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Alchmex – Paul Y Joint Venture

Central Kowloon Route Contract HY/2018/02

Section of Kai Tak East

Baseline Monitoring Report

Rev. 2

	Name	Signature
Prepared by	Andy H. M. Wong	
Checked & Reviewed by	Nelson T. H. Tsui	
Approved & Certified by	Kevin W. M. Li	

路政署
HIGHWAYS DEPARTMENT
主要工程管理處
MAJOR WORKS PROJECT MANAGEMENT OFFICE

ERM

Environmental Permit No. FEP-01/457/2013/C

Central Kowloon Route

Independent Environmental Checker Verification

Works Contract:	**Kai Tak East (HY/2014/02)**

Reference Document/Plan

Document/~~Plan~~ to be ~~Certified~~/ Verified:	Baseline Monitoring Report
Date of Report:	- (Rev. 2)
Date received by IEC:	19 August 2019

Reference EP Condition

Environmental Permit Condition: 3.3

Environmental Monitoring and Audit (EM&A) Requirements

3.3 Four hard copies and one electronic copy of the Baseline Monitoring Report shall be submitted to the Director at least 2 weeks before the commencement of construction of the Project. The submissions shall be certified by the ET Leader and verified by the IEC as complied with the requirements as set out in the EM&A Manual before submission to the Director. Additional copies of the submission shall be provided upon request by the Director.

IEC Verification

I hereby verify that the above referenced document/~~plan~~ complies with the above referenced condition of FEP-01/457/2013/C.

Ms Mandy To Date: 20 August 2019

Independent Environmental Checker

Our ref: 0436942_IEC Verification Cert_KTE_Baseline Monitoring Report_20190820.docx

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LIST OF APPENDICES

EXECUTIVE SUMMARY

A.1 Pursuant to the Environmental Impact Assessment (EIA) Ordinance, the Director of Environmental Protection (DEP) granted the Environmental Permit (No. EP- 457/2013) to the Highway Department (HyD) on 9 August 2013. EP should be for the construction and operation of the Central Kowloon Route ("The Project"). Variations of EP (VEP) was subsequently applied for and the latest EP (EP-457/2013/C) was issued by EPD on 16 January 2017. A Further EP (FEP-02/457/2013/C) was issued by EPD on 5 March 2018. Alchmex – Paul Y Joint Venture ("JV") was appointed to construct the civil works for Kai Tak East Contract No. HY/2018/02 as a part of the Project.

A.2 Upon the requirement of the Environmental Permit (EP), the Baseline Monitoring Report shall be submitted to the DEP at least two weeks before the commencement of construction of the Project. The submissions shall be certified by the Environmental Team (ET) Leader, verified by the Independent Environmental Checker (IEC) and complied with the requirements set out in the Environmental Monitoring and Audit (EM&A) Manual before submission to the DEP as stipulated in Condition 3.3 of the EP.

A.3 For the EP stipulation, baseline monitoring for continuous air was conducted from 24 July 2019 to 7 August 2019. The monitoring on 31 July 2019 was cancelled due to adverse weather condition. During the baseline monitoring period, no construction activities under the Project were observed.

A.4 Results of the baseline monitoring for air quality are given in Table A as follows:

Table A – Baseline Monitoring Results (Dust)

Location	Dust in $\mu g/m^3$			
	Average		Range	
	TSP-1hr	TSP-24hr	TSP-1hr	TSP-24hr
E-A1	44	19	33-54	8-53

1. PROJECT BACKGROUND

1.1 Central Kowloon Route (CKR) ("The Project") is a 4.7 km long dual 3-lane trunk road in Central Kowloon linking Yau Ma Tei Interchange in West Kowloon with the road network on Kai Tak Development and Kowloon Bay in East Kowloon.

1.2 The Central Kowloon Route – Design and Construction Environmental Impact Assessment Report (Register No.: AEIAR-171/2013) was approved with conditions by the Environmental Protection Department (EPD) on 11 July 2013. An Environmental Permit (EP 457/2013) was issued on 9 August 2013. Variations of EP (VEP) was subsequently applied for and the latest EP (EP-457/2013/C) was issued by EPD on 16 January 2017. A Further EP (FEP-02/457/2013/C) was issued by EPD on 5 March 2018.

1.3 Upon the requirement of the Environmental Permit (EP), a Baseline Monitoring Report shall be submitted to the DEP at least two weeks before the commencement of construction of the Project. The submissions shall be certified by the Environmental Team (ET) Leader, verified by the Independent Environmental Checker (IEC) and complied with the requirements set out in the Environmental Monitoring and Audit (EM&A) Manual before submission to the DEP as stipulated in Condition. 3.3 of the EP.

2. OBJECTIVES

2.1 According to the approved EM&A Manual, air quality baseline monitoring is required to establish ambient conditions before construction work commencement and to demonstrate the suitability of the recommended monitoring stations.

2.2 This report presents the monitoring results, the process and rationale behind determining a set of Action and Limit Levels (A/L Levels) of construction air quality based on the baseline data. These A/L Levels will serve as the yardsticks for assessing the acceptability of the environmental impact during construction phase of the Project Works impact monitoring. They are statistical in nature and derived according to the criteria set out in the approved EM&A Manual.

3. BASELINE MONITROING REQUIREMENTS

3.1 The EM&A requirements for baseline monitoring are set out in the approved EM&A Manual. Environmental aspects such as the construction dust was identified as the key issues during the construction phase of the Project.

Air Quality

3.2 Baseline monitoring for air quality had been carried out in accordance with Sections 5.7 of the approved EM&A Manual to determine the ambient 1-hour and 24-hour total suspended particulates (TSP) levels at the monitoring location prior to the commencement of the Project works. TSP baseline monitoring had been carried out for 14 consecutive days. 1-hour TSP sampling had been done 3 times per day at the monitoring station when the highest dust impacts are expected. 24-hour sampling had been done for 24-hour a day for 14 consecutive days during baseline monitoring. General meteorological conditions (wind speed, direction and precipitation) and notes regarding any significant adjacent dust producing sources had also been recorded throughout the baseline monitoring period.

3.3 A summary of baseline monitoring programme is presented in Table 3.1.

Table 3.1: Summary of Baseline Monitoring Programme

Baseline Monitoring	Duration	Sampling Parameter	Frequency
Air Quality	14 consecutive days prior to commencement of major construction	1-hour TSP	3 times per day
Air Quality	14 consecutive days prior to commencement of major construction	24-hour TSP	Daily

4. MONITORING LOCATIONS

Air Quality

4.1 In order to identify and seek for the access of the air monitoring location designated in the EM&A Manual, site visit was conducted by ET.

4.2 During the site visit, air monitoring station Hong Kong International Trade and Exhibition Centre had been recommended in the approved EM&A Manual and approved by IEC. A designated air monitoring location was identified and agreed with IEC and EPD. Details of air monitoring station is described in Table 4.1. The location plan of air quality monitoring station is shown in Appendix A. The monitoring location of E-A1 and the set-up of measurement for 1-hour and 24-hout TSP are shown in Figure 4.1 and Figure 4.2.

Table 4.1: Description of the Air Quality Monitoring Station

Air Monitoring Station ID	Description
E-A1	Hong Kong International Trade and Exhibition Centre

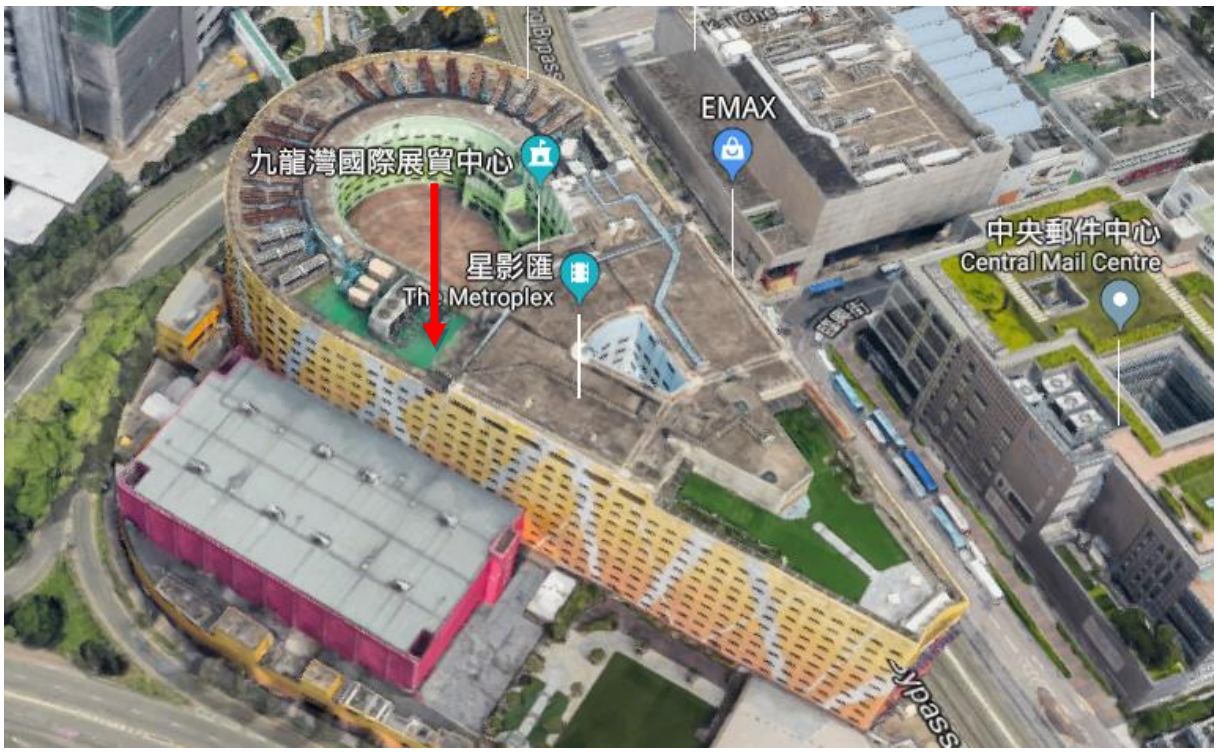


Figure 4.1: Location of E-A1 Hong Kong International Trade and Exhibition Centre

Figure 4.2: Set-up of measurement for 1-hour and 24-hour TSP

5. MONITORING EQUIPMENT

Air Quality

5.1 1-hour TSP levels and 24-hour TSP had been measured with direct reading dust meters and High Volume Samplers respectively. Sibata Digital Dust Indicator Model LD-5R (Serial No. 882110) was used to measure 1-hour TSP and Tisch TE 5170 High Volume Air Sampler (Serial No. 1050) was used to measure 24-hour TSP. It has been demonstrated its capability in achieving comparable results with high volume sampling method as set out in the *Title 40 of the Code of Federal Regulations, Chapter 1 (Part 50).*

5.2 The 1-hour TSP meters were calibrated by the manufacturer prior to purchasing. Zero response of the instrument was checked before and after each monitoring event. Operation of the 1-hour TSP meter followed manufacturer's Operation and Service Manual. A copy of valid calibration certificates are attached in Appendix B.

5.3 The 24-hour TSP meters were calibrated against calibration kit fortnightly. Operation of the 24-hour TSP meters followed manufacturer's Operation and Service Manual. A copy of valid calibration certificates are attached in Appendix B.

6. BASELINE MONITORING METHODOLOGY

6.1 The baseline monitoring program for continuous air quality was conducted from 24 July 2019 to 7 August 2019. The monitoring on 31 July 2019 was cancelled due to adverse weather condition. During the baseline monitoring period, no construction activities under the Project was observed.

Air Quality

6.2 The 1-hour TSP monitor, portable dust meter (Sibata Digital Dust Indicator Model LD-5R) was used for baseline monitoring. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90^{o} light scattering. Three 1-hour TSP level were logged per day during daytime.

6.3 The 24-hour TSP monitor, High Volume Sampler (Tisch TE 5170 High Volume Air Sampler) was used for baseline monitoring. The 24-hour TSP monitoring consists of the following::

- The HVS was set at the monitoring location, with electricity supply connected and secured;
- HVS was calibrated before commencing the 1^{st} measurement;
- The filter paper was weight and provided by HOKLAS lab (Acumen Environmental Engineering and Technologies Company Limited and ALS Technichem (HK) Pty Ltd) before and after the sampling. Certificate of HOKLAS accredited laboratory can be referred to Appendix C;
- The airflow over time during sampling process was recorded by the HVS.

7. BASELINE MONITORING RESULTS

7.1 The baseline monitoring schedules are presented in Appendix D.

Air Quality

7.2 Baseline air quality monitoring was carried out from 24 July 2019 to 7 August 2019. The monitoring on 31 July 2019 was cancelled due to adverse weather condition. The results for 1-hour TSP and 24-hour TSP are summarized in Table 7.1 and Table 7.2. Detailed results of dust monitoring are presented in Appendix E. The major source affecting the air quality was observed to be the busy traffic nearby.

Table 7.1: Summary of 1-hour TSP Monitoring Results

Monitoring Location	Average($\mu g/m^3$)	Range($\mu g/m^3$)
E-A1	44	33-54

Table 7.2: Summary of 24-hour TSP Monitoring Results

Monitoring Location	Average($\mu g/m^3$)	Range($\mu g/m^3$)
E-A1	19	8-53

Action/Limit Level for Air Quality

7.3 The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. A summary of determination of Action/Limit (A/L) Levels for air quality are shown in Tables 7.3.

Table 7.3 - Determination of Action and Limit Levels for Air Quality

Parameter	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
1-hour TSP ($\mu g/m^3$)	For Baseline Level $\leq$384 $\mu g/m^3$ Action Level= (Baseline Level * 1.3 + Limit Level)/2 For baseline level >384 $\mu g/m^3$ Action Level = Limit Level	500
24-hour TSP ($\mu g/m^3$)	For baseline level $\leq$200 $\mu g/m3$, Action level = (baseline level *1.3 + Limit level)/2; For baseline level > 200 $\mu g/m3$, Action level = Limit level	260

7.4 Following the criteria shown in Table 7.3 of this report, the proposed Action and Limit Levels for 1-hour TSP and 24- hour TSP are listed in Table 7.4.

Table 7.4: Action and Limit Levels for Air Quality Monitoring

Monitoring Location	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
	1-Hour	1-Hour	24-Hour	24-Hour
E-A1	279	500	142	260

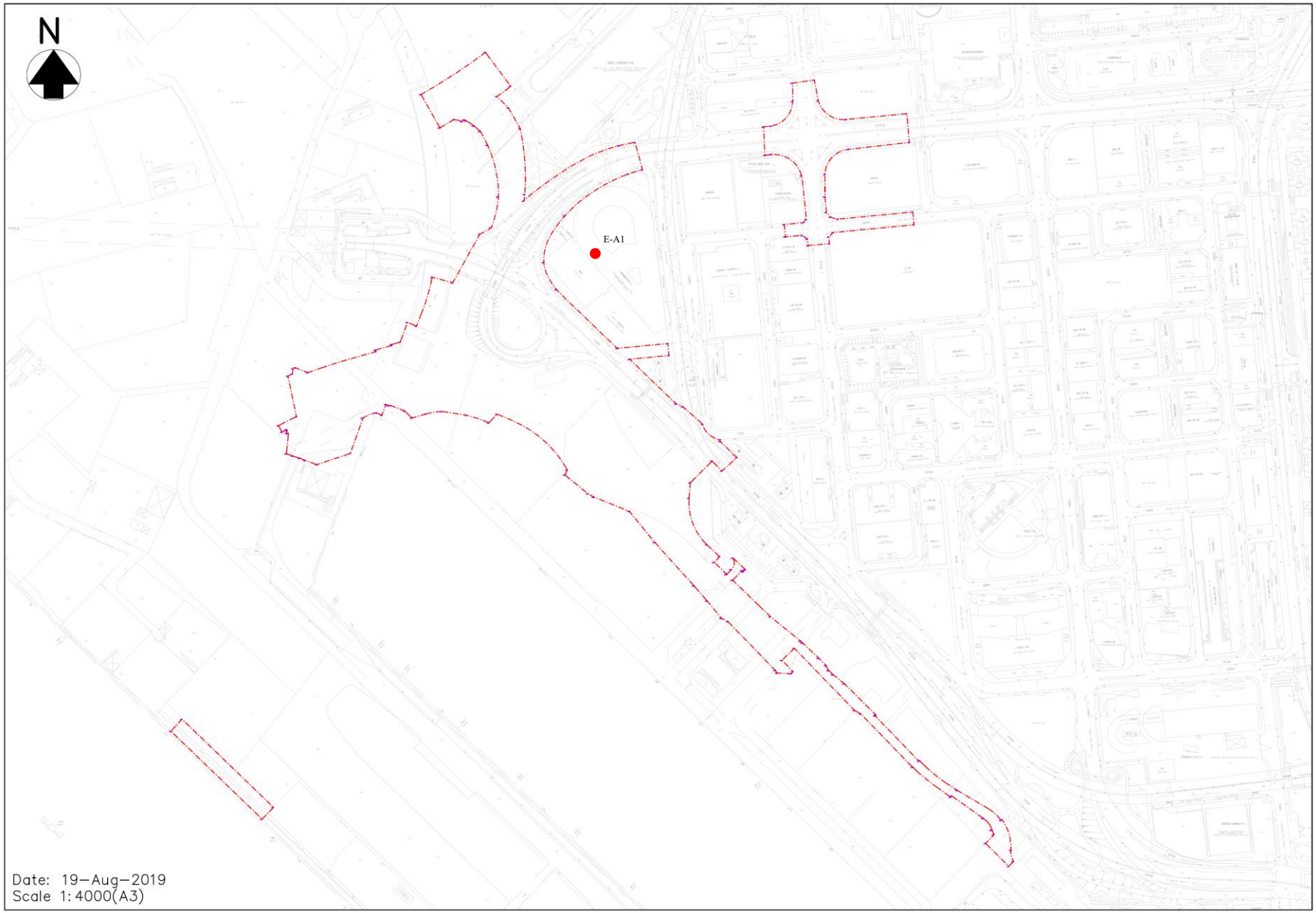
8. CONCLUSIONS

8.1 The baseline monitoring program of continuous dust was conducted from 24 July 2019 to 7 August 2019 in accordance with the approved EM&A Manual. The monitoring on 31 July 2019 was cancelled due to adverse weather condition. During the baseline monitoring period, no construction activities under the Project was observed.

8.2 During the site visit, air monitoring station Hong Kong International Trade and Exhibition Centre had been recommended in the approved EM&A Manual and approved by IEC.

8.3 The air quality monitoring results, in terms of 1-hr TSP and 24-hr TSP, were below the Limit Level set out in the EIAO-TM and Air Quality Objective (AQO) at E-A1.

Appendix A
Location Plan of Dust Monitoring Station


N
E-A1
Date: 19-Aug-2019
Scale 1:4000(A3)

Appendix B
Calibration Certificates
(Air Monitoring)

SIBATA

SIBATA SCIENTIFIC TECHNOLOGY LTD.
1-1-62, Nakane, Soka, Saitama, 340-0005 Japan
TEL : 048-933-1582 FAX : 048-933-1591

CALIBRATION CERTIFICATE

Date: September 11, 2018

Equipment Name	:	Digital Dust Indicator, Model LD-5R
Code No.	:	080000-72
Quantity	:	1 unit
Serial No.	:	882110
Sensitivity	:	0.001 mg/m3
Sensitivity Adjustment	:	654CPM
Scale Setting	:	August 27, 2018

We hereby certify that the above mentioned instrument has been calibrated satisfactory.

Sincerely

SIBATA SCIENTIFIC TECHNOLOGY LTD.

Tong Zhang

Tong Zhang
Overseas Sales Division

浩科環境工業有限公司
Acumen Environmental Engineering & Technologies Co., Ltd.
香港青衣(北)担杆山路12號地段
Lot 12, Tam Kon Shan Road, Tsing Yi (N), Hong I
(852) 2333-6823 www.acumenhk.com
(852) 2333-1316

Our Ref.: AL18-545-001-R1 11 September,2018

Calibration and Performance Check

Instrument Information

Instrument Model:	Digital Dust Indicator, Model LD-5R
Instrument Serial Number:	882110
Instrument Description:	Digital Dust Indicator
Sensitivity:	0.001 mg/m^3

Test Condition

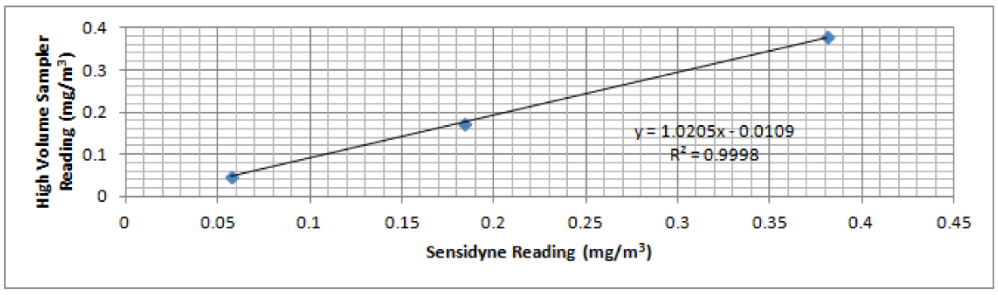
Room Temperature	24.6 ˚C
Relative Humidity	57.8 %

Test Specification

1. Instruction and Operation Manual of Mass Flow Controlled TSP High Volume Sampler, TE-5170 with Calibration Kit, TE-5025A, S/N :3465
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with the calibrated Mass Flow Controlled TSP High Volume Sampler and the result was used to produce the Correlation Factor ["CF"] between the Mass Flow Controlled TSP High Volume Sampler and the Laser Dust Monitor.

Results

Instrument	*Reading (1)*	*Reading (2)*	*Reading (3)*
Model LD-5R Reading (mg/m^3)	0.381	0.183	0.057
High Volume Sampler Reading (mg/m^3)	0.379	0.173	0.049



Calibrated by:

Hui WF
Laboratory Manager
Environmental Division

InnoTech Instrumentation Co. Ltd.
創 新 科 儀 有 限 公 司

HIVOL SAMPLER CALIBRATION DATA SHEET (TSP)

Site Information

Location:	Emax	Site ID:		Date:	24-Jul-2019
Serial No:	1050	Model:	TE-5170X	Operator:	Polar Chan

Ambient Condition

Corrected Pressure (mm Hg):	760.0	Temperature (deg K):	298.2

Calibration Orifice

Model:	TE-5025	Slope:	2.08653
Serial No.:	3465	Intercept:	-0.03834
Calibration Due Date:	22-Jan-20	Corr. Coeff:	0.99989

Calibration Data

Plate or Test #	In,H2O (in)	Qa, X-Axis (m3/min)	I, CFM (chart)	IC, Y-Axis (corrected)
1	1.70	0.643	32.1	32.09
2	2.80	0.820	34.5	34.49
3	3.20	0.875	35.3	35.29
4	3.40	0.902	35.6	35.59
5	3.40	0.902	35.6	35.59

Sampler Calibtation Relationship (Qa on x-axis, IC on y-axis)

m= 13.5774 b= 23.3625 Corr. Coeff= 0.9999

Sampler set point(SSP) 40 CFM

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
(1.21*m+b)/[Sqrt(298/Tav)(Pav/760)]

m = sampler slope
b = sampler intercept
I = chart response
Tav = average temperature
Pav = average pressure

Checked by: _____ Date: 24-Jul-19

InnoTech Instrumentation Co. Ltd.
創 新 科 儀 有 限 公 司

HIVOL SAMPLER CALIBRATION DATA SHEET (TSP)

Site Information

Location:	Emax	Site ID:		Date:	07-Aug-2019
Serial No:	1050	Model:	TE-5170X	Operator:	Polar Chan

Ambient Condition

Corrected Pressure (mm Hg):	750.6	Temperature (deg K):	302.3

Calibration Orifice

Model:	TE-5025	Slope:	2.08653
Serial No.:	3465	Intercept:	-0.03834
Calibration Due Date:	22-Jan-20	Corr. Coeff:	0.99989

Calibration Data

Plate or Test #	In,H2O (in)	Qa, X-Axis (m3/min)	I, CFM (chart)	IC, Y-Axis (corrected)
1	1.62	0.620	31.9	31.48
2	2.75	0.803	34.4	33.94
3	3.05	0.844	35.0	34.53
4	3.30	0.877	35.4	34.93
5	3.40	0.890	35.6	35.13

Sampler Calibtation Relationship (Qa on x-axis, IC on y-axis)

m= 13.5083 b= 23.1010 Corr. Coeff= 0.9999

Sampler set point(SSP) 40 CFM

Calculations

Qstd = 1/m[Sqrt(H2O(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart response
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pa = actual pressure during calibration (mm Hg)
Tstd = 298 deg K
Pstd = 760 mm Hg
For subsequent calculation of sampler flow:
(1.21*m+b)/[Sqrt(298/Tav)(Pav/760)]

m = sampler slope
b = sampler intercept
I = chart response
Tav = average temperature
Pav = average pressure

Checked by: _____ Date: 7-Aug-19

Appendix C
The Certification of Laboratory with HOKLAS accredited Analytical Tests

Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ACUMEN LABORATORY AND TESTING LIMITED
浩科檢測中心有限公司

Lot 12, Tam Kon Shan Road, North Tsing Yi, New Territories, Hong Kong
香港新界青衣北担杆山路12路段

has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a
在認可諮詢委員會的建議下獲香港認可處執行機關接受為

HOKLAS Accredited Laboratory
「香港實驗所認可計劃」認可實驗所

This laboratory meets the requirements of ISO/IEC 17025:2005 and it has been accredited for performing specific tests or calibrations as listed in the scope of accreditation within the test category of

Environmental Testing

此實驗所符合ISO/IEC 17025:2005所訂的要求
並獲認可進行載於認可範圍內下述測試類別中的指定測試或校正工作

環境測試

This accreditation to ISO/IEC 17025:2005 demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (see joint IAF-ILAC-ISO Communiqué).
此項 ISO/IEC 17025:2005 的認可資格證明此實驗所具備指定範疇內所須的技術能力並實施一套實驗所質量管理體系(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

The common seal of the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive
現經香港認可處執行機關授權在此蓋上香港認可處的印章

WONG Wang-wah, Executive Administrator
執行幹事 黃宏華
Issue Date : 16 July 2014
簽發日期：二零一四年七月十六日

Registration Number : HOKLAS 241
註冊號碼：

Date of First Registration : 16 July 2014
首次註冊日期：二零一四年七月十六日

This certificate is issued subject to the terms and conditions laid down by HKAS
本證書按照香港認可處訂立的條款及條件發出

L 001195

Appendix D
Baseline Monitoring Schedules

July 2019

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
30	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24 Baseline Monitoring Dust (E-A1) 1-hour TSP: 3 hrs 24-hour TSP: 24 hrs	25 Baseline Monitoring Dust (E-A1) 1-hour TSP: 3 hrs 24-hour TSP: 24 hrs	26 Baseline Monitoring Dust (E-A1) 1-hour TSP: 3 hrs 24-hour TSP: 24 hrs	27 Baseline Monitoring Dust (E-A1) 1-hour TSP: 3 hrs 24-hour TSP: 24 hrs
28 Baseline Monitoring Dust (E-A1) 1-hour TSP: 3 hrs 24-hour TSP: 24 hrs	29 Baseline Monitoring Dust (E-A1) 1-hour TSP: 3 hrs 24-hour TSP: 24 hrs	30 Baseline Monitoring Dust (E-A1) 1-hour TSP: 3 hrs 24-hour TSP: 24 hrs	31 Cancelled due to adverse weather	1	2	3
4	5					

August 2019

SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
28	29	30	31	1 Baseline Monitoring Dust (E-A1) 1-hour TSP: 3 hrs 24-hour TSP: 24 hrs	2 Baseline Monitoring Dust (E-A1) 1-hour TSP: 3 hrs 24-hour TSP: 24 hrs	3 Baseline Monitoring Dust (E-A1) 1-hour TSP: 3 hrs 24-hour TSP: 24 hrs
4 Baseline Monitoring Dust (E-A1) 1-hour TSP: 3 hrs 24-hour TSP: 24 hrs	5 Baseline Monitoring Dust (E-A1) 1-hour TSP: 3 hrs 24-hour TSP: 24 hrs	6 Baseline Monitoring Dust (E-A1) 1-hour TSP: 3 hrs 24-hour TSP: 24 hrs	7 Baseline Monitoring Dust (E-A1) 1-hour TSP: 3 hrs 24-hour TSP: 24 hrs	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2					

Appendix E
Baseline Monitoring Data (Air)

Location:	Hong Kong International Trade and Exhibition Centre
Baseline monitoring period:	24 July 2019 to 7 August 2019 (Monitoring on 31 July 2019 was cancelled due to adverse weather)
Parameter :	TSP 1-hour
Major Site Activities	No construction works were conducted in the vicinity during the monitoring period.
Major dust source	nearby traffic
Other Factors	NA

Date	1-hour TSP (μg/m^3)				
	Weather	**Start Time**	**1st Hour (μg/m^3)**	**2nd Hour (μg/m^3)**	**3rd Hour (μg/m^3)**
24/07/2019	Sunny	16:00	48	51	43
25/07/2019	Sunny	15:30	39	44	47
26/07/2019	Sunny	14:30	47	52	45
27/07/2019	Sunny	15:45	50	42	37
28/07/2019	Sunny	15:25	49	44	42
29/07/2019	Cloudy	14:15	45	40	43
30/07/2019	Cloudy	13:10	34	39	36
31/07/2019	Rainy	Cancelled due to adverse weather			
01/08/2019	Cloudy	14:35	35	33	37
02/08/2019	Fine	14:55	42	43	39
03/08/2019	Cloudy	14:50	45	49	43
04/08/2019	Sunny	14:45	43	48	53
05/08/2019	Sunny	15:25	49	47	46
06/08/2019	Sunny	14:50	38	46	52
07/08/2019	Sunny	15:15	54	49	51
Average (Range)			44		

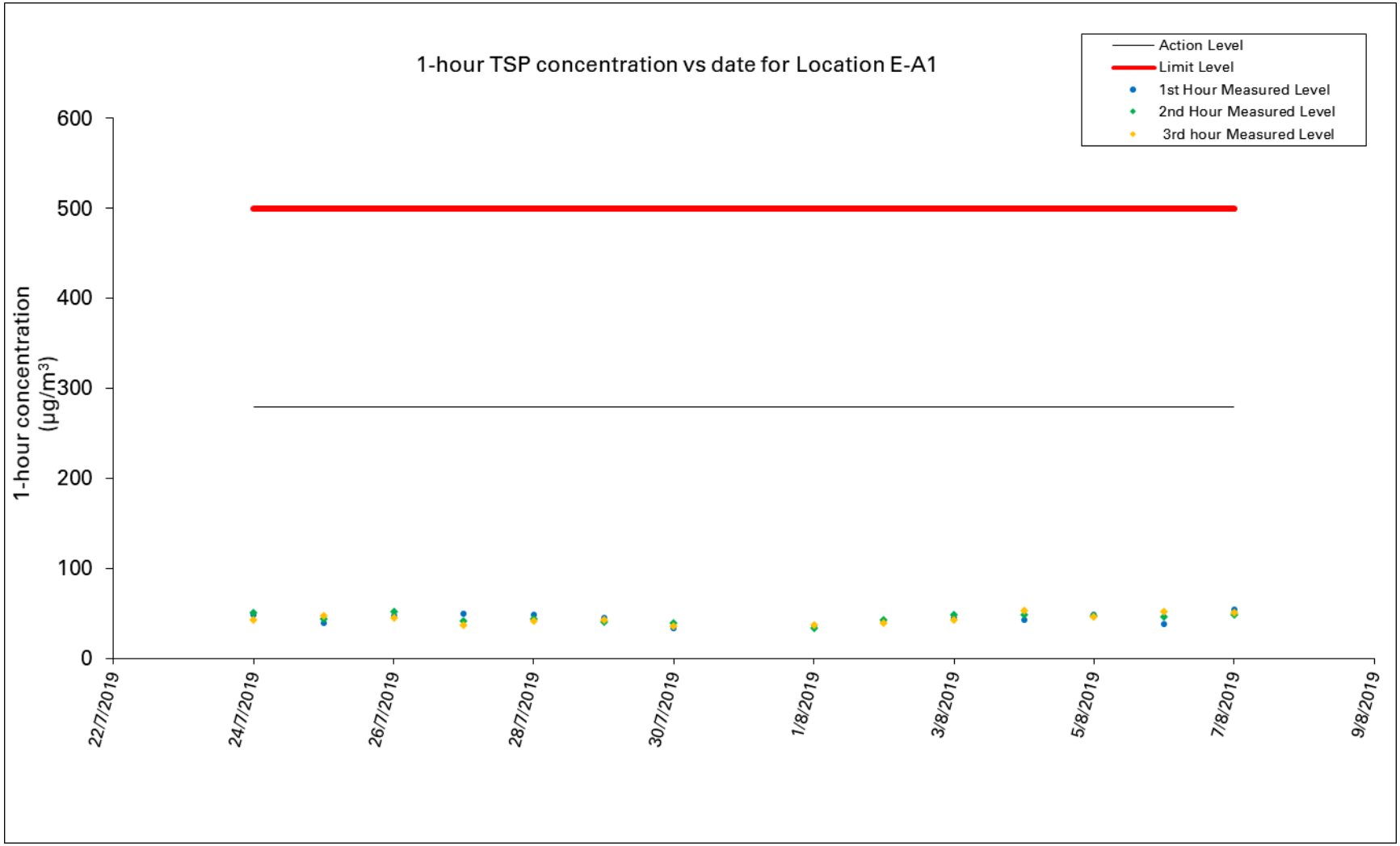


Figure E.1 Measured 1-Hour TSP for Hong Kong International Trade and Exhibition Centre (E-A1)

Location: Hong Kong International Trade and Exhibition Centre

Baseline monitoring period: 24 July 2019 to 7 August 2019 (Monitoring on 31 July 2019 was cancelled due to adverse weather)

Parameter : TSP 24-hour

Major Site Activities: No construction works were conducted in the Project area during the monitoring period.

Major dust source: nearby traffic

Other Factors: NA

Date of Calibration:	24-Jul-19	Slop =	13.5774
Calibration due date:	7-Aug-19	Intercept =	23.3625
Date of Calibration:	7-Aug-19	Slop =	13.5083
Calibration due date:	21-Aug-19	Intercept =	23.1010

Start Date	Weather Condition	Elapse Time			Chart Reading			Avg Air Temp	Avg Atmospheric Pressure	Flow Rate	Standard Air Volume	Filter Weight (g)		Particulate weight	Conc.
		Initial	Final	Actual (min)	Min	Max	Avg	(^oC)	(mm Hg)	(m^3/min)	(m^3)	Initial	Final	(g)	($\mu g/m^3$)
24/7/2019	Sunny	0.00	24.83	1489.80	43	44	43.5	30.0	755.0	1.44	2139	2.6617	2.6978	0.0361	17
25/7/2019	Sunny	24.83	48.83	1440.00	44	44	44.0	30.1	756.1	1.48	2125	2.6787	2.7253	0.0466	22
26/7/2019	Sunny	48.83	72.96	1447.80	44	44	44.0	30.7	755.2	1.47	2127	2.6935	2.7360	0.0425	20
27/7/2019	Sunny	72.96	97.32	1461.60	43	44	43.5	30.6	754.4	1.43	2090	2.6558	2.6890	0.0332	16
28/7/2019	Sunny	97.32	121.38	1443.60	44	44	44.0	29.6	755.0	1.47	2128	2.6889	2.7106	0.0217	10
29/7/2019	Cloudy	121.38	145.40	1441.20	44	44	44.0	28.8	755.0	1.48	2131	2.6880	2.7043	0.0163	8
30/7/2019	Cloudy	145.40	169.49	1445.40	44	44	44.0	28.9	753.4	1.47	2126	2.6664	2.6845	0.0181	9
31/7/2019	Rainy	Cancelled due to adverse weather													
1/8/2019	Cloudy	169.49	193.52	1441.80	44	44	44.0	26.4	750.1	1.47	2120	2.6744	2.7197	0.0453	21
2/8/2019	Fine	193.52	217.58	1443.60	44	44	44.0	27.0	751.6	1.47	2127	2.6498	2.6709	0.0211	10
3/8/2019	Cloudy	217.58	241.60	1441.20	44	44	44.0	26.7	752.1	1.48	2129	2.6929	2.7245	0.0316	15
4/8/2019	Sunny	241.60	265.65	1443.00	44	44	44.0	27.9	752.1	1.47	2122	2.7064	2.7445	0.0381	18
5/8/2019	Sunny	265.65	289.67	1441.20	44	44	44.0	29.7	752.4	1.46	2108	2.6768	2.7253	0.0485	23
6/8/2019	Sunny	289.67	313.68	1440.60	44	44	44.0	29.8	752.1	1.46	2104	2.7073	2.7529	0.0456	22
7/8/2019	Sunny	313.68	337.69	1440.60	44	44	44.0	30.1	750.6	1.48	2132	2.6662	2.7786	0.1124	53

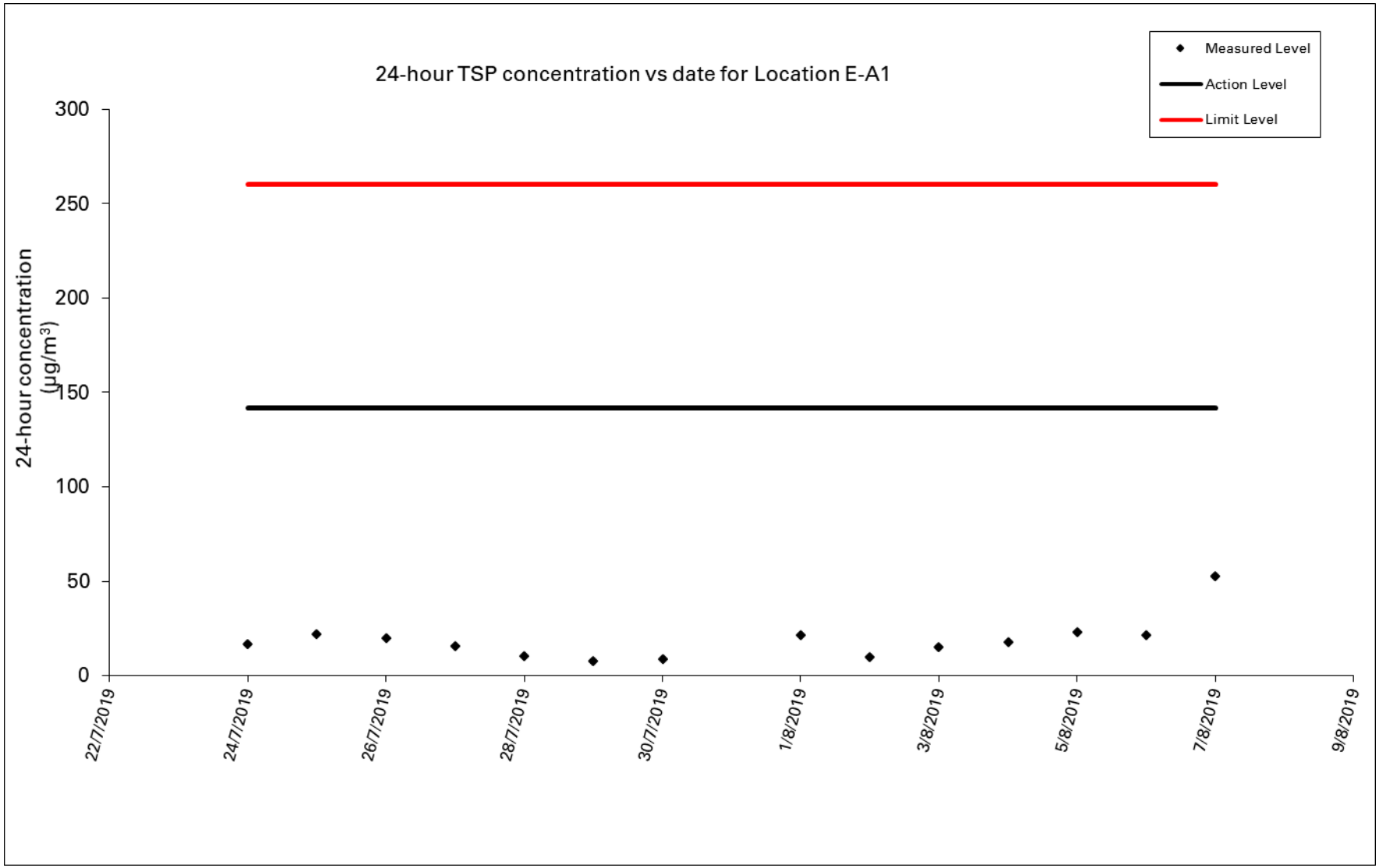


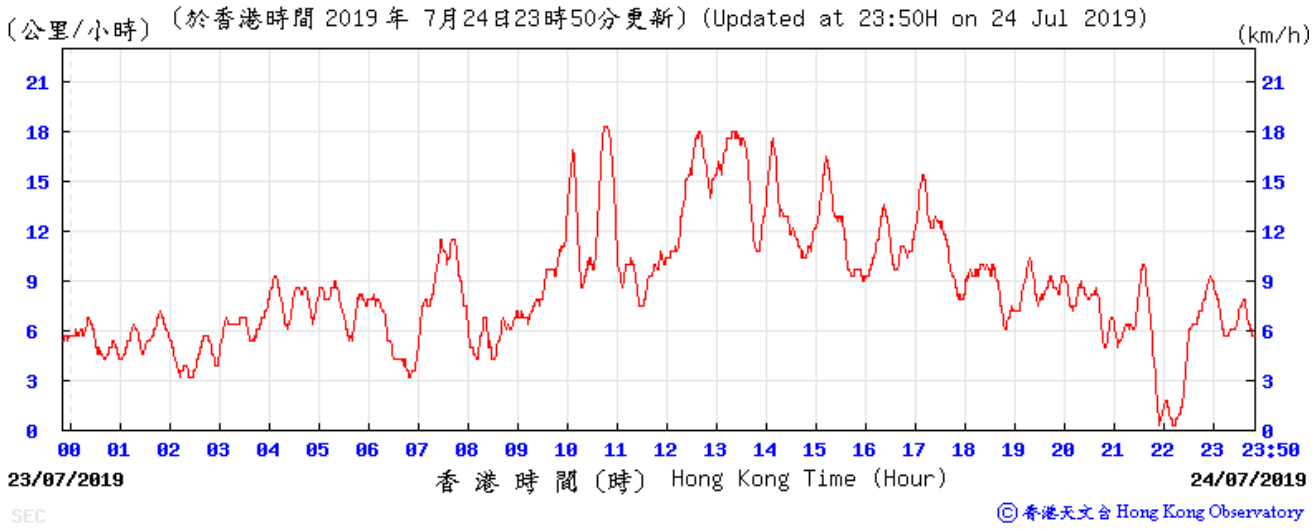
Figure E.2 Measured 24-Hour TSP for Hong Kong International Trade and Exhibition Centre (E-A1)

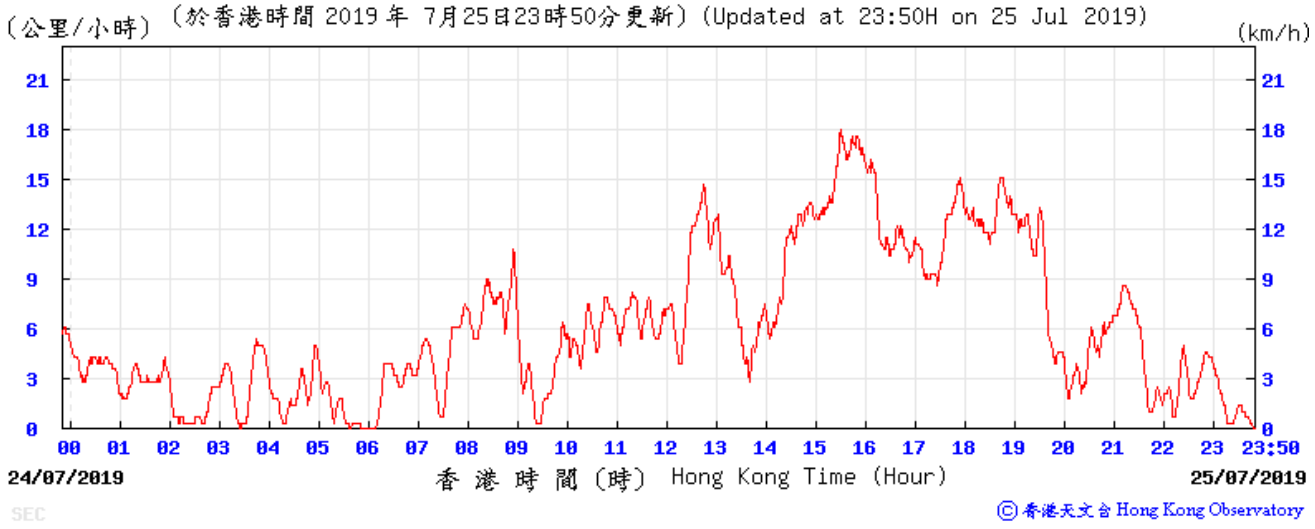
Appendix F
Weather Data

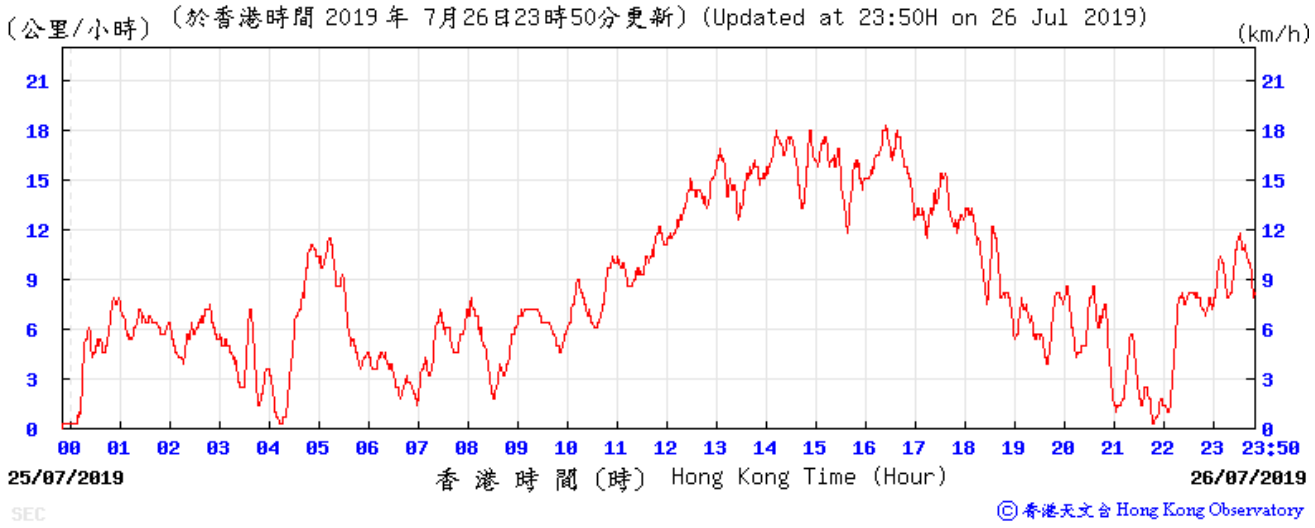
Weather Condition:

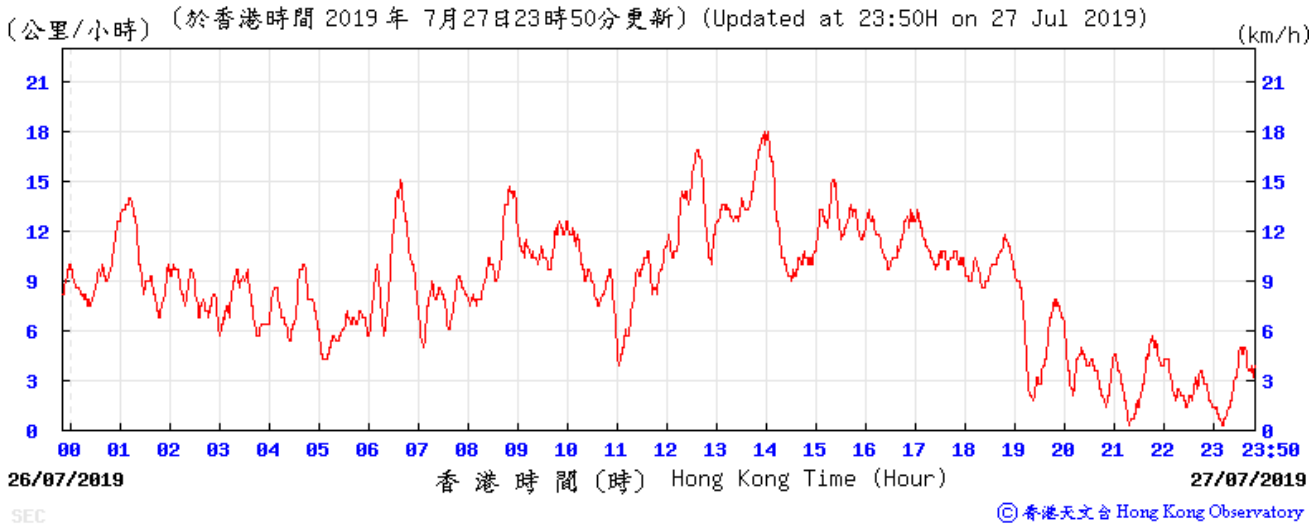
Date	Weather Condition
24/07/2019	Sunny
25/07/2019	Sunny
26/07/2019	Sunny
27/07/2019	Sunny
28/07/2019	Sunny
29/07/2019	Cloudy
30/07/2019	Cloudy
31/07/2019 (Cancelled)	Rainy
01/08/2019	Cloudy
02/08/2019	Fine
03/08/2019	Cloudy
04/08/2019	Sunny
05/08/2019	Sunny
06/08/2019	Sunny
07/08/2019	Sunny

Recorded Wind Speed Graphs:








(公里/小時) (於香港時間 2019 年 7月27日23時50分更新) (Updated at 23:50H on 27 Jul 2019)
(km/h)
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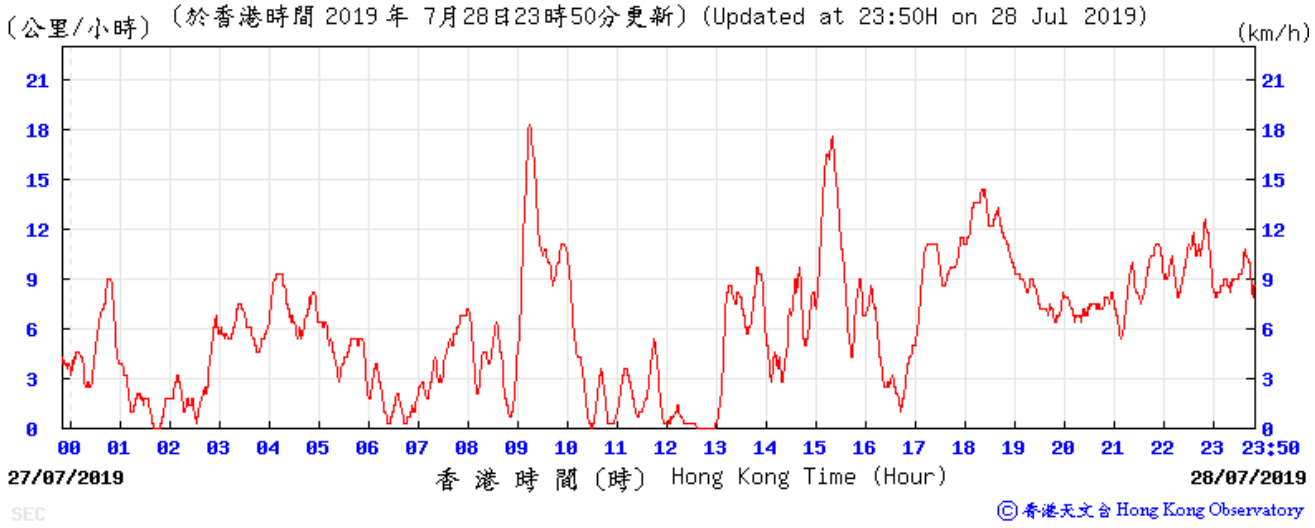
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 23:50
26/07/2019
香 港 時 間 (時) Hong Kong Time (Hour)
27/07/2019
© 香港天文台 Hong Kong Observatory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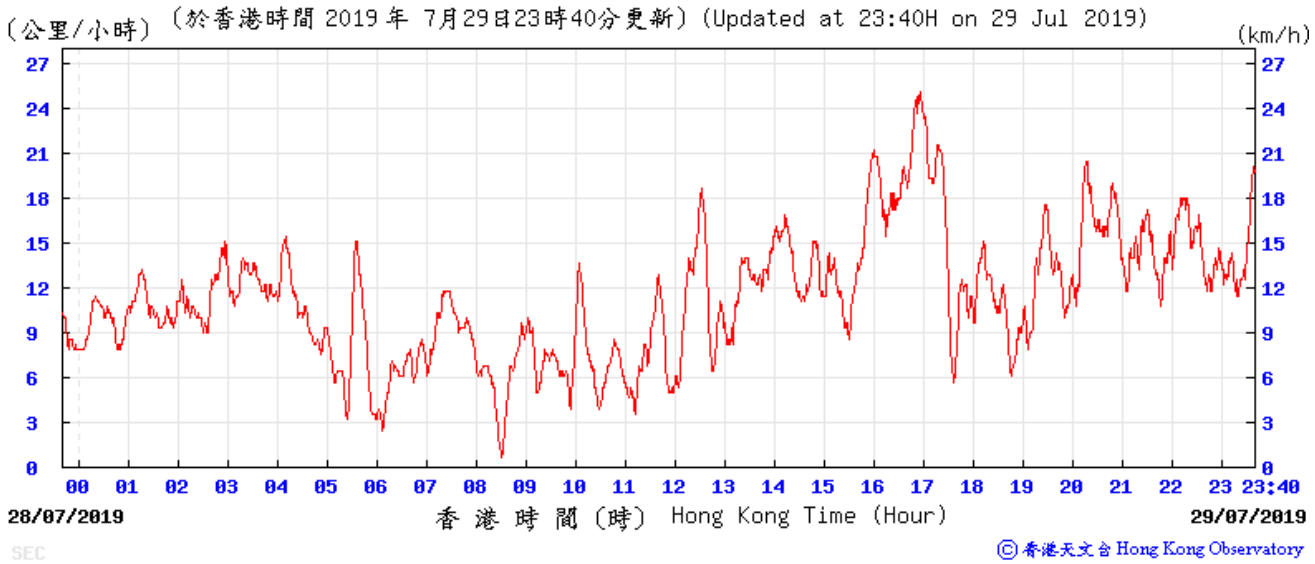
(km/h)
0 3 6 9 12 15 18 21
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 23:50
27/07/2019
香 港 時 間 (時) Hong Kong Time (Hour)
28/07/2019
© 香港天文台 Hong Kong Observatory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(km/h)
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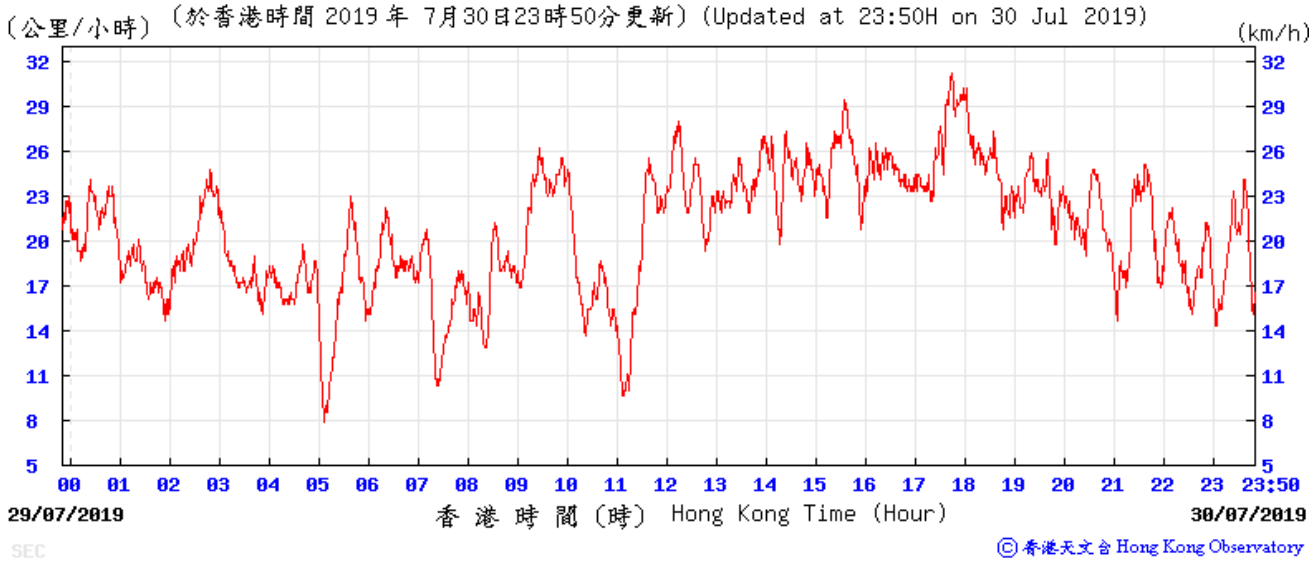
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 23:40
28/07/2019
香 港 時 間 (時) Hong Kong Time (Hour)
29/07/2019
© 香港天文台 Hong Kong Observatory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00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 23:50
29/07/2019
香 港 時 間 (時) Hong Kong Time (Hour)
30/07/2019
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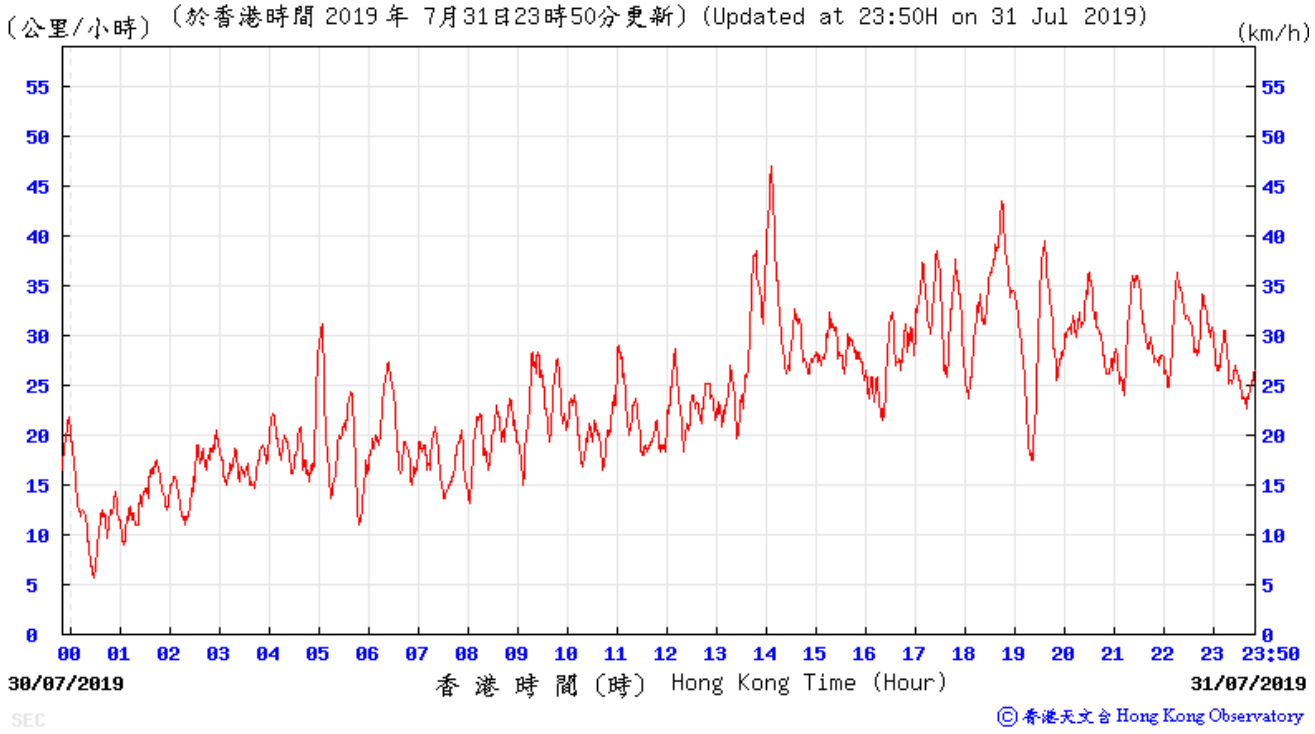
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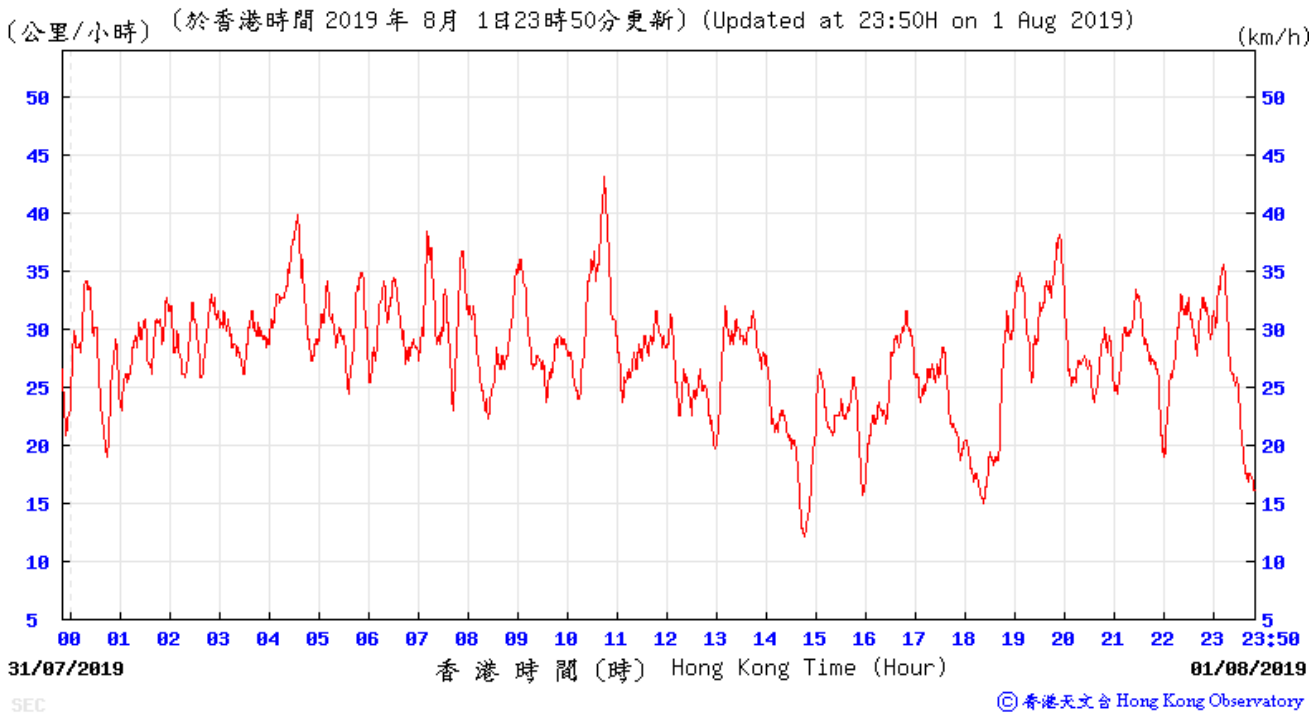
香 港 時 間 (時) Hong Kong Time (Hour)
31/07/2019
© 香港天文台 Hong Kong Observatory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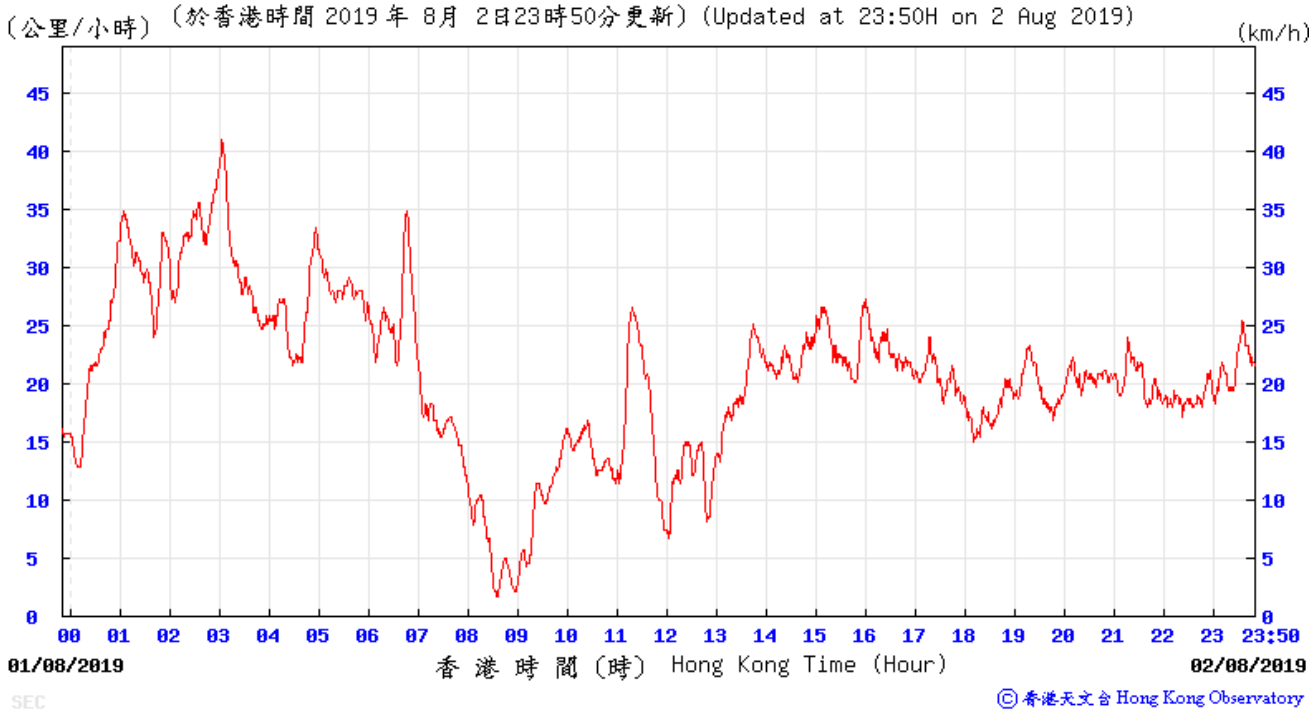
(km/h)
50
45
40
35
30
25
20
15
10
5
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 23:50
31/07/2019
香 港 時 間 (時) Hong Kong Time (Hour)
01/08/2019
© 香港天文台 Hong Kong Observatory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(km/h)
45
40
35
30
25
20
15
10
5
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 23:50
01/08/2019
香 港 時 間 (時) Hong Kong Time (Hour)
02/08/2019
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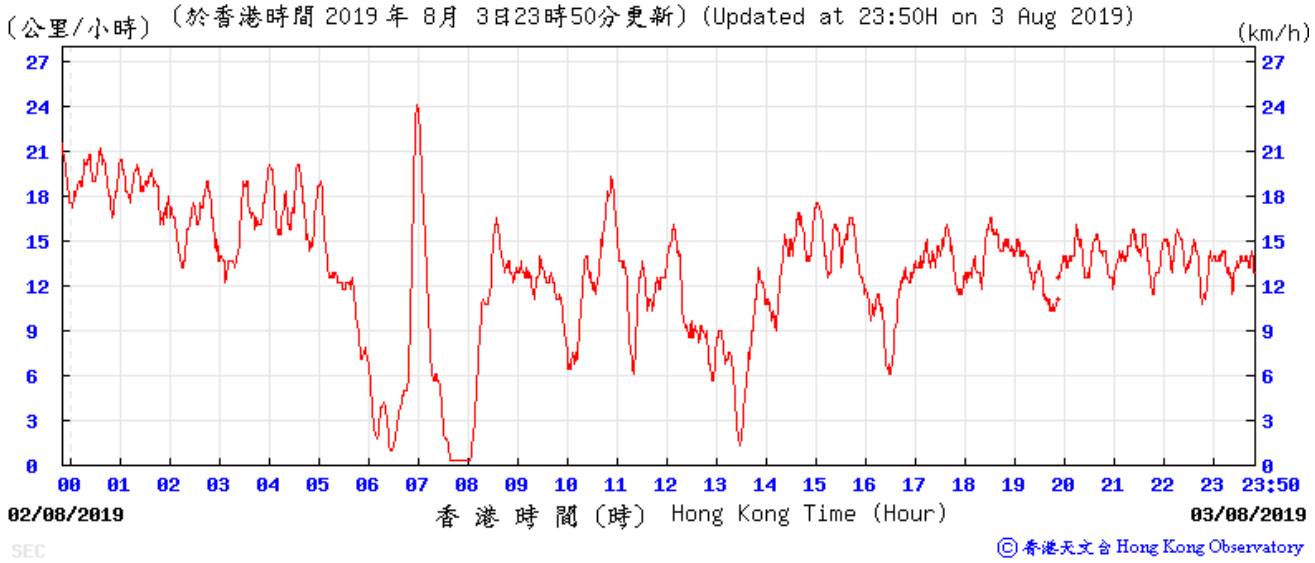
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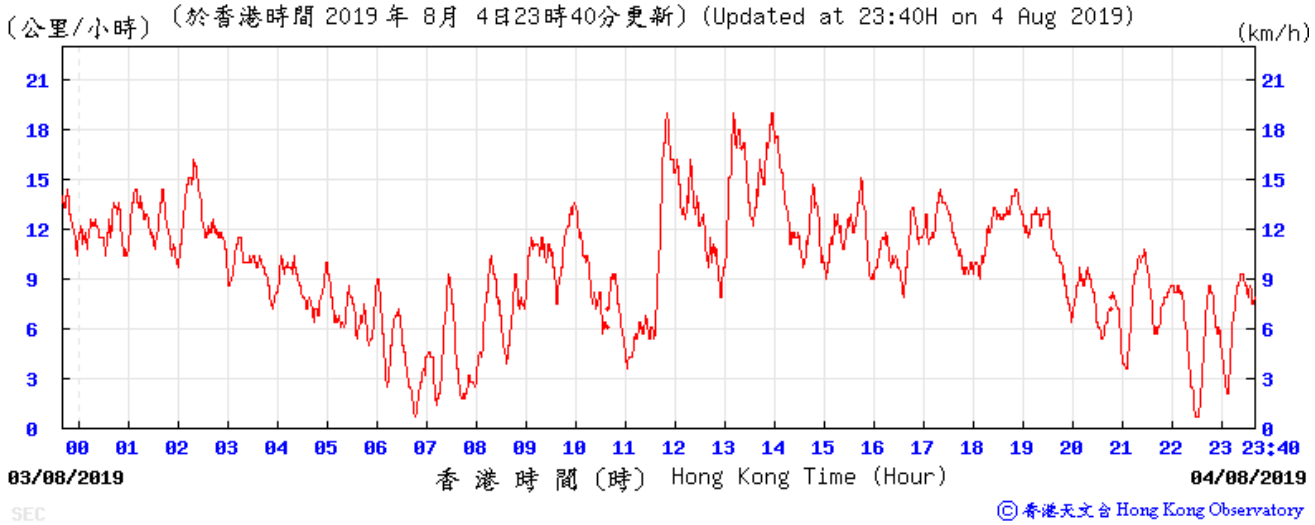
(km/h)
27
24
21
18
15
12
9
6
3
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 23:50
02/08/2019
香 港 時 間 (時) Hong Kong Time (Hour)
03/08/2019
© 香港天文台 Hong Kong Observatory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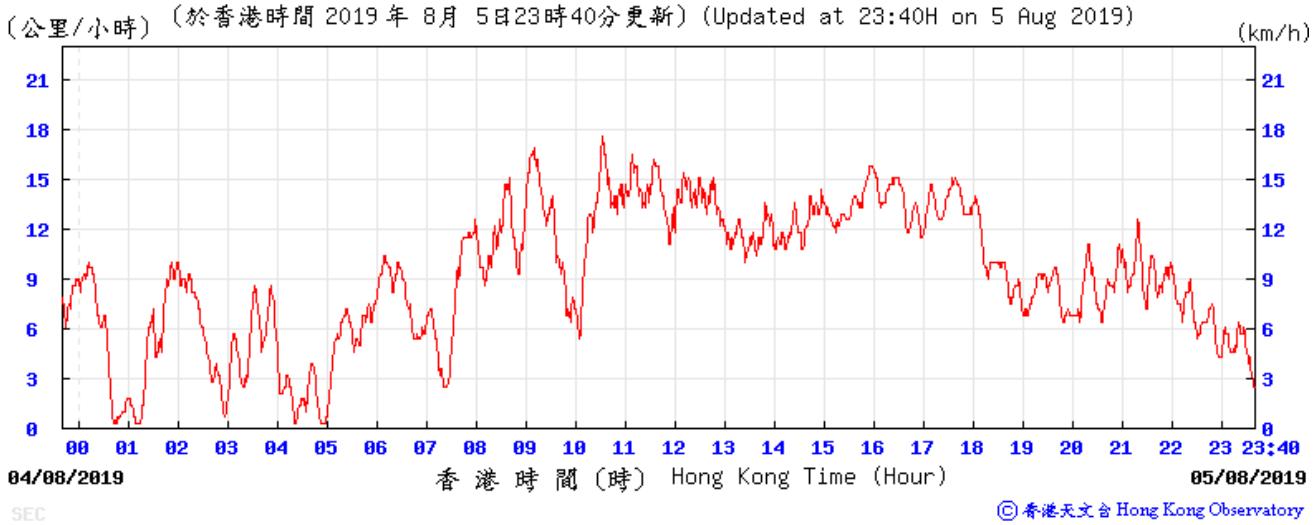
(km/h)
21
18
15
12
9
6
3
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 23:40
03/08/2019
香 港 時 間 (時) Hong Kong Time (Hour)
04/08/2019
© 香港天文台 Hong Kong Observatory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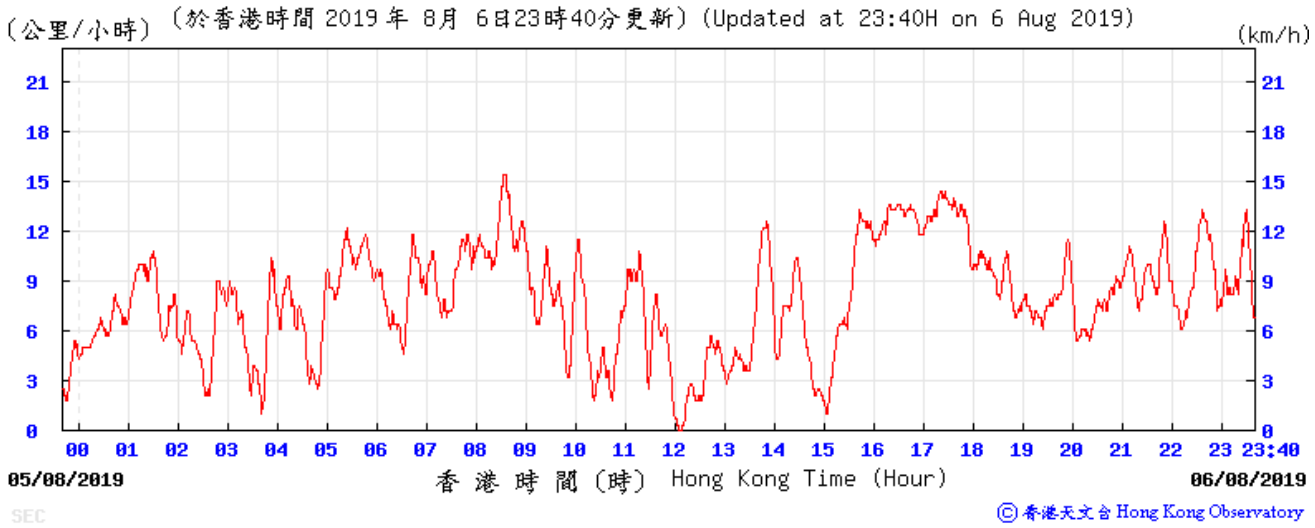
(km/h)
21
18
15
12
9
6
3
0
00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 23:40
04/08/2019
香 港 時 間 (時) Hong Kong Time (Hour)
05/08/2019
© 香港天文台 Hong Kong Observatory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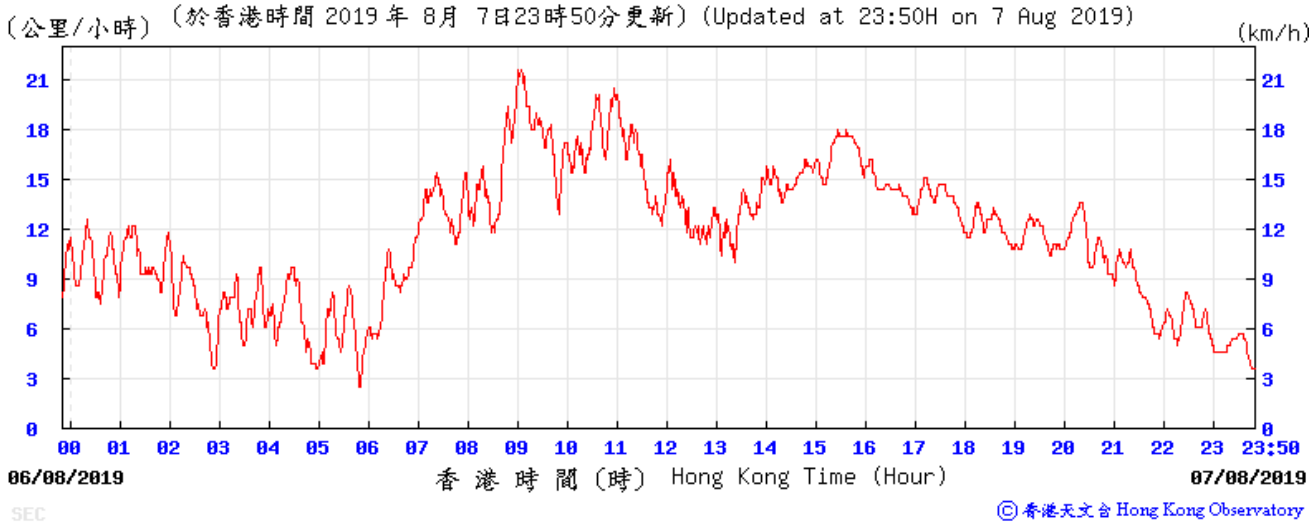
05/08/2019
香 港 時 間 (時) Hong Kong Time (Hour)
06/08/2019
© 香港天文台 Hong Kong Observatory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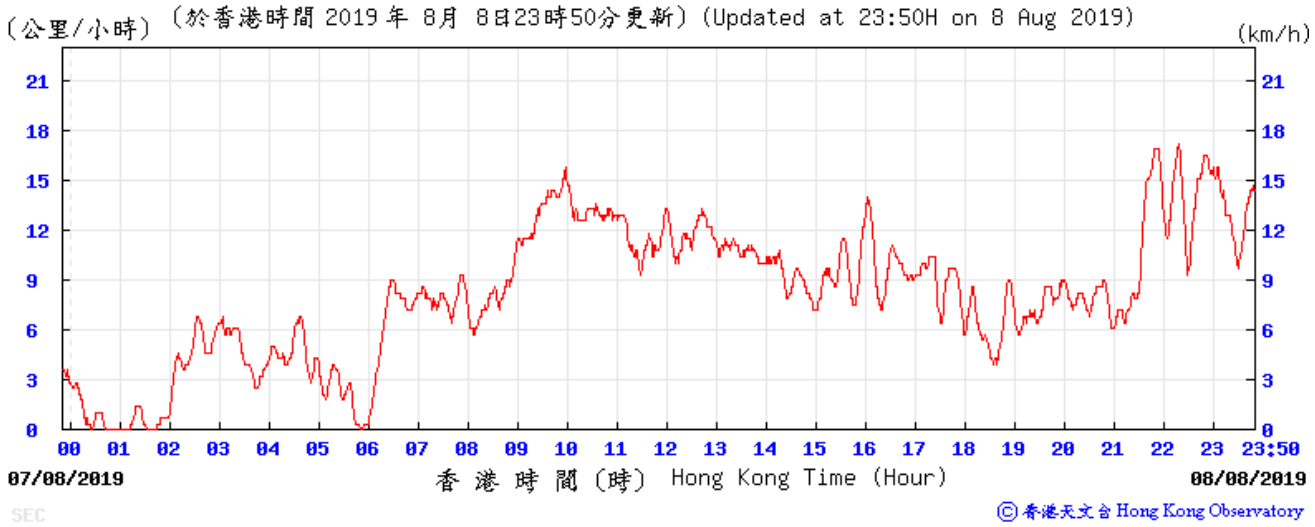
06/08/2019
香 港 時 間 (時) Hong Kong Time (Hour)
07/08/2019
© 香港天文台 Hong Kong Observatory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(km/h)
07/08/2019
香 港 時 間 (時) Hong Kong Time (Hour)
08/08/2019
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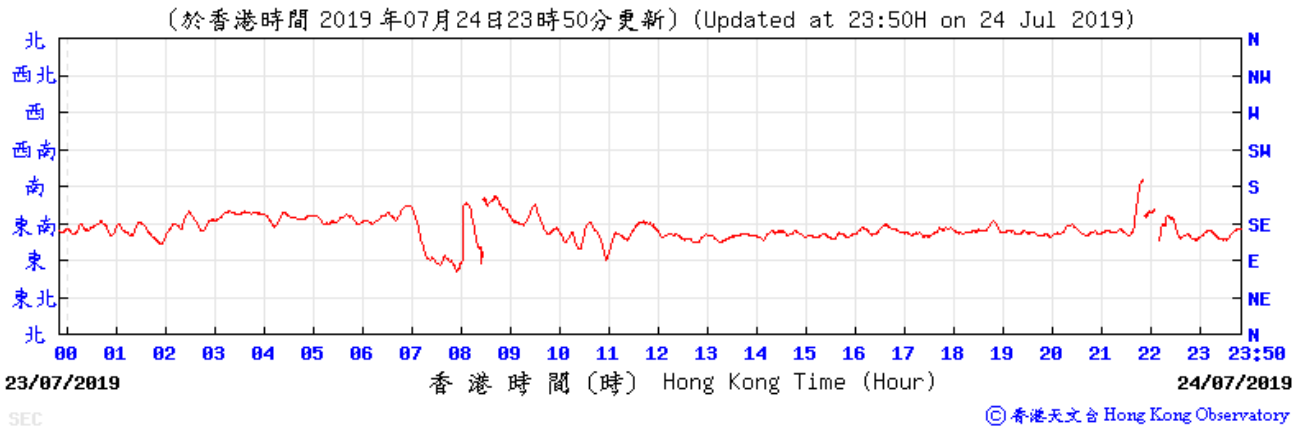
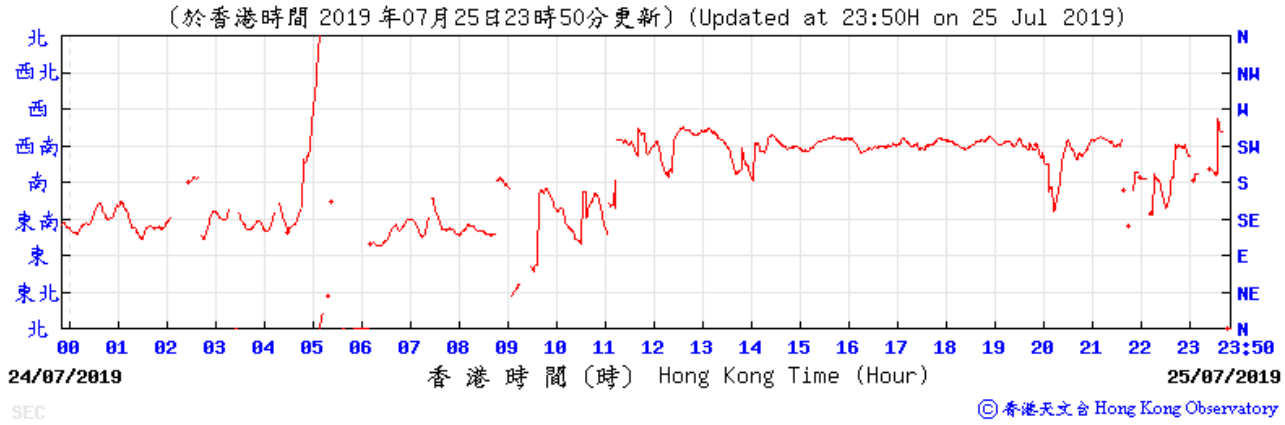
Recorded wind direction graph:

Wind Direction:



Wind Direction:



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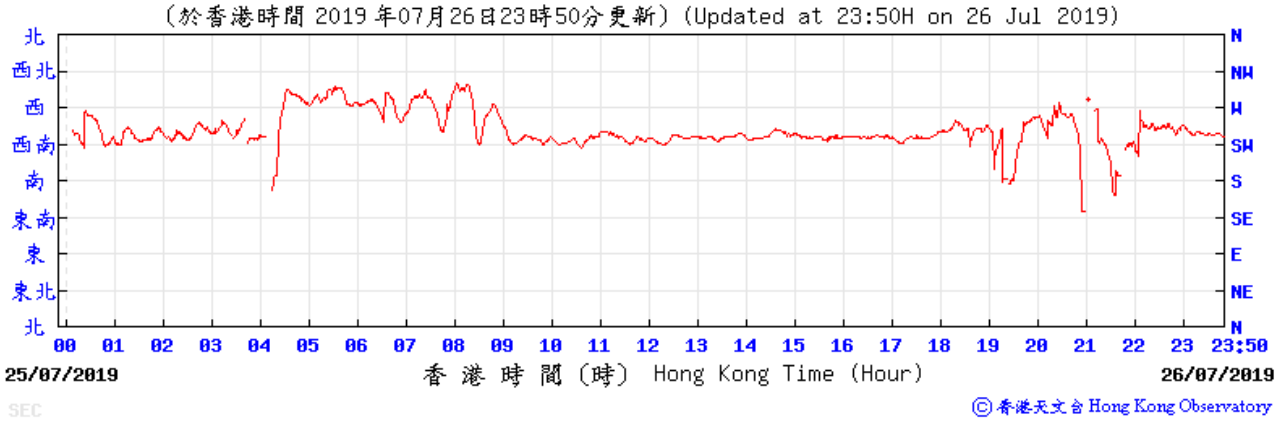

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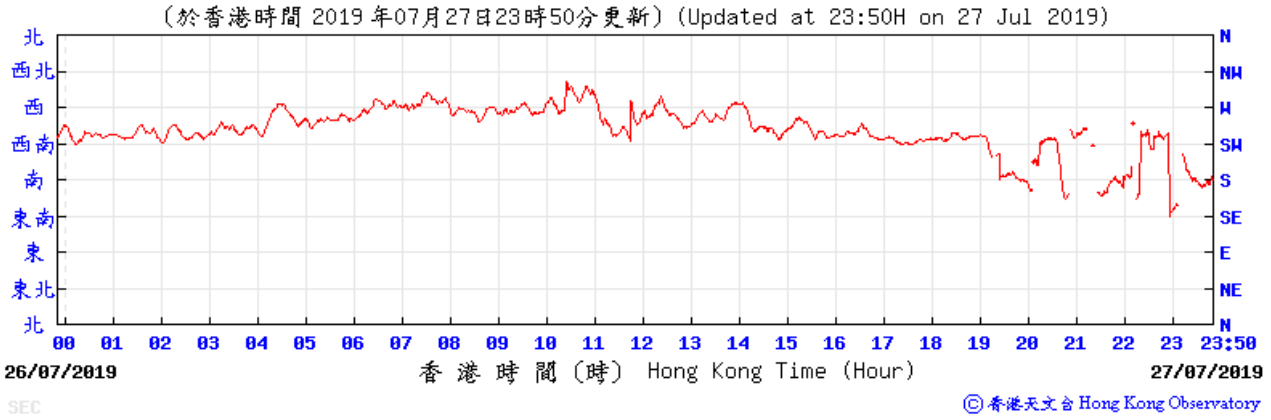

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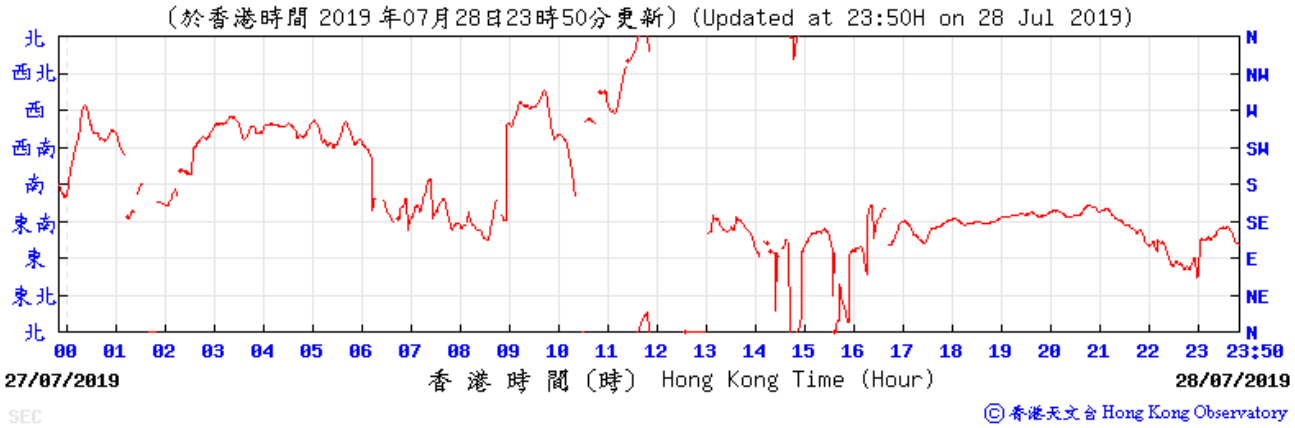

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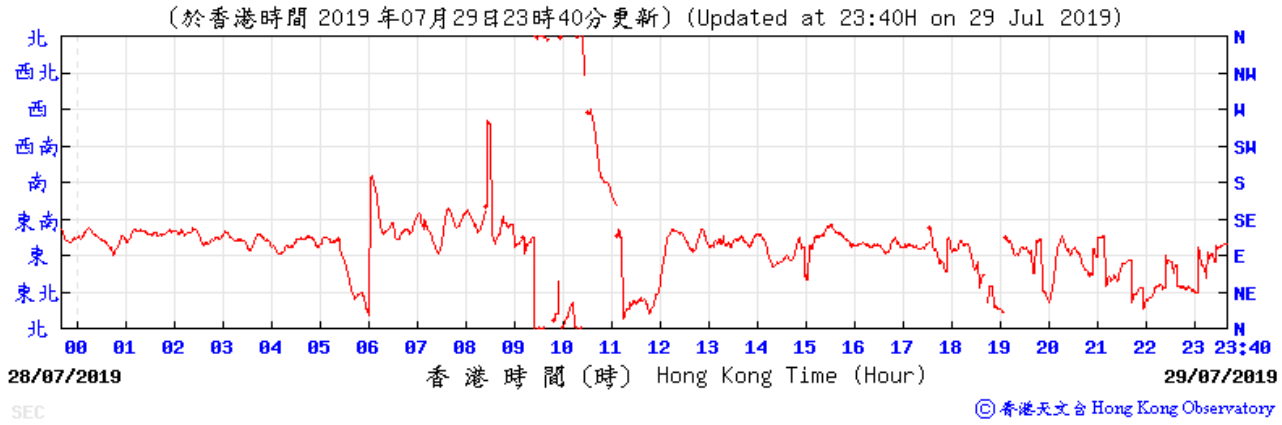
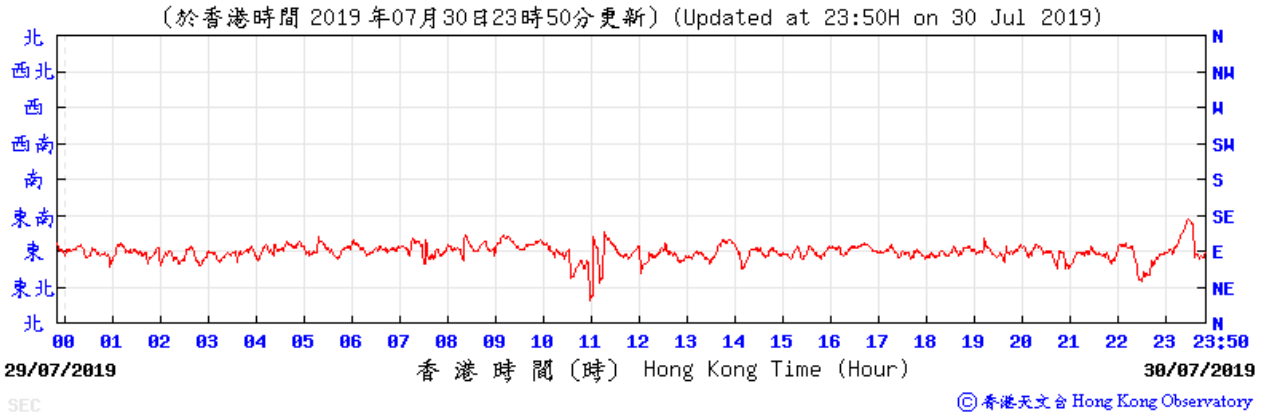


Wind Direction:



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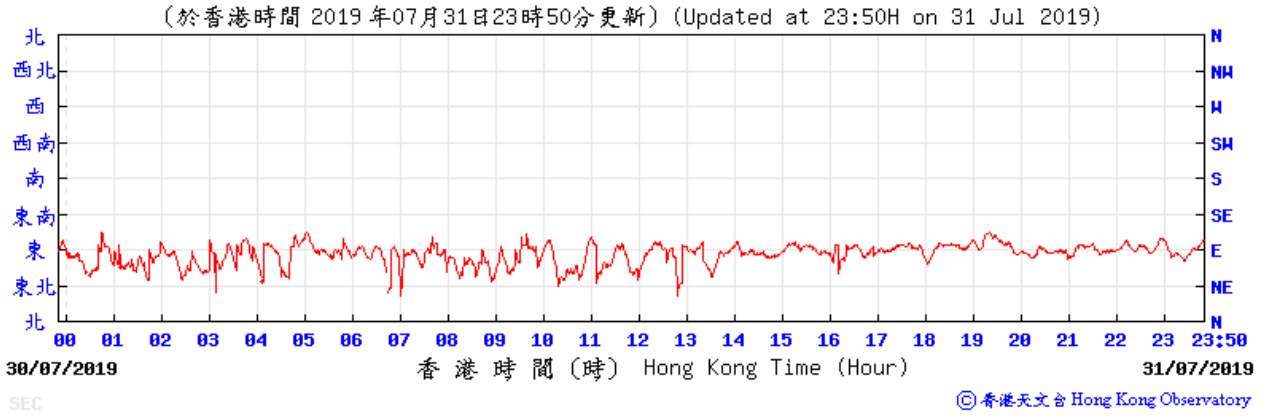
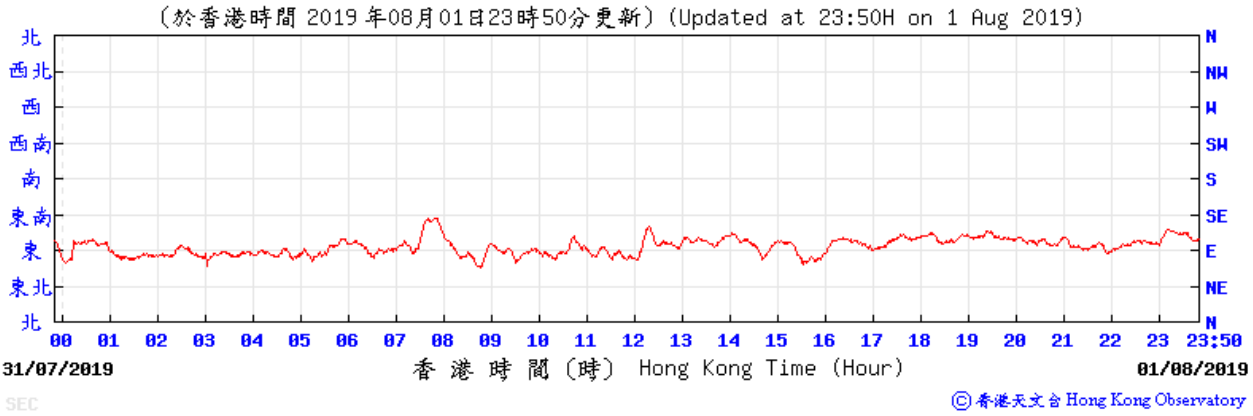


Wind Direction:



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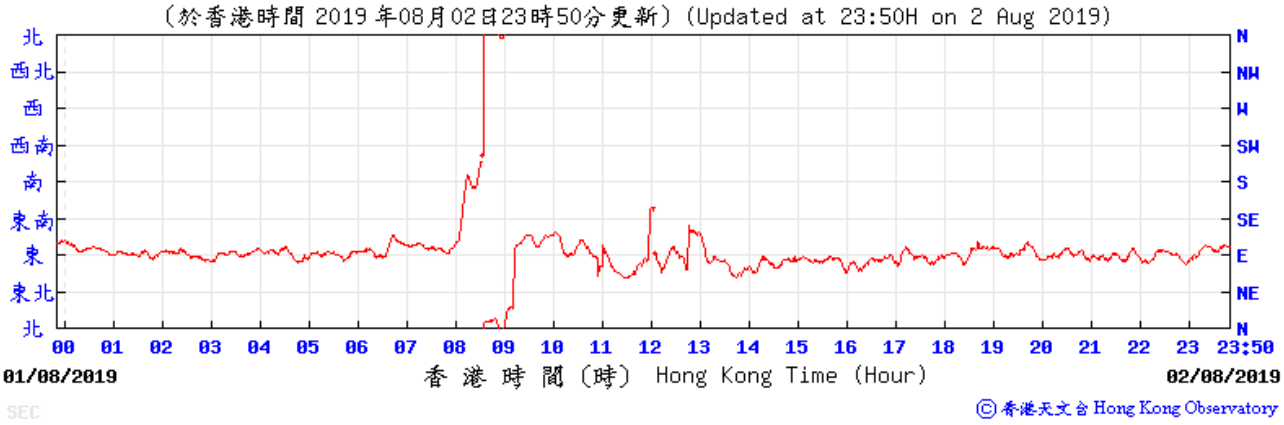

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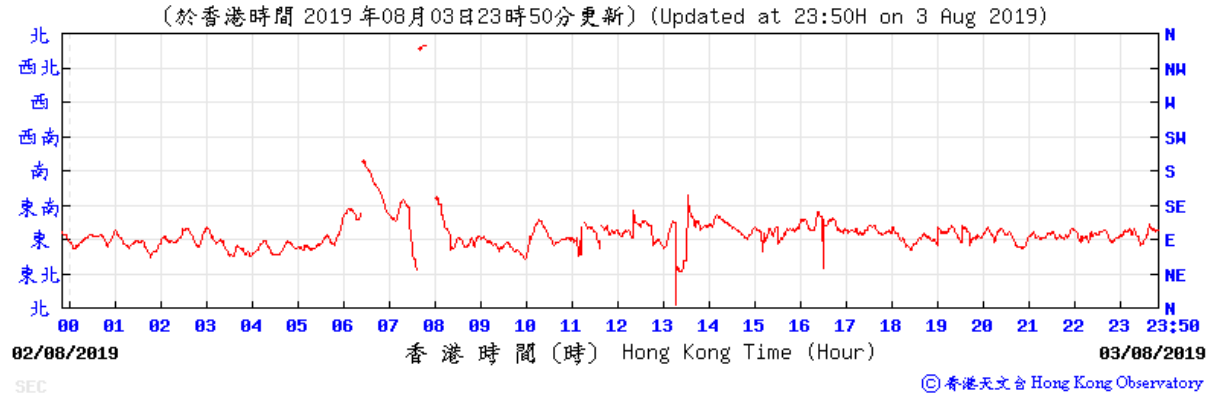

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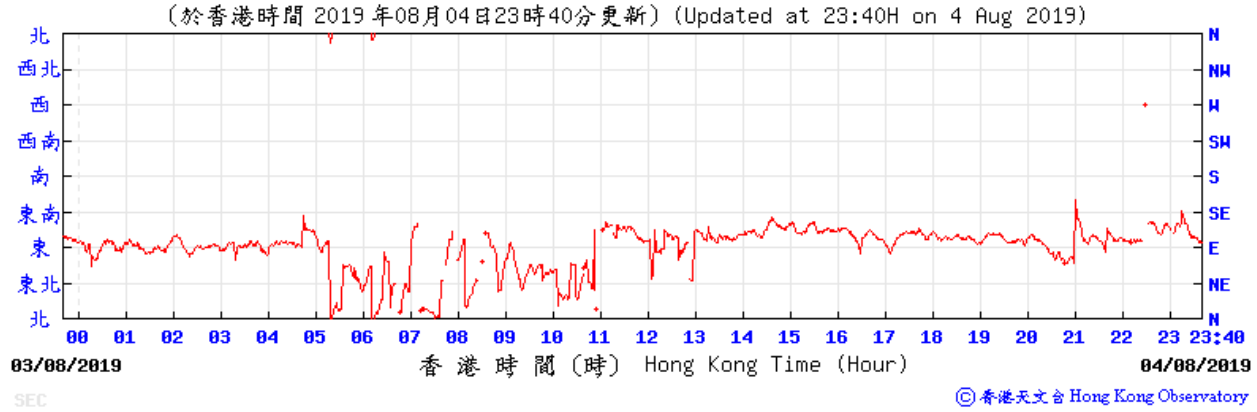

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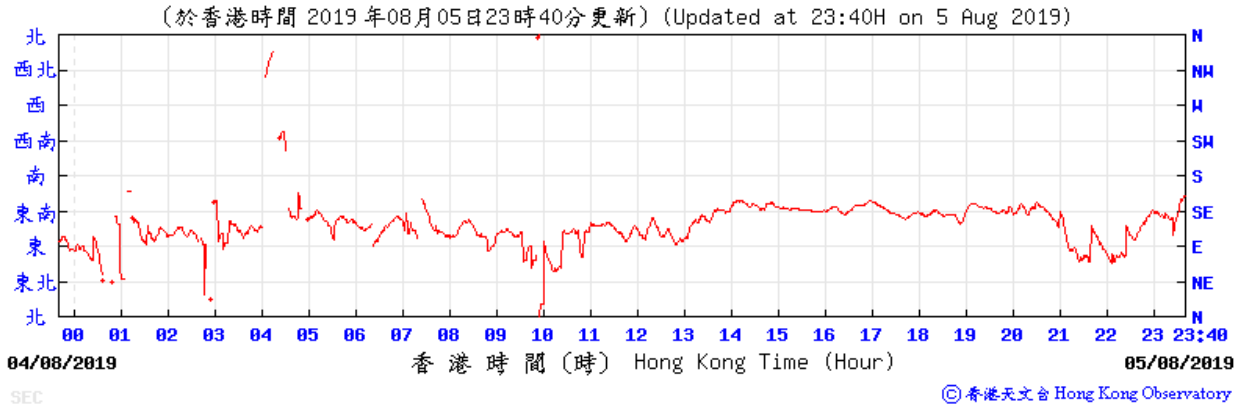

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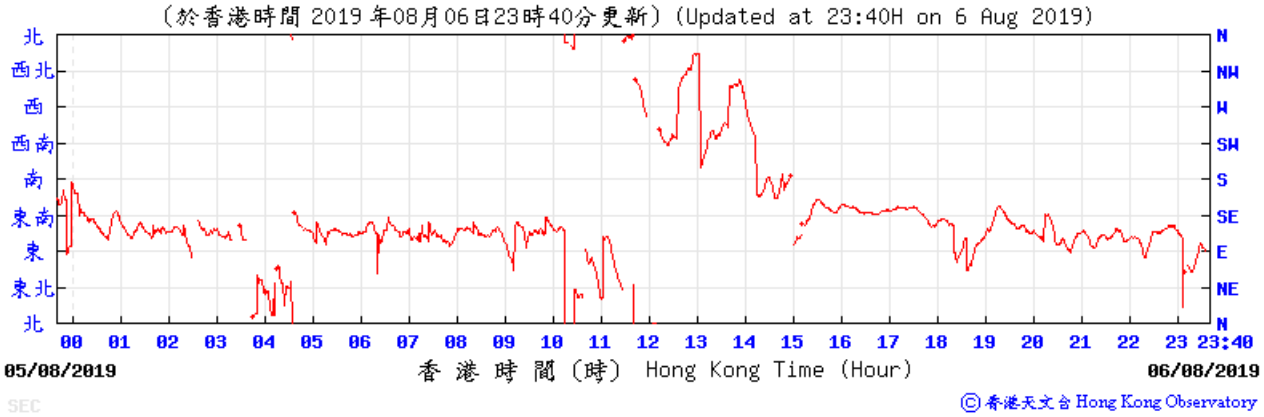

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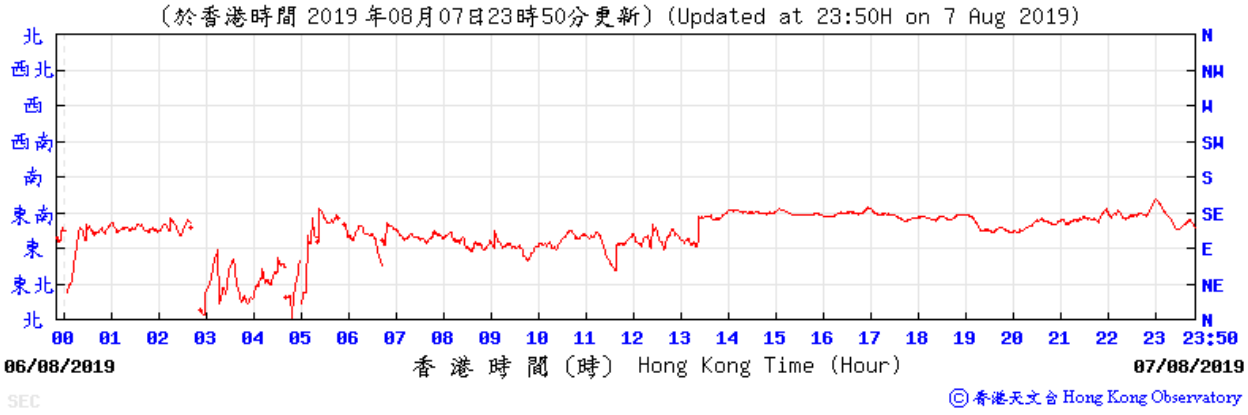

Wind Direction: