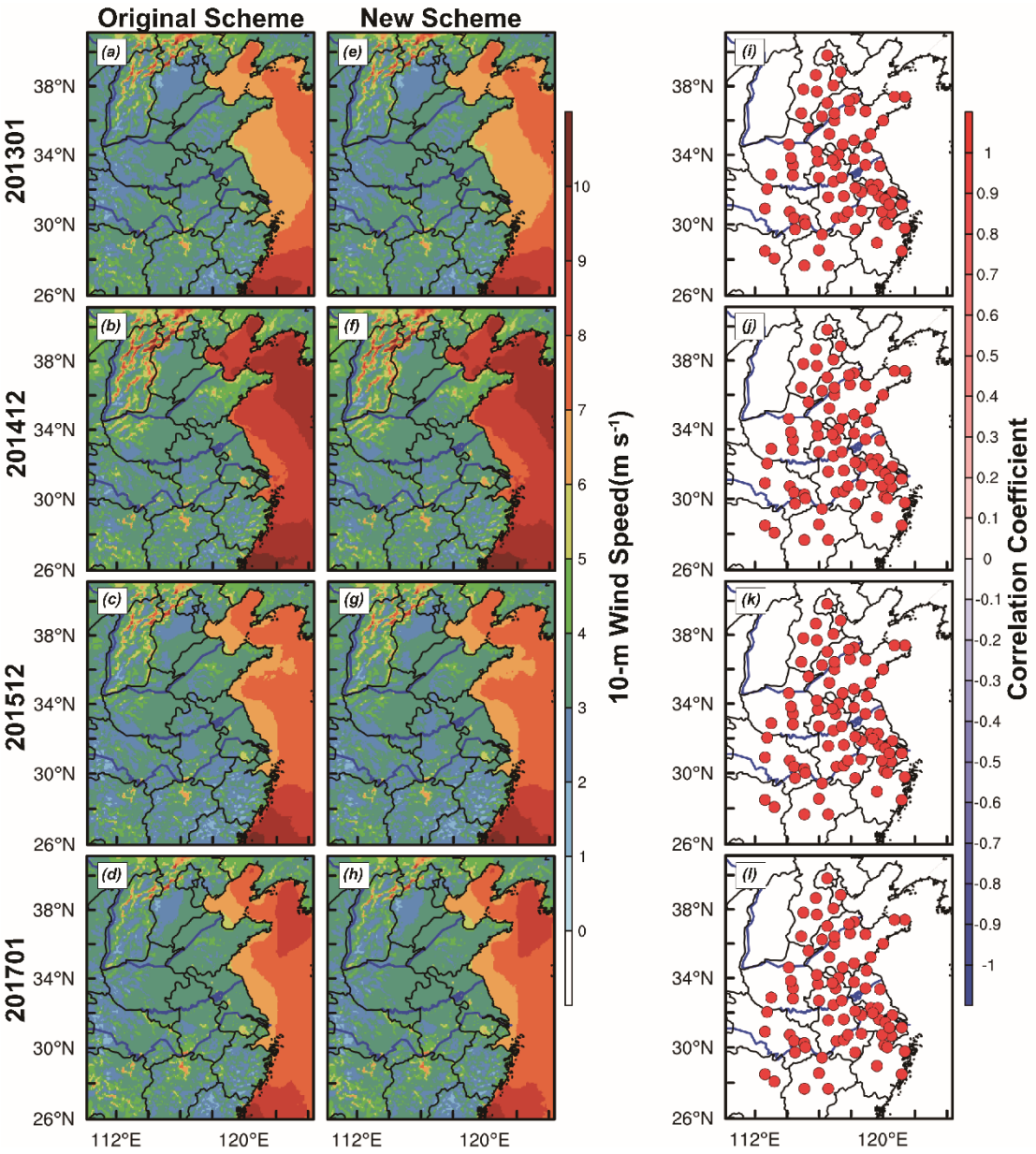

Figure S8: Similar to Figure S6, but for wind speed at 10 m above ground level (AGL).

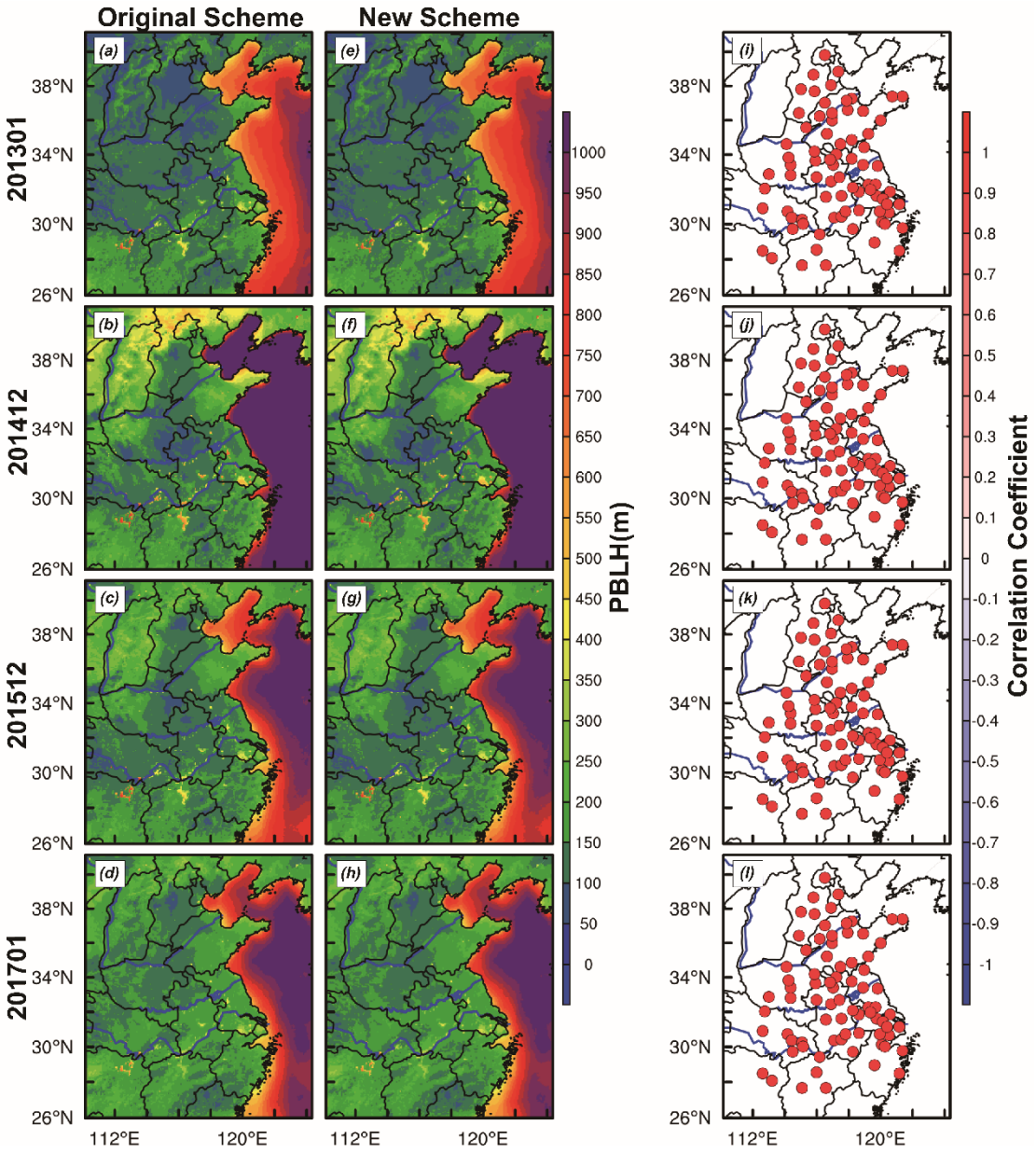

Figure S9: Similar to Figure S6, but for the planetary boundary layer height (PBLH).

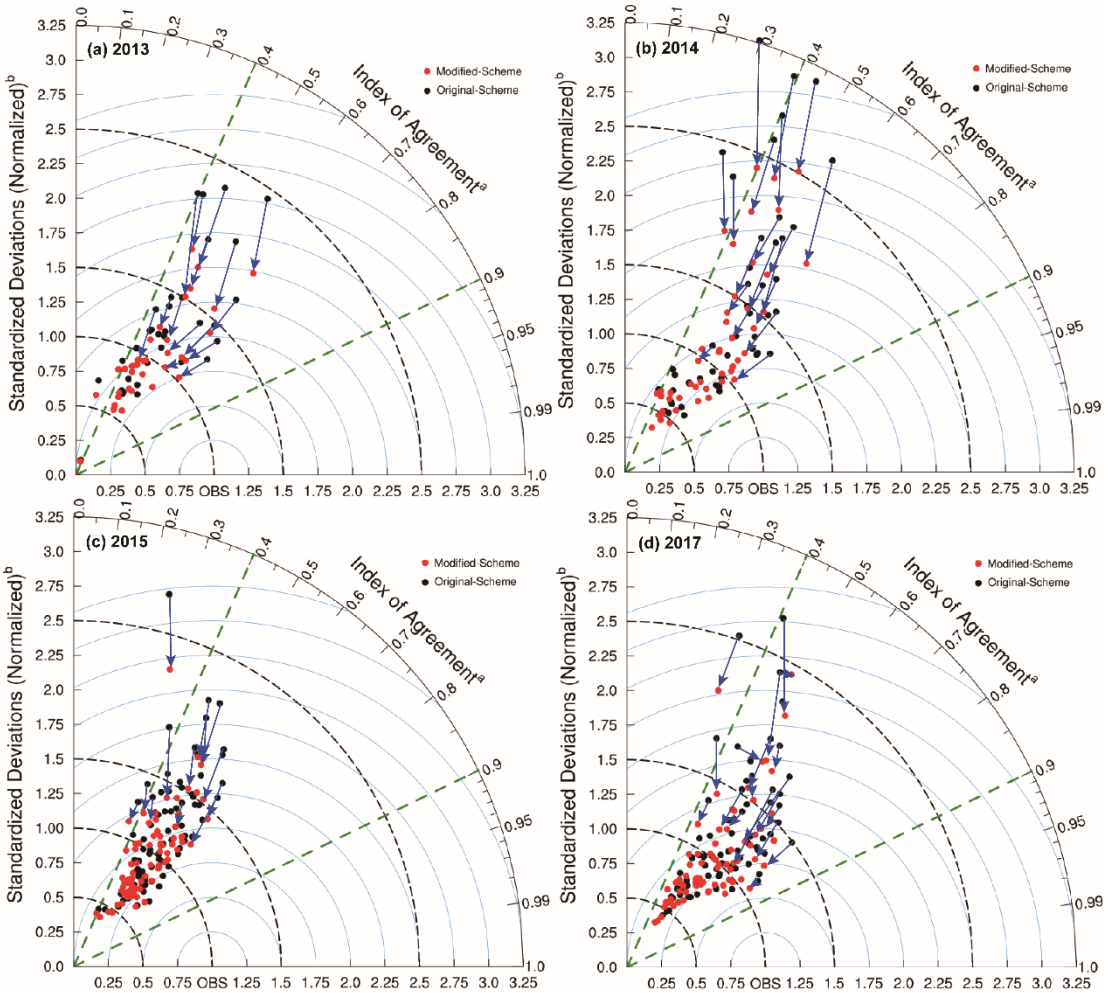

Figure S10: Similar to Figure 5, but for the Taylor diagram of CO concentration.