

Contents

	<u>Page</u>
1. Foreword	3
2. Introduction to Guangdong-Hong Kong-Macao Pearl River Delta Regional Air Quality Monitoring Network	3
3. Operation of the Network	4
4. Statistical Results of Pollutant Concentrations	4
Annex A : Site Information of Monitoring Stations	21
Annex B : Measurement Methods of Air Pollutant Concentration	22

List of Tables

	<u>Page</u>
Table 4.1a : The monthly maxima and minima of hourly averages of SO ₂	5
Table 4.1b : The monthly maxima and minima of daily averages of SO ₂	6
Table 4.1c : The monthly averages of SO ₂	7
Table 4.2a : The monthly maxima and minima of hourly averages of NO ₂	8
Table 4.2b : The monthly maxima and minima of daily averages of NO ₂	9
Table 4.2c : The monthly averages of NO ₂	10
Table 4.3a : The monthly maxima and minima of hourly averages of O ₃	11
Table 4.3b : Daily maximum 8-hour averages of O ₃ (the monthly maxima, minima and the 90 th percentile)	12
Table 4.3c : The monthly averages of O ₃	13
Table 4.4a : The monthly maxima and minima of hourly averages of CO	14
Table 4.4b : Daily averages of CO (the monthly maxima, minima and the 95 th percentile)	15
Table 4.4c : The monthly averages of CO	16
Table 4.5a : The monthly maxima and minima of daily averages of PM ₁₀	17
Table 4.5b : The monthly averages of PM ₁₀	18
Table 4.6a : The monthly maxima and minima of daily averages of PM _{2.5}	19
Table 4.6b : The monthly averages of PM _{2.5}	20

List of Figures

	<u>Page</u>
Figure 2.1 : Spatial Distribution of Monitoring Stations in the Network	4

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 and 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 2017. It is the fourteenth report published in the form of a quarterly report and the eleventh 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 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 of these 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 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 2017. The average data capture rate of hourly air pollutant monitoring data measured at all monitoring stations was 96.0%.

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 2017.

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

Monitoring Station	April 2017		May 2017		June 2017	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	5	32	6	61	7	27
Modiesha (Guangzhou)	3	54	3	46	3	27
Wanqingsha (Guangzhou)	8	88	7	117	7	54
Tianhu (Guangzhou)	3	33	2	27	3	21
Zhudong (Guangzhou)	9	88	5	58	4	37
Liyuan (Shenzhen)	6	17	7	27	5	14
Jinjuzui (Foshan)	4	46	4	46	4	53
Huijingcheng (Foshan)	5	99	4	131	0	54
Tangjia (Zhuhai)	1	104	1	55	1	39
Donghu (Jiangmen)	3	40	2	51	3	24
Duanfen (Jiangmen)	3	30	3	30	3	17
Huaguoshan (Jiangmen)	8	152	7	60	7	90
Chengzhong (Zhaoqing)	1	84	5	77	5	46
Xiapu (Huizhou)	4	29	5	39	2	23
Xijiao (Huizhou)	2	49	4	38	4	36
Jinguowan (Huizhou)	5	23	4	42	3	29
Zimaling (Zhongshan)	3	29	4	76	1	15
Nanchengyuanling (Dongguan)	5	63	5	71	5	38
Tap Mun (Hong Kong)	7	29	2	23	2	14
Tsuen Wan (Hong Kong)	3	43	4	54	4	48
Yuen Long (Hong Kong)	8	41	6	73	5	27
Tung Chung (Hong Kong)	8	51	4	77	0	11
Taipa Grande (Macao)	0	71	0	59	0	20

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

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

Monitoring Station	April 2017		May 2017		June 2017	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	7	15	8	21	8	15
Modiesha (Guangzhou)	4	19	3	18	3	11
Wanqingsha (Guangzhou)	11	37	10	38	8	16
Tianhu (Guangzhou)	4	20	3	14	4	12
Zhudong (Guangzhou)	12	43	8	40	6	26
Liyuan (Shenzhen)	6	13	7	14	6	11
Jinjuzui (Foshan)	7	24	5	22	4	16
Huijingcheng (Foshan)	9	34	8	40	8	19
Tangjia (Zhuhai)	4	19	3	13	2	5
Donghu (Jiangmen)	6	20	6	20	5	10
Duanfen (Jiangmen)	3	14	3	16	3	7
Huaguoshan (Jiangmen)	9	41	8	28	10	18
Chengzhong (Zhaoqing)	7	29	7	29	6	19
Xiapu (Huizhou)	5	19	7	20	3	8
Xijiao (Huizhou)	3	12	5	13	5	28
Jinguowan (Huizhou)	6	12	6	13	5	7
Zimaling (Zhongshan)	4	16	5	20	5	9
Nanchengyuanling (Dongguan)	6	25	6	32	7	12
Tap Mun (Hong Kong)	9	15	4	14	3	6
Tsuen Wan (Hong Kong)	5	20	4	22	5	15
Yuen Long (Hong Kong)	8	16	7	26	6	13
Tung Chung (Hong Kong)	9	20	5	29	1	6
Taipa Grande (Macao)	0	11	0	23	0	5

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 2017	May 2017	June 2017
Luhu (Guangzhou)	11	12	10
Modiesha (Guangzhou)	10	9	6
Wanqingsha (Guangzhou)	20	20	11
Tianhu (Guangzhou)	8*	8	7
Zhudong (Guangzhou)	24	23	15
Liyuan (Shenzhen)	8	9	9
Jinjuzui (Foshan)	13	12	10
Huijingcheng (Foshan)	16	16	11
Tangjia (Zhuhai)	8	6	3
Donghu (Jiangmen)	10	12	7
Duanfen (Jiangmen)	7	7	4
Huaguoshan (Jiangmen)	22	17	14
Chengzhong (Zhaoqing)	15	18	12
Xiapu (Huizhou)	8	9	5
Xijiao (Huizhou)	7	8	12
Jinguowan (Huizhou)	7	7	6
Zimaling (Zhongshan)	8	10	7
Nanchengyuanling (Dongguan)	12	14	10
Tap Mun (Hong Kong)	12	7	4*
Tsuen Wan (Hong Kong)	11	9	9
Yuen Long (Hong Kong)	11	11	8
Tung Chung (Hong Kong)	12	11	4
Taipa Grande (Macao)	4	6	1

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 2017		May 2017		June 2017	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	16	175	12	165	12	121
Modiesha (Guangzhou)	7	158	5	170	5	130
Wanqingsha (Guangzhou)	0	126	0	209	0	70
Tianhu (Guangzhou)	0	46	1	67	0	40
Zhudong (Guangzhou)	7	116	4	90	4	78
Liyuan (Shenzhen)	7	76	1	120	6	59
Jinjuzui (Foshan)	6	148	6	114	0	91
Huijingcheng (Foshan)	6	182	3	192	9	102
Tangjia (Zhuhai)	2	118	1	118	3	59
Donghu (Jiangmen)	6	116	1	99	2	67
Duanfen (Jiangmen)	0	61	0	41	0	29
Huaguoshan (Jiangmen)	5	91	3	84	0	77
Chengzhong (Zhaoqing)	3	139	1	142	7	88
Xiapu (Huizhou)	4	139	3	108	1	55
Xijiao (Huizhou)	4	77	0	66	0	39
Jinguowan (Huizhou)	3	75	0	73	4	38
Zimaling (Zhongshan)	1	104	1	101	1	45
Nanchengyuanling (Dongguan)	15	145	3	130	2	118
Tap Mun (Hong Kong)	0	44	0	70	0	45
Tsuen Wan (Hong Kong)	14	182	9	254	9	93
Yuen Long (Hong Kong)	14	127	1	170	3	69
Tung Chung (Hong Kong)	3	121	4	158	5	72
Taipa Grande (Macao)	4	110	3	142	0	53

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 2017		May 2017		June 2017	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	38	90	32	80	23	54
Modiesha (Guangzhou)	27	88	25	86	11	60
Wanqingsha (Guangzhou)	21	69	25	95	10	37
Tianhu (Guangzhou)	9	34	3	32	2	19
Zhudong (Guangzhou)	21	55	18	56	19	36
Liyuan (Shenzhen)	14	47	3	56	8	35
Jinjuzui (Foshan)	17	74	15	62	8	47
Huijingcheng (Foshan)	31	100	22	90	21	67
Tangjia (Zhuhai)	9	65	7	55	6	34
Donghu (Jiangmen)	17	83	12	53	9	41
Duanfen (Jiangmen)	3	42	2	28	1	9
Huaguoshan (Jiangmen)	11	62	12	55	4	53
Chengzhong (Zhaoqing)	11	86	10	66	15	42
Xiapu (Huizhou)	12	62	14	60	11	34
Xijiao (Huizhou)	10	28	7	19	6	21
Jinguowan (Huizhou)	10	40	3	37	8	22
Zimaling (Zhongshan)	2	59	5	46	2	27
Nanchengyuanling (Dongguan)	26	75	16	74	16	60
Tap Mun (Hong Kong)	6	29	2	42	2	15
Tsuen Wan (Hong Kong)	45	91	33	115	26	61
Yuen Long (Hong Kong)	25	66	14	103	14	48
Tung Chung (Hong Kong)	9	69	7	98	9	54
Taipa Grande (Macao)	9	67	10	57	4	31

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 2017	May 2017	June 2017
Luhu (Guangzhou)	58	54	39
Modiesha (Guangzhou)	57	48	35
Wanqingsha (Guangzhou)	38	46	20
Tianhu (Guangzhou)	15*	10	12
Zhudong (Guangzhou)	35	31	25*
Liyuan (Shenzhen)	28	22	22
Jinjuzui (Foshan)	43	37	19
Huijingcheng (Foshan)	58*	54	38
Tangjia (Zhuhai)	32	26	13
Donghu (Jiangmen)	37	32	19
Duanfen (Jiangmen)	16	10	4
Huaguoshan (Jiangmen)	33	29	18*
Chengzhong (Zhaoqing)	36	35	27
Xiapu (Huizhou)	30	23	22
Xijiao (Huizhou)	16	13	13
Jinguowan (Huizhou)	17	13	15
Zimaling (Zhongshan)	24	20	8
Nanchengyuanling (Dongguan)	48	35	33
Tap Mun (Hong Kong)	15	10	6*
Tsuen Wan (Hong Kong)	61	63	46
Yuen Long (Hong Kong)	47	48	27
Tung Chung (Hong Kong)	35	41	19
Taipa Grande (Macao)	35	33	10

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 2017		May 2017		June 2017	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	2	303	3	287	3	217
Modiesha (Guangzhou)	0	256	3	261	2	188
Wanqingsha (Guangzhou)	4	291	5	436	5	115
Tianhu (Guangzhou)	5	243	3	216	5	232
Zhudong (Guangzhou)	5	290	4	326	5	209
Liyuan (Shenzhen)	5	238	5	355	4	104
Jinjuzui (Foshan)	4	324	4	326	4	215
Huijingcheng (Foshan)	0	354	2	341	3	218
Tangjia (Zhuhai)	19	177	13	220	9	82
Donghu (Jiangmen)	1	294	2	343	2	127
Duanfen (Jiangmen)	5	207	9	301	5	101
Huaguoshan (Jiangmen)	3	249	3	352	3	184
Chengzhong (Zhaoqing)	2	197	2	238	5	178
Xiapu (Huizhou)	3	251	3	217	3	171
Xijiao (Huizhou)	2	293	3	250	2	235
Jinguowan (Huizhou)	1	292	2	197	2	143
Zimaling (Zhongshan)	4	268	5	359	2	129
Nanchengyuanling (Dongguan)	1	327	2	270	1	256
Tap Mun (Hong Kong)	1	213	5	332	2	99
Tsuen Wan (Hong Kong)	1	147	1	239	2	50
Yuen Long (Hong Kong)	0	193	1	263	2	82
Tung Chung (Hong Kong)	13	195	11	364	1	81
Taipa Grande (Macao)	11	217	10	380	10	76

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 2017			May 2017			June 2017		
	Min	Max	90 th per	Min	Max	90 th per	Min	Max	90 th per
Luhu (Guangzhou)	9	222	159	34	254	208	10	163	115
Modiesha (Guangzhou)	8	191	167	36	222	187	15	156	112
Wanqingsha (Guangzhou)	30	242	181	31	326	262	34	91	74
Tianhu (Guangzhou)	32	199	142	62	200	144	39	192	135
Zhudong (Guangzhou)	19	251	173	49	270	211	31	165	147
Liyuan (Shenzhen)	24	182	159	27	220	177	17	75	53
Jinjuzui (Foshan)	13	258	183	21	276	228	15	158	103
Huijingcheng (Foshan)	8	261	172	25	292	213	9	153	116
Tangjia (Zhuhai)	51	153	134	39	192	150	39	73	64
Donghu (Jiangmen)	13	233	168	31	297	253	28	100	82
Duanfen (Jiangmen)	16	196	163	41	265	206	44	73	68
Huaguoshan (Jiangmen)	14	204	175	40	315	243	22	113	90
Chengzhong (Zhaoqing)	13	162	145	35	188	149	36	124	107
Xiapu (Huizhou)	19	228	178	48	175	143	28	133	109
Xijiao (Huizhou)	25	246	170	50	199	171	45	179	149
Jinguowan (Huizhou)	22	239	180	47	174	146	36	126	86
Zimaling (Zhongshan)	21	227	177	23	286	274	31	106	78
Nanchengyuanling (Dongguan)	13	263	167	26	227	179	44	194	124
Tap Mun (Hong Kong)	26	190	172	41	252	185	38	85	70
Tsuen Wan (Hong Kong)	7	141	115	16	188	113	10	39	32
Yuen Long (Hong Kong)	19	151	129	20	198	159	12	65	44
Tung Chung (Hong Kong)	21	160	144	30	287	197	7	72	69
Taipa Grande (Macao)	19	186	148	36	273	192	37	69	56

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 2017	May 2017	June 2017
Luhu (Guangzhou)	42	64	38
Modiesha (Guangzhou)	46	62	34
Wanqingsha (Guangzhou)	59	84	40
Tianhu (Guangzhou)	74*	84	63
Zhudong (Guangzhou)	53*	78	53*
Liyuan (Shenzhen)	64	79	29
Jinjuzui (Foshan)	55	77	43
Huijingcheng (Foshan)	49	73	39
Tangjia (Zhuhai)	65	67	43
Donghu (Jiangmen)	55	81	36
Duanfen (Jiangmen)	67	84	46
Huaguoshan (Jiangmen)	54	75	37
Chengzhong (Zhaoqing)	39	59	44
Xiapu (Huizhou)	67	76	39
Xijiao (Huizhou)	65	70	49
Jinguowan (Huizhou)	69	76	36
Zimaling (Zhongshan)	63	88	45
Nanchengyuanling (Dongguan)	54	71	43
Tap Mun (Hong Kong)	76	93	39*
Tsuen Wan (Hong Kong)	41	54	16
Yuen Long (Hong Kong)	43	58	23
Tung Chung (Hong Kong)	60	80	38
Taipa Grande (Macao)	65	85	43

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 2017		May 2017		June 2017	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	0.4	1.6	0.3	1.9	0.5	1.4
Modiesha (Guangzhou)	0.0	1.3	0.2	2.0	0.2	1.5
Wanqingsha (Guangzhou)	0.4	1.3	0.1	1.5	0.2	1.1
Tianhu (Guangzhou)	0.3	1.4	0.4	1.0	0.3	1.1
Zhudong (Guangzhou)	0.2	1.4	0.3	1.5	0.1	1.4
Liyuan (Shenzhen)	0.5	1.2	0.6	1.5	0.5	1.5
Jinjuzui (Foshan)	0.6	1.6	0.5	2.0	0.3	1.6
Huijingcheng (Foshan)	0.2	1.4	0.2	1.5	0.2	1.3
Tangjia (Zhuhai)	0.3	1.4	0.3	1.3	0.3	0.7
Donghu (Jiangmen)	0.4	1.8	0.4	2.0	0.3	1.4
Duanfen (Jiangmen)	0.2	1.2	0.2	1.6	0.1	0.8
Huaguoshan (Jiangmen)	0.1	2.0	0.0	1.7	0.0	1.4
Chengzhong (Zhaoqing)	0.2	2.1	0.6	2.0	0.4	1.5
Xiapu (Huizhou)	0.5	1.5	0.6	1.8	0.1	1.2
Xijiao (Huizhou)	0.3	1.2	0.3	1.2	0.2	1.0
Jinguowan (Huizhou)	0.3	1.1	0.5	1.2	0.1	1.3
Zimaling (Zhongshan)	0.3	1.5	0.4	1.6	0.1	1.1
Nanchengyuanling (Dongguan)	0.2	1.5	0.5	1.6	0.4	1.6
Tap Mun (Hong Kong)	0.1	1.1	0.2	1.1	0.2	0.6
Tsuen Wan (Hong Kong)	0.6	1.6	0.5	1.7	0.4	1.1
Yuen Long (Hong Kong)	0.5	1.5	0.1	1.5	0.1	0.8
Tung Chung (Hong Kong)	0.3	1.5	0.3	1.7	0.3	0.9
Taipa Grande (Macao)	0.4	1.6	0.4	1.4	0.4	0.9

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 2017			May 2017			June 2017		
	Min	Max	95 th per	Min	Max	95 th per	Min	Max	95 th per
Luhu (Guangzhou)	0.6	1.2	1.2	0.5	1.2	0.9	0.6	1.0	1.0
Modiesha (Guangzhou)	0.2	1.0	1.0	0.3	1.4	1.1	0.3	1.0	1.0
Wanqingsha (Guangzhou)	0.5	1.0	0.9	0.5	1.2	1.1	0.4	0.9	0.8
Tianhu (Guangzhou)	0.4	0.9	0.8	0.5	0.9	0.8	0.4	0.9	0.9
Zhudong (Guangzhou)	0.4	1.0	0.8	0.5	0.9	0.8	0.3	1.0	1.0
Liyuan (Shenzhen)	0.6	1.0	1.0	0.7	1.2	1.1	0.6	1.1	0.9
Jinjuzui (Foshan)	0.7	1.3	1.3	0.7	1.4	1.3	0.4	1.1	1.1
Huijingcheng (Foshan)	0.4	1.1	0.9	0.4	0.9	0.9	0.3	0.9	0.9
Tangjia (Zhuhai)	0.4	0.9	0.9	0.4	1.0	1.0	0.3	0.6	0.6
Donghu (Jiangmen)	0.6	1.3	1.2	0.5	1.3	1.1	0.5	0.9	0.9
Duanfen (Jiangmen)	0.3	0.9	0.8	0.3	0.9	0.8	0.2	0.5	0.4
Huaguoshan (Jiangmen)	0.4	1.0	0.8	0.4	1.2	1.2	0.4	0.9	0.8
Chengzhong (Zhaoqing)	0.6	1.4	1.3	0.7	1.2	1.1	0.5	1.1	1.1
Xiapu (Huizhou)	0.6	1.1	1.0	0.7	1.4	1.2	0.4	0.7	0.7
Xijiao (Huizhou)	0.5	0.8	0.8	0.4	0.7	0.7	0.4	0.6	0.6
Jinguowan (Huizhou)	0.4	1.1	1.0	0.5	0.9	0.8	0.4	0.8	0.8
Zimaling (Zhongshan)	0.5	1.0	0.9	0.6	1.1	1.0	0.4	0.8	0.8
Nanchengyuanling (Dongguan)	0.5	1.1	1.0	0.6	1.2	1.1	0.5	1.1	1.0
Tap Mun (Hong Kong)	0.1	0.8	0.7	0.3	1.0	0.8	0.3	0.6	0.5
Tsuen Wan (Hong Kong)	0.7	1.2	1.1	0.7	1.2	1.2	0.5	0.7	0.7
Yuen Long (Hong Kong)	0.6	1.1	1.1	0.2	1.1	1.0	0.2	0.5	0.4
Tung Chung (Hong Kong)	0.4	1.0	1.0	0.3	1.0	0.9	0.4	0.7	0.6
Taipa Grande (Macao)	0.4	1.0	1.0	0.4	1.1	0.9	0.4	0.7	0.7

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

Table 4.4c : The monthly averages of CO

Monitoring Station	April 2017	May 2017	June 2017
Luhu (Guangzhou)	0.8	0.8	0.8
Modiesha (Guangzhou)	0.6	0.8	0.6
Wanqingsha (Guangzhou)	0.7	0.8	0.6
Tianhu (Guangzhou)	0.6*	0.7	0.6
Zhudong (Guangzhou)	0.6	0.7	0.6
Liyuan (Shenzhen)	0.8	0.8	0.7
Jinjuzui (Foshan)	1.0	1.0	0.8
Huijingcheng (Foshan)	0.7	0.6	0.5
Tangjia (Zhuhai)	0.6	0.6	0.4
Donghu (Jiangmen)	0.8	0.8	0.7
Duanfen (Jiangmen)	0.6	0.5	0.3
Huaguoshan (Jiangmen)	0.6	0.8	0.5
Chengzhong (Zhaoqing)	0.9	0.9	0.7
Xiapu (Huizhou)	0.9	0.9	0.6
Xijiao (Huizhou)	0.6	0.6	0.5
Jinguowan (Huizhou)	0.7	0.7	0.6
Zimaling (Zhongshan)	0.7	0.8	0.6
Nanchengyuanling (Dongguan)	0.8	0.8	0.8
Tap Mun (Hong Kong)	0.4	0.6	0.4*
Tsuen Wan (Hong Kong)	0.9	0.9	0.6
Yuen Long (Hong Kong)	0.9	0.5	0.3
Tung Chung (Hong Kong)	0.6	0.6	0.5
Taipa Grande (Macao)	0.6	0.7	0.5

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 2017		May 2017		June 2017	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	20	107	27	127	24	52
Modiesha (Guangzhou)	20	111	24	133	27	54
Wanqingsha (Guangzhou)	13	86	14	137	11	36
Tianhu (Guangzhou)	18	76	10	77	13	43
Zhudong (Guangzhou)	23	85	25	103	31	58
Liyuan (Shenzhen)	19	63	15	66	12	32
Jinjuzui (Foshan)	23	83	25	114	21	39
Huijingcheng (Foshan)	26	121	30	114	25	63
Tangjia (Zhuhai)	16	58	12	81	11	34
Donghu (Jiangmen)	33	123	21	155	24	58
Duanfen (Jiangmen)	22	69	17	89	10	33
Huaguoshan (Jiangmen)	28	136	20	123	18	72
Chengzhong (Zhaoqing)	20	118	20	116	24	52
Xiapu (Huizhou)	17	98	24	70	14	51
Xijiao (Huizhou)	12	70	17	64	11	43
Jinguowan (Huizhou)	18	88	18	74	9	58
Zimaling (Zhongshan)	23	62	13	94	11	29
Nanchengyuanling (Dongguan)	21	81	24	107	21	52
Tap Mun (Hong Kong)	18	66	13	55	9	28
Tsuen Wan (Hong Kong)	17	56	13	105	3	30
Yuen Long (Hong Kong)	18	57	16	88	10	29
Tung Chung (Hong Kong)	11	50	10	115	6	27
Taipa Grande (Macao)	19	70	14	122	5	31

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 2017	May 2017	June 2017
Luhu (Guangzhou)	55	56	35
Modiesha (Guangzhou)	65	62	40
Wanqingsha (Guangzhou)	50	48	21
Tianhu (Guangzhou)	41*	38	29
Zhudong (Guangzhou)	59	57	40*
Liyuan (Shenzhen)	39	34	18
Jinjuzui (Foshan)	53	51	29
Huijingcheng (Foshan)	62	58	37
Tangjia (Zhuhai)	40	40	20
Donghu (Jiangmen)	63	65	35
Duanfen (Jiangmen)	38	38	21
Huaguoshan (Jiangmen)	66	64	32
Chengzhong (Zhaoqing)	63	60	38
Xiapu (Huizhou)	54	48	32
Xijiao (Huizhou)	40	40	30
Jinguowan (Huizhou)	48	47	25
Zimaling (Zhongshan)	40	40	18
Nanchengyuanling (Dongguan)	53	53	31
Tap Mun (Hong Kong)	36	29	17
Tsuen Wan (Hong Kong)	34	33	16
Yuen Long (Hong Kong)	41	36	17
Tung Chung (Hong Kong)	30	29	13
Taipa Grande (Macao)	45	43	14

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 2017		May 2017		June 2017	
	Min	Max	Min	Max	Min	Max
Luhu (Guangzhou)	11	69	11	79	10	29
Modiesha (Guangzhou)	6	59	12	83	10	27
Wanqingsha (Guangzhou)	12	57	11	106	6	19
Tianhu (Guangzhou)	13	47	7	47	8	30
Zhudong (Guangzhou)	13	64	17	80	16	47
Liyuan (Shenzhen)	15	34	12	49	7	21
Jinjuzui (Foshan)	11	50	16	84	12	27
Huijingcheng (Foshan)	19	82	19	87	13	39
Tangjia (Zhuhai)	8	34	6	63	4	15
Donghu (Jiangmen)	13	62	12	76	5	29
Duanfen (Jiangmen)	10	39	1	67	3	12
Huaguoshan (Jiangmen)	18	115	17	99	12	56
Chengzhong (Zhaoqing)	4	75	10	78	9	39
Xiapu (Huizhou)	9	61	11	40	7	22
Xijiao (Huizhou)	8	50	10	46	12	32
Jinguowan (Huizhou)	7	52	10	36	7	20
Zimaling (Zhongshan)	14	41	12	66	6	18
Nanchengyuanling (Dongguan)	16	68	15	70	12	25
Tap Mun (Hong Kong)	11	39	7	41	4	19
Tsuen Wan (Hong Kong)	11	39	10	84	2	15
Yuen Long (Hong Kong)	13	30	8	50	6	15
Tung Chung (Hong Kong)	5	31	5	88	2	11
Taipa Grande (Macao)	4	39	3	79	0	8

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 2017	May 2017	June 2017
Luhu (Guangzhou)	32	33	17
Modiesha (Guangzhou)	32	33*	18*
Wanqingsha (Guangzhou)	32	35	12
Tianhu (Guangzhou)	26*	25	17
Zhudong (Guangzhou)	39*	44	27*
Liyuan (Shenzhen)	25	24	11
Jinjuzui (Foshan)	32	33	17
Huijingcheng (Foshan)	38	40	21
Tangjia (Zhuhai)	23	24	8
Donghu (Jiangmen)	34	35	16
Duanfen (Jiangmen)	22	23	7
Huaguoshan (Jiangmen)	52	52	21
Chengzhong (Zhaoqing)	36	35	19
Xiapu (Huizhou)	28	27	15
Xijiao (Huizhou)	29	30	20*
Jinguowan (Huizhou)	27	23	13
Zimaling (Zhongshan)	27	29	10
Nanchengyuanling (Dongguan)	36	36	18
Tap Mun (Hong Kong)	22	19	9
Tsuen Wan (Hong Kong)	23	24	8
Yuen Long (Hong Kong)	21	20	10
Tung Chung (Hong Kong)	17	19	6
Taipa Grande (Macao)	23	22	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%.

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