Supplement of

Parameterized minimum eddy diffusivity for improving $PM_{2.5}$ simulation in the stable boundary layer over eastern China

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Table S1. Mean model performance metrics for $PM_{2.5}$ in different fixed value of Kzmin in NCP and YRD. The available values are marked in red.

Region	Case_name	MB	IOA	RMSE	R
NCP	Kzmin=0.01	57.99	0.76	89.32	0.73
	Kzmin=0.3	20.87	0.85	59.63	0.77
	Kzmin=0.5	12.92	0.86	55.4	0.78
	Kzmin=0.8	4.9	0.87	52.51	0.78
	Kzmin=1.0	0.9	0.87	51.67	0.78
	Kzmin=1.3	-3.96	0.86	51.36	0.78
	Kzmin=1.5	-6.67	0.86	51.53	0.78
	Kzmin=1.8	-10.16	0.85	52.12	0.78
	Kzmin=2.0	-12.21	0.84	52.66	0.77
YRD	Kzmin=0.01	37.77	0.71	69.01	0.71
	Kzmin=0.3	28.38	0.76	57.45	0.74
	Kzmin=0.5	25.82	0.78	54.91	0.74
	Kzmin=0.8	21.42	0.79	53.68	0.74
	Kzmin=1.0	19.34	0.82	51.44	0.74
	Kzmin=1.3	17.58	0.82	48.67	0.74
	Kzmin=1.5	13.67	0.82	44.09	0.73
	Kzmin=1.8	11.11	0.81	42.31	0.72
	Kzmin=2.0	9.56	0.80	41.33	0.71

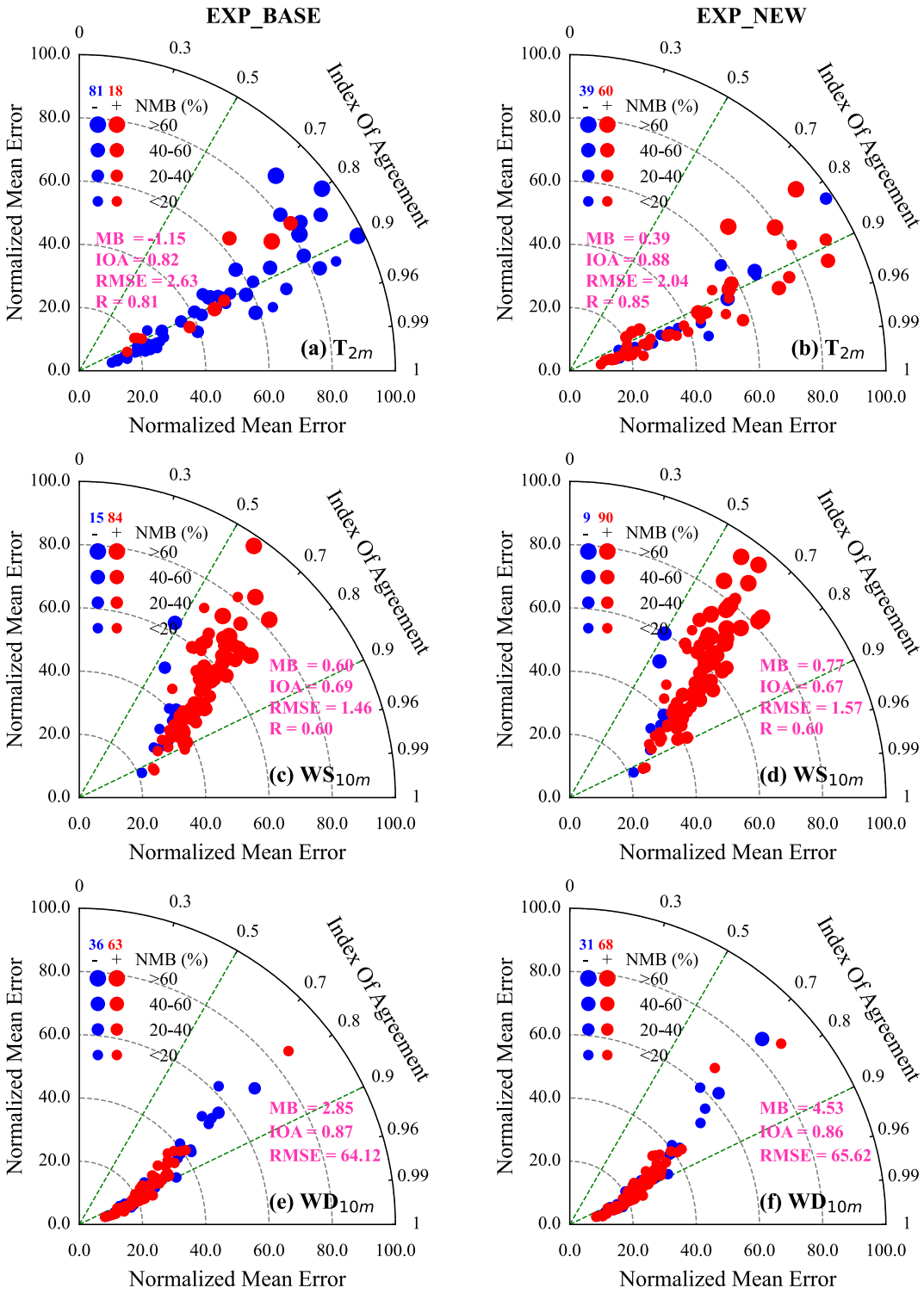

Figure S1. Taylor diagram for displaying model performance metrics on 99 meteorological stations in EXP_BASE: (a) T_{2m} (unit: ℃); (c) WS_{10m} (unit: $m \cdot s^{-1}$); (e) WD_{10m} (unit: °) and EXP_NEW: (b) T_{2m} (unit: ℃); (d) WS_{10m} (unit: $m \cdot s^{-1}$); (f) WD_{10m} (unit: °). The radial distance from the origin, the azimuthal position and the size of dots represent the values NME, IOA, and NMB of each station, respectively.