

**Guangdong-Hong Kong-Macao
Pearl River Delta
Regional Air Quality Monitoring Network
April to June 2018
Statistical Summary of the Second Quarter
Monitoring Results**

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1. Foreword

Since the Pearl River Delta (PRD) Regional Air Quality Monitoring Network came into operation on 30 November 2005, the PRD Regional Air Quality Index (RAQI) was reported to the public on a daily basis. Starting from 2006, half-yearly and annual air quality monitoring reports were also published every year. The network was subsequently enhanced and expanded in September 2014 and renamed to “Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Quality Monitoring Network” (the “Network”).

To cope with the enhancement of the network, the update of the national ambient air quality standards as well as the need for improving the reporting frequency of monitoring results, starting from 2014, the real-time hourly monitoring data was reported on a new internet platform to replace the daily RAQI, the half-yearly report was also replaced by a quarterly report while the annual air quality monitoring report was maintained. The quarterly report is a brief statistical summary of the regional air quality monitoring results in a quarter. The annual report, in addition to the reporting of the monitoring data, provides a more detailed analysis and comparison of the air quality in the year. From the fourth quarter of 2014, the statistical results of carbon monoxide (CO) and fine suspended particulates (PM_{2.5} or FSP) were added to the report in addition to those of respirable suspended particulates (PM₁₀ or RSP), sulphur dioxide (SO₂), nitrogen dioxide (NO₂), and ozone (O₃).

This report is the statistical summary of the monitoring results of the PRD Regional Air Quality Monitoring Network in the second quarter of 2018. It is the eighteenth report published in the form of a quarterly report and the fifteenth report with the statistical summaries of the six pollutants (i.e. PM₁₀, PM_{2.5}, SO₂, NO₂, O₃ and CO).

2. Introduction to Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Quality Monitoring Network

The PRD Regional Air Quality Monitoring Network was jointly established by the Guangdong Provincial Environmental Monitoring Centre (GDEMC) and the Environmental Protection Department of the Hong Kong Special Administrative Region (HKEPD) from 2003 to 2005, and commenced its operation to report the Regional Air Quality Index (RAQI) on 30 November 2005.

With the growing concerns of air pollution control and economic development of the region, the GDEMC and HKEPD had worked in collaboration with the environmental protection cum meteorological authorities of Macao to enhance the network by extending the coverage of monitoring area to Guangdong, Hong Kong and Macao in September 2014. The enhancements included the addition of monitoring stations from 16 to 23 to further improve the spatial distribution and the inclusion of two new monitoring parameters, i.e. carbon monoxide (CO) and fine suspended particulates (PM_{2.5}), to enrich the air quality monitoring information. At the same time, the network was renamed to “Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Quality Monitoring Network” (the “Network”) while the “Quality Management Committee of Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Quality Monitoring Network”, which was jointly established by the GDEMC, HKEPD, Environmental Protection Bureau of Macao SARG and Meteorological and Geophysical Bureau of Macao SARG, was responsible for quality management of the Network and dissemination of information.

The Network comprises 23 automatic air quality monitoring stations (see Figure 2.1) across the PRD region. Ten city stations are operated either by the Environmental Monitoring Centres of the individual cities in Guangdong or the operation-cum-maintenance agencies commissioned by the State. Eight regional stations are operated by the GDEMC, the four stations located in Hong Kong are managed by the HKEPD and the remaining one in Macao is operated by Meteorological and Geophysical Bureau of Macao SARG.

All stations are installed with monitoring equipment to measure the ambient concentrations of PM₁₀, PM_{2.5}, SO₂, NO₂, O₃ and CO.

Annexes A and B show the site information of the monitoring stations in the Network and the methods used for measuring air pollutant concentrations respectively.



Figure 2.1 : Spatial Distribution of Monitoring Stations in the Network

Remark: For the boundary of the administrative division of the Macao Special Administrative Region, according to the Decree n.º665 of the State Council of the People’s Republic of China, “the map of the administrative division of the Macao Special Administrative Region” was approved at the 116th Executive Meeting of the State Council on 16 December 2015.

3. Operation of the Network

The operation of the Network was smooth in the second quarter of 2018. The average data capture rate of hourly air pollutant monitoring data measured at all monitoring stations was 96.7% in the second quarter.

4. Statistical Results of Pollutant Concentrations

Tables 4.1a to 4.6b list the detailed statistical results of the ambient concentrations of the six air pollutants (SO₂, NO₂, O₃, CO, PM₁₀ and PM_{2.5}) from April to June 2018.

Table 4.1a : The monthly maxima and minima of hourly averages of SO₂

Monitoring Station	April 2018		May 2018		June 2018	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	7	28	7	24	4	20
Modiesha (Guangzhou)	4	33	4	22	6	31
Wanqingsha (Guangzhou)	8	84	3	50	2	49
Tianhu (Guangzhou)	7	34	7	28	5	24
Zhudong (Guangzhou)	1	38	0	36	5	35
Liyuan (Shenzhen)	6	16	6	18	7	11
Jinjuzui (Foshan)	7	37	1	24	1	29
Huijingcheng (Foshan)	0	26	5	47	0	48
Tangjia (Zhuhai)	1	49	1	26	1	49
Donghu (Jiangmen)	1	37	1	30	2	25
Duanfen (Jiangmen)	5	30	4	25	5	42
Huaguoshan (Jiangmen)	8	48	8	64	9	68
Chengzhong (Zhaoqing)	4	263	4	146	3	88
Xiapu (Huizhou)	5	27	6	29	4	22
Xijiao (Huizhou)	1	20	1	11	1	35
Jinguowan (Huizhou)	9	21	7	21	4	20
Zimaling (Zhongshan)	3	40	3	29	2	29
Nanchengyuanling (Dongguan)	5	49	5	29	5	40
Tap Mun (Hong Kong)	5	21	5	21	5	15
Tsuen Wan (Hong Kong)	3	60	3	46	3	26
Yuen Long (Hong Kong)	6	40	6	39	6	23
Tung Chung (Hong Kong)	4	46	2	47	4	41
Taipa Grande (Macao)	1	40	0	17	0	21

Remark : All concentration units are in micrograms per cubic metre (µg/m³).

Table 4.1b : The monthly maxima and minima of daily averages of SO₂

Monitoring Station	April 2018		May 2018		June 2018	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	9	18	9	15	5	9
Modiesha (Guangzhou)	5	14	5	12	7	12
Wanqingsha (Guangzhou)	13	25	5	21	5	14
Tianhu (Guangzhou)	9	21	8	14	7	12
Zhudong (Guangzhou)	5	18	2	14	5	15
Liyuan (Shenzhen)	6	10	6	10	7	9
Jinjuzui (Foshan)	8	21	3	12	3	13
Huijingcheng (Foshan)	3	16	7	22	4	19
Tangjia (Zhuhai)	2	11	1	9	1	15
Donghu (Jiangmen)	3	14	2	13	4	15
Duanfen (Jiangmen)	6	14	5	13	6	12
Huaguoshan (Jiangmen)	10	24	11	24	10	26
Chengzhong (Zhaoqing)	5	47	6	30	4	20
Xiapu (Huizhou)	6	15	7	17	6	11
Xijiao (Huizhou)	1	8	2	6	1	31
Jinguowan (Huizhou)	10	13	9	14	5	10
Zimaling (Zhongshan)	4	15	4	10	3	11
Nanchengyuanling (Dongguan)	7	18	6	16	6	15
Tap Mun (Hong Kong)	6	11	6	11	6	8
Tsuen Wan (Hong Kong)	4	14	4	14	4	12
Yuen Long (Hong Kong)	6	18	6	16	6	11
Tung Chung (Hong Kong)	5	12	4	16	5	22
Taipa Grande (Macao)	2	9	0	7	0	8

Remark : All concentration units are in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

Table 4.1c : The monthly averages of SO₂

Monitoring Station	April 2018	May 2018	June 2018
Luhu (Guangzhou)	12	11	7
Modiesha (Guangzhou)	8	7	9
Wanqingsha (Guangzhou)	18	13	10
Tianhu (Guangzhou)	14	11	9
Zhudong (Guangzhou)	10	9	11
Liyuan (Shenzhen)	7	7*	8
Jinjuzui (Foshan)	14	8	7
Huijingcheng (Foshan)	10	11	8
Tangjia (Zhuhai)	5	3	4
Donghu (Jiangmen)	7	7	7
Duanfen (Jiangmen)	9	8	8
Huaguoshan (Jiangmen)	16	17	15
Chengzhong (Zhaoqing)	23	15	10
Xiapu (Huizhou)	9	10	8
Xijiao (Huizhou)	4	4	7
Jinguowan (Huizhou)	11	10	7*
Zimaling (Zhongshan)	10	6	6
Nanchengyuanling (Dongguan)	12	10	9
Tap Mun (Hong Kong)	8	8	7
Tsuen Wan (Hong Kong)	8	9	6
Yuen Long (Hong Kong)	11	10	8
Tung Chung (Hong Kong)	7	6	7
Taipa Grande (Macao)	5	2	2

Remark : All concentration units are in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

* The capture rate of validated daily data per month is below 85%.

Table 4.2a : The monthly maxima and minima of hourly averages of NO₂

Monitoring Station	April 2018		May 2018		June 2018	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	20	208	10	121	10	125
Modiesha (Guangzhou)	6	187	12	128	9	129
Wanqingsha (Guangzhou)	4	128	1	107	1	106
Tianhu (Guangzhou)	2	66	4	50	2	36
Zhudong (Guangzhou)	9	118	0	71	4	75
Liyuan (Shenzhen)	6	92	5	79	3	81
Jinjuzui (Foshan)	10	188	3	90	0	82
Huijingcheng (Foshan)	8	165	8	114	6	149
Tangjia (Zhuhai)	1	94	1	68	1	109
Donghu (Jiangmen)	3	113	2	70	2	85
Duanfen (Jiangmen)	1	56	0	36	1	29
Huaguoshan (Jiangmen)	0	115	0	73	0	84
Chengzhong (Zhaoqing)	8	158	6	110	6	136
Xiapu (Huizhou)	8	107	8	74	7	114
Xijiao (Huizhou)	7	51	6	38	5	41
Jinguowan (Huizhou)	5	47	3	57	2	55
Zimaling (Zhongshan)	1	102	1	59	1	67
Nanchengyuanling (Dongguan)	7	125	5	83	9	90
Tap Mun (Hong Kong)	3	60	1	72	2	41
Tsuen Wan (Hong Kong)	9	160	4	100	0	118
Yuen Long (Hong Kong)	12	130	7	105	7	112
Tung Chung (Hong Kong)	0	167	0	113	0	162
Taipa Grande (Macao)	0	95	0	80	2	89

Remark : All concentration units are in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

Table 4.2b : The monthly maxima and minima of daily averages of NO₂

Monitoring Station	April 2018		May 2018		June 2018	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	35	93	22	70	23	61
Modiesha (Guangzhou)	29	91	25	60	22	56
Wanqingsha (Guangzhou)	24	73	12	51	14	44
Tianhu (Guangzhou)	7	34	6	27	4	18
Zhudong (Guangzhou)	18	57	16	38	14	45
Liyuan (Shenzhen)	11	37	9	44	8	39
Jinjuzui (Foshan)	20	93	10	41	8	40
Huijingcheng (Foshan)	17	96	20	67	18	54
Tangjia (Zhuhai)	8	54	2	37	2	46
Donghu (Jiangmen)	11	77	8	46	9	37
Duanfen (Jiangmen)	5	38	2	18	4	18
Huaguoshan (Jiangmen)	7	73	6	41	4	40
Chengzhong (Zhaoqing)	17	73	14	64	13	56
Xiapu (Huizhou)	17	43	18	38	15	31
Xijiao (Huizhou)	10	34	10	26	7	25
Jinguowan (Huizhou)	13	25	10	27	7	24
Zimaling (Zhongshan)	7	52	3	31	2	31
Nanchengyuanling (Dongguan)	21	69	17	46	18	43
Tap Mun (Hong Kong)	6	23	4	39	4	18
Tsuen Wan (Hong Kong)	32	83	24	62	19	58
Yuen Long (Hong Kong)	34	68	23	71	25	59
Tung Chung (Hong Kong)	9	85	5	59	6	79
Taipa Grande (Macao)	11	58	1	51	7	44

Remark : All concentration units are in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

Table 4.2c : The monthly averages of NO₂

Monitoring Station	April 2018	May 2018	June 2018
Luhu (Guangzhou)	57	37	41
Modiesha (Guangzhou)	53	39	38
Wanqingsha (Guangzhou)	44	27	27
Tianhu (Guangzhou)	20	15	10
Zhudong (Guangzhou)	40	23	25
Liyuan (Shenzhen)	23	19*	20
Jinjuzui (Foshan)	46	22	23
Huijingcheng (Foshan)	47	36	38
Tangjia (Zhuhai)	24	11	15
Donghu (Jiangmen)	30	17	19
Duanfen (Jiangmen)	17	9	7
Huaguoshan (Jiangmen)	28	16	16
Chengzhong (Zhaoqing)	38	28	30
Xiapu (Huizhou)	30	28	23
Xijiao (Huizhou)	17	17	14
Jinguowan (Huizhou)	18	17	15*
Zimaling (Zhongshan)	24	11	13
Nanchengyuanling (Dongguan)	40	25	28
Tap Mun (Hong Kong)	12	12	9
Tsuen Wan (Hong Kong)	48	37	35
Yuen Long (Hong Kong)	47	35	39
Tung Chung (Hong Kong)	30	21	25
Taipa Grande (Macao)	26	15	18

Remark : All concentration units are in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

* The capture rate of validated daily data per month is below 85%.

Table 4.3a : The monthly maxima and minima of hourly averages of O₃

Monitoring Station	April 2018		May 2018		June 2018	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	2	259	2	229	2	250
Modiesha (Guangzhou)	0	247	0	286	0	293
Wanqingsha (Guangzhou)	6	308	6	282	6	307
Tianhu (Guangzhou)	4	281	8	236	2	193
Zhudong (Guangzhou)	4	324	5	264	5	265
Liyuan (Shenzhen)	5	166	5	272	5	265
Jinjuzui (Foshan)	7	257	7	301	7	345
Huijingcheng (Foshan)	5	279	6	269	5	354
Tangjia (Zhuhai)	1	310	3	286	4	312
Donghu (Jiangmen)	1	260	1	239	1	340
Duanfen (Jiangmen)	3	197	1	185	1	307
Huaguoshan (Jiangmen)	3	240	3	214	3	327
Chengzhong (Zhaoqing)	5	224	5	200	5	289
Xiapu (Huizhou)	3	227	3	312	2	254
Xijiao (Huizhou)	3	327	2	252	2	238
Jinguowan (Huizhou)	2	235	2	309	2	208
Zimaling (Zhongshan)	4	201	5	317	4	344
Nanchengyuanling (Dongguan)	2	254	2	290	2	245
Tap Mun (Hong Kong)	2	188	2	329	1	218
Tsuen Wan (Hong Kong)	2	146	2	229	2	216
Yuen Long (Hong Kong)	3	133	2	238	2	285
Tung Chung (Hong Kong)	0	156	1	229	1	245
Taipa Grande (Macao)	0	201	2	308	6	293

Remark : All concentration units are in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

Table 4.3b : Daily maximum 8-hour averages of O₃ (the monthly maxima, minima and the 90th percentile)

Monitoring Station	April 2018			May 2018			June 2018		
	Min	Max	90 th per	Min	Max	90 th per	Min	Max	90 th per
Luhu (Guangzhou)	7	215	177	29	185	164	17	204	184
Modiesha (Guangzhou)	9	206	165	26	250	172	22	249	186
Wanqingsha (Guangzhou)	30	234	160	45	225	158	31	282	221
Tianhu (Guangzhou)	45	191	169	62	193	166	38	166	138
Zhudong (Guangzhou)	17	261	213	46	212	160	27	232	178
Liyuan (Shenzhen)	34	147	132	42	223	125	32	238	146
Jinjuzui (Foshan)	18	225	176	67	272	165	42	305	219
Huijingcheng (Foshan)	20	242	185	25	234	150	27	297	238
Tangjia (Zhuhai)	43	248	145	46	237	165	39	282	183
Donghu (Jiangmen)	22	219	167	49	189	144	35	308	224
Duanfen (Jiangmen)	38	163	137	37	152	106	46	257	157
Huaguoshan (Jiangmen)	11	212	156	35	180	116	26	283	180
Chengzhong (Zhaoqing)	17	198	152	32	173	133	21	240	209
Xiapu (Huizhou)	42	187	142	45	267	175	37	222	173
Xijiao (Huizhou)	64	267	215	69	207	185	31	193	165
Jinguowan (Huizhou)	45	198	159	49	248	183	26	186	148
Zimaling (Zhongshan)	35	167	146	61	225	167	27	318	196
Nanchengyuanling (Dongguan)	35	215	169	52	232	195	28	206	177
Tap Mun (Hong Kong)	36	177	160	39	249	152	48	195	147
Tsuen Wan (Hong Kong)	15	132	113	16	177	119	17	175	117
Yuen Long (Hong Kong)	24	124	104	35	162	128	22	232	129
Tung Chung (Hong Kong)	17	139	118	13	179	141	37	201	137
Taipa Grande (Macao)	34	148	143	34	207	124	29	231	170

Remark : All concentration units are in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

Table 4.3c : The monthly averages of O₃

Monitoring Station	April 2018	May 2018	June 2018
Luhu (Guangzhou)	45	54	50
Modiesha (Guangzhou)	42	48	58
Wanqingsha (Guangzhou)	61	55	66
Tianhu (Guangzhou)	83	79	68
Zhudong (Guangzhou)	58	63	66
Liyuan (Shenzhen)	68	56*	63
Jinjuzui (Foshan)	60	67	72
Huijingcheng (Foshan)	61	60	69
Tangjia (Zhuhai)	68	60	72
Donghu (Jiangmen)	63	55	71
Duanfen (Jiangmen)	64	48	66
Huaguoshan (Jiangmen)	55	45	62
Chengzhong (Zhaoqing)	56	53	66
Xiapu (Huizhou)	68	72	73*
Xijiao (Huizhou)	70	75	60
Jinguowan (Huizhou)	71	69	58*
Zimaling (Zhongshan)	61	67	74
Nanchengyuanling (Dongguan)	56	68	65
Tap Mun (Hong Kong)	84	63	70
Tsuen Wan (Hong Kong)	53	39	48
Yuen Long (Hong Kong)	45	45	50
Tung Chung (Hong Kong)	49	53	62
Taipa Grande (Macao)	69	53	63

Remark : All concentration units are in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

* The capture rate of validated daily data per month is below 85%.

Table 4.4a : The monthly maxima and minima of hourly averages of CO

Monitoring Station	April 2018		May 2018		June 2018	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	0.4	1.9	0.2	1.3	0.4	1.5
Modiesha (Guangzhou)	0.1	1.5	0.2	1.4	0.2	1.0
Wanqingsha (Guangzhou)	0.3	1.2	0.0	1.1	0.2	1.4
Tianhu (Guangzhou)	0.0	1.2	0.2	1.7	0.0	1.9
Zhudong (Guangzhou)	0.3	1.2	0.1	1.3	0.0	2.1
Liyuan (Shenzhen)	0.4	1.2	0.2	1.0	0.4	1.3
Jinjuzui (Foshan)	0.5	2.0	0.4	1.4	0.4	1.3
Huijingcheng (Foshan)	0.3	1.7	0.3	1.2	0.3	1.2
Tangjia (Zhuhai)	0.2	1.2	0.4	1.1	0.2	1.0
Donghu (Jiangmen)	0.4	1.9	0.4	1.4	0.4	1.9
Duanfen (Jiangmen)	0.0	1.2	0.0	0.6	0.0	1.0
Huaguoshan (Jiangmen)	0.1	1.4	0.0	1.0	0.1	2.4
Chengzhong (Zhaoqing)	0.4	1.8	0.4	2.2	0.5	1.5
Xiapu (Huizhou)	0.1	1.0	0.2	1.3	0.2	1.4
Xijiao (Huizhou)	0.1	1.7	0.0	1.0	0.1	1.2
Jinguowan (Huizhou)	0.1	1.0	0.3	0.9	0.1	2.0
Zimaling (Zhongshan)	0.3	1.4	0.3	1.2	0.3	1.4
Nanchengyuanling (Dongguan)	0.4	1.4	0.3	1.1	0.4	1.2
Tap Mun (Hong Kong)	0.5	1.0	0.2	0.9	0.3	0.8
Tsuen Wan (Hong Kong)	0.2	1.1	0.3	0.9	0.3	0.9
Yuen Long (Hong Kong)	0.3	1.0	0.1	0.7	0.1	1.1
Tung Chung (Hong Kong)	0.2	1.7	0.3	0.9	0.3	1.1
Taipa Grande (Macao)	0.0	1.0	0.0	0.7	0.0	0.8

Remark : All concentration units are in milligrams per cubic metre (mg/m³).

Table 4.4b : Daily averages of CO (the monthly maxima, minima and the 95th percentile)

Monitoring Station	April 2018			May 2018			June 2018		
	Min	Max	95 th per	Min	Max	95 th per	Min	Max	95 th per
Luhu (Guangzhou)	0.5	1.6	1.4	0.4	0.9	0.9	0.5	1.2	1.1
Modiesha (Guangzhou)	0.4	1.2	1.0	0.3	0.9	0.8	0.3	0.7	0.6
Wanqingsha (Guangzhou)	0.4	1.1	0.9	0.2	0.9	0.7	0.2	0.8	0.7
Tianhu (Guangzhou)	0.1	0.7	0.7	0.3	0.6	0.6	0.2	1.0	0.9
Zhudong (Guangzhou)	0.5	1.0	1.0	0.2	0.8	0.7	0.1	1.2	0.9
Liyuan (Shenzhen)	0.4	1.0	0.9	0.4	0.8	0.8	0.4	0.9	0.8
Jinjuzui (Foshan)	0.6	1.4	1.4	0.5	1.0	1.0	0.6	0.9	0.9
Huijingcheng (Foshan)	0.4	1.3	1.2	0.4	0.9	0.8	0.5	0.8	0.8
Tangjia (Zhuhai)	0.3	1.0	0.9	0.4	0.8	0.8	0.3	0.8	0.7
Donghu (Jiangmen)	0.5	1.4	1.4	0.5	1.1	1.0	0.6	1.0	0.9
Duanfen (Jiangmen)	0.2	0.8	0.7	0.1	0.4	0.4	0.2	0.6	0.6
Huaguoshan (Jiangmen)	0.5	1.2	1.0	0.3	0.8	0.7	0.4	0.9	0.8
Chengzhong (Zhaoqing)	0.6	1.4	1.2	0.5	1.0	1.0	0.7	1.2	1.0
Xiapu (Huizhou)	0.2	0.9	0.9	0.3	0.8	0.7	0.4	1.0	0.9
Xijiao (Huizhou)	0.2	1.1	1.0	0.1	0.5	0.5	0.2	0.7	0.7
Jinguowan (Huizhou)	0.1	0.8	0.7	0.4	0.7	0.7	0.2	0.9	0.7
Zimaling (Zhongshan)	0.4	1.0	1.0	0.4	1.1	1.0	0.3	1.1	1.0
Nanchengyuanling (Dongguan)	0.5	1.2	1.1	0.4	0.9	0.9	0.5	0.9	0.9
Tap Mun (Hong Kong)	0.5	0.8	0.8	0.2	0.8	0.7	0.3	0.8	0.7
Tsuen Wan (Hong Kong)	0.4	0.9	0.9	0.3	0.7	0.7	0.3	0.7	0.7
Yuen Long (Hong Kong)	0.4	0.8	0.8	0.2	0.5	0.5	0.2	0.7	0.6
Tung Chung (Hong Kong)	0.3	0.9	0.8	0.3	0.7	0.7	0.3	0.8	0.8
Taipa Grande (Macao)	0.0	0.8	0.8	0.0	0.6	0.4	0.2	0.6	0.6

Remark : All concentration units are in milligrams per cubic metre (mg/m³).

Table 4.4c : The monthly averages of CO

Monitoring Station	April 2018	May 2018	June 2018
Luhu (Guangzhou)	0.9	0.7	0.8
Modiesha (Guangzhou)	0.8	0.6	0.5
Wanqingsha (Guangzhou)	0.6	0.5	0.5
Tianhu (Guangzhou)	0.5	0.5	0.5
Zhudong (Guangzhou)	0.7	0.5	0.4
Liyuan (Shenzhen)	0.6	0.5*	0.6
Jinjuzui (Foshan)	0.9	0.7	0.7
Huijingcheng (Foshan)	0.7	0.5	0.7
Tangjia (Zhuhai)	0.6	0.6	0.5
Donghu (Jiangmen)	0.8	0.7	0.7
Duanfen (Jiangmen)	0.4	0.3	0.3
Huaguoshan (Jiangmen)	0.7	0.5	0.6
Chengzhong (Zhaoqing)	0.9	0.7	0.8
Xiapu (Huizhou)	0.5	0.5	0.6
Xijiao (Huizhou)	0.5	0.3	0.5
Jinguowan (Huizhou)	0.4	0.5	0.5*
Zimaling (Zhongshan)	0.7	0.6	0.6
Nanchengyuanling (Dongguan)	0.8	0.6	0.7
Tap Mun (Hong Kong)	0.6	0.4	0.5
Tsuen Wan (Hong Kong)	0.6	0.5	0.5
Yuen Long (Hong Kong)	0.6	0.3	0.4
Tung Chung (Hong Kong)	0.5	0.5	0.5
Taipa Grande (Macao)	0.6	0.3	0.4

Remark : All concentration units are in milligrams per cubic metre (mg/m³).

* The capture rate of validated daily data per month is below 85%.

Table 4.5a : The monthly maxima and minima of daily averages of PM₁₀

Monitoring Station	April 2018		May 2018		June 2018	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	22	111	24	60	12	55
Modiesha (Guangzhou)	25	124	27	70	12	68
Wanqingsha (Guangzhou)	21	112	16	50	14	66
Tianhu (Guangzhou)	13	132	20	57	5	70
Zhudong (Guangzhou)	35	138	37	76	10	80
Liyuan (Shenzhen)	31	114	15	50	12	59
Jinjuzui (Foshan)	28	100	19	48	11	62
Huijingcheng (Foshan)	25	104	26	57	17	66
Tangjia (Zhuhai)	19	116	15	65	12	72
Donghu (Jiangmen)	31	199	26	60	20	81
Duanfen (Jiangmen)	16	121	10	52	5	42
Huaguoshan (Jiangmen)	26	150	17	58	10	87
Chengzhong (Zhaoqing)	21	126	25	81	5	99
Xiapu (Huizhou)	16	114	22	61	12	55
Xijiao (Huizhou)	10	99	23	57	7	55
Jinguowan (Huizhou)	26	107	18	62	2	52
Zimaling (Zhongshan)	22	114	19	48	11	72
Nanchengyuanling (Dongguan)	16	114	25	66	11	66
Tap Mun (Hong Kong)	12	98	12	52	12	38
Tsuen Wan (Hong Kong)	17	83	10	38	7	42
Yuen Long (Hong Kong)	16	116	13	39	10	46
Tung Chung (Hong Kong)	8	97	5	38	8	49
Taipa Grande (Macao)	17	150	11	59	10	67

Remark : All concentration units are in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

Table 4.5b : The monthly averages of PM₁₀

Monitoring Station	April 2018	May 2018	June 2018
Luhu (Guangzhou)	64	41	35
Modiesha (Guangzhou)	72	48	38
Wanqingsha (Guangzhou)	54	30	30
Tianhu (Guangzhou)	61	40	28
Zhudong (Guangzhou)	82	50	43
Liyuan (Shenzhen)	55	29*	28
Jinjuzui (Foshan)	59	33	31
Huijingcheng (Foshan)	61	37	36
Tangjia (Zhuhai)	50	26	29
Donghu (Jiangmen)	77	39	38
Duanfen (Jiangmen)	46	22	21
Huaguoshan (Jiangmen)	71	33	35
Chengzhong (Zhaoqing)	70	41	43
Xiapu (Huizhou)	61	43	33
Xijiao (Huizhou)	56	40	31
Jinguowan (Huizhou)	57	38	31*
Zimaling (Zhongshan)	52	28	28
Nanchengyuanling (Dongguan)	65	41	38
Tap Mun (Hong Kong)	40	24	23
Tsuen Wan (Hong Kong)	37	19	18
Yuen Long (Hong Kong)	45	22	21
Tung Chung (Hong Kong)	34	15	19
Taipa Grande (Macao)	54	25	26

Remark : All concentration units are in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

* The capture rate of validated daily data per month is below 85%.

Table 4.6a : The monthly maxima and minima of daily averages of PM_{2.5}

Monitoring Station	April 2018		May 2018		June 2018	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	13	97	15	35	11	49
Modiesha (Guangzhou)	13	54	11	32	5	39
Wanqingsha (Guangzhou)	16	61	10	32	8	42
Tianhu (Guangzhou)	12	54	12	33	3	48
Zhudong (Guangzhou)	19	69	15	38	5	53
Liyuan (Shenzhen)	17	48	10	29	7	45
Jinjuzui (Foshan)	16	63	10	29	7	40
Huijingcheng (Foshan)	15	73	14	34	12	46
Tangjia (Zhuhai)	10	56	8	32	3	49
Donghu (Jiangmen)	16	74	12	38	10	50
Duanfen (Jiangmen)	9	43	5	23	3	23
Huaguoshan (Jiangmen)	15	109	13	36	9	63
Chengzhong (Zhaoqing)	13	84	15	52	10	70
Xiapu (Huizhou)	13	48	11	37	7	36
Xijiao (Huizhou)	8	59	12	36	5	38
Jinguowan (Huizhou)	17	42	10	37	4	30
Zimaling (Zhongshan)	14	42	10	28	10	40
Nanchengyuanling (Dongguan)	17	83	13	35	8	42
Tap Mun (Hong Kong)	8	31	8	29	5	26
Tsuen Wan (Hong Kong)	11	38	5	26	3	31
Yuen Long (Hong Kong)	10	38	3	22	4	28
Tung Chung (Hong Kong)	3	34	2	23	3	31
Taipa Grande (Macao)	11	51	4	30	2	40

Remark : All concentration units are in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

Table 4.6b : The monthly averages of PM_{2.5}

Monitoring Station	April 2018	May 2018	June 2018
Luhu (Guangzhou)	40	25	24
Modiesha (Guangzhou)	34	22*	21
Wanqingsha (Guangzhou)	32	18	18
Tianhu (Guangzhou)	31	23	18
Zhudong (Guangzhou)	39	28	25
Liyuan (Shenzhen)	31	18*	18
Jinjuzui (Foshan)	33	19	18
Huijingcheng (Foshan)	38	23	24
Tangjia (Zhuhai)	28	15	15
Donghu (Jiangmen)	34	19	20
Duanfen (Jiangmen)	22	11	9
Huaguoshan (Jiangmen)	43	23	25
Chengzhong (Zhaoqing)	41	24	27
Xiapu (Huizhou)	32	22	18
Xijiao (Huizhou)	33	25	19
Jinguowan (Huizhou)	30	21	17*
Zimaling (Zhongshan)	27	16	15
Nanchengyuanling (Dongguan)	39	23	22
Tap Mun (Hong Kong)	21	14	12
Tsuen Wan (Hong Kong)	22	13	11
Yuen Long (Hong Kong)	23	10	12
Tung Chung (Hong Kong)	15	7	10
Taipa Grande (Macao)	25	11	11

Remark : All concentration units are in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

* The capture rate of validated daily data per month is below 85%.

Annex A: Site Information of Monitoring Stations

Monitoring Stations	Address	Area Type	Sampling Height (Above P.D.)	Above Ground	Date Commenced Operation
Luhu (Guangzhou)	Jufong Garden of Luhu Park (Big yard, No. 11 Luhu Park)	City	30m	9m	1993
Modiesha (Guangzhou)	Modiesha Street, Haizhu District	City	95m	45m	Dec 2011
Wanqingsha (Guangzhou)	HKUST Fok Ying Tung Research Institute, Nansha	Mixed educational/commercial and residential/industrial	54m	28m	Oct 2004
Tianhu (Guangzhou)	Tianhu Park, Conghua	Background : rural	251m	13m	Oct 2004
Zhudong (Guangzhou)	Zhudong Village Committee, Chini Town, Huadu District	Rural	19m	10m	Dec 2011
Liyuan (Shenzhen)	Shennan Zhong Road, Futian District	City	38m	12m	Sep 1997
Jinjuzui (Foshan)	Foshan City Communist Party School, Jinjuzui, Shunde District	Tourist and cultural /educational	27m	17m	Oct 1999
Huijingcheng (Foshan)	No. 127, Fenjiang Nan Road, Chancheng District	Urban: mixed residential/commercial/industrial	24m	14m	Feb 2000
Tangjia (Zhuhai)	Qiao Island Mangrove Monitoring Station, Tangjia Town	Mixed educational/commercial and residential/industrial	13m	13m	Jan 2010
Donghu (Jiangmen)	Donghu Park, Jiangmen	City	17.5m	5m	Nov 2001
Duanfen (Jiangmen)	Duanfen Middle School, Taishan	Rural	15m	12m	Dec 2011
Huaguoshan (Jiangmen)	Huaguoshan, Taoyuan, Heshan	Rural	25m	15m	Feb 2012
Chengzhong (Zhaoqing)	No. 63, Zhengdong Road, Duanzhou District	Urban: mixed residential/commercial	38m	16m	Jun 2001
Xiapu (Huizhou)	No. 4 Xiabuhengjiang Road No. 3, Huicheng District	Urban: commercial	49m	20m	Dec 1999
Xijiao (Huizhou)	Xijiao Village Committee, Boluo County	Rural	39m	12m	Dec 2011
Jinguowan (Huizhou)	Jinguowan Ecological Farm, Huizhou	Residential	77m	8m	Oct 2004

Monitoring Stations	Address	Area Type	Sampling Height (Above P.D.)	Above Ground	Date Commenced Operation
Zimaling (Zhongshan)	Zimaling Park, Zhongshan	Mixed residential/commercial	45 m	7m	Aug 2002
Nanchengyuanling (Dongguan)	Nanchengyuanling Community, Dongguan	Mixed residential/commercial/industrial	33 m	18m	Sep 2010
Tap Mun (Hong Kong)	Tap Mun Police Station	Background: rural	26m	11m	Apr 1998
Tsuen Wan (Hong Kong)	60 Tai Ho Road, Tsuen Wan	Urban: mixed residential/commercial/industrial	21m	17m	Aug 1988
Yuen Long (Hong Kong)	Yuen Long District Office, 269 Castle Peak Road, Yuen Long	New Town: residential	31m	25m	Jul 1995
Tung Chung (Hong Kong)	6 Fu Tung Street, Tung Chung	New Town: residential	34.5m	27.5m	Apr 1999
Taipa Grande (Macao)	Rampa do Observatorio, Taipa Grande	Rural	120m	10m	Mar 1999

Annex B : Measurement Methods of Air Pollutant Concentration

Pollutants	Measuring Principles
Sulphur dioxide (SO ₂)	UV fluorescence / Differential Optical Absorption Spectroscopy
Nitrogen dioxide (NO ₂)	Chemiluminescence / Differential Optical Absorption Spectroscopy
Ozone (O ₃)	UV absorption / Differential Optical Absorption Spectroscopy
Respirable suspended particulates (PM ₁₀)	Oscillating microbalance (TEOM) / Beta particulate monitor
Fine suspended particulates (PM _{2.5})	Oscillating microbalance (TEOM) / Beta particulate monitor / Hybrid nephelometric / radiometric particulate mass monitor
Carbon monoxide (CO)	Gas filter correlation infrared absorption method / Non-dispersive infrared absorption method