



Supplement of

Model evaluation and intercomparison of surface-level ozone and relevant species in East Asia in the context of MICS-Asia Phase III – Part 1: Overview

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Site	Site characteristics	Longitude	Latitude
Xinglong	Remote	117.576	40.394
Lingshan	Remote	115.431	39.968
Yangfang	Rural	116.110	40.13
Xianghe	Suburban	116.962	39.754
Langfang	Suburban	116.689	39.549
Zhuozhou	Suburban	115.990	39.46
Datong	Suburban	113.389	40.089
Zhangjiakou	Suburban	114.918	40.771
Cangzhou	Suburban	116.779	38.286
Yanjiao	Suburban	116.824	39.961
Beijing	Urban	116.372	39.974
Baoding	Urban	115.441	38.824
Shijiazhuan	Urban	114.529	38.028
Chengde*	Urban	117.925	40.973
Tianjin	Urban	117.206	39.075
Tanggu [*]	Urban	117.717	39.044
Caofeidian*	Urban	118.442	39.270
Tangshan	Urban	118.156	39.624
Qian'an [*]	Urban	114.800	40.100
Wanqingsha	Rural	113.548	22.710
Jinguowan	Rural	114.380	22.940
Tianhu *	Rural	113.625	23.650
Liyuan	Urban	114.093	22.550
Jinjuzui *	Urban	113.267	22.816
Zimaling *	Urban	113.401	22.507
Xiapu [*]	Urban	114.418	23.053
Luhu Park [*]	Urban	113.280	23.157
Huijingcheng*	Urban	113.104	23.001
Donghu [*]	Urban	113.081	22.593
Tangjia [*]	Urban	113.584	22.347
Haogang [*]	Urban	113.737	23.030
Chengzhong*	Urban	112.471	23.053
Rishiri	Remote	141.23	45.12
Ogasawara	Remote	142.22	27.83
Sado-seki	Remote	138.40	38.23
Oki	Remote	133.18	36.28
Hedo	Remote	128.25	26.85
Banryu	Remote	131.80	34.67
Нарро	Remote	137.78	36.68
Ochiishi	Remote	145.31	43.11

Table S1 Observation site descriptions in this study

*cities are clear, and annual $PM_{2.5}\!\!<\!\!35~\mu g/m^3$



Fig. S1 Locations of related regions (Bohai, East China Sea, Korea, Japan and The Sea of Japan)



Fig. S2 Simulated surface wind velocities(m/s) in summer MICS-Asia III



Fig. S3 Surface O₃ spatial distribution from 13 models for winter 2010 (unit: ppbv).



Fig. S4 Surface O₃ spatial distribution from 13 models for spring 2010 (unit: ppbv).



Fig. S5 Surface O₃ spatial distribution from 13 models for autumn 2010 (unit: ppbv).



Fig. S6 Simulated (line) and observed (solid cycle) monthly daytime PBL height (m) by M1, M4, M7, M8 and M11, averaged over all observed stations in three subregions over East Asia (EA1: top row, EA2: middle row, EA3: bottom row). The simulation was the mean value of 12 hours (08:00-20:00 LST) and the average of measurements was calculated based on 3 hours sounding data (08:00, 14:00 and 20:00) from Guo et al. (2016).



Fig. S7 Scatter plots for monthly daytime (08:00-20:00) surface NO_x and O_x for each station in EA1 (red), EA2 (green) and EA3 (blue) in May-October, for observations (obs) and models. Also shown are the linear regression equations and coefficient of determination (R^2) for NO_x and O_x (O₃+NO₂) in EA1 (red) and EA2 (green).