



*Supplement of*

## **Evaluation of a regional chemistry transport model using a newly developed regional OMI NO<sub>2</sub> retrieval**

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Table 1: Evaluation of WRF with meteorological observations in Hong Kong.

Parameter	IOA	r	MB	NMB <sup>a</sup>	RMSE	CV <sup>a</sup>
Hong Kong Observatory (HKO)						
$T$ ( $^{\circ}\text{C}$ )	0.97	0.96	-0.2	-0.8	1.7	8.0
$q$ (g/kg)	0.93	0.94	-1.7	-14.1	2.2	18.2
$p$ (hPa)	0.99	0.98	-0.0	-0.0	0.9	0.1
$v$ (m/s)	0.57	0.28	+0.5	+23.2	1.5	71.4
Hong Kong International Airport (HKIA)						
$T$ ( $^{\circ}\text{C}$ )	0.98	0.97	-0.2	-0.7	1.3	6.1
$q$ (g/kg)	0.97	0.95	-0.3	-2.3	1.4	12.8
$p$ (hPa)	0.99	0.98	+0.1	+0.0	0.9	0.1
$v$ (m/s)	0.68	0.47	-0.4	-10.4	1.6	46.0
Waglan Island (WGL)						
$T$ ( $^{\circ}\text{C}$ )	0.94	0.94	+1.2	+5.7	2.0	9.5
$q$ (g/kg)	0.88	0.95	+2.5	+21.7	2.8	24.2
$p$ (hPa)	0.99	0.98	+0.4	+0.0	1.0	0.1
$v$ (m/s)	0.84	0.72	+0.0	+0.7	2.1	33.0

$T$ : temperature at 2 m above ground level (agl),  $q$ : water vapour mixing ratio 2 m agl,  $p$ : sea level pressure,  $v$ : wind speed (at station height), <sup>a</sup> unit percent

Table 2: Evaluation of CMAQ NO<sub>2</sub> mixing ratios with the PRD RAQM network.

Station name	IOA	r	MB	NMB	RMSE	CV
Chengzhong	0.47	+0.22	-13.1	-50	21.2	82
Donghu	0.44	+0.21	+18.7	+80	27.6	118
Haogang	0.59	+0.37	-9.2	-30	20.4	65
Huijingcheng	0.60	+0.49	-18.7	-40	28.9	62
Jinguowan	0.42	+0.19	-2.6	-46	5.9	105
Liyuan	0.58	+0.37	+14.4	+41	25.0	70
Luhu Park	0.71	+0.60	-14.0	-38	23.6	64
Shunde D.	0.47	+0.22	-23.7	-61	31.8	81
Tangjia	0.50	+0.17	-13.4	-41	27.6	85
Tap Mun	0.29	-0.09	-2.3	-26	10.5	118
Tianhu	0.46	+0.25	-4.2	-60	7.6	110
Tsuen Wan	0.75	+0.58	-1.4	-3	17.9	41
Tung Chung	0.63	+0.45	-10.9	-30	22.0	61
Wanqingsha	0.43	+0.07	-13.8	-39	29.3	82
Xiapu	0.48	+0.42	-12.8	-67	19.1	100
Zimaling P.	0.57	+0.32	-10.2	-24	23.3	56
HK & SZ	0.56	+0.33	-0.0	-5	18.9	73
FS & GZ	0.55	+0.34	-17.6	-44	28.4	72
all stations	0.52	+0.30	-7.3	-27	21.4	81

Units: [MB] = ppbv, [NMB] = %, [RMSE] = ppbv, [CV] = %.