每月天氣摘要
二零一七年八月

Monthly Weather Summary
August 2017

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二零一七年九月出版

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1. 除特別列明外，所有時間均以協調世界時加八小時為準。

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1. 二零一七年八月天氣回顧

二零一七年八月較正常炎熱，而持續影響本港的高溫天氣在熱帶氣旋天鴿和帕卡於八月下旬的五天內連環襲港後消退。兩個襲港的熱帶氣旋令天文台需要發出八號烈風或暴風信號，而八月二十三日天鴿襲港期間，天文台更發出自二零一二年七月以來的首個十號颶風信號。本月錄得的平均氣溫為 29.3 度，較八月份的平均值 28.6 度高 0.7 度，是八月份有記錄以來的第七高。受天鴿及帕卡相關的降雨影響，本月總雨量為 489.1 毫米，較正常值 432.2 毫米多約百分之 13。截至本年八月的累積雨量為 2248.9 毫米，較同期正常值 1905.5 毫米多百分之 18。

受一股活躍的西南氣流所影響，八月首兩天的天氣為大致多雲，早上有幾陣驟雨，而驟雨主要影響本港東南部地區。八月三日早上雨勢變得較大及更廣泛，天文台於當日發出紅色暴雨警告信號。八月四日早上仍有驟雨影響本港南及東南部。隨著副熱帶高壓脊伸展至中國東南部，八月五日本港天氣轉為天晴酷熱，有關天氣持續至隨後三天。

八月九日西南季候風轉強，本港轉趨多雲及驟雨增多。八月十日一道西南往東北走向的大驟雨區，由荃灣伸展至吐露港，並於翌日向東移往港島至西貢。八月十二日隨著季候風減弱，對流活動也逐漸減少，大嶼山局部地區仍有驟雨。受一道高壓脊於八月十六日至十八日期間由太平洋向西伸展至中國東南部所影響，八月十三日至二十二日本港持續天晴。除了八月十八日在大埔出現由日間高溫引發的雷雨外，在該期間本港的天氣主要受局部地區性驟雨影響，而八月二十日及二十一日則無驟雨。

在這陽光充沛期的後段，天文台的日間氣溫上升至 33 度或以上，當天鴿於八月二十二日移向香港，受其前沿下沉氣流所影響，本港有煙霞及天氣悶熱，當日下午天文台的最高氣溫升至 36.6 度，創下破紀錄的最高氣溫。與天鴿相關的外圍雨帶隨後為本港帶來狂風驟雨，本港天氣在晚間進一步轉差，而天鴿的暴風雨在八月二十三日早上吹襲本港，颶風程度風力影響長洲及本港東南部，橫瀾島錄得每小時 193 公里的最高陣風。天鴿襲港時適逢天文漲潮，天鴿所誘發的風暴潮導致本港多處出現異常高水位及嚴重水浸，當中包括大澳、杏花邨、鯉魚門、沙田及流浮山。鰂魚涌早上的水位升至最高的 3.57 米，是自 1962 年超強颱風溫黛襲港錄得最高水位紀錄 3.96 米後第二最高紀錄。隨著天鴿下午在澳門西面的珠海登陸並進一步移入內陸減弱，本港其後風勢顯著緩和。

隨後兩天天氣夾雜陽光及零散驟雨，八月二十五日的幾陣大驟雨影響屯門及石崗。在帕卡到達之前，悶熱及有煙霞的天氣於八月二十六日再度影響本港，帕卡北面的強雨帶於傍晚稍後開始為本港帶來大雨及狂風。帕卡於八月二十七日在本港西南掠過，當日大部分時間有狂風暴雨，本港東北部及南部風力持續達暴風程度，高地間中達颶風程度。在有雨的情況下，天文台當日氣溫降至本月最低的 24.0 度，翌日風力逐漸減弱後，大驟雨及狂風雷暴持續影響本港。隨著帕卡的相連雨帶消散，八月二十九日本港天氣轉為陽光充沛。八月餘下時間的天氣持續炎熱並夾雜著陽光、煙霞及黃昏雷雨。

本月七個熱帶氣旋影響南海及北太平洋西部。

本月有五十八班航機因惡劣天氣須轉飛其他地方。表 1.1 載列本月發出及取消各種警告/信號的詳情。

1. The Weather of August 2017

August 2017 was hotter than normal and the prolonged heat was relieved by the successive strikes of tropical cyclones Hato and Pakhar within a 5-day period during the latter part of the month. Both cyclones led to the raising of Gale or Storm Signal No.8, with Hato even necessitating the issuance of the Hurricane Signal No.10 on 23 August, the first time since July 2012. The mean temperature recorded in the month was 29.3 degrees, the seventh highest for August on record and 0.7 degree above the August normal of 28.6 degrees. Due to the rain brought by Hato and in particular Pakhar, the monthly total rainfall amounted to 489.1 millimetres, about 13 percent more than the normal figure of 432.2 millimetres. The accumulated rainfall this year up to August was 2248.9 millimetres, a surplus of 18 percent compared to the normal figure of 1905.5 millimetres for the same period.

Under the influence of an active southwest monsoon, the weather in Hong Kong was generally cloudy with morning showers that affected mostly the southeastern part of the territory on the first two days of the month. The showers got heavier and became more widespread on the morning of 3 August, leading to the issuance of the Red Rainstorm Warning Signal. After another showery morning on 4 August, particularly over the southern and southeastern part of the territory, the weather turned sunny and very hot on 5 August as a ridge of high pressure extended over southeastern China. Generally fine and very hot conditions then persisted for another three days.

With a freshening of the southwest monsoon, the weather turned cloudy on 9 August and showery activities increased. A southwest-to-northeast corridor of heavier showers extended from Tsuen Wan to the Tolo Harbour on 10 August, and then shifted eastwards the next day running from Hong Kong Island to Sai Kung. As the monsoon winds subsided, convective development became less active on 12 August despite some localized showers over Lantau Island. A spell of fine weather then prevailed for the next ten days, with a ridge of high pressure extending westwards from the Pacific to cover southeastern China on 16 – 18 August. Despite an outbreak of thundery showers due to intense day heating at Tai Po on 18 August, showers during the fine spell were mostly isolated and the territory enjoyed two shower-free days on 20 and 21 August.

With prolonged sunshine, daytime temperatures at the Hong Kong Observatory reached 33 degrees or higher during the latter part of the fine spell. As Hato headed towards Hong Kong, subsidence effect ahead of its circulation brought hazy skies and oppressive heat on 22 August. The maximum temperature at the Hong Kong Observatory that afternoon soared to an all-time record-breaking high of 36.6 degrees. Squally showers associated with the outer rainbands of Hato then started to affect the territory later that day. The situation deteriorated further overnight as stormy weather battered the city during the passage of Hato on the morning of 23 August. Hurricane force winds affected Cheung Chau and the southeastern

part of the territory, and a maximum gust of 193 kilometres per hour was recorded at Waglan Island. As the approach of Hato coincided with the astronomical high tide, storm surge induced by Hato resulted in unusually high water level and serious flooding in many parts of the territory, including Tai O, Heng Fa Chuen, Lei Yue Mun, Sha Tin and Lau Fau Shan. The water level at Quarry Bay rose to a maximum of 3.57 metres that morning, the second highest after the record high of 3.96 metres set by Super Typhoon Wanda in 1962. With Hato making landfall over Zhuhai to the west of Macau in the afternoon and weakening further inland, local winds subsided significantly later in the day.

The weather was a mixture of sunshine and scattered showers over the next couple of days, with some heavy showers affecting Tuen Mun and Shek Kong on 25 August. Ahead of the visit of Pakhar, oppressively hot and hazy conditions affected Hong Kong once again on 26 August. Rain and squalls associated with the intense rainbands north of Pakhar started to affect the territory later that evening. Stormy weather persisted for most of the day on 27 August as Pakhar skirted past just to the southwest of Hong Kong, with winds persistently reaching storm force over the northeastern and southern parts of the territory and occasionally attaining hurricane force on high ground. Temperature at the Hong Kong Observatory fell to the month's lowest of 24.0 degrees in rain that day. Heavy showers and some squally thunderstorms continued to affect the territory the next day as winds gradually subsided. As the lingering rainbands associated with Pakhar finally cleared away, the weather turned sunny on 29 August. Hot conditions with a mixture of sunshine, haze and thundery evening showers then persisted towards the end of the month.

Seven tropical cyclones occurred over the South China Sea and the western North Pacific in the month.

During the month, fifty eight aircraft were diverted due to adverse weather. Details of the issuance and cancellation of various warnings/signals in the month are summarized in Table 1.1.

表 1.1　二零一七年八月發出的警告及信號

Table 1.1　Warnings and Signals issued in August 2017

熱帶氣旋警告信號

Tropical Cyclones Warning Signals

熱帶氣旋名稱 Name of Tropical Cyclone	信號 Signal Number	開始時間 Beginning Time		終結時間 Ending Time	
		日/月 day/month	時 hour	日/月 day/month	時 hour
天鴿 HATO	1	22/8	0840	22/8	1820
	3	22/8	1820	23/8	0520
	8NE	23/8	0520	23/8	0810
	9	23/8	0810	23/8	0910
	10	23/8	0910	23/8	1410
	8SE	23/8	1410	23/8	1710
	3	23/8	1710	23/8	1820
	1	23/8	1820	23/8	2040
帕卡 PAKHAR	1	26/8	0940	26/8	2040
	3	26/8	2040	27/8	0510
	8SE	27/8	0510	27/8	1340
	3	27/8	1340	27/8	1740
	1	27/8	1740	27/8	2210

強烈季候風信號

Strong Monsoon Signal

開始時間 Beginning Time		終結時間 Ending Time	
日/月 day/month	時 hour	日/月 day/month	時 hour
28/8	0245	28/8	0440

暴雨警告信號

Rainstorm Warnings

顏色 Colour	開始時間 Beginning Time		終結時間 Ending Time	
	日/月 day/month	時 hour	日/月 day/month	時 hour
黃色 Amber	3/8	0505	3/8	0530
紅色 Red	3/8	0530	3/8	0705
黃色 Amber	3/8	0705	3/8	0745
黃色 Amber	4/8	0620	4/8	0820
黃色 Amber	23/8	0800	23/8	1210
黃色 Amber	27/8	0510	27/8	1410
黃色 Amber	28/8	0615	28/8	0855

山泥傾瀉警告
Landslip Warning

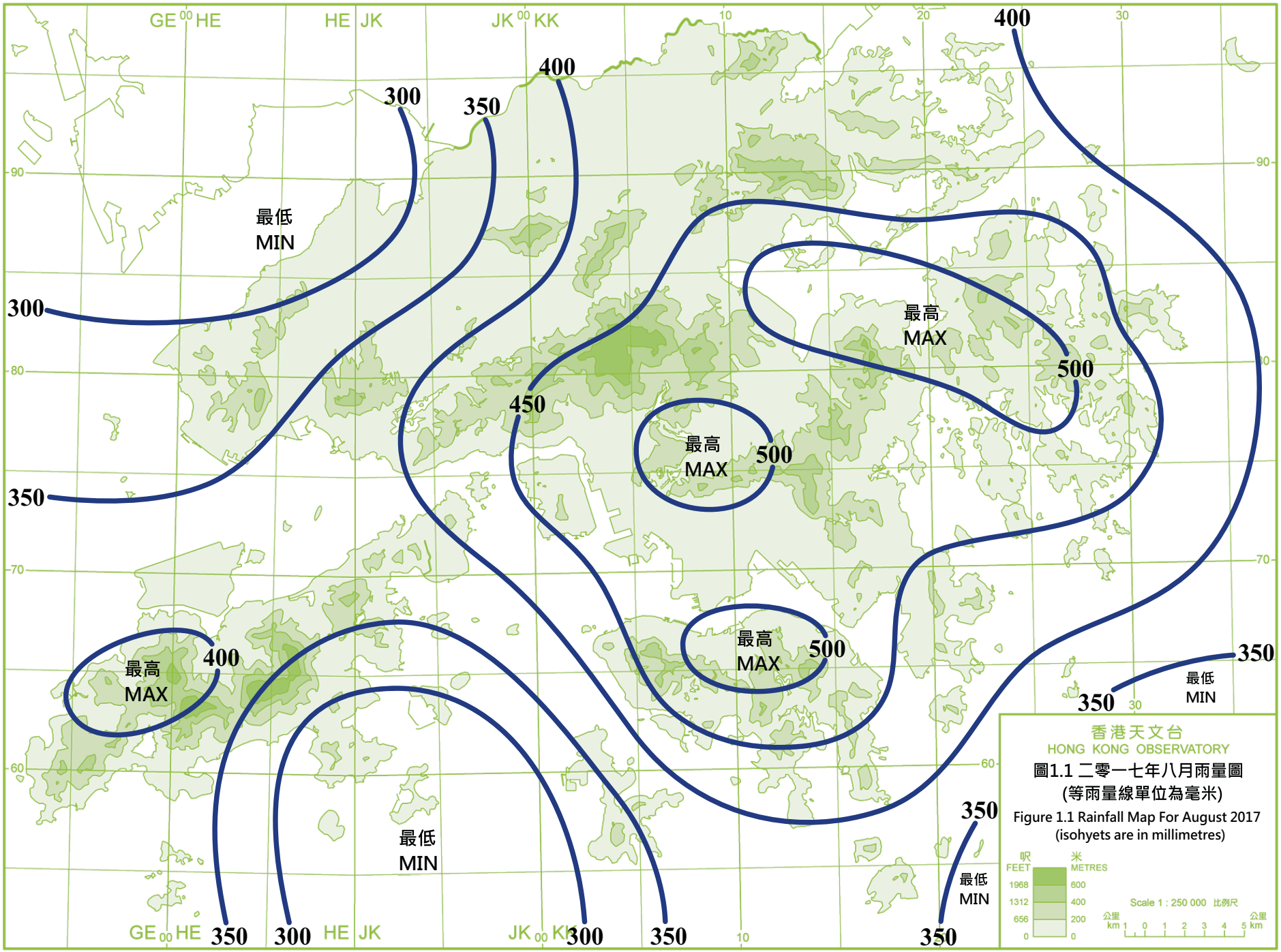
開始時間 Beginning Time		終結時間 Ending Time	
日/月 day/month	時 hour	日/月 day/month	時 hour
27/8	1610	27/8	2315

雷暴警告
Thunderstorm Warning

開始時間 Beginning Time		終結時間 Ending Time		開始時間 Beginning Time		終結時間 Ending Time	
日/月 day/month	時 hour	日/月 day/month	時 hour	日/月 day/month	時 hour	日/月 day/month	時 hour
1/8	0630	1/8	1000	2/8	0250	2/8	1400
3/8	0030	3/8	0130	3/8	0325	3/8	0815
3/8	1555	3/8	1700	4/8	0515	4/8	1115
6/8	1210	6/8	1245	7/8	0715	7/8	0830
9/8	0750	9/8	1000	9/8	1215	9/8	1400
10/8	0305	10/8	0340	10/8	0555	10/8	1230
10/8	1355	10/8	1515	12/8	0345	12/8	0430
16/8	1035	16/8	1340	18/8	1415	18/8	1500
22/8	1235	22/8	1845	23/8	0700	23/8	1500
25/8	1235	25/8	1500	26/8	0225	26/8	0330
26/8	1850	26/8	2000	26/8	2120	26/8	2330
27/8	1155	27/8	2000	27/8	2300	28/8	1730
30/8	1550	30/8	1700	30/8	1825	30/8	2045
31/8	1730	31/8	2100				

酷熱天氣警告
Very Hot Weather Warning

開始時間 Beginning Time		終結時間 Ending Time	
日/月 day/month	時 hour	日/月 day/month	時 hour
1/8	1200	1/8	1830
5/8	1215	9/8	1100
11/8	1145	15/8	1945
17/8	1500	22/8	1800
24/8	1145	24/8	1930
26/8	0645	26/8	1800
30/8	0645	31/8	0130



H.K.O.128 (2014)
地政總署測繪處繪製
Cartography by Survey and Mapping Office, Lands Department.

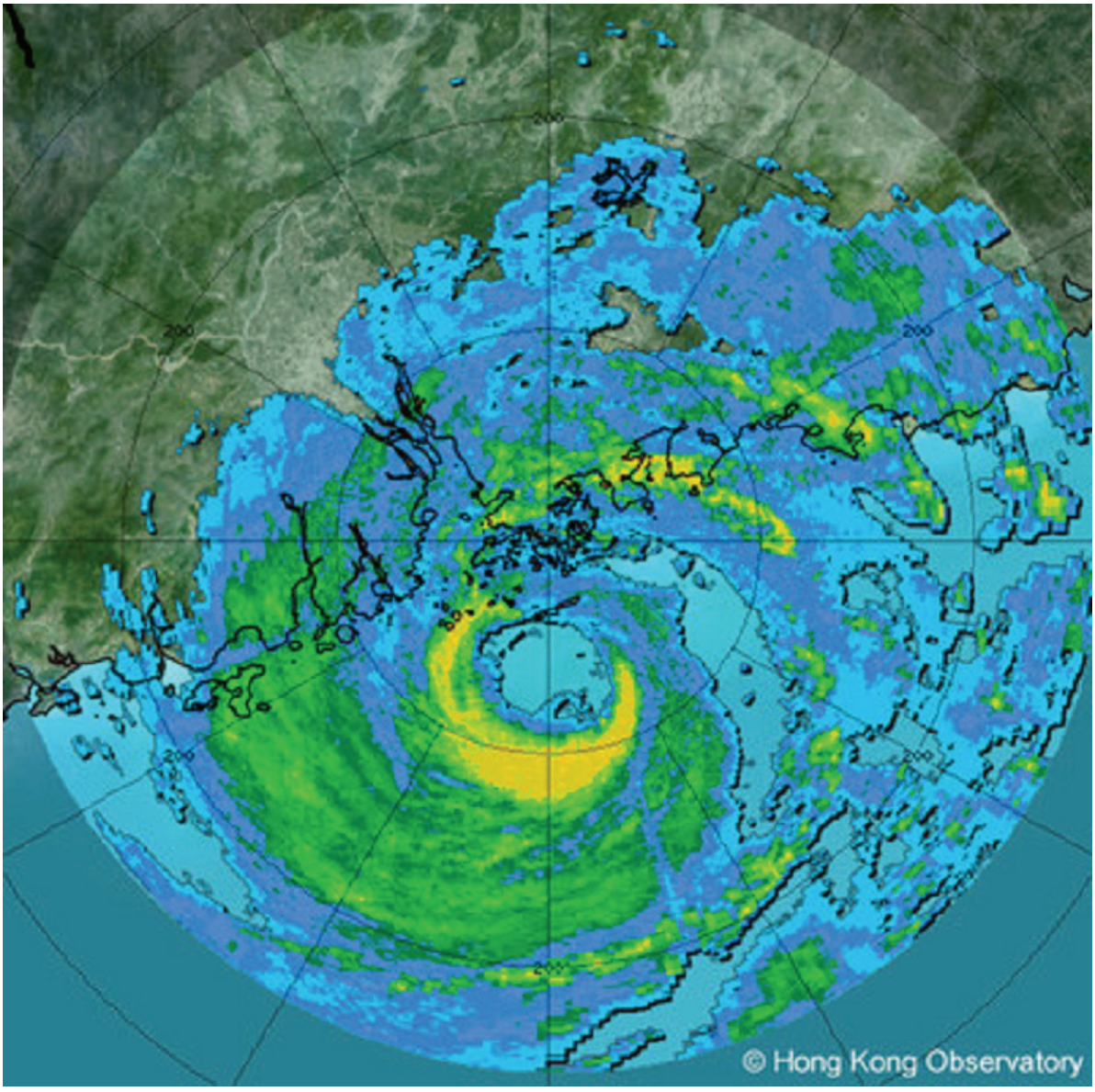


圖 1.2　強颱風天鴿於2017年8月23日早上9時12分在香港以南掠過的雷達回波圖像

Fig. 1.2　Radar imagery of Severe Typhoon Hato skirting to the south of Hong Kong at 9:12 a.m. on 23 August 2017

圖 1.3　天鴿襲港期間本港多處有樹木倒塌
(圖片鳴謝: 江偉先生 李昕駿先生 吳耀華先生)

Fig. 1.3　The approach of Hato resulted in fallen trees in many parts of the territory
(Photos courtesy of Mr. W. Kong, Mr. Derek Li, and Mr. Y. W. Ng)

圖 1.4　天鴿誘發的風暴潮令多處地區出現嚴重水浸 (圖片鳴謝: 渠務署(左) Steve Lee 先生(右))

Fig. 1.4　Storm surge induced by Hato resulted in serious flooding in many parts of the territory
(Photos courtesy of Drainage Services Department (left) and Mr. Steve Lee (right))

圖 1.5　2017年8月23日有數艘貨船在香港西南海域遇險
(圖片鳴謝: 政府飛行服務隊)

Fig. 1.5　Vessels in distress over the waters southwest of Hong Kong on 23 August 2017
(Photos courtesy of Government Flying Service)

2.1 二零一七年八月熱帶氣旋概述

二零一七年八月在北太平洋西部及南海區域出現了七個熱帶氣旋，當中天鴿及帕卡在八月下旬五天內接踵而至，分別引致香港天文台需要發出今年第三及第四次八號烈風或暴風信號。而八月二十三日天鴿襲港期間的十號颶風信號是自二零一二年七月強颱風韋森特襲港以來的第一次。

熱帶低氣壓奧鹿於七月二十一日凌晨在威克島之西北約 1 140 公里的北太平洋西部上形成，到七月三十一日發展成為超強颱風(當中過程請參閱二零一七年七月的熱帶氣旋概述)，並達到其最高強度，中心附近最高持續風速估計為每小時 185 公里。八月一至四日奧鹿大致向西北移動，並逐漸減弱。八月五日奧鹿開始轉向東北直趨日本，隨後兩天加速掠過四國及本州，最後於八月八日在本州以北的海域減弱為一個低壓區。奧鹿的生命週期長達 19 天，成為自 1961 年以來在北太平洋西部及南海區域第三最長壽命的熱帶氣旋，僅次於 1972 年的麗妲及 1986 年的韋恩。

根據報章報導，奧鹿吹襲日本期間，造成至少兩死、36 人傷及九人失蹤，數萬人被迫撤離，海陸空交通嚴重受阻，接近 20 萬戶的電力供應受到影響。

熱帶低氣壓尼格於八月一日在威克島之西北偏北約 920 公里的北太平洋西部上形成，初時向東南偏東漂移，翌日增強為熱帶風暴及轉向西北移動，並於八月三日達到其最高強度，中心附近最高持續風速估計為每小時 75 公里。八月四日尼格加速向北移動，翌日在日本以東的西北太平洋演變為一股溫帶氣旋。

熱帶低氣壓榕樹於八月十一日在威克島之東南約 490 公里的北太平洋西部上形成，初時向西北移動，隨後數天採取偏北路徑移動，並逐漸增強，於八月十三日增強為颱風，達到其最高強度，中心附近最高持續風速估計為每小時 145 公里。八月十六日榕樹開始轉向東北移動，並逐漸減弱，翌日在國際換日線以西的海面演變為一股溫帶氣旋。

熱帶低氣壓天鴿於八月二十日晚上在高雄之東南偏東約 740 公里的北太平洋西部上形成，大致向偏西方向移動，橫過呂宋海峽，翌日進入南海東北部，並增強為颱風及採取西北偏西路徑移向廣東沿岸。八月二十三日天鴿趨向珠江口一帶及進一步增強，早上在香港以南海域發展成為超強颱風，達到其最高強度，中心附近最高持續風速估計為每小時 185 公里。正午過後天鴿在澳門及珠海附近沿岸登陸，移入廣東西部及逐漸減弱。翌日天鴿橫過廣西，晚上在雲南減弱為一個低壓區。

天鴿為珠江口沿岸帶來嚴重的風暴潮，多處錄得有紀錄以來的最高水位，當中珠海站錄得風暴潮 2.79 米，而最高水位則為 6.14 米。珠海沿海地區包括幾個地下停車場被海水淹浸，全市電力及食水供應不穩定。多艘貨船在香港西南約 30 公里的水域擱淺，39 名船員獲救。天鴿為澳門帶來破壞性的風力及風暴潮，廣泛地區出現嚴重破壞及水

浸，造成至少十人死亡，超過 240 人受傷，直接經濟損失超過 83 億元澳門幣。媽閣站最高水位升至 5.58 米，是澳門自一九二五年有紀錄以來的最高潮位。電力及食水供應亦受到影響。天鴿在廣東、廣西、福建、貴州及雲南至少造成 15 人死亡，一人失蹤，約有 74 萬人受災，超過 6,500 間房屋倒塌，直接經濟損失超過 272 億元人民幣。而有關天鴿的詳細資料及在香港造成的破壞，請參閱天鴿的熱帶氣旋報告。

熱帶低氣壓帕卡於八月二十四日晚上在馬尼拉以東約 630 公里的北太平洋西部上形成，初時大致向偏西方向移動。翌日帕卡發展為熱帶風暴，以西北路徑橫過呂宋。帕卡於八月二十六日早上進入南海，並繼續採取西北路徑加速移向廣東沿岸，晚間增強為強烈熱帶風暴，達到其最高強度，中心附近最高持續風速估計為每小時 110 公里。帕卡於八月二十七日早上在廣東西部沿岸台山市登陸並逐漸減弱，當晚在廣西消散。

根據報章報導，帕卡及其殘餘在廣東、廣西、貴州及雲南帶來狂風暴雨，至少造成 12 人死亡，接近 10 萬人受災，直接經濟損失約 3.7 億元人民幣。在帕卡的吹襲下，澳門最少有八人受傷，多處地區出現水浸。一艘貨船在香港以東 120 公里沉沒，11 名船員獲救。有關帕卡的詳細資料及在香港造成的破壞，請參閱帕卡的熱帶氣旋報告。

熱帶低氣壓珊瑚於八月二十八日在硫黃島之東南約 880 公里的北太平洋西部上形成，向偏北方向移動，翌日增強為熱帶風暴。珊瑚隨後逐漸轉向偏西方向移動及進一步增強，於八月三十一日發展成為颱風，在硫黃島以北海域徘徊。與此同時，熱帶低氣壓瑪娃於八月三十一日下午在東沙之東南偏東約 270 公里的南海北部上形成。有關珊瑚及瑪娃的進一步發展請參閱二零一七年九月的熱帶氣旋概述。

2.1 Overview of Tropical Cyclones in August 2017

Seven tropical cyclones occurred over the western North Pacific and the South China Sea in August 2017. The successive passages of Hato and Pakhar within five days in late August necessitated respectively the issuance of No.8 Gale or Storm Signals by the Hong Kong Observatory for the third and fourth time this year. The issuance of No.10 Hurricane Signal during the passage of Hato on 23 August was the first time since Severe Typhoon Vicente hitting Hong Kong in July 2012.

Noru formed as a tropical depression over the western North Pacific about 1140 km northwest of Wake Island in the early hours of 21 July. It developed into a super typhoon by 31 July (for details of the process, please refer to Overview of Tropical Cyclones in July 2017), reaching its peak intensity with an estimated sustained wind of 185 km/h near its centre. Noru moved generally northwestwards on 1 - 4 August and gradually weakened. It started to turn northeast towards Japan on 5 August and accelerated across Shikoku and Honshu over the next couple of days. Noru finally degenerated into an area of low pressure over the sea areas north of Honshu on 8 August. Noru's life span reached 19 days, making it the third longest-living tropical cyclone over the western North Pacific and the South China Sea since 1961, after Rita in 1972 and Wayne in 1986.

According to press reports, at least two persons were killed, 36 injured and nine reported missing in Japan during the passage of Noru. Tens of thousands people had to be evacuated, and transportation services were seriously disrupted. Electricity supply to near 200 000 households was affected.

Nalgae formed as a tropical depression over the western North Pacific about 920 km north-northwest of Wake Island on 1 August and drifted east-southeastwards initially. It intensified into a tropical storm the next day and turned northwestwards, reaching its peak intensity with an estimated sustained wind of 75 km/h near its centre on 3 August. Nalgae accelerated northwards on 4 August and evolved into an extratropical cyclone over the western North Pacific east of Japan the next day.

Banyan formed as a tropical depression over the western North Pacific about 490 km southeast of Wake Island on 11 August. Moving northwestwards at first, it took on a more northerly course over the next few days and intensified gradually, developing into a typhoon on 13 August with an estimated sustained wind of 145 km/h near its centre at peak intensity. Banyan started to turn northeastwards and weakened gradually on 16 August, evolving into an extratropical cyclone the next day over the sea areas west of the International Date Line.

Hato formed as a tropical depression over the western North Pacific about 740 km

east-southeast of Gaoxiong on the night of 20 August. It moved generally westwards across the Luzon Strait and entered the northeastern part of the South China Sea the next day, intensifying into a typhoon and tracking west-northwest towards the coast of Guangdong. During its approach towards the Pearl River estuary on 23 August, Hato intensified further and became a super typhoon that morning over the sea areas south of Hong Kong, reaching its peak intensity with an estimated sustained wind of 185 km/h near its centre. After making landfall over the coast near Macao and Zhuhai shortly after noon time, Hato entered western Guangdong and gradually weakened. It moved across Guangxi the next day and degenerated into an area of low pressure over Yunnan at night.

Hato brought severe storm surge to the coast of Pearl River estuary. Record-high sea levels were recorded at many places. A maximum storm surge of 2.79 m and a maximum sea level of 6.14 m were recorded at Zhuhai station. The coastal areas in Zhuhai including some underground carparks were flooded by sea water. Electricity and water supply in the city became unstable. A number of vessels ran aground about 30 km southwest of Hong Kong and 39 crew members were rescued. Hato brought damaging winds and storm surge to Macao. Extensive areas of Macao suffered damage and were seriously flooded, resulting in at least ten deaths and more than 240 injuries. The direct economic loss exceeded 8.3 billion MOP. A maximum sea level of 5.58 metres was recorded in A-Ma station, a record high in Macao since records began in 1925. Electricity and water supplies were also affected. In Guangdong, Guangxi, Fujian, Guizhou and Yannan, there were at least 15 deaths and one missing during the passage of Hato. Around 740 000 people were affected and over 6 500 houses collapsed, with direct economic loss exceeding 27.2 billion RMB. For detailed information of Hato including the damage caused in Hong Kong, please refer to the Tropical Cyclone Report of Hato.

Pakhar formed as a tropical depression over the western North Pacific about 630 km east of Manila on the night of 24 August. Moving generally westwards at first, it developed into a tropical storm the next day and moved northwestwards across Luzon. Pakhar entered the South China Sea on the morning of 26 August and, maintaining a northwestward track, accelerated towards the coast of Guangdong. It intensified into a severe tropical storm during the night, reaching its peak intensity with an estimated sustained wind of 110 km/h near its centre. After making landfall over Taishan along the coast of western Guangdong on the morning of 27 August, Pakhar weakened gradually and dissipated over Guangxi that night.

According to press reports, Pakhar and its remnant brought heavy rain and squalls to Guangdong, Guangxi, Guizhou and Yunnan, resulting in at least 12 deaths. Around 100 000 people were affected with direct economic loss around 370 million RMB. Eight people

were injured and many places were flooded in Macao during the passage of Pakhar. A cargo vessel sunk about 120 km east of Hong Kong and 11 crew members on board were rescued. For detailed information of Pakhar including the damage caused in Hong Kong, please refer to the Tropical Cyclone Report of Pakhar.

Sanvu formed as a tropical depression over the western North Pacific about 880 km southeast of Iwo Jima on 28 August and, moving northwards, intensified into a tropical storm the next day. Turning gradually westwards and intensifying further, Sanvu developed into a typhoon on 31 August and lingered over the sea areas north of Iwo Jima. Meanwhile, Mawar formed as a tropical depression over the northern part of the South China Sea about 270 km east-southeast of Dongsha on the afternoon of 31 August. The further development of Sanvu and Mawar will be described in the Overview of Tropical Cyclones in September 2017.

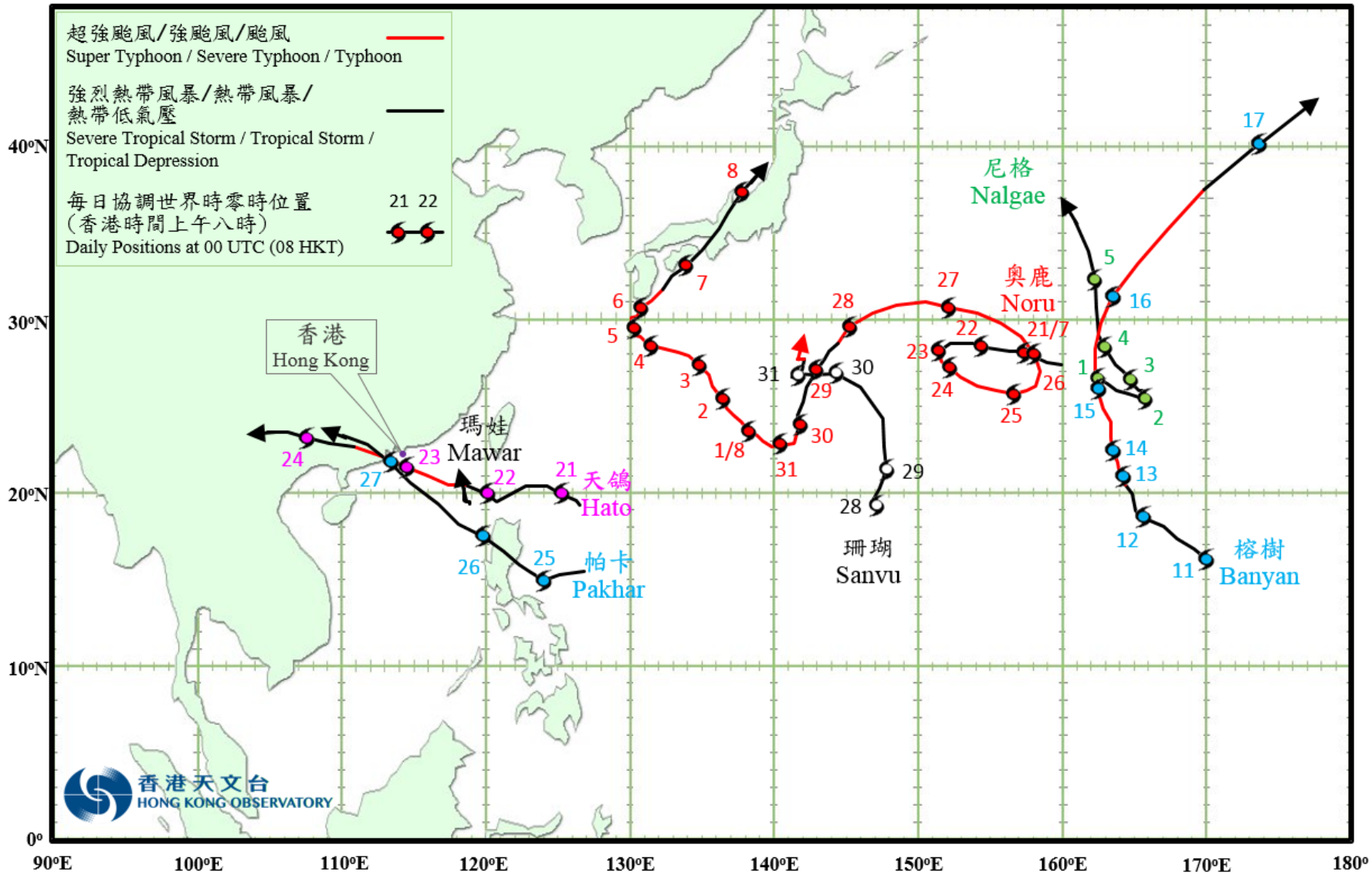


圖 2.1　　二零一七年八月的熱帶氣旋路徑圖

Fig. 2.1　　Tracks of tropical cyclones in August 2017

2.2 超強颱風天鴿 (1713)

二零一七年八月二十日至二十四日

天鴿是二零一七年第三個影響香港的熱帶氣旋，天文台需要發出十號颶風信號，是自二零一二年強颱風韋森特襲港以來再一次發出最高級別的熱帶氣旋警告信號。由於南海北部海水溫度較正常偏高，天鴿橫過南海北部期間顯著增強，在香港以南水域更短暫發展為超強颱風，是自一九七九年荷貝以來再一次有超強颱風引致天文台發出八號或以上的熱帶氣旋警告信號。

熱帶低氣壓天鴿於八月二十日晚上在高雄之東南偏東約 740 公里的北太平洋西部上形成，大致向偏西方向移動，橫過呂宋海峽，八月二十二日進入南海東北部，並增強為颱風及採取西北偏西路徑移向廣東沿岸。八月二十三日天鴿趨向珠江口一帶及進一步增強，早上在香港以南海域發展成為超強颱風，達到其最高強度，中心附近最高持續風速估計為每小時 185 公里。正午過後天鴿在澳門及珠海附近沿岸登陸，移入廣東西部及逐漸減弱。翌日天鴿橫過廣西，晚上在雲南減弱為一個低壓區。

天鴿為珠江口沿岸帶來嚴重的風暴潮，多處錄得有紀錄以來的最高潮位，當中珠海站錄得風暴潮 2.79 米，而最高潮位則為 6.14 米。珠海沿海地區包括幾個地下停車場被海水淹浸，全市電力及食水供應不穩定。多艘貨船在香港西南約 30 公里的水域擱淺，39 名船員獲救。天鴿為澳門帶來破壞性的風力及風暴潮，廣泛地區出現嚴重破壞及水浸，造成至少十人死亡，超過 240 人受傷，直接經濟損失超過 83 億元澳門幣。媽閣站最高潮位升至 5.58 米，是澳門自一九二五年有紀錄以來的最高潮位。電力及食水供應亦受到影響。天鴿在廣東、廣西、福建、貴州及雲南至少造成 15 人死亡，一人失蹤，約有 74 萬人受災，超過 6,500 間房屋倒塌，直接經濟損失超過 272 億元人民幣。

香港天文台在八月二十二日早上 8 時 40 分發出一號戒備信號，當時天鴿集結在香港之東南偏東約 660 公里。日間本港吹輕微至和緩的偏北風。受高溫觸發的狂風雷暴下午影響本港多處地區。隨著天鴿移近廣東沿岸，天文台在下午 6 時 20 分發出三號強風信號，當時天鴿位於香港之東南偏東約 410 公里。翌日凌晨本港風勢逐漸增強，吹清勁至強風程度的偏北風，高地吹烈風，天文台在上午 5 時 20 分發出八號東北烈風或暴風信號，當時天鴿集結在香港之東南約 160 公里。其後本港風勢迅速增強，多處地方吹東北烈風，離岸及高地吹暴風。由於預料天鴿將會正面吹襲珠江口，天文台在上午 8 時 10 分發出九號烈風或暴風風力增強信號，當時天鴿已移至香港天文台之東南偏南約 100 公里。早上香港風力進一步增強，天文台在上午 9 時 10 分發出十號颶風信號，當時天鴿位於天文台以南約 70 公里。本港風力普遍達到烈風至暴風程度，南部地區及高地則持續受到颶風吹襲。天鴿在早上 10 時左右最接近香港，位於香港天文台之西南偏南只有約 60 公里。天鴿在香港西面登陸，本港風向由東北逐漸轉為東南，風力開始減弱，天文台在下午 2 時 10 分改發八號東南

烈風或暴風信號。隨著天鴿減弱及遠離，天文台分別在下午 5 時 10 分及下午 6 時 20 分改發三號強風信號及一號戒備信號。晚間天鴿進一步移入內陸，天文台在晚上 8 時 40 分取消所有熱帶氣旋警告信號。

天鴿所帶來的風暴潮令本港水位普遍升高一至兩米左右，適逢天文大潮及漲潮(維多利亞港內鰂魚涌當日早上的最高天文潮約為 2.4 米)，疊加效應導致本港多處低窪地區被海水淹浸。鰂魚涌的潮位最高升至 3.57 米(海圖基準面以上)，是自 1954 年有記錄以來的第二高，僅次於一九六二年超強颱風溫黛襲港期間錄得的最高潮位紀錄 3.96 米(海圖基準面以上)。尖鼻咀錄得自一九七四年有記錄以來的最高潮位 4.56 米(海圖基準面以上)。天鴿掠過期間香港各潮汐站所錄得的最高潮位可參考圖 2.2.7。

八月二十三日天鴿吹襲香港期間，橫瀾島、長洲、大美督及北角錄得的最高每小時平均風速分別為 130、124、94 及 85 公里，最高陣風則分別為每小時 193、171、140 及 137 公里。各站錄得的最低瞬時海平面氣壓如下：

站	最低瞬時海平面氣壓(百帕斯卡)	日期/月份	時間
香港天文台總部	986.3	23/8	上午 9 時 39 分
香港國際機場	982.9	23/8	上午 10 時 57 分
京士柏	986.6	23/8	上午 9 時 40 分
坪洲	983.6	23/8	上午 9 時 52 分
打鼓嶺	990.9	23/8	上午 10 時 01 分
大埔	990.4	23/8	上午 9 時 20 分
沙田	989.6	23/8	上午 9 時 19 分
上水	990.1	23/8	上午 10 時 25 分
流浮山	988.3	23/8	上午 10 時 18 分
長洲	980.1	23/8	上午 10 時 33 分
橫瀾島	982.0	23/8	上午 9 時 34 分

受天鴿前沿下沉氣流所影響，八月二十二日本港天氣悶熱及有煙霞，多處地區的氣溫上升至 37 度或以上，而當天下午二時左右天文台的氣溫更高達 36.6 度，創下有記錄以來的最高氣溫。而高溫觸發的強烈對流在下午稍後為本港帶來大驟雨及狂風雷暴。在天鴿環流的影響下，八月二十三日本港有狂風大驟雨及雷暴，天文台在早上曾發出黃色暴雨警告。八月二十四日天氣好轉，日間部分時間有陽光。這三天期間，本港普遍錄得超過 60 毫米雨量。

天鴿吹襲香港期間，本港最少有 129 人受傷，另有超過 5,300 宗塌樹報告、多宗高空墜物意外、一宗山泥傾瀉報告及多處水浸報告。兩名警務人員在新蒲崗處理塌樹時被掉落的樹枝擊傷頭部，一人在觀塘被從高處墮下的晾衫竹枝擊傷。紅磡一幢住宅大廈有吊船在

強風下鬆脫並猛撼撞毀數戶單位的玻璃窗。灣仔及中環分別有商業大廈的玻璃幕牆被吹毀，觀塘及荃灣有棚架倒塌。大嶼山愉景灣有貨船在岸邊擱淺，船上十人安全撤離。

天鴿所觸發的風暴潮導致本港多處沿岸地區出現嚴重水浸及破壞，當中包括大澳、石壁、梅窩、長洲、杏花邨、小西灣、鯉魚門、將軍澳、沙田、大埔、西貢、元朗及流浮山等多個地區。據報大澳的水浸較二零零八年黑格比更為嚴重，水浸預警系統在風暴期間啟動，多名居民需要疏散。鯉魚門一帶亦出現嚴重水浸，海水湧入多間村屋及店舖，多名村民被水圍困，需要消防員協助疏散。杏花邨海濱長廊一帶嚴重水浸，海水湧入邨內，有地下停車場被海水淹浸。海水亦湧入小西灣運動場。沙田城門河、吐露港沿岸及大埔林村河一帶的單車徑及行人隧道被淹浸。西貢、流浮山及大埔亦有多間村屋遭受水浸。大埔有多間村屋的電力供應曾受影響。將軍澳海濱長廊被海浪沖擊受損。元朗明渠及山貝河暴漲，附近一帶水浸。石壁監獄懲教職員宿舍亦出現嚴重水浸情況，有車輛被海水沖走。因光纖電纜受損，長洲及坪洲的對外通訊服務受到影響。

天鴿亦嚴重影響本港的海陸空交通，港鐵所有架空路段的鐵路服務曾一度暫停，多區道路因強風、塌樹或水浸需要封閉。多個渡輪碼頭設施出現嚴重損毀，影響渡輪復航。香港國際機場有至少 480 班航班取消，九班航班需要轉飛其它地方。

2.2 Super Typhoon Hato (1713)
20 to 24 August 2017

Hato was the third tropical cyclone affecting Hong Kong in 2017. The highest tropical cyclone warning, No.10 Hurricane Signal, was issued for the first time since Severe Typhoon Vicente hitting Hong Kong in July 2012. Hato intensified significantly as it traversed the northern part of the South China Sea, momentarily attaining super typhoon intensity over the sea areas south of Hong Kong and the first time a super typhoon necessitating the issuance of tropical cyclone warning signals No.8 or above since Hope in 1979.

Hato formed as a tropical depression over the western North Pacific about 740 km east-southeast of Gaoxiong on the night of 20 August. It moved generally westwards across the Luzon Strait and entered the northeastern part of the South China Sea on 22 August, intensifying into a typhoon and tracking west-northwest towards the coast of Guangdong. During its approach towards the Pearl River estuary on 23 August, Hato intensified further and became a super typhoon that morning over the sea areas south of Hong Kong, reaching its peak intensity with an estimated sustained wind of 185 km/h near its centre. After making landfall over the coast near Macao and Zhuhai shortly after noon time, Hato entered western Guangdong and gradually weakened. It moved across Guangxi the next day and degenerated into an area of low pressure over Yunnan at night.

Hato brought severe storm surge to the coast of Pearl River estuary. Record-high sea levels were recorded at many places. A maximum storm surge of 2.79 m and a maximum sea level of 6.14 m were recorded at Zhuhai station. The coastal areas in Zhuhai including some underground carparks were flooded by sea water. Electricity and water supply in the city became unstable. A number of vessels ran aground about 30 km southwest of Hong Kong and 39 crew members were rescued. Hato brought damaging winds and storm surge to Macao. Extensive areas of Macao suffered damage and were seriously flooded, resulting in at least ten deaths and more than 240 injuries. The direct economic loss exceeded 8.3 billion MOP. A maximum sea level of 5.58 metres was recorded in A-Ma station, a record high in Macao since records began in 1925. Electricity and water supplies were also affected. In Guangdong, Guangxi, Fujian, Guizhou and Yannan, there were at least 15 deaths and one missing during the passage of Hato. Around 740 000 people were affected and over 6 500 houses collapsed, with direct economic loss exceeding 27.2 billion RMB.

The Hong Kong Observatory issued the No.1 Standby Signal at 8:40 a.m. on 22 August when Hato was about 660 km east-southeast of the territory. Local winds were light to moderate northerlies during the day. Squally thunderstorms triggered by high temperatures affected many places in the territory during the afternoon. As Hato edged closer to the coast of Guangdong, the No.3 Strong Wind Signal was issued at 6:20 p.m. when Hato was about 410 km east-southeast of Hong Kong. Local winds strengthened gradually in the small hours of 23 August, becoming fresh

to strong northerlies, reaching gale force on high ground. The Observatory issued the No.8 Northeast Gale or Storm Signal at 5:20 a.m. when Hato was about 160 km southeast of the territory. Local winds strengthened rapidly afterwards, with northeasterly gales in many places and reaching storm force offshore and on high ground. With Hato expected to make a direct hit over the Pearl River estuary, the No.9 Increasing Gale or Storm Signal was issued at 8:10 a.m. when Hato was about 100 km south-southeast of the Hong Kong Observatory. Local winds strengthened further that morning and the No.10 Hurricane Signal was issued at 9:10 a.m. when Hato was about 70 km south of the Hong Kong Observatory. Gale to storm force winds generally affected Hong Kong, with winds persistently reaching hurricane force over the southern part of the territory and on high ground. Hato came closest to Hong Kong around 10 a.m. that morning with its centre passing only about 60 km south-southwest of the Hong Kong Observatory. As Hato made landfall to the west of Hong Kong, local winds gradually veered from northeasterly to southeasterly and started to subside. The No.8 Southeast Gale or Storm Signal was then issued at 2:10 p.m. With Hato weakening and moving away, the No.3 Strong Wind Signal and No.1 Standby Signal were issued at 5:10 p.m. and 6:20 p.m. respectively. Hato moved further inland during the night and all tropical cyclone warning signals were cancelled at 8:40 p.m.

The storm surge brought by Hato raised the water level in Hong Kong generally by about one to two metres. Coinciding with the high water of the astronomical tide (the astronomical high tide was about 2.4 m at Quarry Bay in the Victoria Harbour that morning), the aggregated effect resulted in the inundation of many low-lying areas in Hong Kong by sea water. The water level at Quarry Bay reached a maximum of 3.57 mCD (metres above Chart Datum), the second highest since records began in 1954 and only lower than the record high of 3.96 mCD set by Super Typhoon Wanda in 1962. A maximum water level of 4.56 mCD was recorded in Tsim Bei Tsui, the highest since records began in 1974. For the maximum sea levels recorded at various tide stations in Hong Kong during the passage of Hato, please refer to Figure 2.2.7.

As Hato battered Hong Kong on 23 August, maximum hourly mean winds of 130, 124, 94 and 85 km/h and maximum gusts of 193, 171, 140 and 137 km/h were recorded at Waglan Island, Cheung Chau, Tai Mei Tuk and North Point respectively. The lowest instantaneous mean sea-level pressures recorded at some selected stations are as follows:

Station	Lowest instantaneous mean sea-level pressure (hPa)	Date/Month	Time
Hong Kong Observatory Headquarters	986.3	23/8	9:39 a.m.
Hong Kong International Airport	982.9	23/8	10:57 a.m.
King's Park	986.6	23/8	9:40 a.m.
Peng Chau	983.6	23/8	9:52 a.m.
Ta Kwu Ling	990.9	23/8	10:01 a.m.
Tai Po	990.4	23/8	9:20 a.m.
Sha Tin	989.6	23/8	9:19 a.m.
Sheung Shui	990.1	23/8	10:25 a.m.
Lau Fau Shan	988.3	23/8	10:18 a.m.
Cheung Chau	980.1	23/8	10:33 a.m.
Waglan Island	982.0	23/8	9:34 a.m.

The subsidence effect ahead of Hato's circulation brought hazy skies and oppressive heat to Hong Kong on 22 August, with temperatures in many places reaching 37 degrees or above. Temperature at the Hong Kong Observatory soared to an all-time record-breaking high of 36.6 degrees around 2 p.m. that day. Intense convection triggered by high temperatures brought heavy showers and squally thunderstorms to the territory later in the afternoon. Under the influence of Hato's circulation, there were heavy squally showers and thunderstorms on 23 August, and Amber Rainstorm Warning was issued by the Observatory that morning. The weather improved with sunny periods during the day on 24 August. More than 60 mm of rainfall were recorded generally over Hong Kong during the 3-day period.

In Hong Kong, at least 129 people were injured during the passage of Hato. There were over 5,300 reports of fallen trees, many incidents of falling objects, one report of landslide as well as a number of flooding reports. Two police officers were hit on the head by falling branches near San Po Kong when clearing the fallen trees. One person was injured by a falling clothes-hanging pole in Kwun Tong. A suspended work platform at an apartment block in Hung Hom came loose under strong winds and rammed into the windows of several units of the building. Glass curtain walls of several commercial buildings in Wan Chai and Central were shattered. Some scaffolding in Kwun Tong and Tsueu Wan collapsed. A vessel ran aground near Discovery Bay in Lantau Island and ten crew members on board were taken to safety.

Storm surge induced by Hato resulted in serious flooding and damages in a number of coastal areas in Hong Kong, including Tai O, Shek Pik, Mui Wo, Cheung Chau, Heng Fa Chuen, Siu Sai Wan, Lei Yue Mun, Tseung Kwan O, Sha Tin, Tai Po, Sai Kung, Yuen Long and Lau Fau Shan. The

flooding in Tai O was reported to be more damaging than that of Hagupit in 2008. The flood alert system for Tai O was activated and many residents were evacuated. Serious flooding also occurred in Lei Yue Mun, with sea water flowing into a number of village houses and shops, trapping many residents who had to be helped to safety by firemen. The Heng Fa Chuen promenade was inundated, with sea water flowing into the estate and its underground car park. Siu Sai Wan Sports Ground was also flooded by sea water. The cycle tracks and subways near Shing Mun River in Sha Tin, coastal area of Tolo Harbour, Lam Tsuen River in Tai Po were flooded, as well as a number of village houses in Sai Kung, Lau Fau Shan and Tai Po. Electricity supply to many village houses in Tai Po was interrupted. The waterfront at Tseung Kwan O was damaged by sea waves. The surge of water level in Yuen Long nullah and Shan Pui River resulted in flooding nearby. Shek Pik Prison Staff Quarters was also seriously flooded, with vehicles swept away by sea waters. External communication services in Cheung Chau and Peng Chau were affected as a result of damaged optical fibre cables.

Transportation services in Hong Kong were seriously affected by Hato. Train services along the open sections of MTR were once suspended. Many roads were closed due to strong winds, fallen trees or flooding. Resumption of ferry services was affected due to the damage of facilities at a number of ferry terminals. More than 480 flights were cancelled and nine flights were diverted at the Hong Kong International Airport.

表 2.2.1　本港各站在天鴿熱帶氣旋警告信號生效時所錄得的最高陣風、最高每小時平均風速及風向

Table 2.2.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when the tropical cyclone warning signals for Hato were in force

站 Station (http://www.weather.gov.hk/informtc/station2017_uc.htm)		最高陣風 Maximum Gust					最高每小時平均風速 Maximum Hourly Mean Wind				
		風向 Direction		風速 (公里/時) Speed (km/h)	日期/月份 Date/Month	時間 Time	風向 Direction		風速 (公里/時) Speed (km/h)	日期/月份 Date/Month	時間 Time
黃麻角(赤柱)	Bluff Head (Stanley)	東北	NE	139	23/8	09:06	東南	SE	87	23/8	11:00
中環碼頭	Central Pier	東	E	137	23/8	09:55	東	E	70	23/8	10:00
長洲	Cheung Chau	東南	SE	171	23/8	11:01	東南	SE	124	23/8	12:00
長洲泳灘	Cheung Chau Beach	東北偏東	ENE	193	23/8	10:15	東北	NE	121	23/8	10:00
香港國際機場	Hong Kong International Airport	東南偏東	ESE	144	23/8	11:55	東	E	90	23/8	11:00
啟德	Kai Tak	東北	NE	130	23/8	08:54	東南偏東	ESE	67	23/8	12:00
京士柏	King's Park	東南偏東	ESE	113	23/8	10:49	東南偏東	ESE	52	23/8	11:00
流浮山	Lau Fau Shan	東北偏北	NNE	112	23/8	08:55	北	N	65	23/8	09:00
昂坪	Ngong Ping	東	E	224	23/8	11:07	東北偏東	ENE	131	23/8	11:00
北角	North Point	東北偏東	ENE	137	23/8	09:49	東北偏東	ENE	85	23/8	10:00
坪洲	Peng Chau	東	E	151	23/8	10:53	東	E	96	23/8	11:00
平洲	Ping Chau	東北偏東	ENE	77	23/8	08:57	東北偏東	ENE	25	23/8	09:00
西貢	Sai Kung	東	E	112	23/8	10:00	東北	NE	70	23/8	10:00
沙洲	Sha Chau	東南偏南	SSE	137	23/8	12:21	東南偏東	ESE	88	23/8	12:00
沙田	Sha Tin	東北偏北	NNE	104	23/8	09:27	東南	SE	38	23/8	13:00
石崗	Shek Kong	東北	NE	106	23/8	09:52	東	E	45	23/8	12:00
九龍天星碼頭	Star Ferry (Kowloon)	東	E	112	23/8	09:54	東	E	59	23/8	11:00
打鼓嶺	Ta Kwu Ling	東北偏北	NNE	99	23/8	09:42	東北偏北	NNE	41	23/8	10:00
大美督	Tai Mei Tuk	東北偏東	ENE	140	23/8	10:20	東北偏東	ENE	94	23/8	10:00
							東	E	94	23/8	11:00
大帽山	Tai Mo Shan	東南偏東	ESE	196	23/8	11:22	東南	SE	90	23/8	13:00
大埔滘	Tai Po Kau	東南偏東	ESE	113	23/8	11:38	東	E	68	23/8	11:00
塔門*	Tap Mun*	東北偏東	ENE	122	23/8	09:22	東北偏東	ENE	94	23/8	10:00
		東北偏東	ENE	122	23/8	09:29					
大老山	Tate's Cairn	東北	NE	187	23/8	08:37	東北偏東	ENE	118	23/8	09:00
將軍澳	Tseung Kwan O	東南偏東	ESE	96	23/8	11:04	東北偏北	NNE	36	23/8	09:00
							東南偏東	ESE	36	23/8	12:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南偏東	ESE	106	23/8	10:40	東南偏東	ESE	43	23/8	12:00
屯門政府合署	Tuen Mun Government Offices	東南	SE	112	23/8	11:52	東南	SE	43	23/8	13:00
橫瀾島	Waglan Island	東	E	193	23/8	09:10	東北	NE	130	23/8	09:00
濕地公園	Wetland Park	東北	NE	76	23/8	09:57	東北偏東	ENE	38	23/8	11:00
黃竹坑	Wong Chuk Hang	東	E	117	23/8	10:00	東	E	43	23/8	11:00

*新塔門測風站在 2017 年 7 月 6 日取代在塔門警崗屋頂的舊測風站。

*The old anemometer station on the rooftop of Tap Mun Police Post is replaced by the new Tap Mun station on 6 July 2017.

青洲, 沙螺灣- 沒有資料　Green Island, Sha Lo Wan - data not available

表 2.2.2　在天鴿熱帶氣旋警告信號生效時八個參考測風站錄得持續風力達到強風及烈風程度的時段

Table 2.2.2　Periods during which sustained strong and gale force winds were attained at the eight reference anemometers when tropical cyclone warning signals for Hato were in force

站 Station (http://www.weather.gov.hk/informtc/station2017_uc.htm)		最初達到強風時間* Start time when strong wind speed* was attained		最後達到強風時間* End time when strong wind speed* was attained		最初達到烈風時間# Start time when gale force wind speed# was attained		最後達到烈風時間# End time when gale force wind speed# was attained	
		日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time
長洲	Cheung Chau	23/8	05:13	23/8	16:51	23/8	07:33	23/8	13:45
香港國際機場	Hong Kong International Airport	22/8	16:11	23/8	15:26	23/8	08:41	23/8	13:32
啟德	Kai Tak	23/8	08:49	23/8	12:41	23/8	10:26	23/8	12:05
流浮山	Lau Fau Shan	23/8	06:33	23/8	14:55	23/8	08:24	23/8	10:36
西貢	Sai Kung	23/8	06:16	23/8	16:13	23/8	08:08	23/8	12:26
沙田	Sha Tin	23/8	12:08	23/8	12:50	-			
打鼓嶺	Ta Kwu Ling	23/8	08:56	23/8	10:35	-			
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	23/8	10:37	23/8	13:34	-			

- 未達到指定的風速

- not attaining the specified wind speed

* 十分鐘平均風速達每小時 41-62 公里

* 10-minute mean wind speed of 41- 62 km/h

十分鐘平均風速達每小時 63-87 公里

10-minute mean wind speed of 63-87 km/h

註:　本表列出持續風力達到強風及烈風程度的起始及終結時間。期間風力可能高於或低於指定的風力。

Note: The table gives the start and end time of sustained strong or gale force winds. Winds might fluctuate above or below the specified wind speeds in between the times indicated.

表 2.2.3　天鴿掠過期間，香港天文台總部及其他各站所錄得的日雨量

Table 2.2.3　Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Hato

站 (參閱圖 2.2.3) Station (See Fig. 2.2.3)			八月二十二日 22 Aug	八月二十三日 23 Aug	八月二十四日 24 Aug	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory			2.0	67.1	微量 Trace	69.1
香港國際機場 Hong Kong International Airport (HKA)			20.4	58.7	2.4	81.5
長洲 Cheung Chau (CCH)			1.5	32.0	0.0	33.5
H23	香 港 仔	Aberdeen	1.5	51.5	0.0	53.0
N05	粉 嶺	Fanling	3.0	49.0	1.0	53.0
N13	糧 船 灣	High Island	17.5	46.0	0.0	63.5
K04	佐 敦 谷	Jordan Valley	2.0	66.5	0.0	68.5
N06	葵 涌	Kwai Chung	0.5	82.0	0.0	82.5
H12	半 山 區	Mid Levels	3.0	71.0	0.0	74.0
N09	沙 田	Sha Tin	0.5	88.5	3.5	92.5
H19	筲 箕 灣	Shau Kei Wan	8.5	62.5	0.0	71.0
SEK	石 崗	Shek Kong	1.0	96.0	0.0	97.0
K06	蘇 屋 邨	So Uk Estate	3.5	89.0	0.0	92.5
R31	大 美 督	Tai Mei Tuk	2.5	66.0	[2.5]	[71.0]
R21	踏 石 角	Tap Shek Kok	19.0	82.5	[3.0]	[104.5]
TMR	屯 門 水 庫	Tuen Mun Reservoir	4.6	73.2	0.0	77.8
N17	東 涌	Tung Chung	29.5	56.5	0.0	86.0

註 : [ ] 基於不完整的每小時雨量數據。Note : [ ] based on incomplete hourly data.

表 2.2.4　天鴿掠過期間，香港各潮汐站所錄得的最高潮位及最大風暴潮

Table 2.2.4　Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Hato

站 Station (http://www.weather.gov.hk/informtc/station2017_uc.htm)		最高潮位 (海圖基準面以上) Maximum sea level (above chart datum)			最大風暴潮 (天文潮高度以上) Maximum storm surge (above astronomical tide)		
		高度(米) Height (m)	日期/月份 Date/Month	時間 Time	高度(米) Height (m)	日期/月份 Date/Month	時間 Time
鰂魚涌	Quarry Bay	3.57	23/8	10:27	1.18	23/8	10:27
石壁	Shek Pik	3.91	23/8	11:30	1.54	23/8	11:32
大廟灣*	Tai Miu Wan*	3.14	23/8	07:53	1.05	23/8	07:53
大埔滘	Tai Po Kau	4.09	23/8	10:58	1.65	23/8	10:58
尖鼻咀	Tsim Bei Tsui	4.56	23/8	13:42	2.42	23/8	13:42
橫瀾島*	Waglan Island*	2.97	23/8	07:35	0.76	23/8	07:35

*數據不完整　* incomplete data

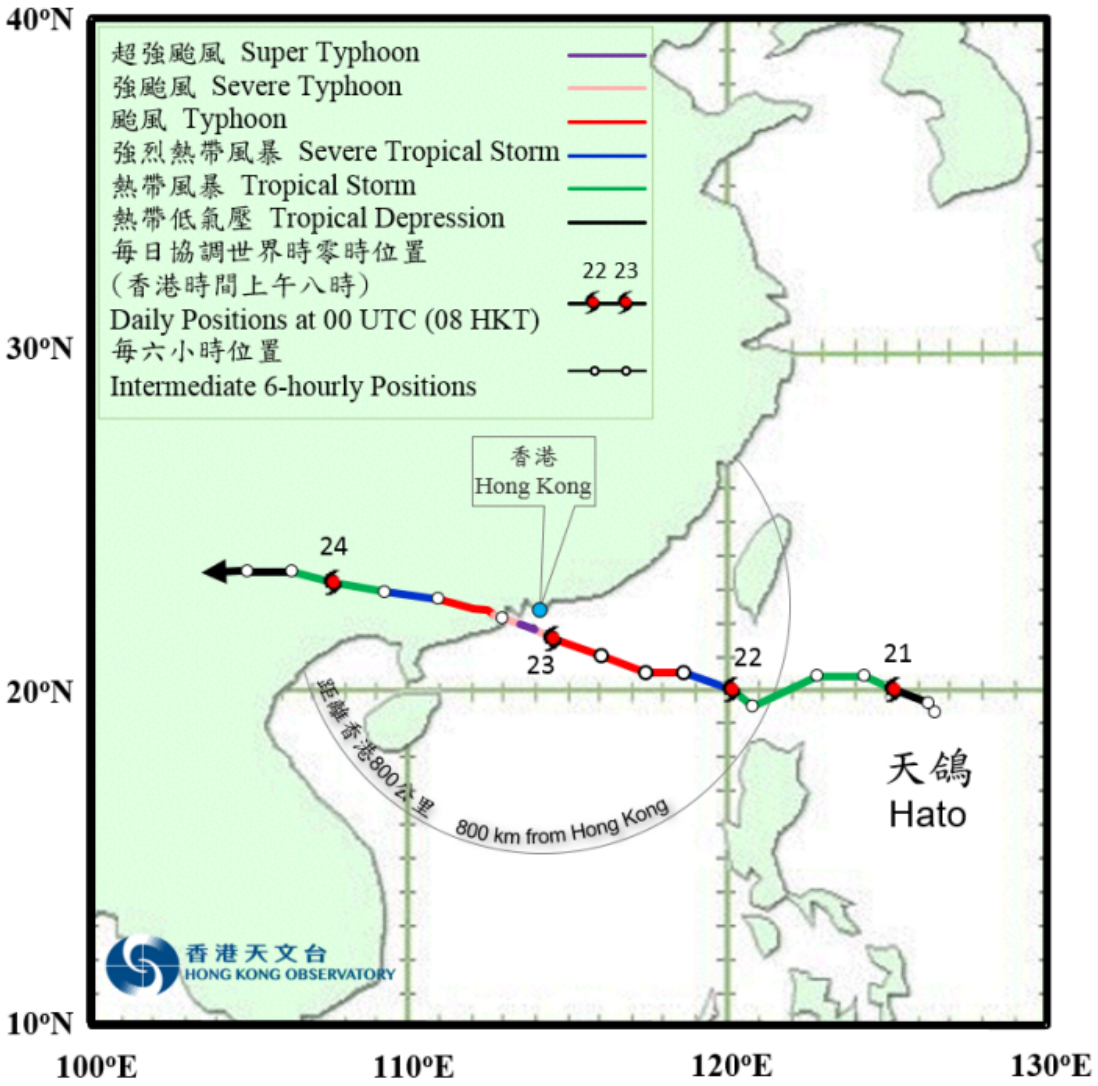


圖 2.2.1(a) 二零一七年八月二十日至二十四日天鴿的暫定路徑圖。

Figure 2.2.1(a) Provisional track of Hato: 20 – 24 August 2017.

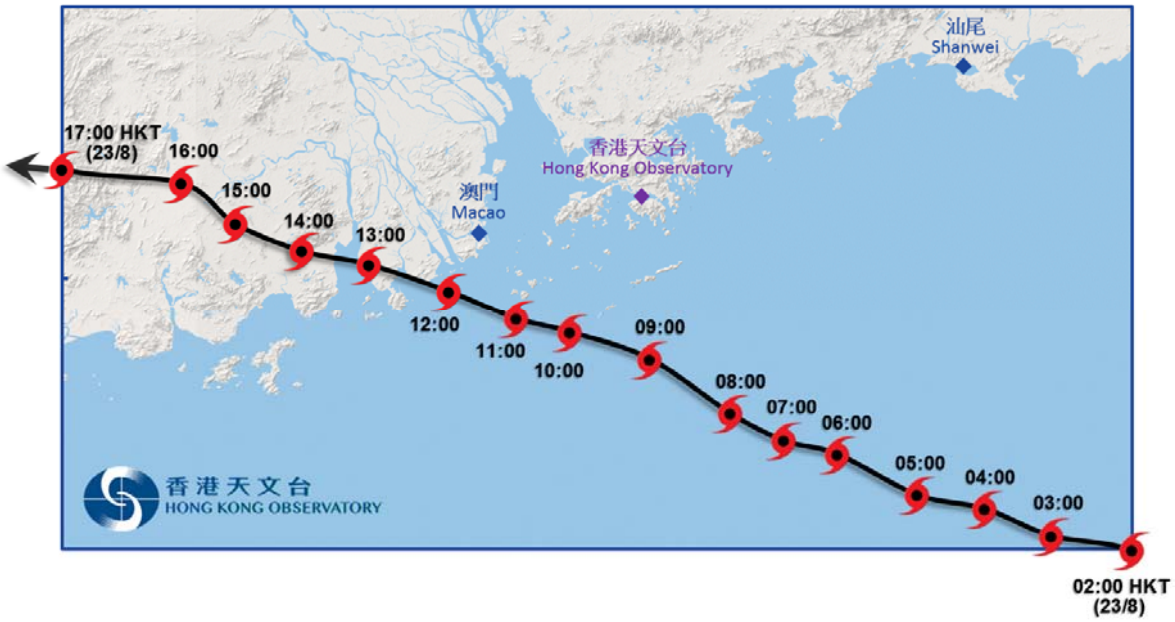


圖 2.2.1(b) 天鴿接近香港時的暫定路徑圖。

Figure 2.2.1(b) Provisional track of Hato near Hong Kong.

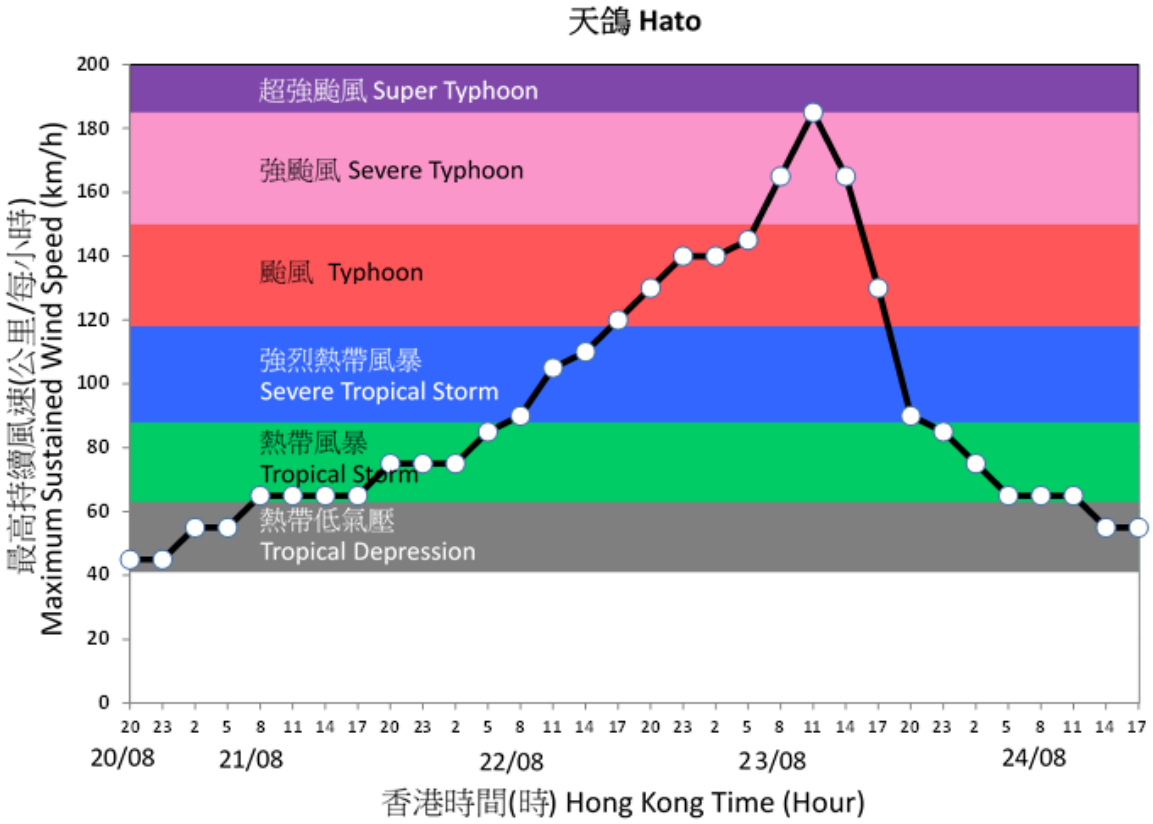


圖 2.2.2 天鴿中心附近最高持續風速的時間序列(暫定)。

Figure 2.2.2 Time series of the maximum sustained wind speed near the centre of Hato (provisional).

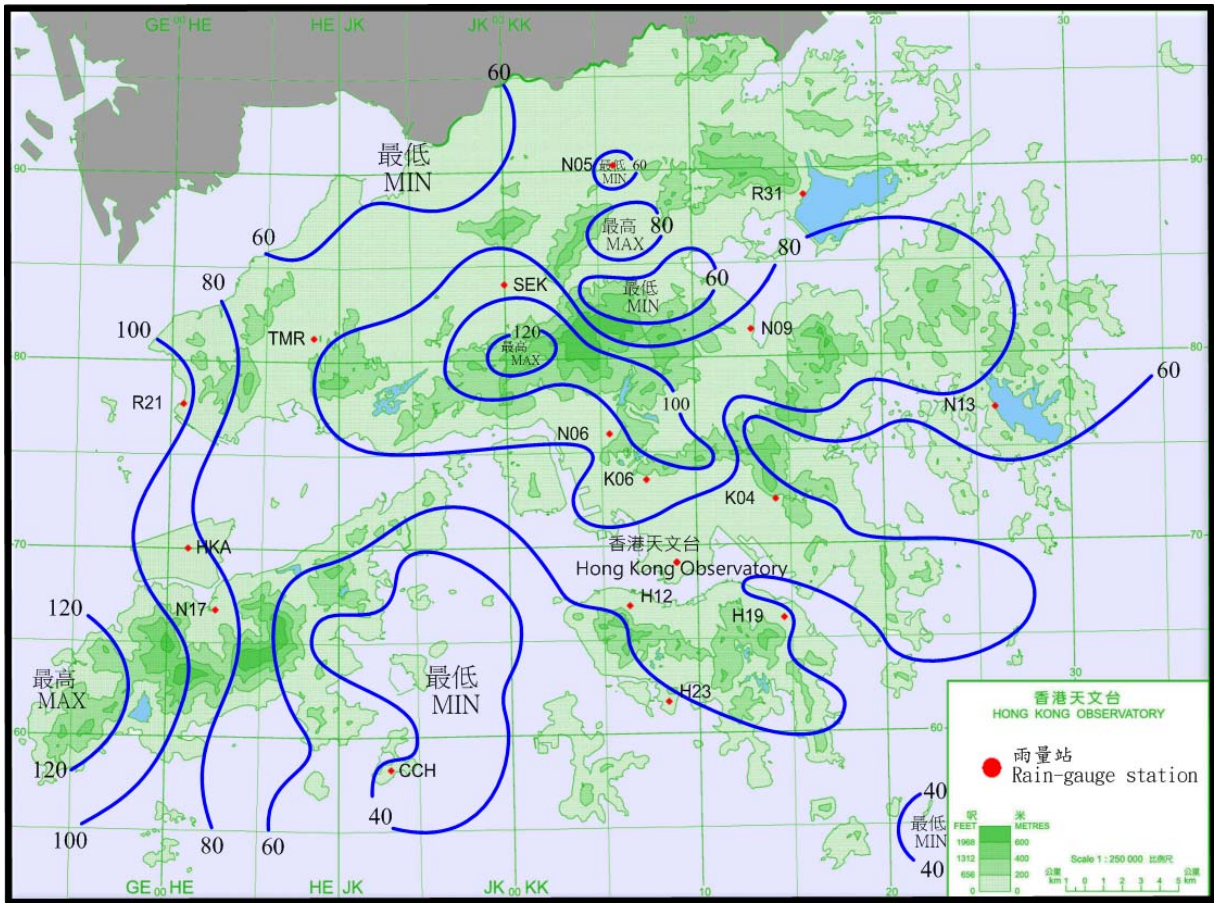


圖 2.2.3　　二零一七年八月二十二日至二十四日的雨量分佈(等雨量線單位為毫米)。

Figure 2.2.3　Rainfall distribution on 22 - 24 August 2017 (isohyets in millimetres).

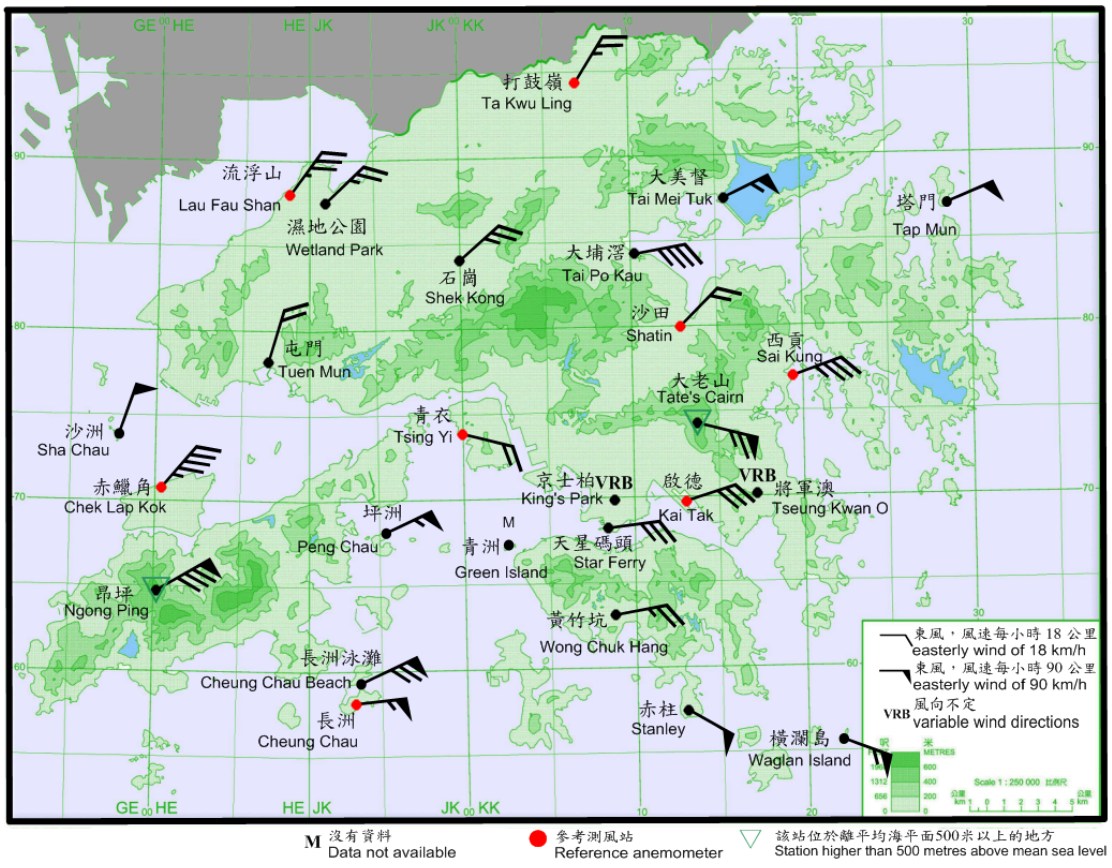


圖 2.2.4(a)　二零一七年八月二十三日早上 10 時正香港各站錄得的十分鐘平均風向和風速。當時本港普遍吹東至東北風，長洲泳灘、大老山及昂坪的風力達到颶風程度。

Figure 2.2.4(a)　10-minute mean wind direction and speed recorded at various stations in Hong Kong at 10 a.m. on 23 August 2017. Winds were generally from the east to northeast over the territory, with winds reaching hurricane force at Cheung Chau Beach, Tate's Cairn and Ngong Ping at that time.

註：　京士柏及將軍澳當時錄得的十分鐘平均風速分別為每小時 36 及 20 公里。

Note:　The 10-minute mean wind speeds recorded at the time at King's Park and Tseung Kwan O were 36 km/h and 20 km/h respectively.

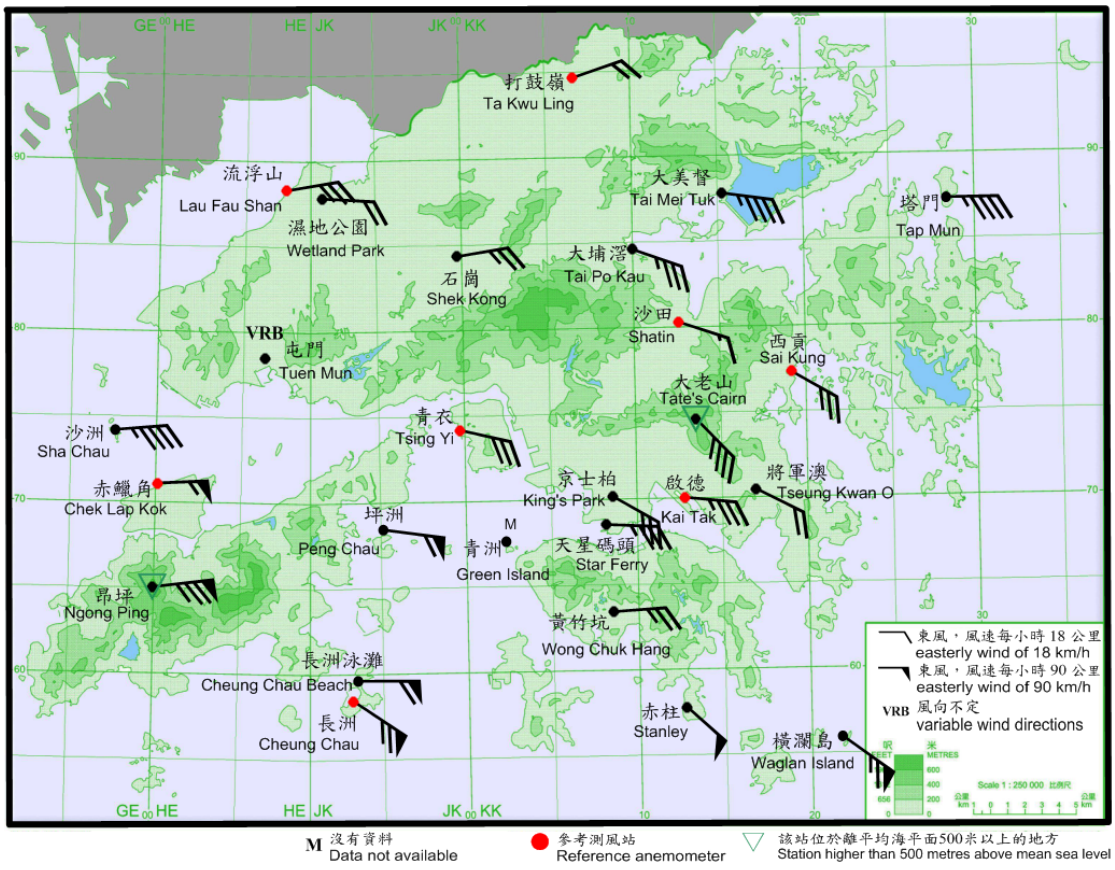


圖 2.2.4(b)　二零一七年八月二十三日早上 11 時正香港各站錄得的十分鐘平均風向和風速。當時本港普遍吹東至東南風，長洲及昂坪的風力達到颶風程度。

Figure 2.2.4(b)　10-minute mean wind direction and speed recorded at various stations in Hong Kong at 11 a.m. on 23 August 2017. Winds were generally from the east to southeast over the territory, with winds reaching hurricane force at Cheung Chau and Ngong Ping at that time.

註：　屯門當時錄得的十分鐘平均風速為每小時 30 公里。

Note:　The 10-minute mean wind speeds recorded at the time at Tuen Mun was 30 km/h.

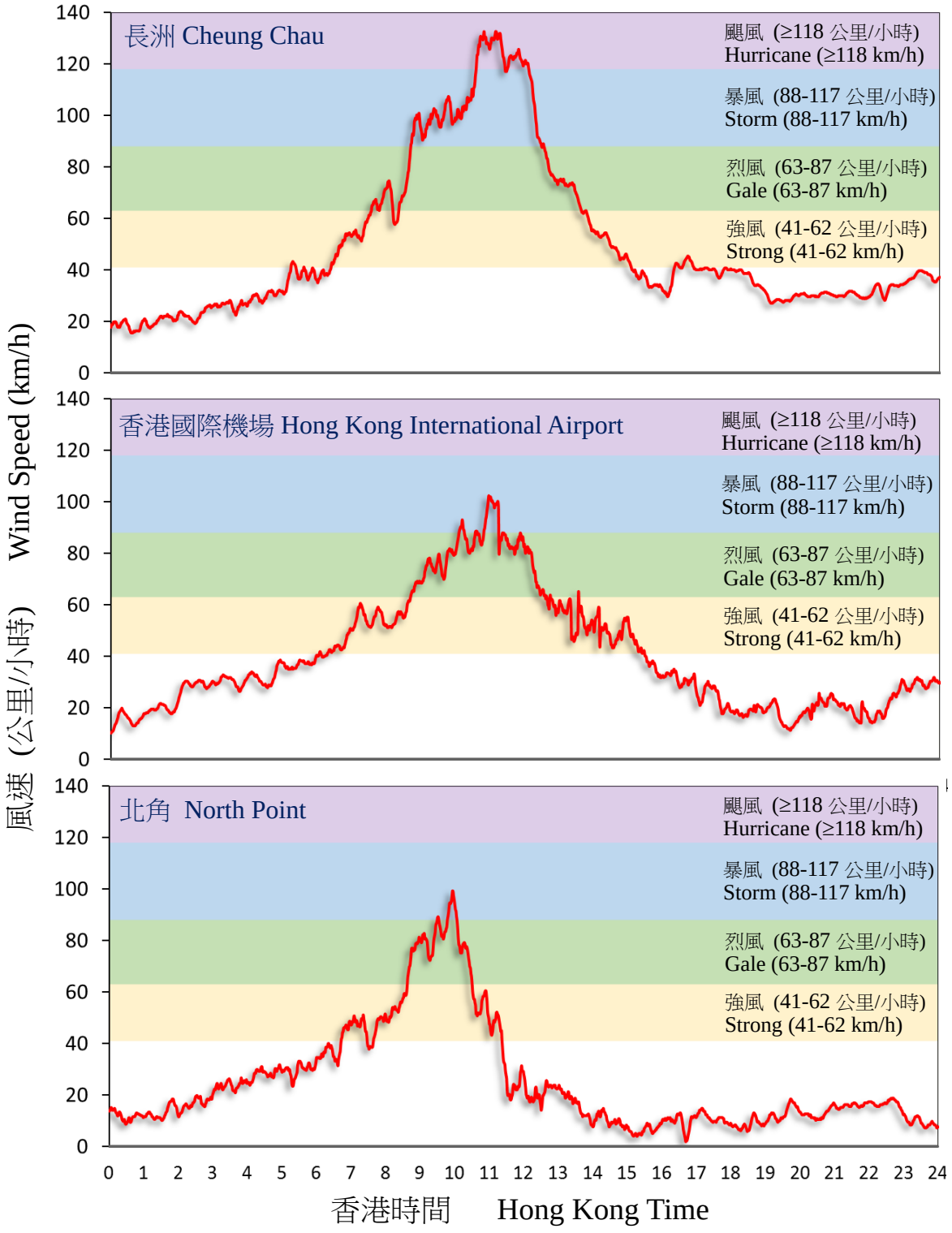


圖 2.2.5 二零一七年八月二十三日在長洲、香港國際機場及北角錄得的十分鐘風速。

Figure 2.2.5 Traces of 10-minute wind speed at Cheung Chau, Hong Kong International Airport and North Point on 23 August 2017.

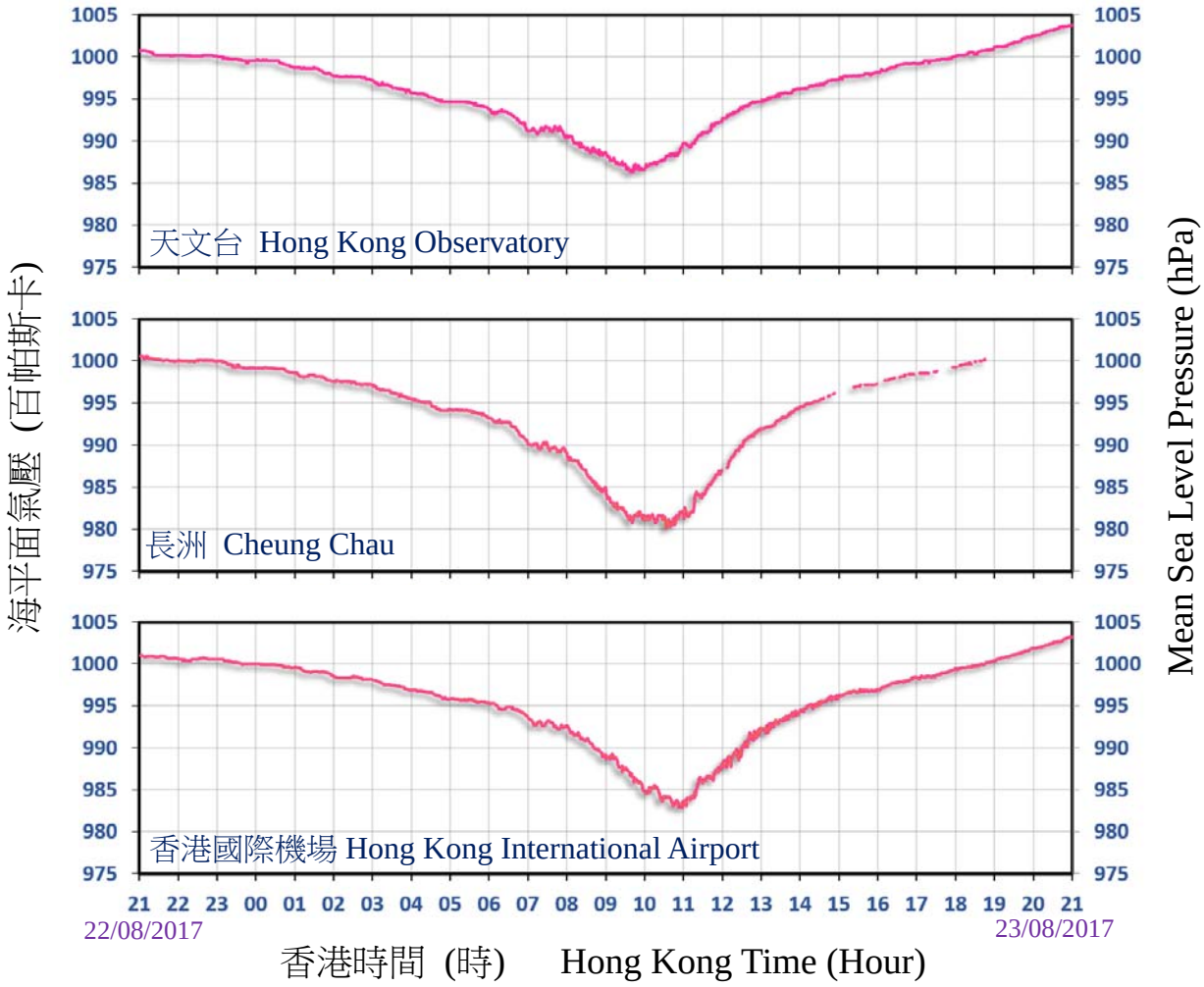


圖 2.2.6 二零一七年八月二十二至二十三日香港天文台、長洲及香港國際機場錄得的海平面氣壓。

Figure 2.2.6 Traces of mean sea-level pressure recorded at the Hong Kong Observatory, Cheung Chau and Hong Kong International Airport on 22 and 23 August 2017.

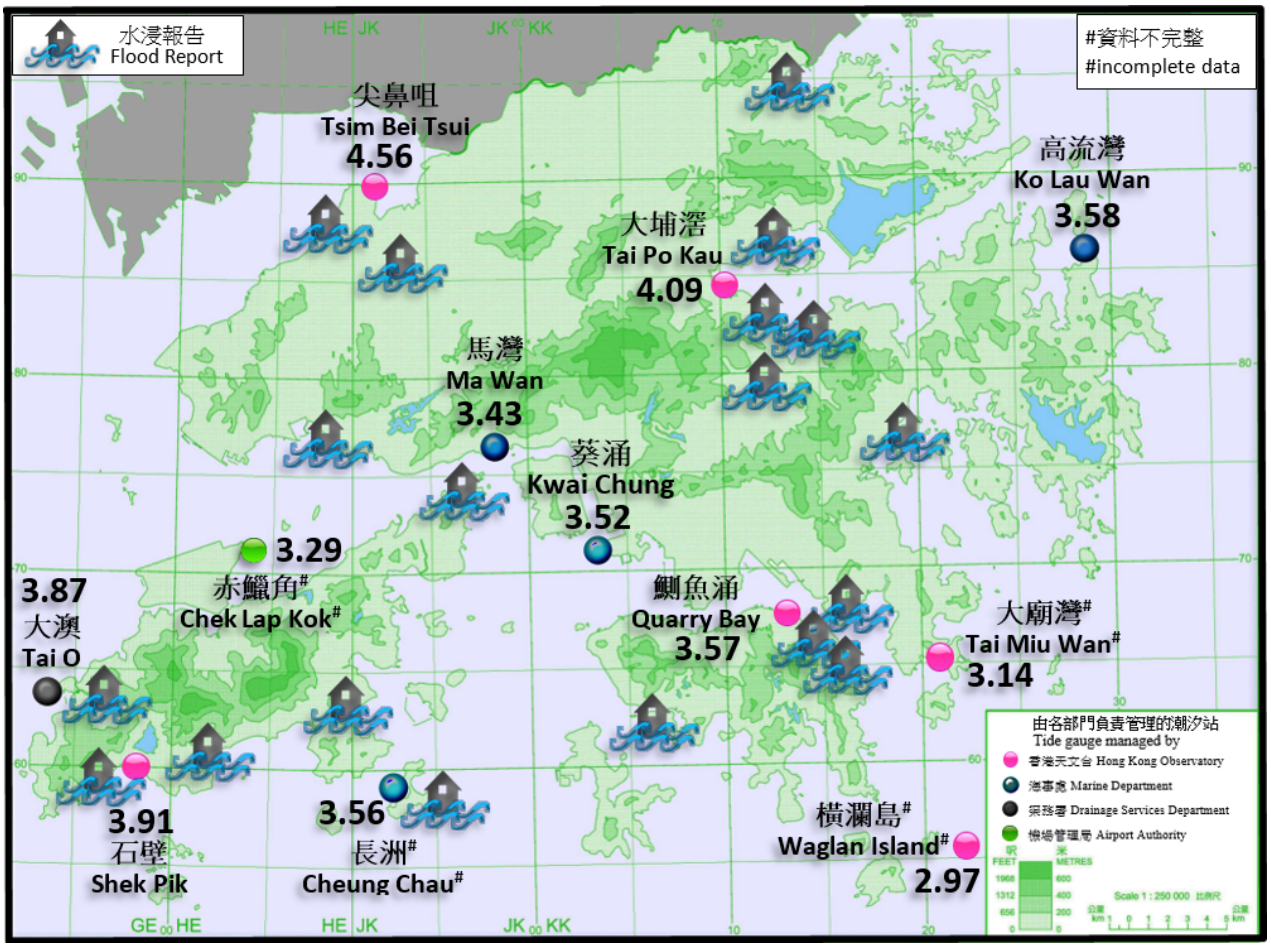


圖 2.2.7　二零一七年八月二十三日香港各潮汐站錄得的最高潮位(單位為米，海圖基準面以上)及根據政府部門、新聞及社交媒體的水浸報告。

Figure 2.2.7　Maximum sea level (metres above Chart Datum) recorded at various tide stations in Hong Kong and flood reports from government departments, news and social media on 23 August 2017.

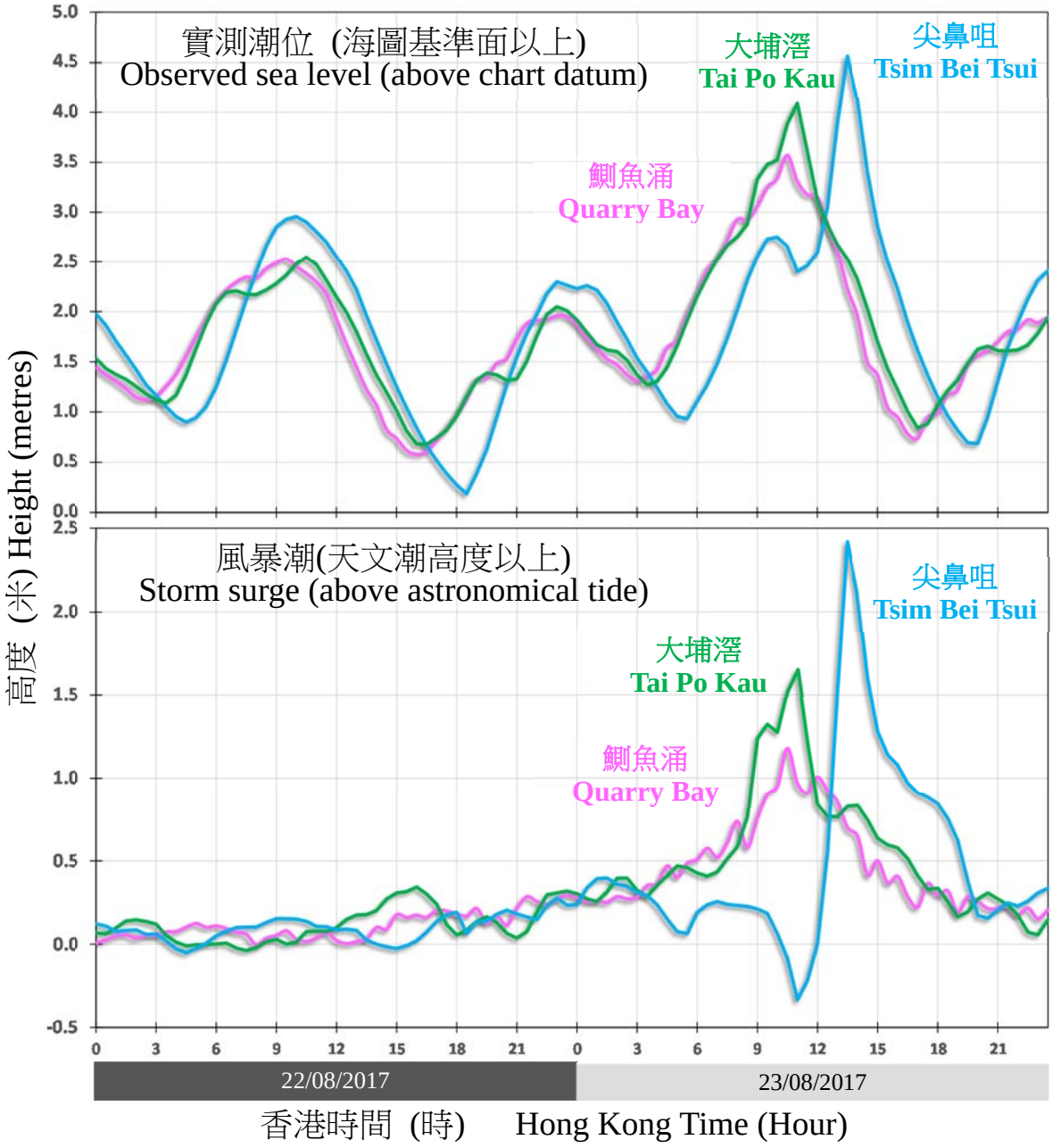


圖 2.2.8　二零一七年八月二十二至二十三日在鰂魚涌、大埔滘及尖鼻咀錄得的潮位(海圖基準面以上)及風暴潮(天文潮高度以上)。

Figure 2.2.8　Traces of sea level (above chart datum) and storm surge (above astronomical tide) recorded at Quarry Bay, Tai Po Kau, and Tsim Bei Tsui on 22 and 23 August 2017.

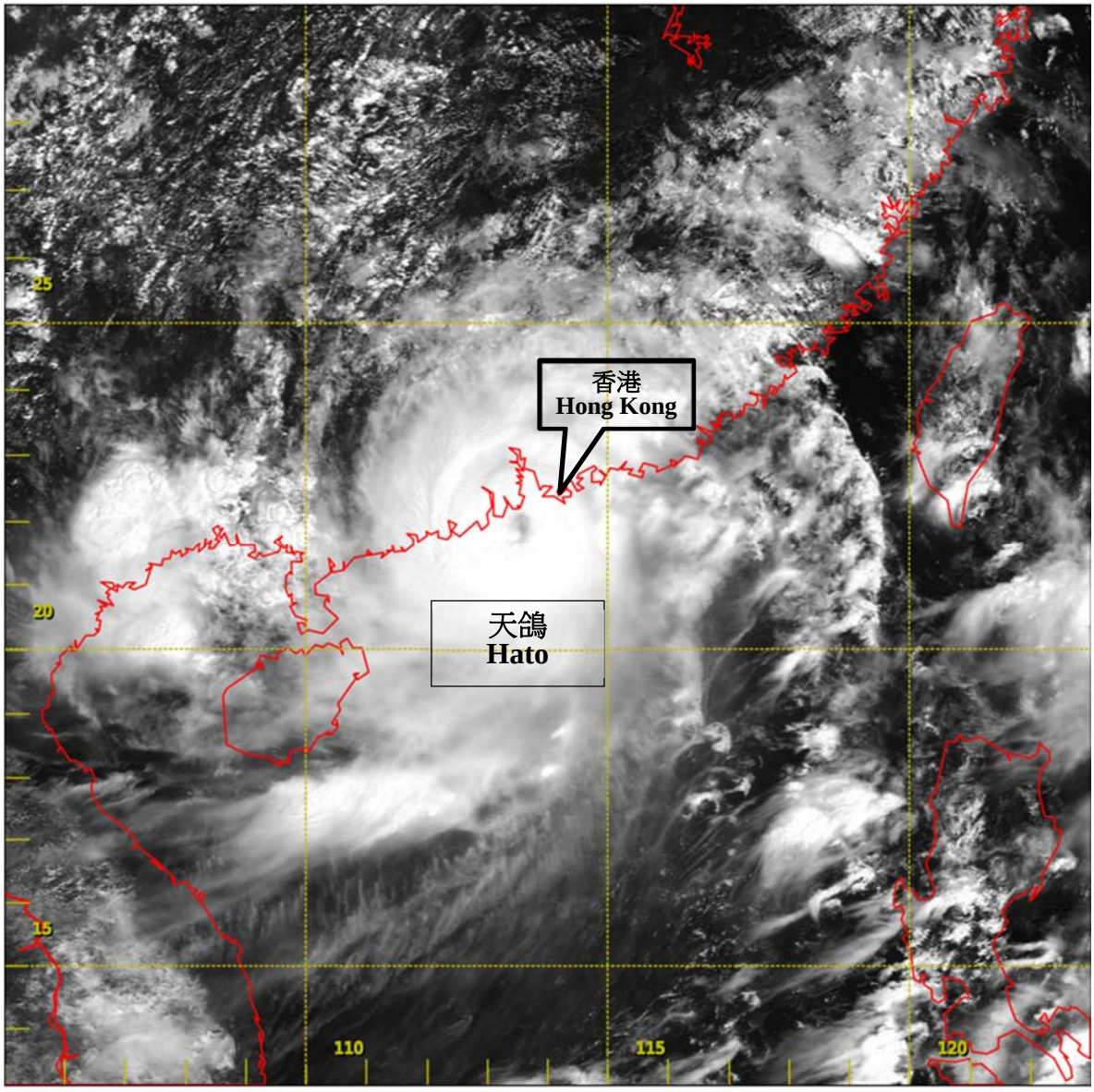


圖 2.2.9　二零一七年八月二十三日上午 11 時左右的可見光衛星圖片，當時天鴿達到其最高強度，中心附近最高持續風速估計為每小時 185 公里。

Figure 2.2.9　Visible satellite imagery around 11 a.m. on 23 August 2017, when Hato was at peak intensity with estimated maximum sustained winds of 185 km/h near its centre.

〔此衛星圖像接收自日本氣象廳的向日葵 8 號衛星。〕
[The satellite imagery was originally captured by Himawari-8 Satellite (H-8) of Japan Meteorological Agency (JMA).]

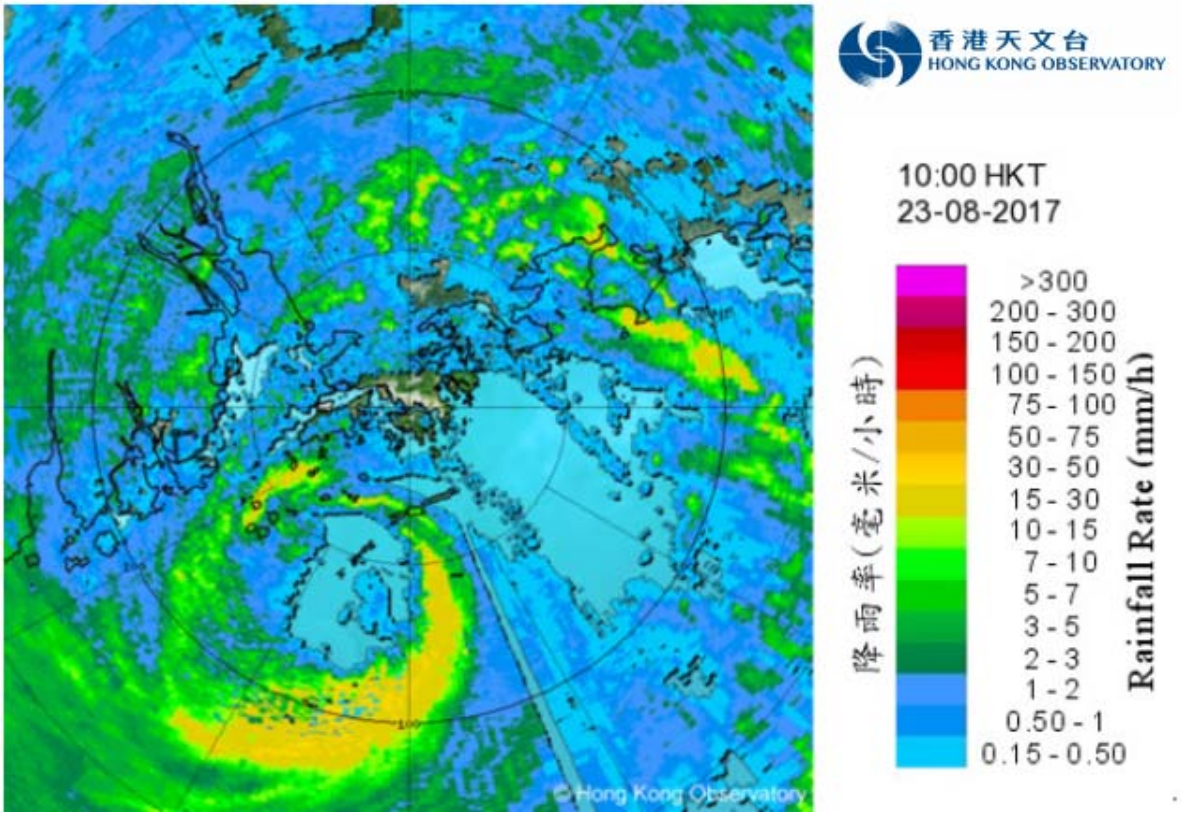


圖 2.2.10　二零一七年八月二十三日上午 10 時天鴿最接近天文台總部時的雷達回波圖像。

Figure 2.2.10　Image of radar echoes at 10:00 a.m. on 23 August 2017 when Hato was closest to the Hong Kong Observatory Headquarters.

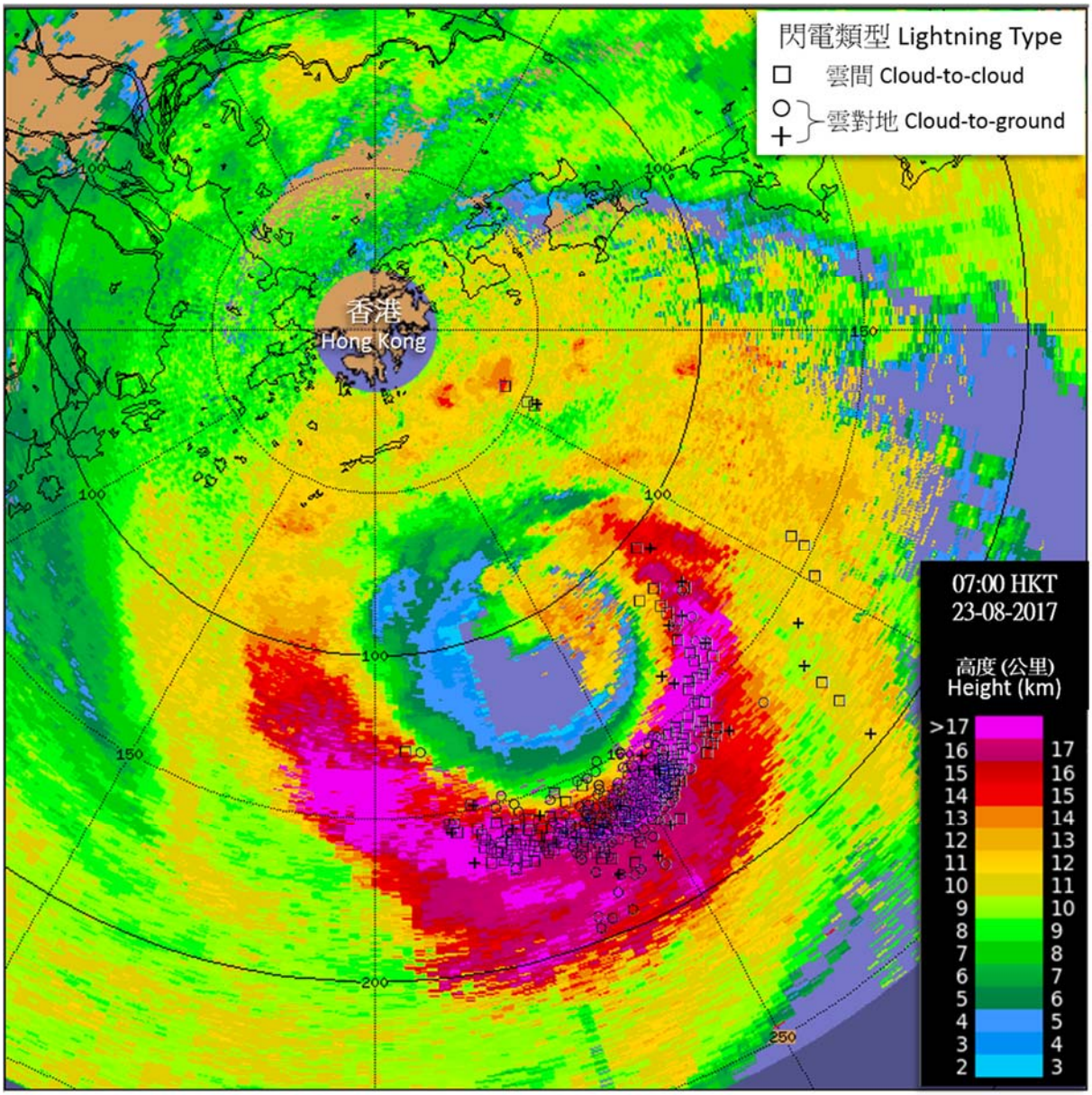


圖 2.2.11　二零一七年八月二十三日上午 7 時由雷達數據估算的雲頂高度疊加過去三十分鐘閃電位置的圖像。東南方眼壁附近出現非常強烈的對流和頻密閃電，雲頂高度超過 16 公里，直達對流層頂部。

Figure 2.2.11　Image of cloud top height estimated using radar data at 7 a.m. on 23 August 2017, overlaid with lightning locations during the past 30 minutes. Very intense convection and frequent lightning appeared near the eyewall of Hato over the southeastern quadrant with the cloud top reaching over 16 km to the top of the troposphere.

2.3 強烈熱帶風暴帕卡 (1714)

二零一七年八月二十四日至二十七日

帕卡是二零一七年第四個影響香港並引致天文台需要發出八號烈風或暴風信號的熱帶氣旋。

熱帶低氣壓帕卡於八月二十四日晚上在馬尼拉以東約 570 公里的北太平洋西部上形成，初時大致向偏西方向移動。翌日帕卡發展為熱帶風暴，以西北路徑橫過呂宋。帕卡於八月二十六日早上進入南海，並繼續採取西北路徑加速移向廣東沿岸，晚間增強為強烈熱帶風暴，達到其最高強度，中心附近最高持續風速估計為每小時 110 公里。帕卡於八月二十七日早上在廣東西部沿岸珠海至台山一帶登陸並逐漸減弱，當晚在廣西消散。

根據報章報導，帕卡及其殘餘在廣東、廣西、貴州及雲南帶來狂風暴雨，至少造成 12 人死亡，接近 10 萬人受災，直接經濟損失約 3.7 億元人民幣。在帕卡的吹襲下，澳門最少有八人受傷，多處地區出現水浸。一艘貨船在香港以東約 120 公里沉沒，11 名船員獲救。

香港天文台在八月二十六日早上 9 時 40 分發出一號戒備信號，當時帕卡集結在香港之東南約 730 公里，日間本港吹和緩偏東風。隨著帕卡靠近廣東沿岸，天文台在當晚 8 時 40 分發出三號強風信號，當時帕卡位於香港之東南偏南約 360 公里。晚上本港吹清勁至強風程度的東北風，離岸間中吹烈風。隨著帕卡迅速地靠近珠江口一帶，本港風力繼續增強，天文台在八月二十七日上午 5 時 10 分發出八號東南烈風或暴風信號，當時帕卡集結在香港天文台以南約 80 公里。黎明時份本港風力普遍達到烈風至暴風程度，高地間中吹颶風，而風向則由東北逐漸轉為東南。帕卡在早上 7 時左右最接近香港，位於香港天文台之西南約 70 公里。隨著帕卡移入廣東內陸，日間稍後本港風力開始減弱，天文台分別在下午 1 時 40 分及下午 5 時 40 分改發三號強風信號及一號戒備信號。晚上帕卡在廣西消散，天文台於下午 10 時 10 分取消所有熱帶氣旋警告信號。

在帕卡的影響下，昂坪、大美督及長洲錄得的最高每小時平均風速分別為每小時 118、103 及 101 公里，而最高陣風則分別為每小時 173、146 及 155 公里。尖鼻咀錄得最高潮位 2.63 米(海圖基準面以上)，而大埔滘則錄得最大風暴潮(天文潮高度以上) 1.05 米。各站錄得的最低瞬時海平面氣壓如下：

站	最低瞬時海平面氣壓(百帕斯卡)	日期/月份	時間
香港天文台總部	996.5	27/8	上午 6 時 21 分
香港國際機場	995.5	27/8	上午 6 時 35 分
京士柏	996.7	27/8	上午 5 時 53 分
坪洲	995.5	27/8	上午 6 時 32 分
打鼓嶺	999.1	27/8	上午 6 時 22 分
大埔	999.1	27/8	上午 6 時 47 分
沙田	998.1	27/8	上午 6 時 01 分
上水	998.2	27/8	上午 6 時 42 分
流浮山	997.7	27/8	上午 6 時 27 分
長洲	993.8	27/8	上午 6 時 18 分
橫瀾島	994.0	27/8	上午 5 時 49 分

八月二十六日本港大致天晴，日間天氣酷熱。受帕卡相關的雨帶影響，本港當晚開始有驟雨。八月二十七日及二十八日本港有狂風大雨及雷暴，天文台在這兩天的早上都曾發出黃色暴雨警告。這三天期間本港大部分地區共錄得超過 250 毫米雨量。

帕卡吹襲香港期間，最少有 62 人受傷，另有超過 2,000 宗塌樹報告、16 宗水浸報告及一宗山泥傾瀉報告，西環及九龍城有外牆棚架被吹倒。風暴期間兩人在飛鵝山遠足時受傷被困，需要消防員拯救，一名消防員在行動中受傷。八月二十七日及二十八日早上的暴雨期間導致多區道路出現水浸。東鐵大學站附近有大樹倒塌，列車服務一度受阻。香港國際機場有超過 670 班航班取消或延誤，50 班航班需要轉飛其它地方。

2.3 Severe Tropical Storm Pakhar (1714)
24 to 27 August 2017

Pakhar was the fourth tropical cyclone affecting Hong Kong and necessitating the issuance of the No. 8 Gale or Storm Signal in 2017.

Pakhar formed as a tropical depression over the western North Pacific about 570 km east of Manila on the night of 24 August. Moving generally westwards at first, it developed into a tropical storm the next day and moved northwestwards across Luzon. After entering the South China Sea on the morning of 26 August, Pakhar maintained a northwestward track and accelerated towards the coast of Guangdong. It intensified into a severe tropical storm during the night, reaching its peak intensity with an estimated sustained wind of 110 km/h near its centre. After making landfall over the coast of western Guangdong in the vicinity of Zhuhai and Taishan on the morning of 27 August, Pakhar weakened gradually and dissipated over Guangxi that night.

According to press reports, Pakhar and its remnant brought heavy rain and squalls to Guangdong, Guangxi, Guizhou and Yunnan, resulting in at least 12 deaths. Around 100 000 people were affected with direct economic loss around 370 million RMB. In Macao, eight people were injured and many places were flooded during the passage of Pakhar. A cargo vessel sunk about 120 km east of Hong Kong and 11 crew members on board were rescued.

In Hong Kong, the No. 1 Standby Signal was issued at 9:40 a.m. on 26 August when Pakhar was about 730 km southeast of the territory. Moderate easterlies affected Hong Kong during the day. As Pakhar edged closer to the coast of Guangdong, the No. 3 Strong Wind Signal was issued at 8:40 p.m. that night when Pakhar was about 360 km south-southeast of Hong Kong. Local winds gradually became fresh to strong northeasterly during the night and occasionally reached gale force offshore. As Pakhar moved quickly towards the Pearl River Estuary, local winds continued to strengthen and the No. 8 Southeast Gale or Storm Signal was issued at 5:10 a.m. on 27 August when Pakhar was about 80 km south of the Hong Kong Observatory. Gale to storm force winds generally affected the territory around dawn, occasionally reaching hurricane force on high ground and with wind direction gradually veering from northeasterly to southeasterly. Pakhar came closest to Hong Kong around 7 a.m. that morning with its centre passing only about 70 km southwest of the Hong Kong Observatory. With Pakhar moving into inland Guangdong, local winds started to weaken later that day and the No. 3 Strong Wind Signal and No. 1 Standby Signal were issued at 1:40 p.m. and 5:40 p.m. respectively. Pakhar dissipated over Guangxi during the night and all tropical cyclone warning signals were cancelled at 10:10 p.m.

Under the influence of Pakhar, maximum hourly mean winds of 118, 103 and 101 km/h and gusts of 173, 146 and 155 km/h were recorded at Ngong Ping, Tai Mei Tuk and Cheung Chau respectively. A maximum sea level (above chart datum) of 2.63 m was recorded at Tsim Bei Tsui, and a maximum storm surge (above astronomical tide) of 1.05 m was recorded at Tai Po Kau. The lowest instantaneous mean sea-level pressures recorded at some selected stations are as follows:

Station	Lowest instantaneous mean sea-level pressure (hPa)	Date/Month	Time
Hong Kong Observatory Headquarters	996.5	27/8	6:21 a.m.
Hong Kong International Airport	995.5	27/8	6:35 a.m.
King's Park	996.7	27/8	5:53 a.m.
Peng Chau	995.5	27/8	6:32 a.m.
Ta Kwu Ling	999.1	27/8	6:22 a.m.
Tai Po	999.1	27/8	6:47 a.m.
Shatin	998.1	27/8	6:01 a.m.
Sheung Shui	998.2	27/8	6:42 a.m.
Lau Fau Shan	997.7	27/8	6:27 a.m.
Cheung Chau	993.8	27/8	6:18 a.m.
Waglan Island	994.0	27/8	5:49 a.m.

Locally, it was mainly fine and very hot during the day on 26 August. Showers set in at night under the influence of the rainbands associated with Pakhar. Heavy rain with squalls and thunderstorms affected the territory on 27 and 28 August, and Amber Rainstorm Warnings were issued by the Observatory in the morning on both days. More than 250 millimetres of rainfall were recorded over most part of the territory during the 3-day period.

In Hong Kong, at least 62 people were injured during the passage of Pakhar. There were more than 2,000 reports of fallen trees, 16 reports of flooding and one report of landslide. Some scaffolding in Sai Wan and Kowloon City collapsed. Two hikers were hurt and stranded on Kowloon Peak and had to be rescued by firemen. One fireman was injured during the rescue operation. Many roads were flooded during the rainstorms on the mornings of 27 and 28 August. Fallen trees near the University Station of the East Rail Line resulted in a disruption of train services. More than 670 flights were cancelled or delayed at the Hong Kong International Airport, and 50 flights were diverted.

表 2.3.1　在帕卡影響下，本港各站在熱帶氣旋警告信號生效時所錄得的最高陣風、最高每小時平均風速及風向

Table 2.3.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when the tropical cyclone warning signals for Pakhar were in force

站 Station (http://www.weather.gov.hk/informtc/station2017_uc.htm)		最高陣風 Maximum Gust					最高每小時平均風速 Maximum Hourly Mean Wind				
		風向 Direction		風速 (公里/時) Speed (km/h)	日期/月份 Date/Month	時間 Time	風向 Direction		風速 (公里/時) Speed (km/h)	日期/月份 Date/Month	時間 Time
黃麻角(赤柱)	Bluff Head (Stanley)	東北偏東	ENE	117	27/8	05:33	東南偏東	ESE	68	27/8	07:00
中環碼頭	Central Pier	東	E	113	27/8	05:13	東	E	63	27/8	06:00
長洲	Cheung Chau	東	E	155	27/8	06:18	東南偏東	ESE	101	27/8	08:00
長洲泳灘	Cheung Chau Beach	東北偏東	ENE	146	27/8	06:17	東	E	101	27/8	07:00
香港國際機場	Hong Kong International Airport	東南偏東	ESE	101	27/8	07:59	東南偏東	ESE	68	27/8	08:00
啟德	Kai Tak	東	E	121	27/8	07:31	東	E	52	27/8	07:00
京士柏	King's Park	東南偏東	ESE	108	27/8	06:54	東南偏東	ESE	47	27/8	07:00
流浮山	Lau Fau Shan	東北偏東	ENE	99	27/8	06:52	東北偏東	ENE	54	27/8	07:00
昂坪	Ngong Ping	東南偏東	ESE	173	27/8	08:14	東	E	118	27/8	08:00
北角	North Point	東北偏東	ENE	128	27/8	06:14	東北偏東	ENE	72	27/8	06:00
坪洲	Peng Chau	東	E	122	27/8	06:26	東	E	79	27/8	07:00
平洲	Ping Chau	東	E	75	27/8	05:40	東	E	22	27/8	05:00
西貢	Sai Kung	東北	NE	128	27/8	05:44	東北偏東	ENE	67	27/8	06:00
沙洲	Sha Chau	東南偏東	ESE	110	27/8	07:49	東南	SE	77	27/8	09:00
沙螺灣	Sha Lo Wan	東南	SE	117	27/8	09:26	東	E	58	27/8	08:00
沙田	Sha Tin	北	N	112	27/8	05:46	東北	NE	31	27/8	07:00
石崗	Shek Kong	東北偏東	ENE	101	27/8	07:12	東北	NE	41	27/8	06:00
九龍天星碼頭	Star Ferry (Kowloon)	東	E	112	27/8	06:34	東	E	58	27/8	07:00
打鼓嶺	Ta Kwu Ling	東	E	88	27/8	08:08	東北	NE	34	27/8	07:00
大美督	Tai Mei Tuk	東北偏東	ENE	146	27/8	06:06	東北偏東	ENE	103	27/8	07:00
大帽山	Tai Mo Shan	東南	SE	182	27/8	09:00	東南	SE	121	27/8	10:00
大埔滘	Tai Po Kau	東	E	110	27/8	06:10	東	E	68	27/8	07:00
塔門*	Tap Mun*	東北偏東	ENE	149	27/8	07:12	東	E	101	27/8	08:00
大老山	Tate's Cairn	東	E	169	27/8	06:19	東南偏東	ESE	108	27/8	07:00
將軍澳	Tseung Kwan O	東南偏東	ESE	90	27/8	08:29	東南偏東	ESE	27	27/8	09:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東	E	92	27/8	07:28	東南偏東	ESE	31	27/8	07:00
屯門政府合署	Tuen Mun Government Offices	東南	SE	110	27/8	07:57	東南	SE	40	27/8	09:00
橫瀾島	Waglan Island	東	E	144	27/8	05:49	東	E	108	27/8	06:00
濕地公園	Wetland Park	東北偏東	ENE	81	27/8	06:27	東北偏東	ENE	31	27/8	07:00
黃竹坑	Wong Chuk Hang	東南偏東	ESE	110	27/8	06:24	東	E	40	27/8	07:00

*新塔門測風站在 2017 年 7 月 6 日取代在塔門警崗屋頂的舊測風站

*The old wind station on the rooftop of Tap Mun Police Post is replaced by the new Tap Mun station on 6 July 2017.

青洲 - 沒有資料　Green Island - data not available

表 2.3.2　在帕卡影響下，熱帶氣旋警告信號系統的八個參考測風站在熱帶氣旋警告信號生效時錄得持續風力達到強風及烈風程度的時段

Table 2.3.2　Periods during which sustained strong and gale force winds were attained at the eight reference anemometers in the tropical cyclone warning system when tropical cyclone warning signals for Pakhar were in force

站 Station (http://www.weather.gov.hk/informtc/station2017_uc.htm)		最初達到強風* 時間 Start time when strong wind speed* was attained		最後達到強風* 時間 End time when strong wind speed* was attained		最初達到烈風# 時間 Start time when gale force wind speed# was attained		最後達到烈風# 時間 End time when gale force wind speed# was attained	
		日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time
長洲	Cheung Chau	27/8	0051	27/8	2121	27/8	0510	27/8	1718
香港國際機場	Hong Kong International Airport	27/8	0451	27/8	2047	27/8	0631	27/8	0901
啟德	Kai Tak	27/8	0506	27/8	1438	27/8	0622	27/8	0735
流浮山	Lau Fau Shan	27/8	0505	27/8	0945	-			
西貢	Sai Kung	27/8	0315	27/8	1727	27/8	0505	27/8	0656
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	27/8	0642	27/8	0647	-			

沙田及打鼓嶺的持續風力未達到強風程度。
The sustained wind speed did not attain strong force at Sha Tin and Ta Kwu Ling.

- 未達到指定的風速

- not attaining the specified wind speed

* 十分鐘平均風速達每小時 41-62 公里

* 10-minute mean wind speed of 41- 62 km/h

十分鐘平均風速達每小時 63-87 公里

10-minute mean wind speed of 63-87 km/h

註:　本表列出持續風力達到強風及烈風程度的起始及終結時間。期間風力可能高於或低於指定的風力。

Note: The table gives the start and end time of sustained strong or gale force winds. Winds might fluctuate above or below the specified wind speeds in between the times indicated.

表 2.3.3　　帕卡掠過期間，香港天文台總部及其他各站所錄得的日雨量

Table 2.3.3　Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Pakhar

站 (參閱圖 2.3.2) Station (See Fig. 2.3.2)			八月二十六日 26 Aug	八月二十七日 27 Aug	八月二十八日 28 Aug	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory			6.3	165.3	98.3	269.9
香港國際機場 Hong Kong International Airport (HKA)			2.5	136.2	25.7	164.4
長洲 Cheung Chau (CCH)			2.5	73.0	24.5	100.0
H23	香 港 仔	Aberdeen	2.0	121.0	90.0	213.0
N05	粉 嶺	Fanling	13.5	143.0	92.5	249.0
N13	糧 船 灣	High Island	3.5	143.5	120.5	267.5
K04	佐 敦 谷	Jordan Valley	6.5	184.0	80.0	270.5
N06	葵 涌	Kwai Chung	4.0	170.5	100.0	274.5
H12	半 山 區	Mid Levels	3.0	171.5	89.0	263.5
N09	沙 田	Sha Tin	6.5	198.5	76.5	281.5
H19	筲 箕 灣	Shau Kei Wan	0.5	176.0	89.5	266.0
SEK	石 崗	Shek Kong	8.0	188.0	[39.5]	[235.5]
K06	蘇 屋 邨	So Uk Estate	4.5	207.5	113.5	325.5
R31	大 美 督	Tai Mei Tuk	16.5	183.5	[58.5]	[258.5]
R21	踏 石 角	Tap Shek Kok	1.5	110.0	[36.5]	[148.0]
TMR	屯 門 水 庫	Tuen Mun Reservoir	4.4	132.0	31.0	167.4
N17	東 涌	Tung Chung	2.0	176.0	37.0	215.0

註 : [　] 基於不完整的每小時雨量數據。Note : [　] based on incomplete hourly data.

表 2.3.4　　帕卡掠過期間，香港各潮汐站所錄得的最高潮位及最大風暴潮

Table 2.3.4　Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Pakhar

站 Station (http://www.weather.gov.hk/informtc/station2017_uc.htm)		最高潮位 (海圖基準面以上) Maximum sea level (above chart datum)			最大風暴潮 (天文潮高度以上) Maximum storm surge (above astronomical tide)		
		高度(米) Height (m)	日期/月份 Date/Month	時間 Time	高度(米) Height (m)	日期/月份 Date/Month	時間 Time
鰂魚涌	Quarry Bay	2.23	27/8	02:45	0.72	27/8	06:57
石壁	Shek Pik	2.38	27/8	12:22	0.67	27/8	06:52
大廟灣	Tai Miu Wan	2.23	27/8	00:51	0.82	27/8	05:49
大埔滘	Tai Po Kau	2.28	27/8	02:14	1.05	27/8	07:54
尖鼻咀	Tsim Bei Tsui	2.63	27/8	12:51	0.96	27/8	10:36
橫瀾島	Waglan Island	2.27	27/8	02:48	0.49	27/8	02:49

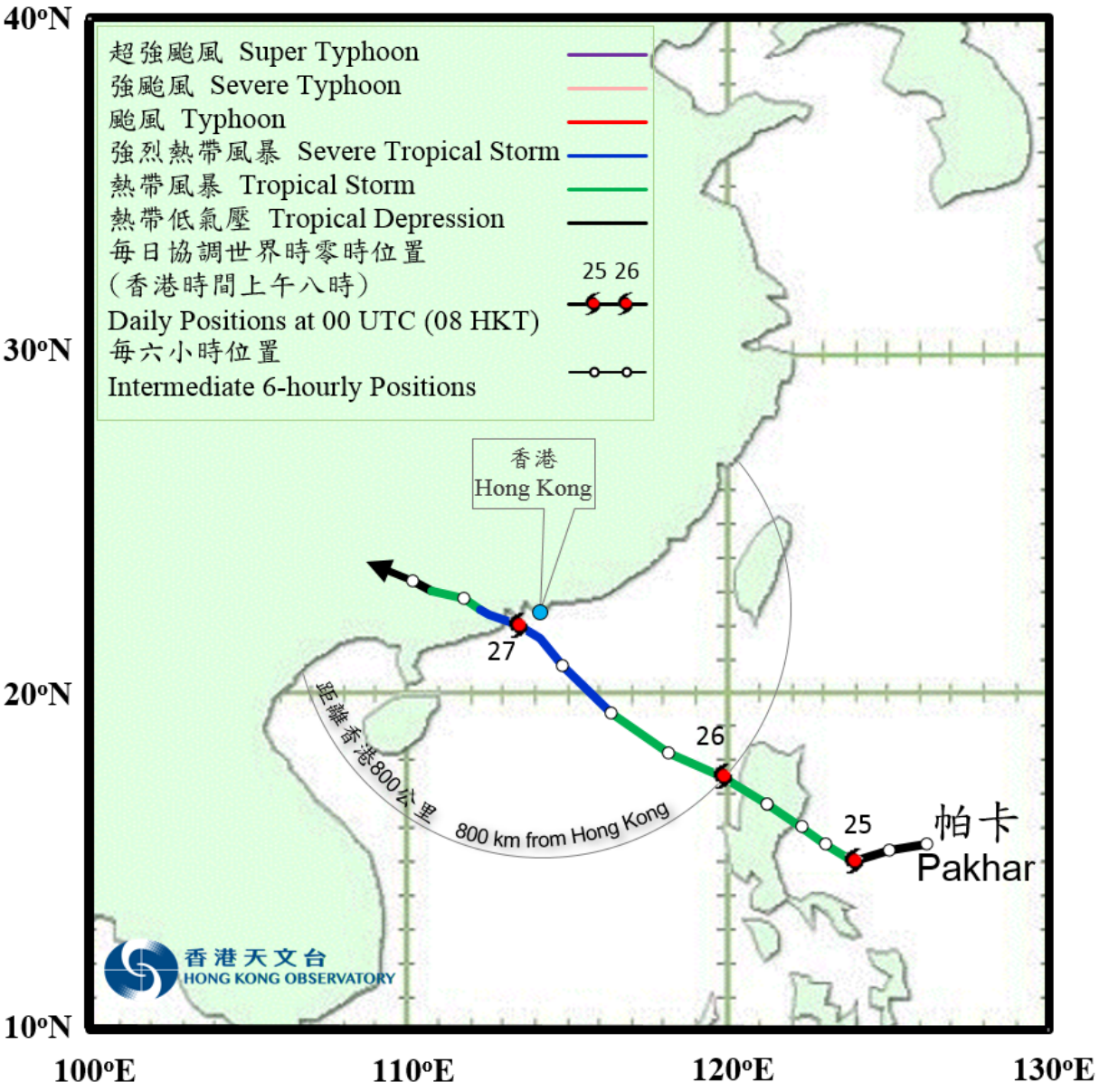


圖 2.3.1(a)　　二零一七年八月二十四日至二十七日帕卡的暫定路徑圖。

Figure 2.3.1(a)　Provisional track of Pakhar: 24 – 27 August 2017.

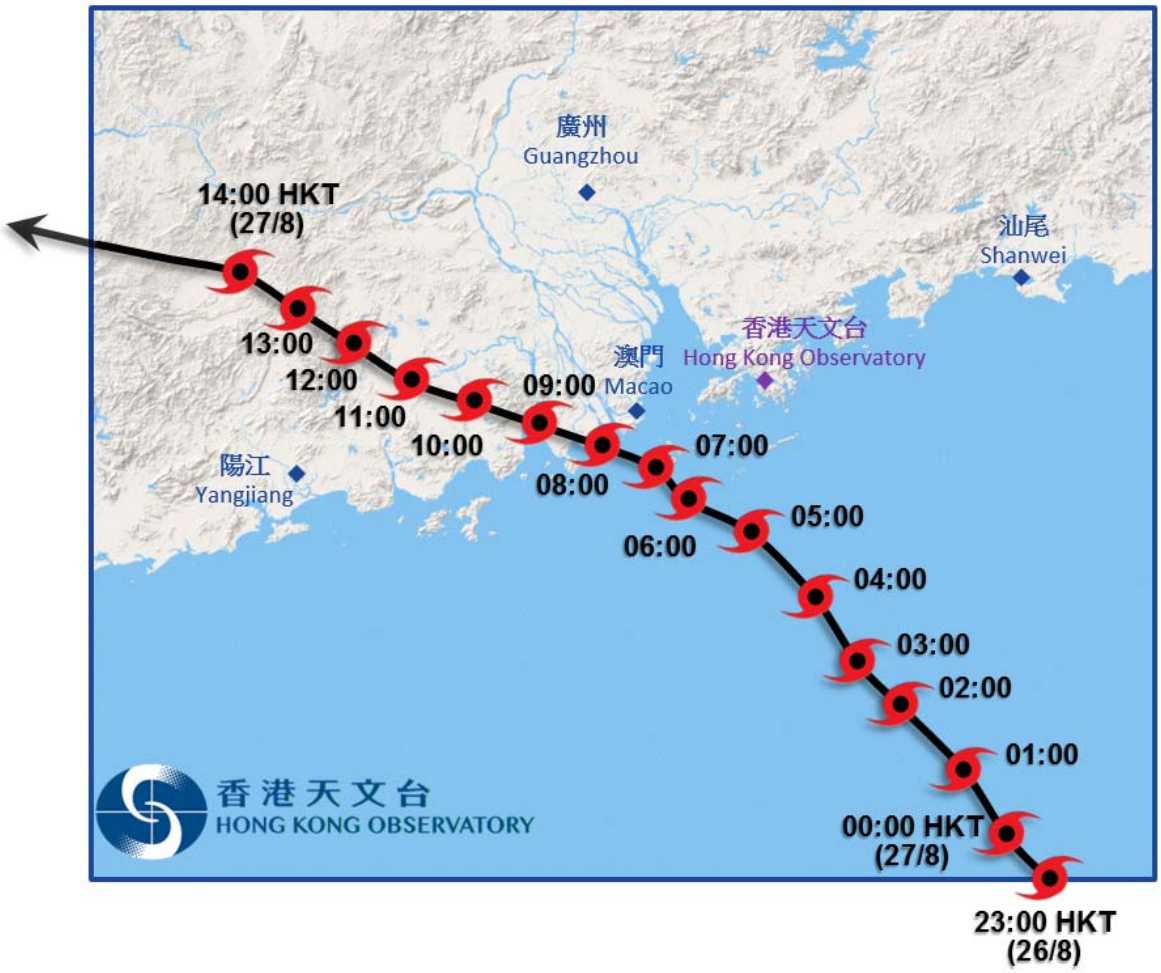


圖 2.3.1(b)　　帕卡接近香港時的暫定路徑圖。

Figure 2.3.1(b)　Provisional track of Pakhar near Hong Kong.

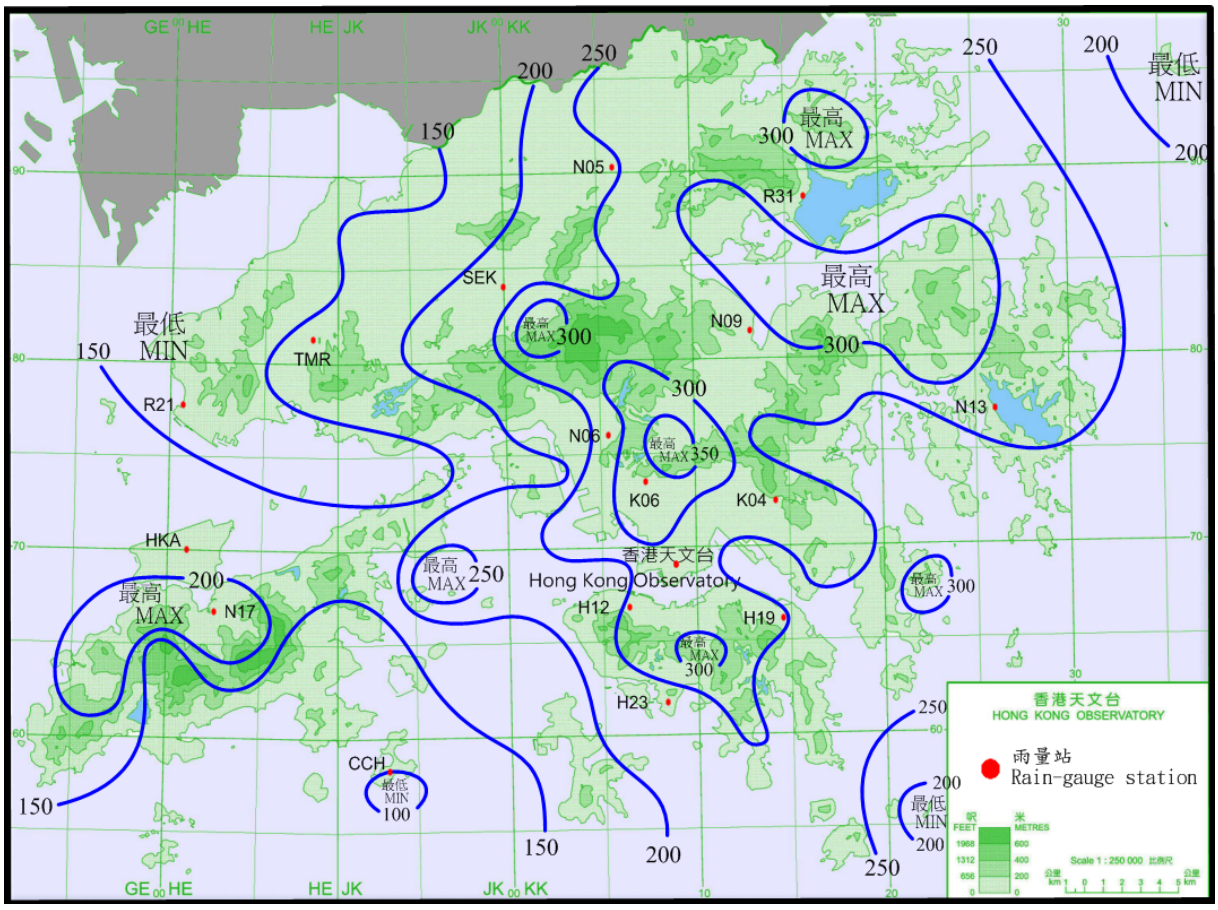


圖 2.3.2　　二零一七年八月二十六日至二十八日的雨量分佈(等雨量線單位為毫米)。

Figure 2.3.2　Rainfall distribution on 26 - 28 August 2017 (isohyets in millimetres).

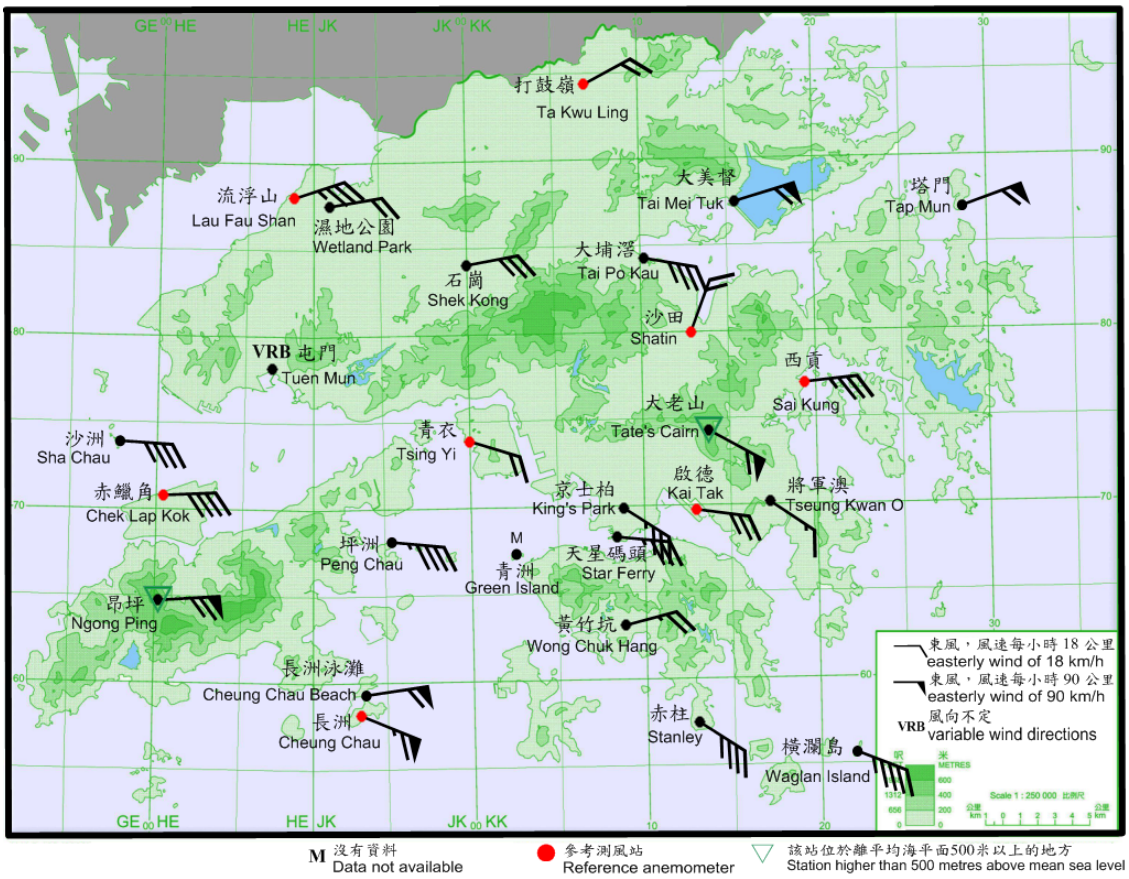


圖 2.3.3　二零一七年八月二十七日上午 7 時正香港各站錄得的十分鐘平均風向和風速。當時昂坪風力達到颶風程度，而大老山、長洲、長洲泳灘、塔門及大美督的風力達到暴風程度。

Figure 2.3.3　10-minute mean wind direction and speed recorded at various stations in Hong Kong at 7:00 a.m. on 27 August 2017. Winds at Ngong Ping reached hurricane force, while winds at Tate's Cairn, Cheung Chau, Cheung Chau Beach, Tap Mun and Tai Mei Tuk reached storm force at the time.

註：　當時屯門錄得的十分鐘平均風速為每小時 13 公里。

Note:　The 10-minute mean wind speed recorded at the time at Tuen Mun was 13 km/h.

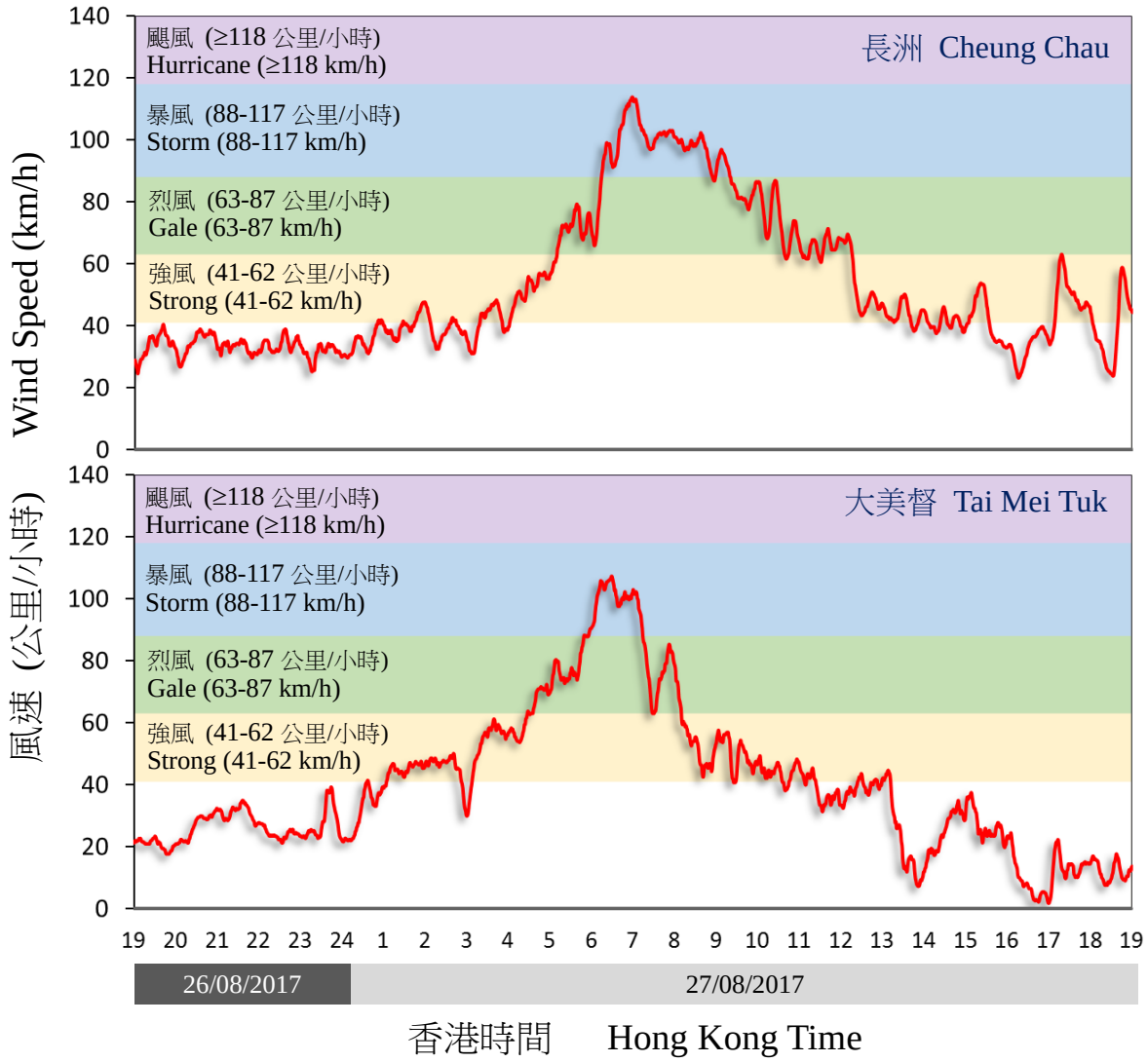


圖 2.3.4 二零一七年八月二十六至二十七日長洲及大美督錄得的十分鐘風速。

Figure 2.3.4 Traces of 10-minute wind speed recorded at Cheung Chau and Tai Mei Tuk on 26 and 27 August 2017.

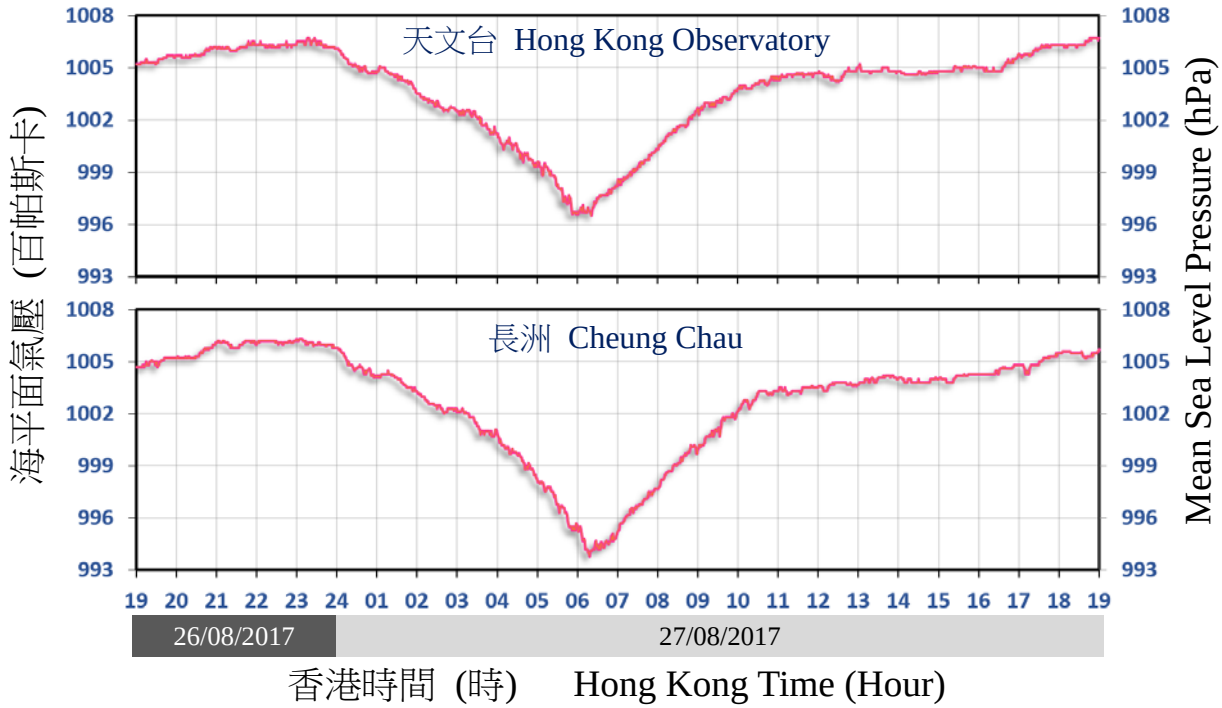


圖 2.3.5 二零一七年八月二十六日至二十七日天文台總部(上圖)及長洲(下圖)錄得的海平面氣壓。

Figure 2.3.5 Traces of mean sea-level pressure recorded at the Observatory Headquarters (top panel) and Cheung Chau (bottom panel) on 26 and 27 August 2017.

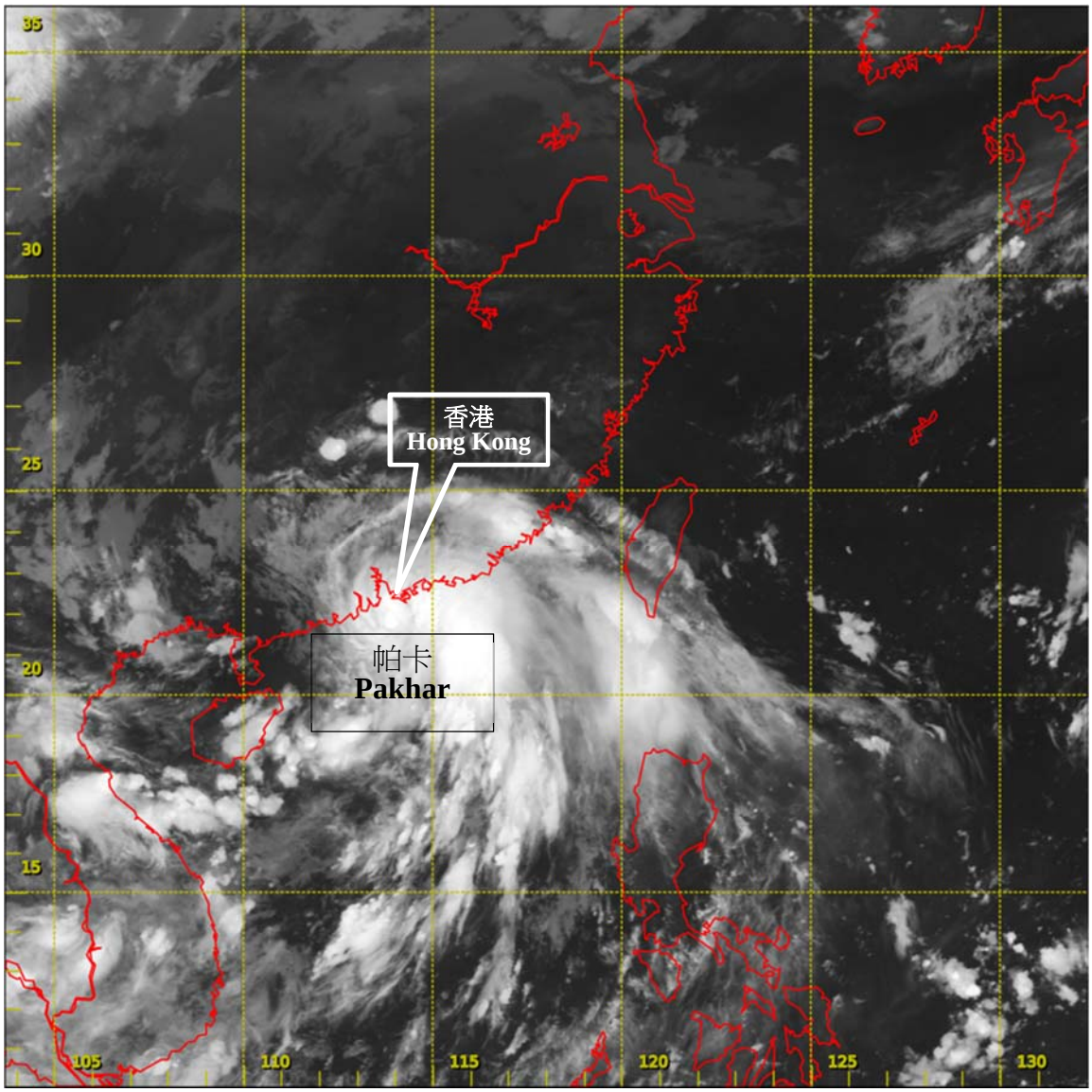


圖 2.3.6　二零一七年八月二十七日上午 5 時左右的紅外線衛星圖片，當時帕卡達到其最高強度，中心附近最高持續風速估計為每小時 110 公里。

Figure 2.3.6　Infra-red satellite imagery around 5 a.m. on 27 August 2017, when Pakhar was at peak intensity with estimated maximum sustained winds of 110 km/h near its centre.

〔此衛星圖像接收自日本氣象廳的向日葵 8 號衛星。〕
[The satellite imagery was originally captured by Himawari-8 Satellite (H-8) of Japan Meteorological Agency (JMA).]

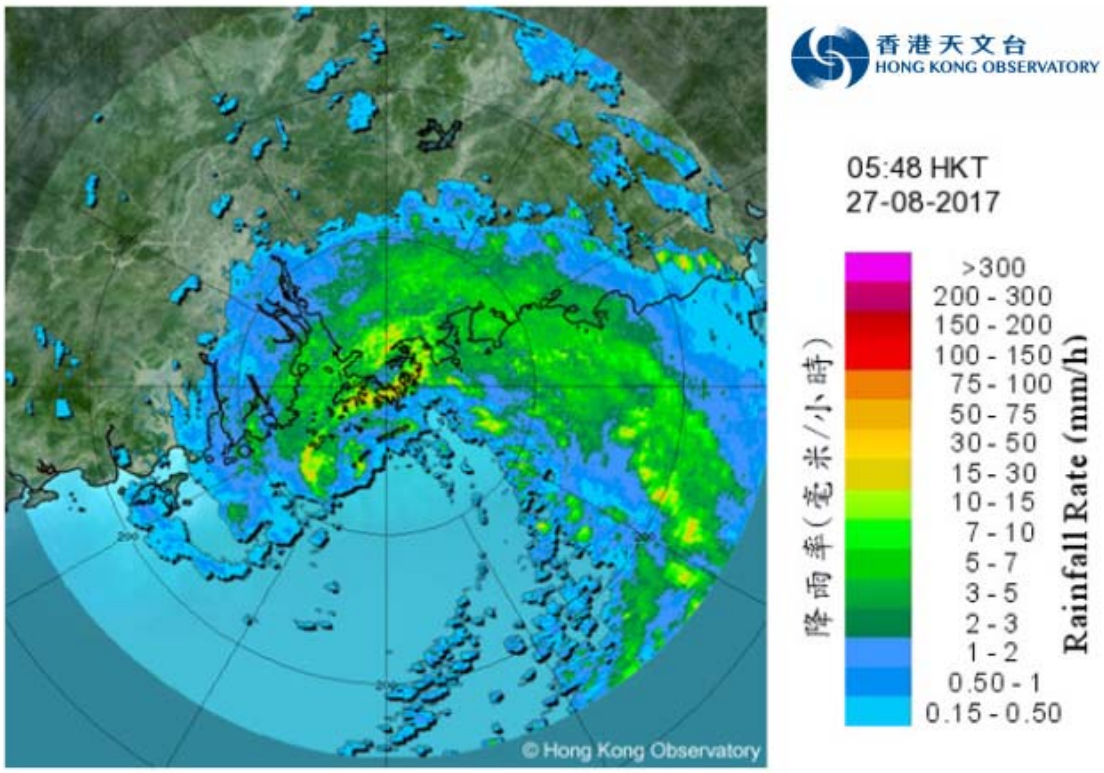


圖 2.3.7(a)　二零一七年八月二十七日上午 5 時 48 分的雷達回波圖像，當時帕卡北面的強雨帶正為本港帶來狂風大雨。

Figure 2.3.7(a)　Image of radar echoes at 5:48 a.m. on 27 August 2017, when the intense rainbands to the north of Pakhar were bringing heavy rain and squalls to Hong Kong.

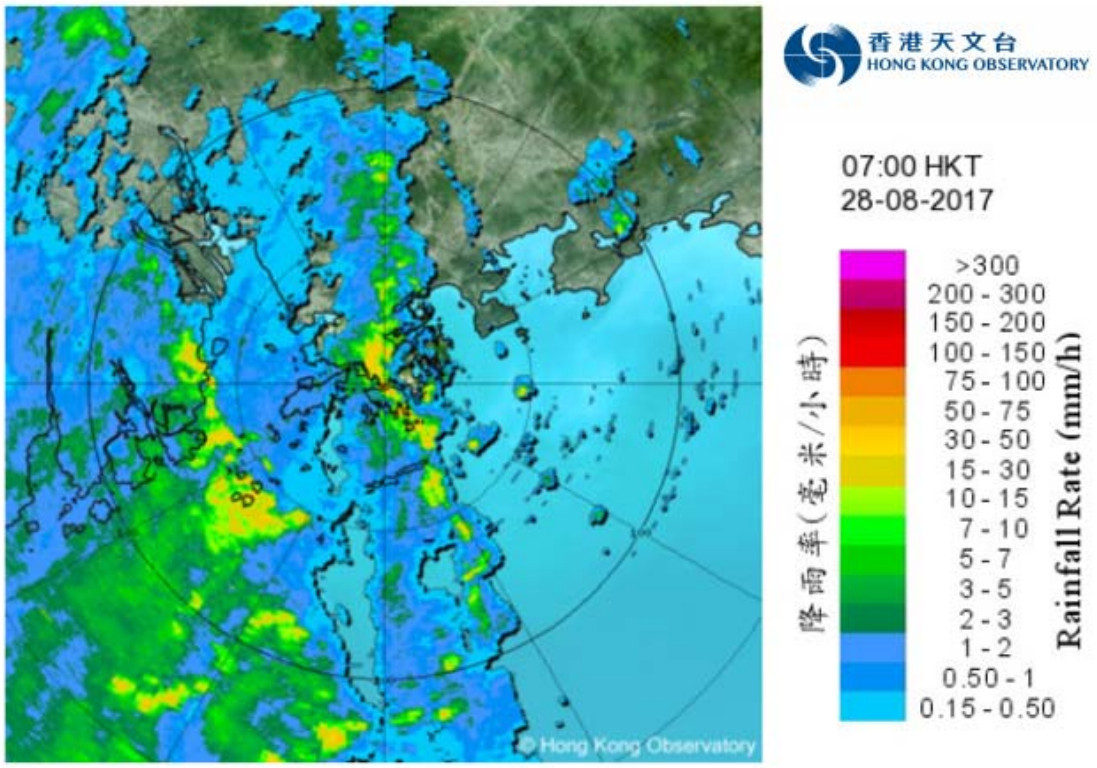


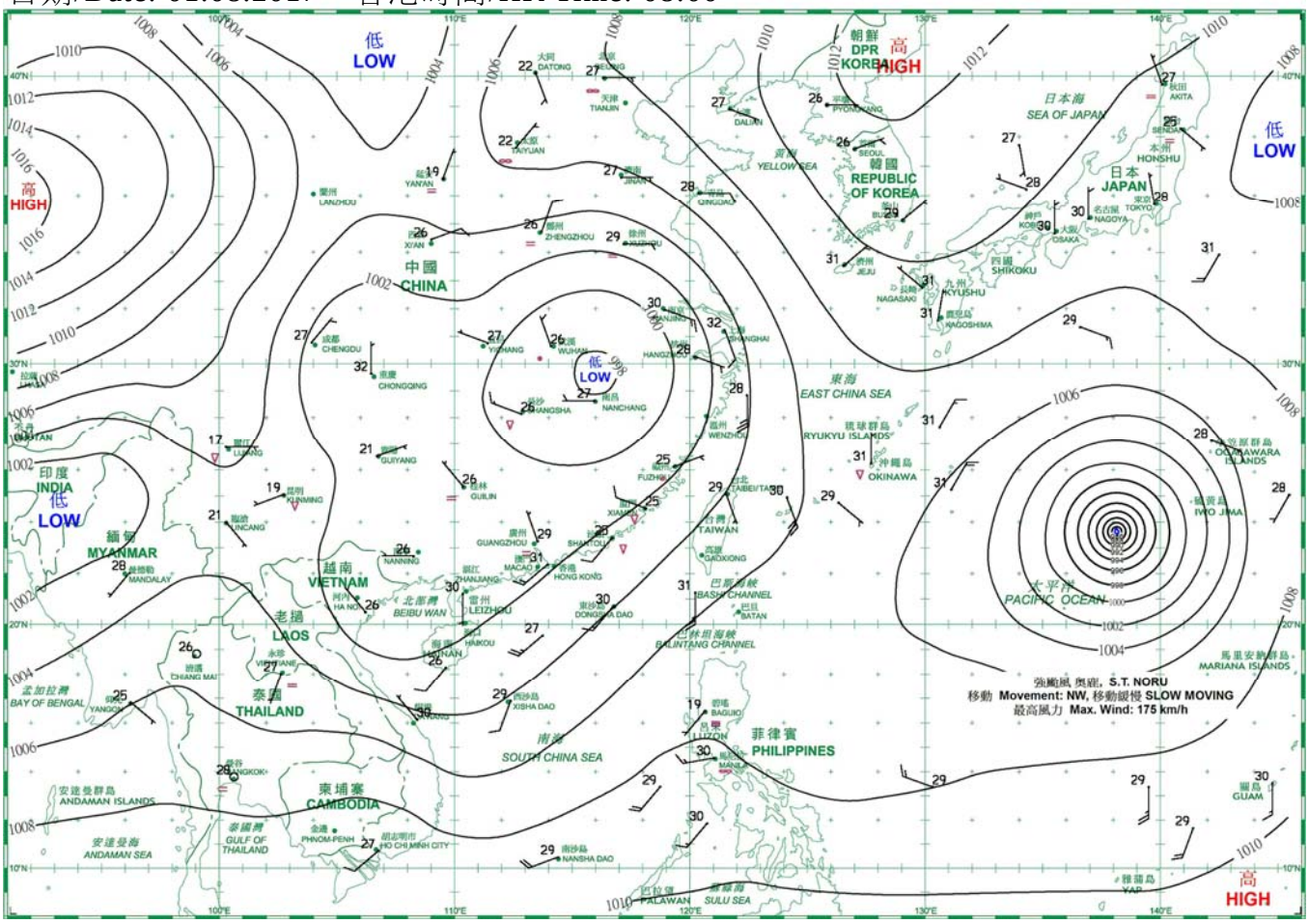
圖 2.3.7(b)　二零一七年八月二十八日早上 7 時的雷達回波圖像。帕卡已減弱為一個低壓區，但與其殘餘相關連的雨帶正為本港帶來暴雨。

Figure 2.3.7(b)　Image of radar echoes at 7 a.m. on 28 August 2017. Pakhar had already weakened into an area of low pressure but the rainbands associated with its remnant were bringing rainstorms to Hong Kong.

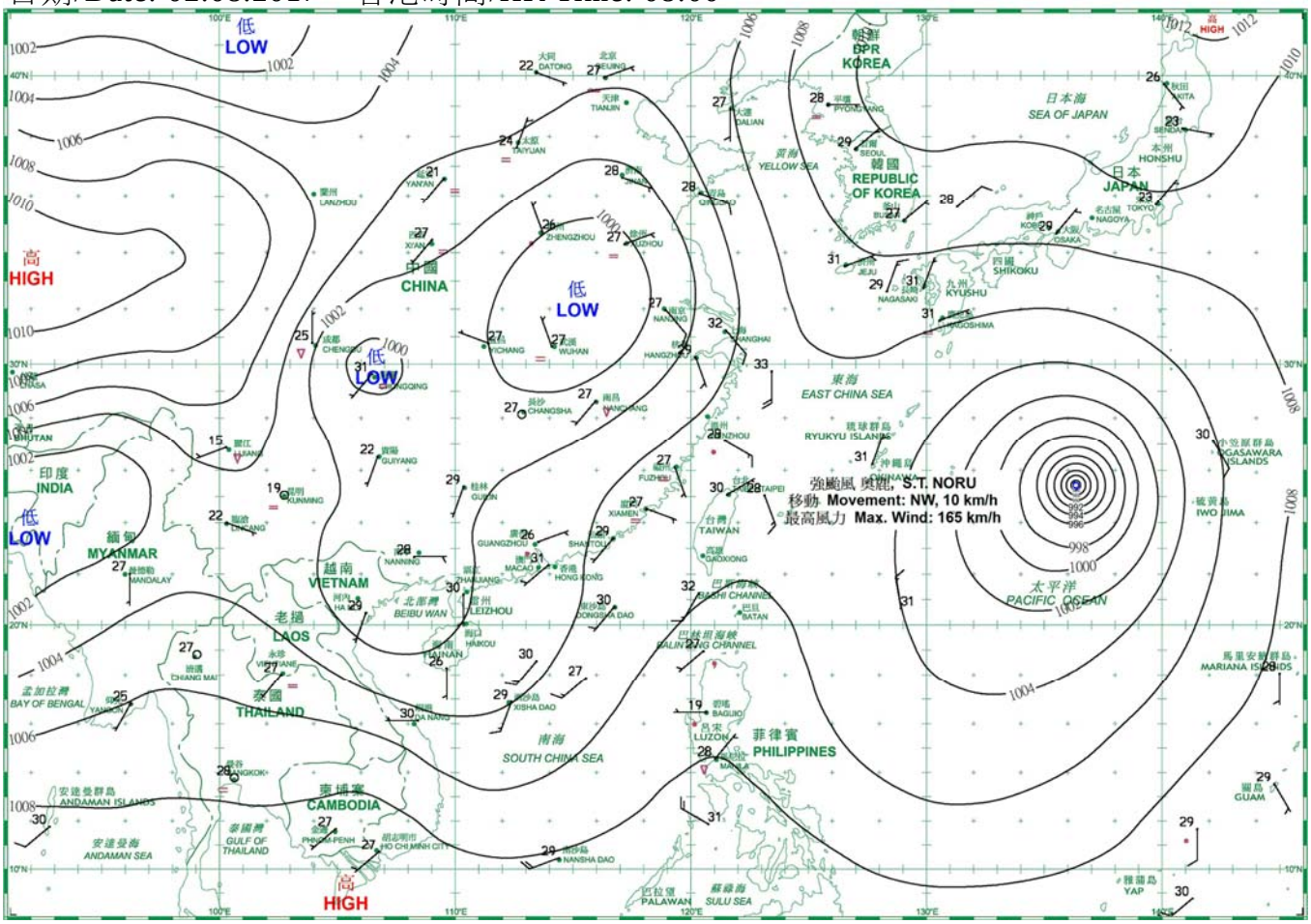
圖 2.3.8　荔枝角附近長沙灣道有大樹倒塌 (圖片鳴謝: 社區天氣觀測計劃 Kit Lo)。

Figure 2.3.8　Fallen trees at Cheung Sha Wan Road near Lai Chi Kok (photo courtesy of Kit Lo from Community Weather Observation Scheme).

日期/Date: 01.08.2017　香港時間/HK Time: 08:00



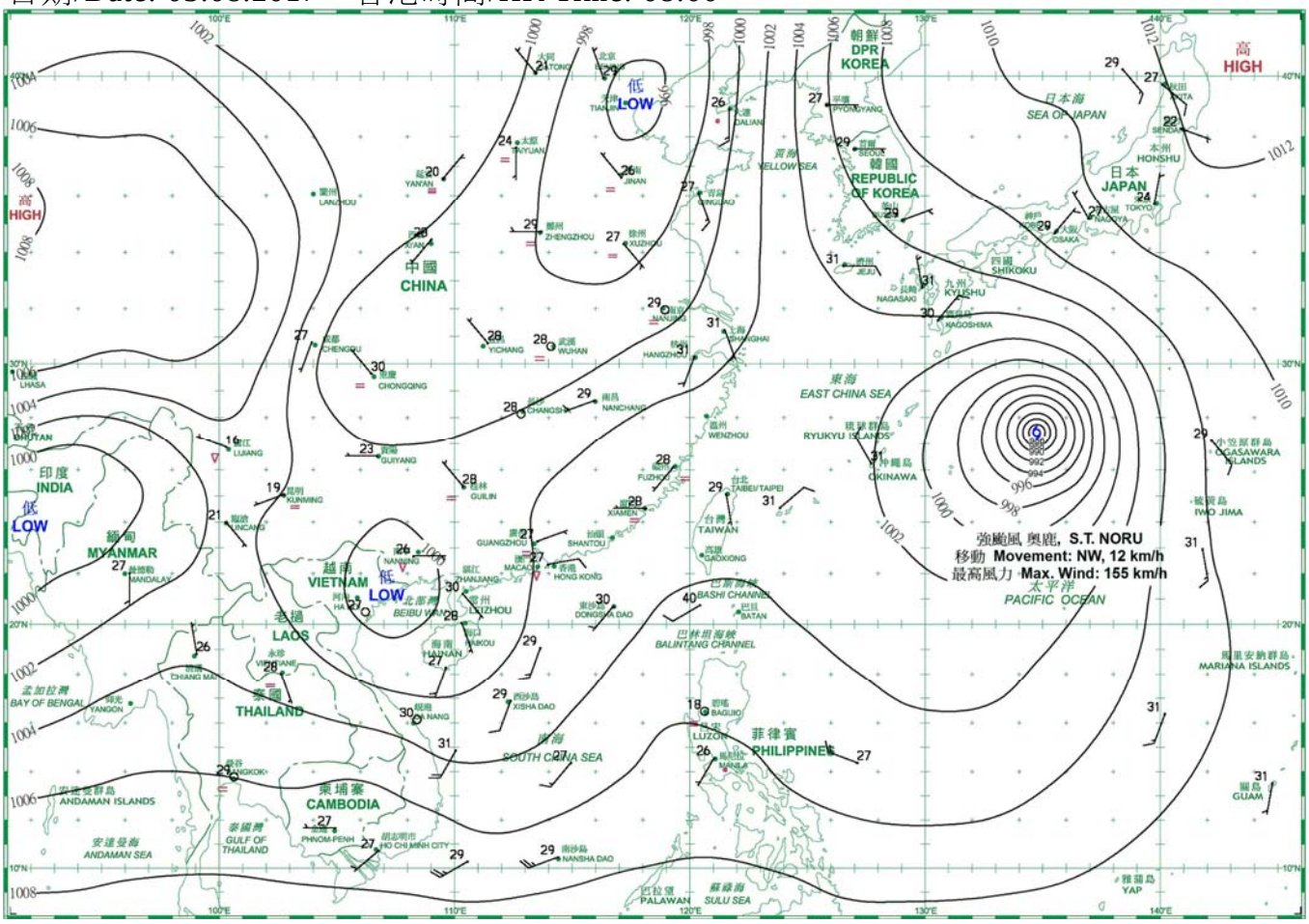
日期/Date: 02.08.2017　香港時間/HK Time: 08:00



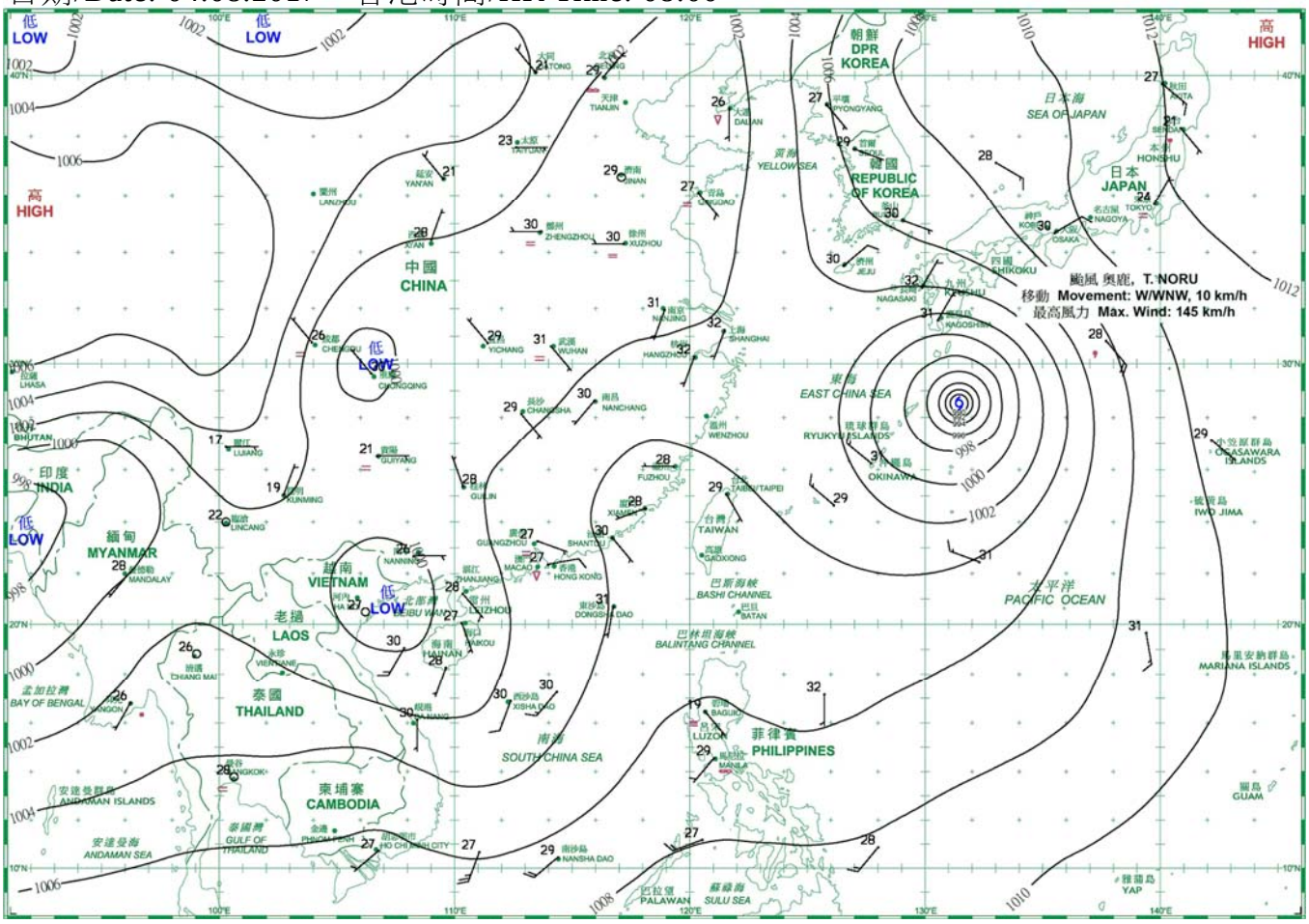
等壓線 Isobar(hPa)　暖鋒 Warm Front　靜止鋒 Stationary Front　消散中的冷鋒 Dissipating Cold Front

冷鋒 Cold Front　鋼囚鋒 Occlusion　槽軸〔線〕Axis of Trough　熱帶氣旋中心 Centre of Tropical Cyclone

日期/Date: 03.08.2017　香港時間/HK Time: 08:00



日期/Date: 04.08.2017　香港時間/HK Time: 08:00



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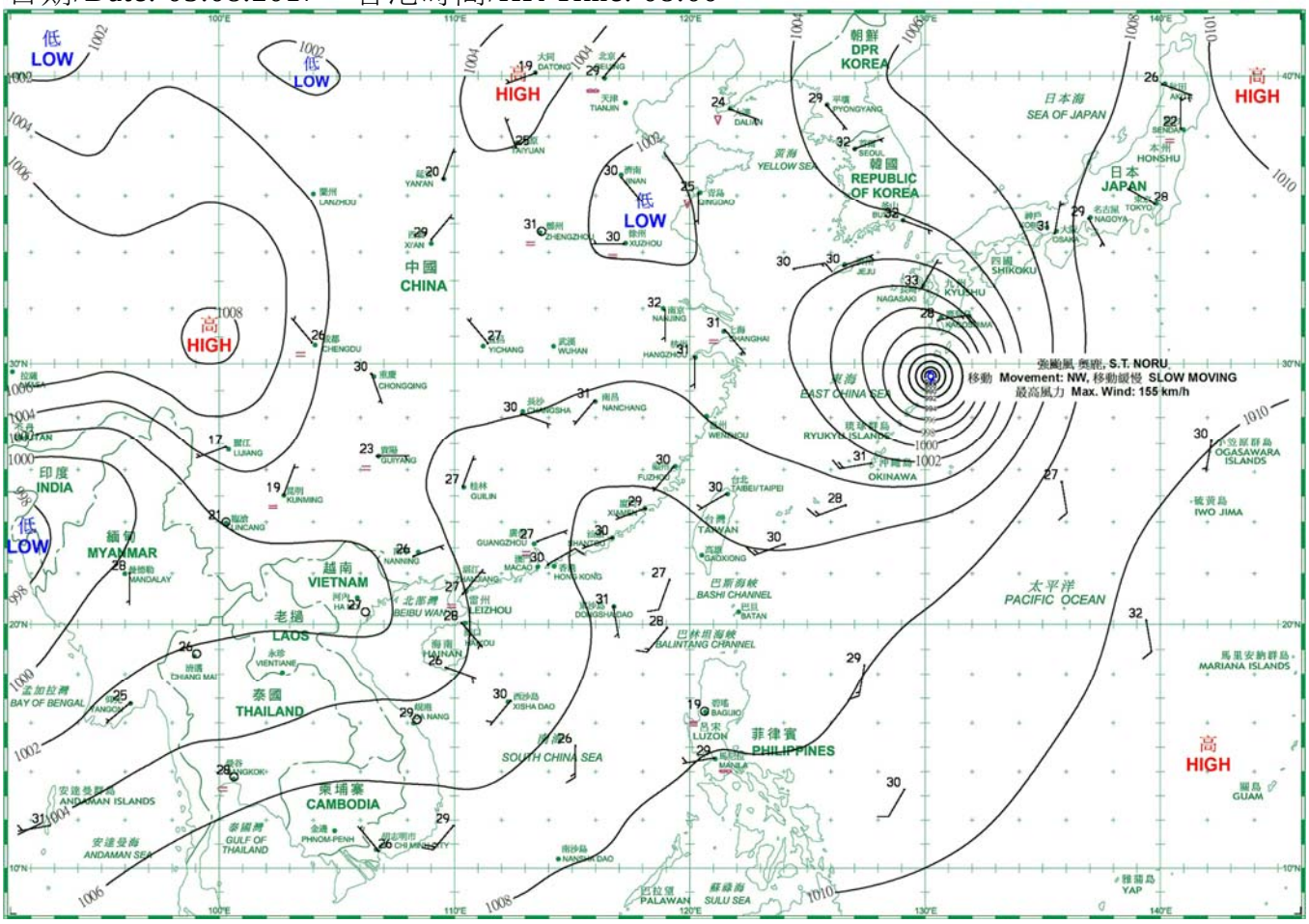
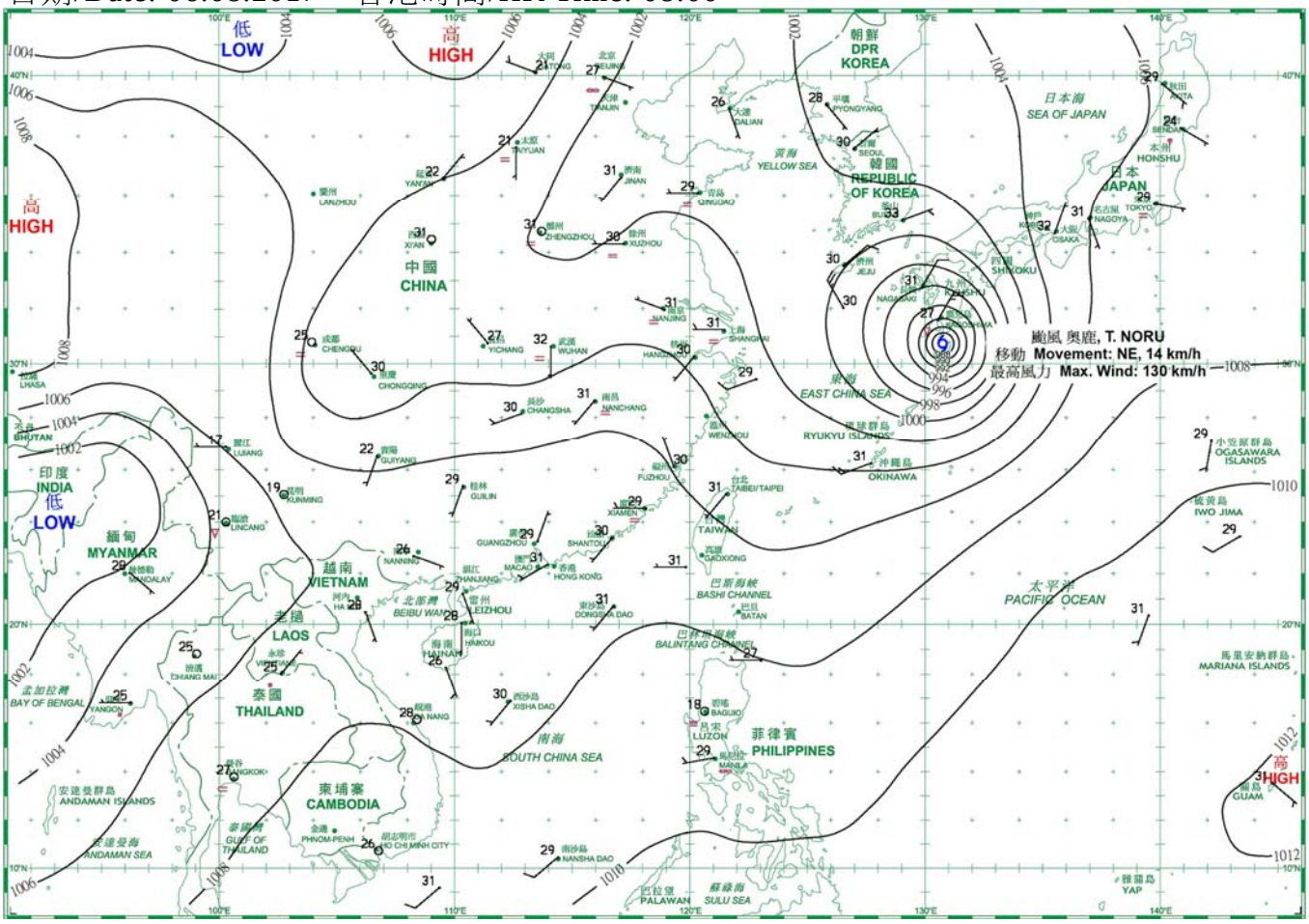
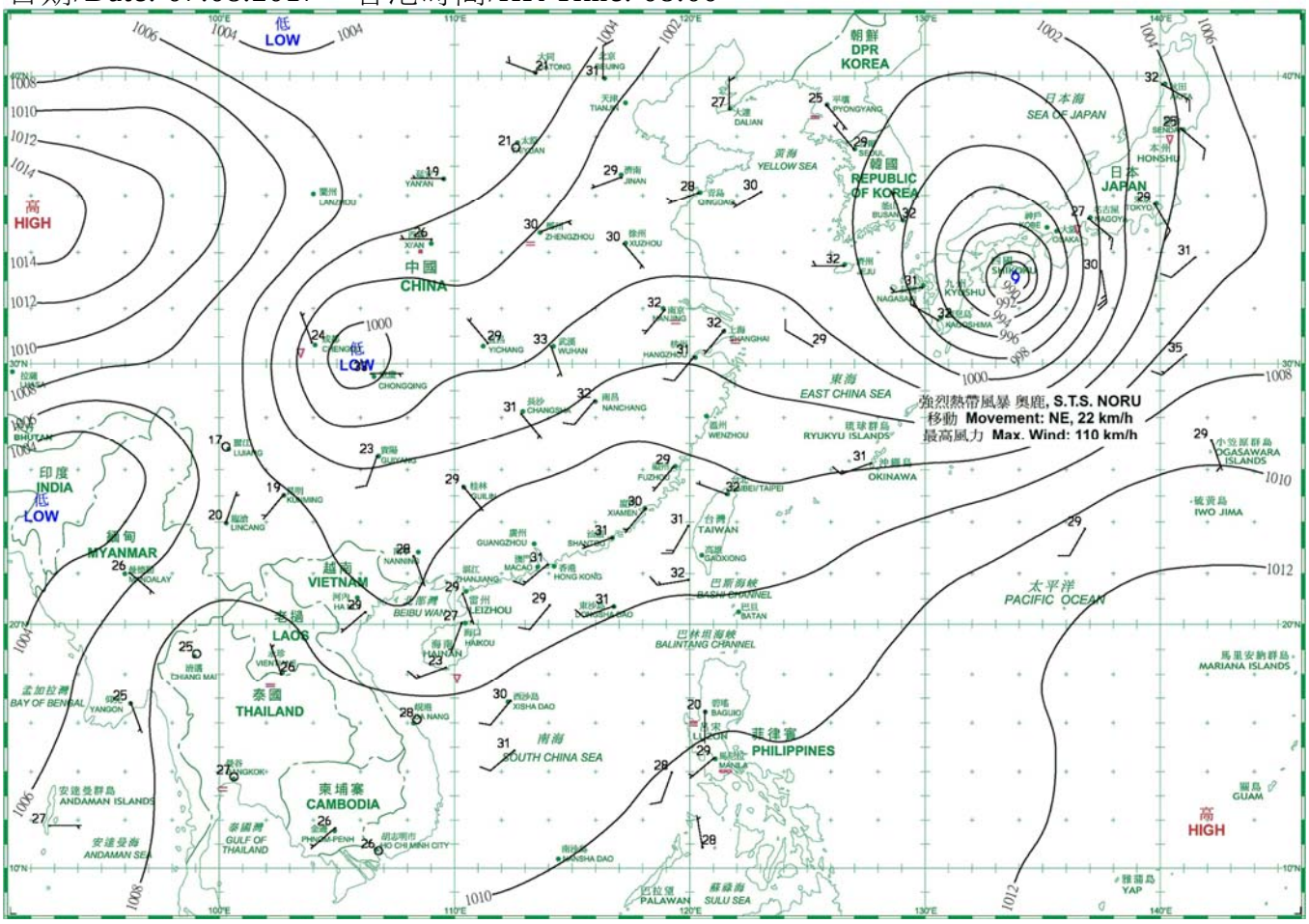


日期/Date: 06.08.2017　香港時間/HK Time: 08:00



日期/Date: 07.08.2017　香港時間/HK Time: 08:00



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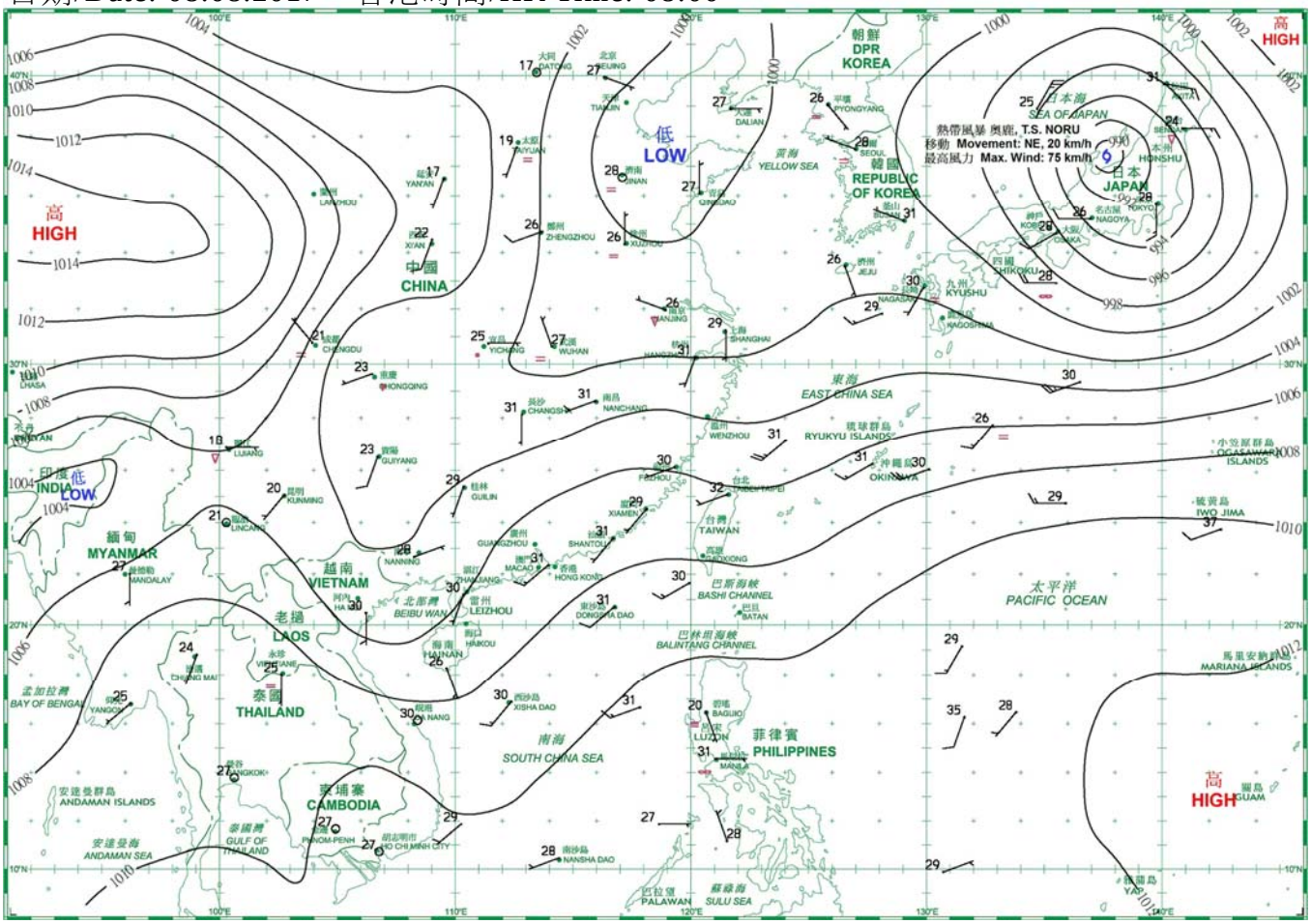
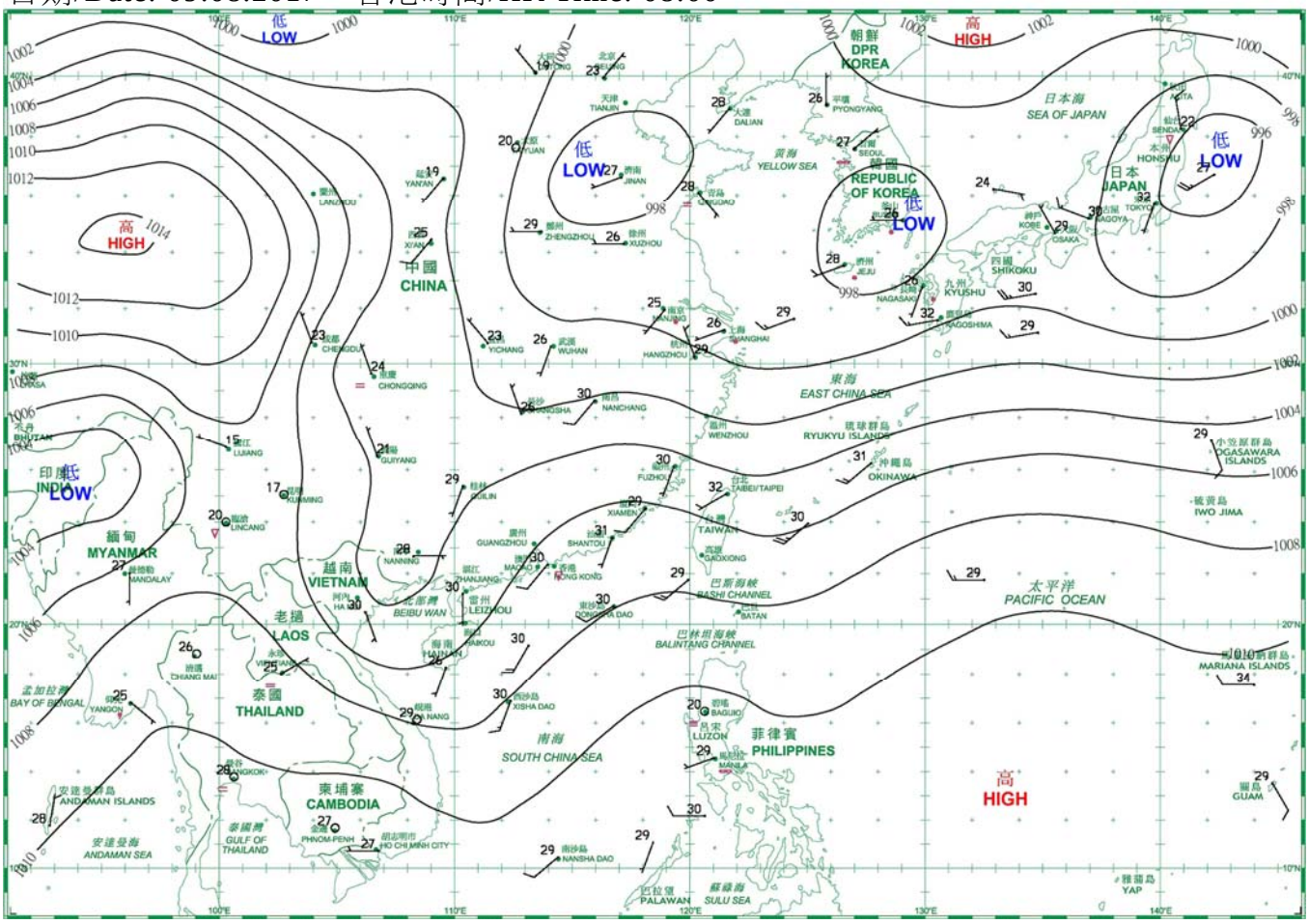


日期/Date: 09.08.2017　香港時間/HK Time: 08:00



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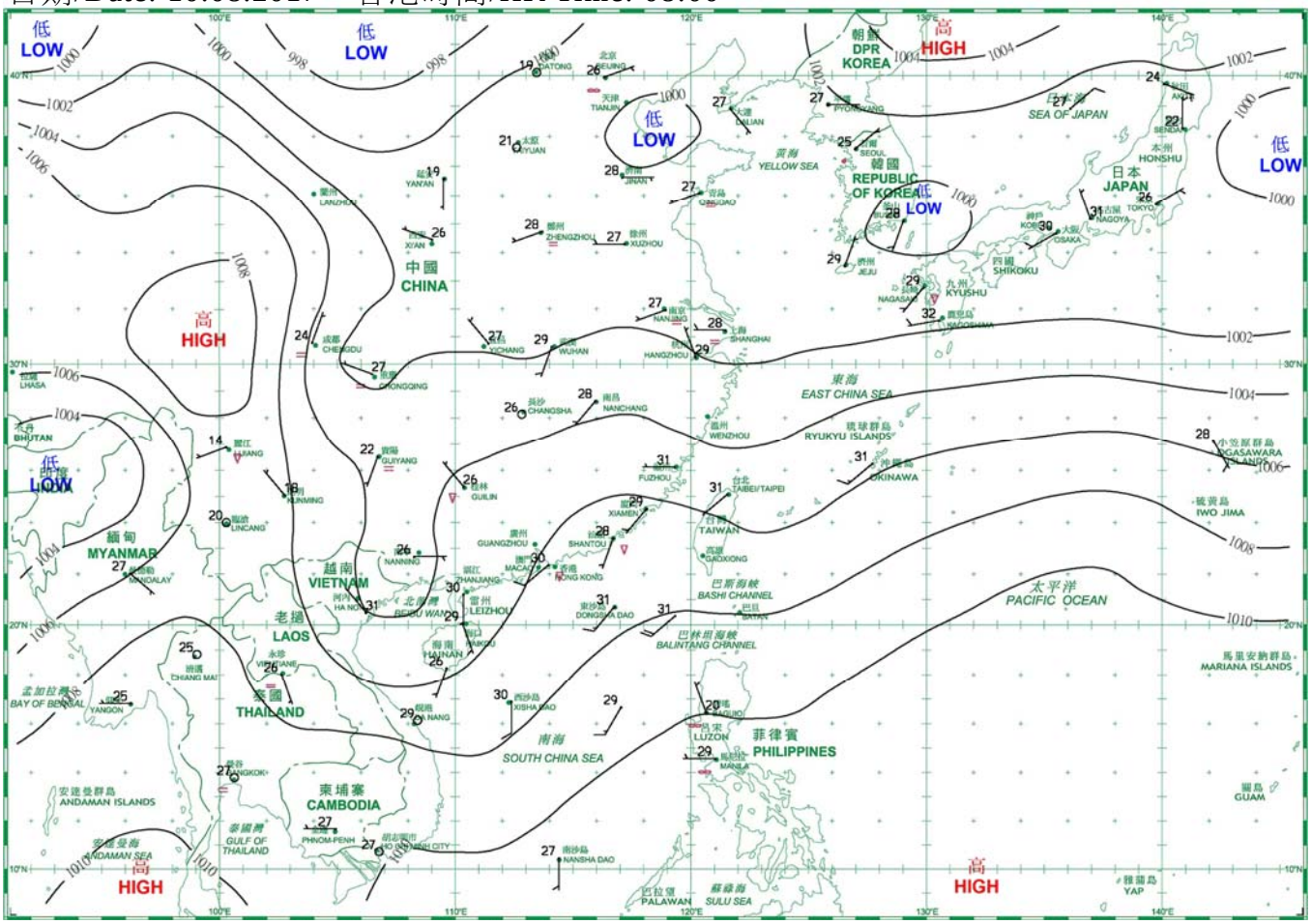

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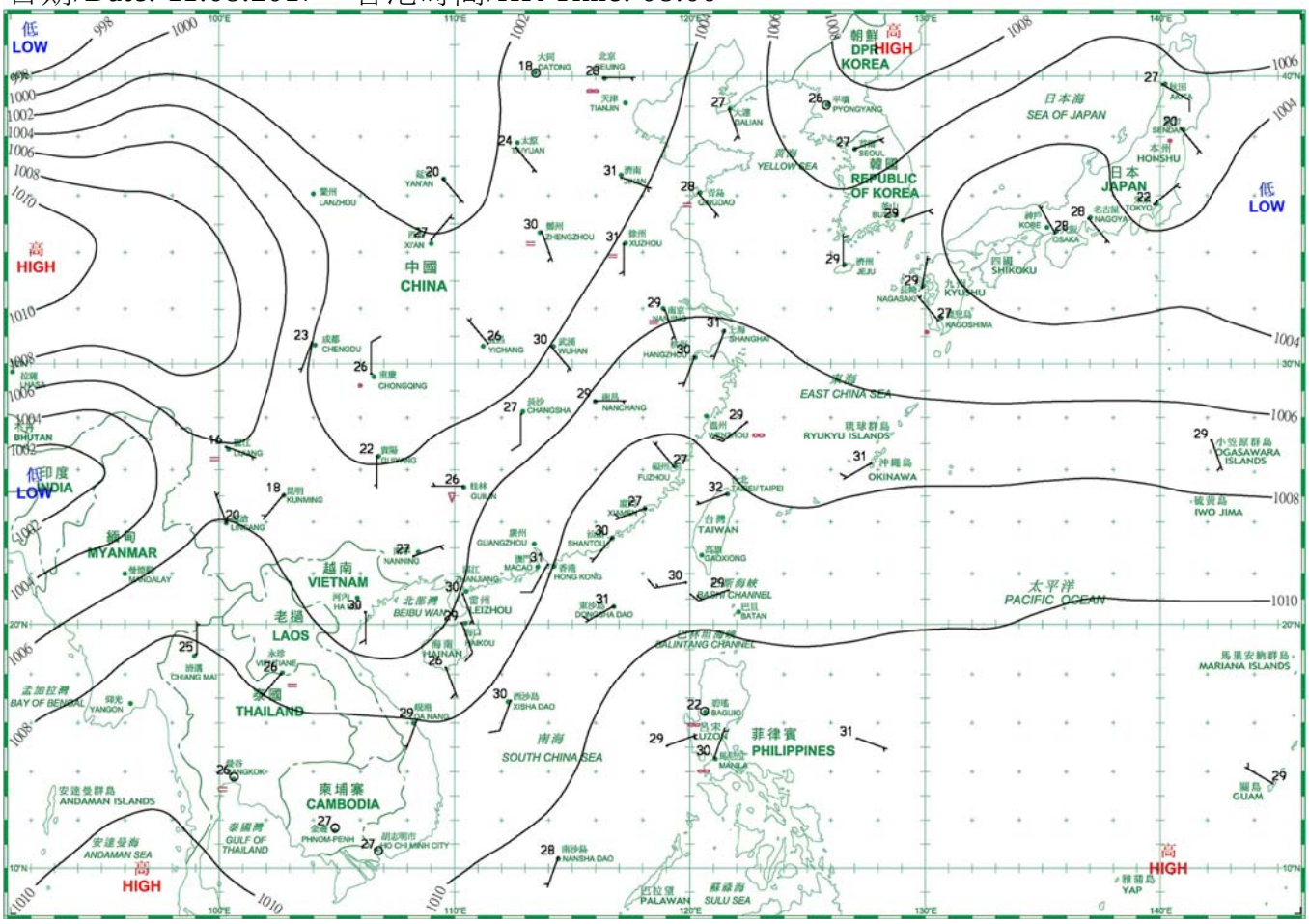

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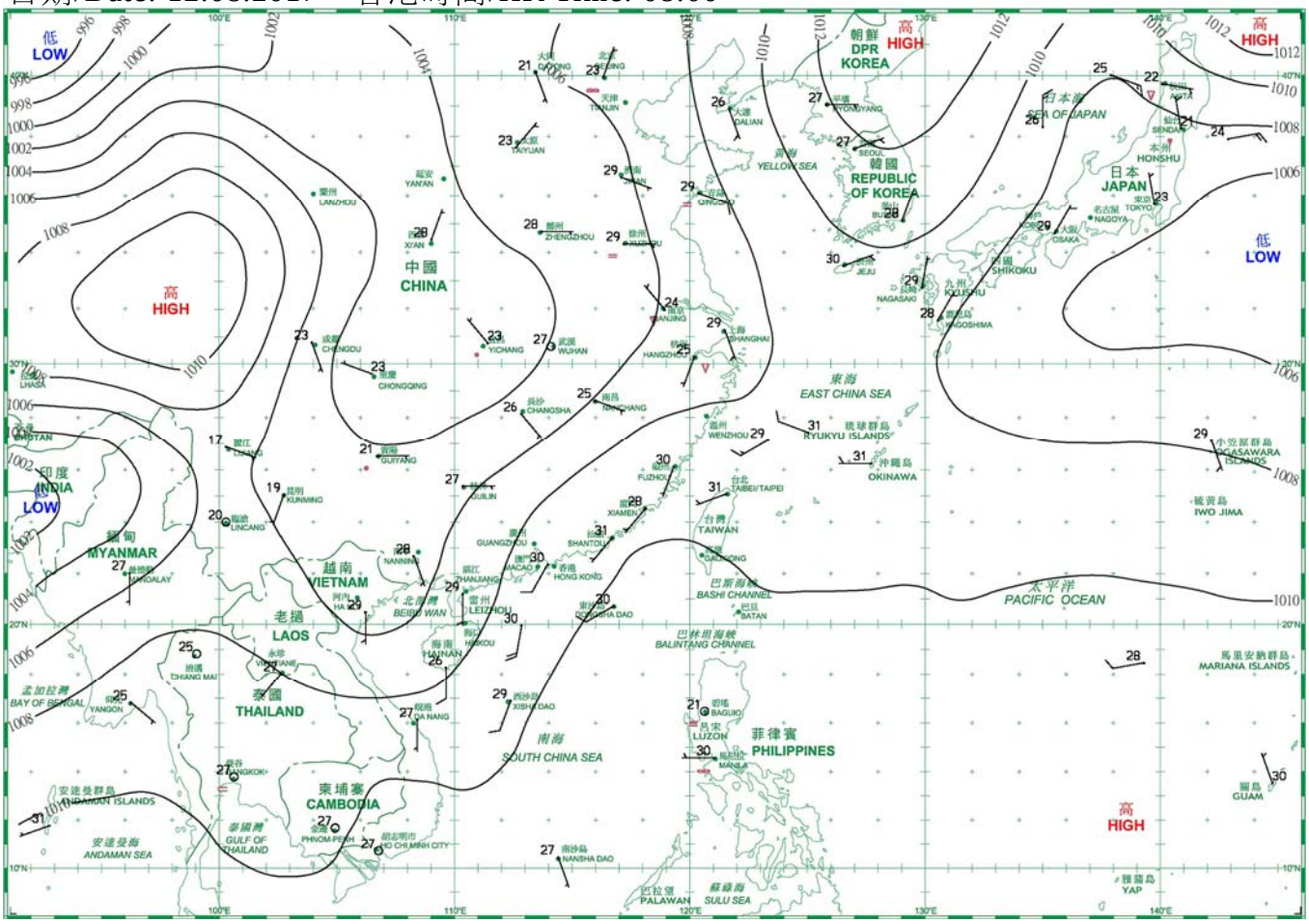
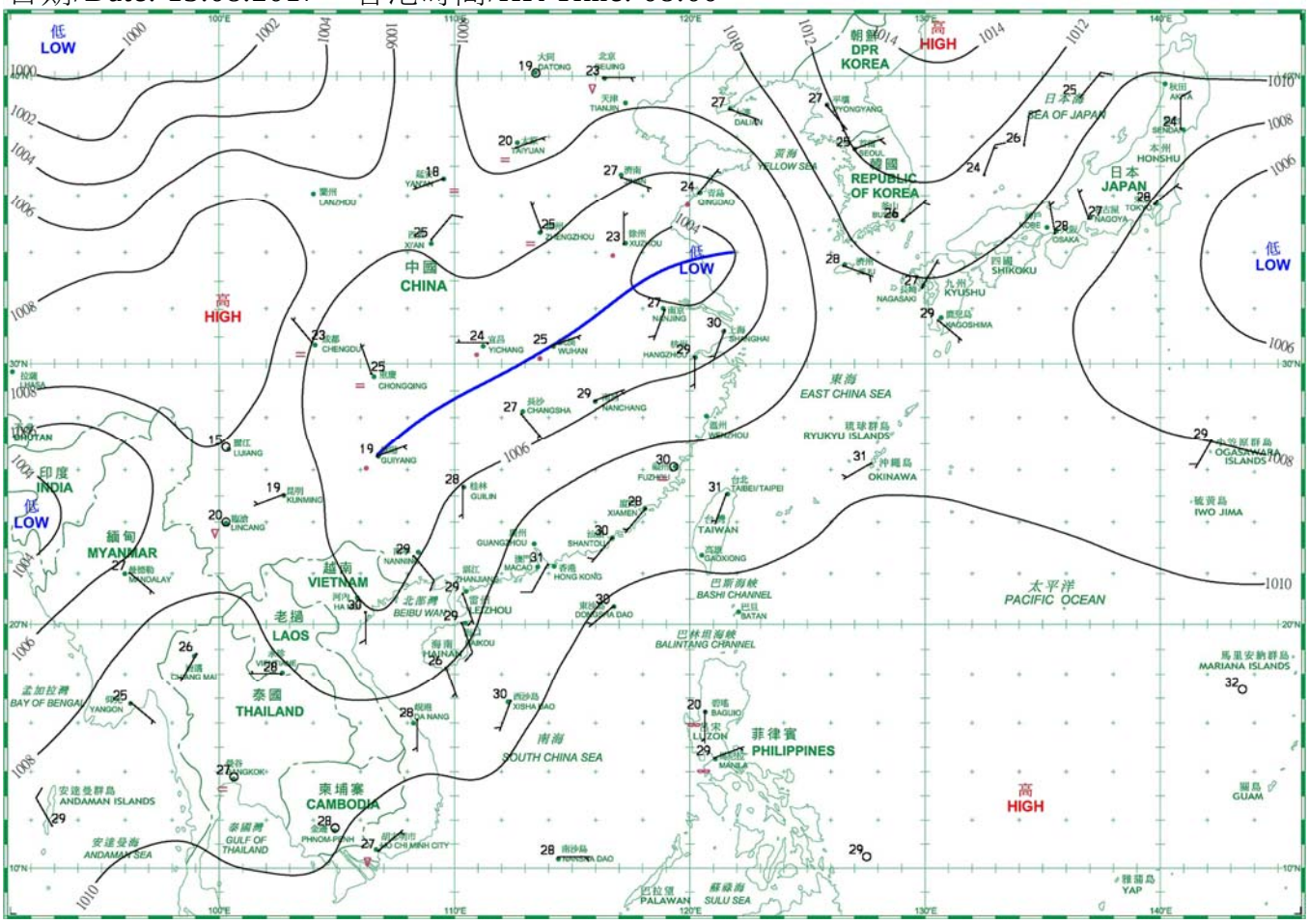


日期/Date: 13.08.2017　香港時間/HK Time: 08:00



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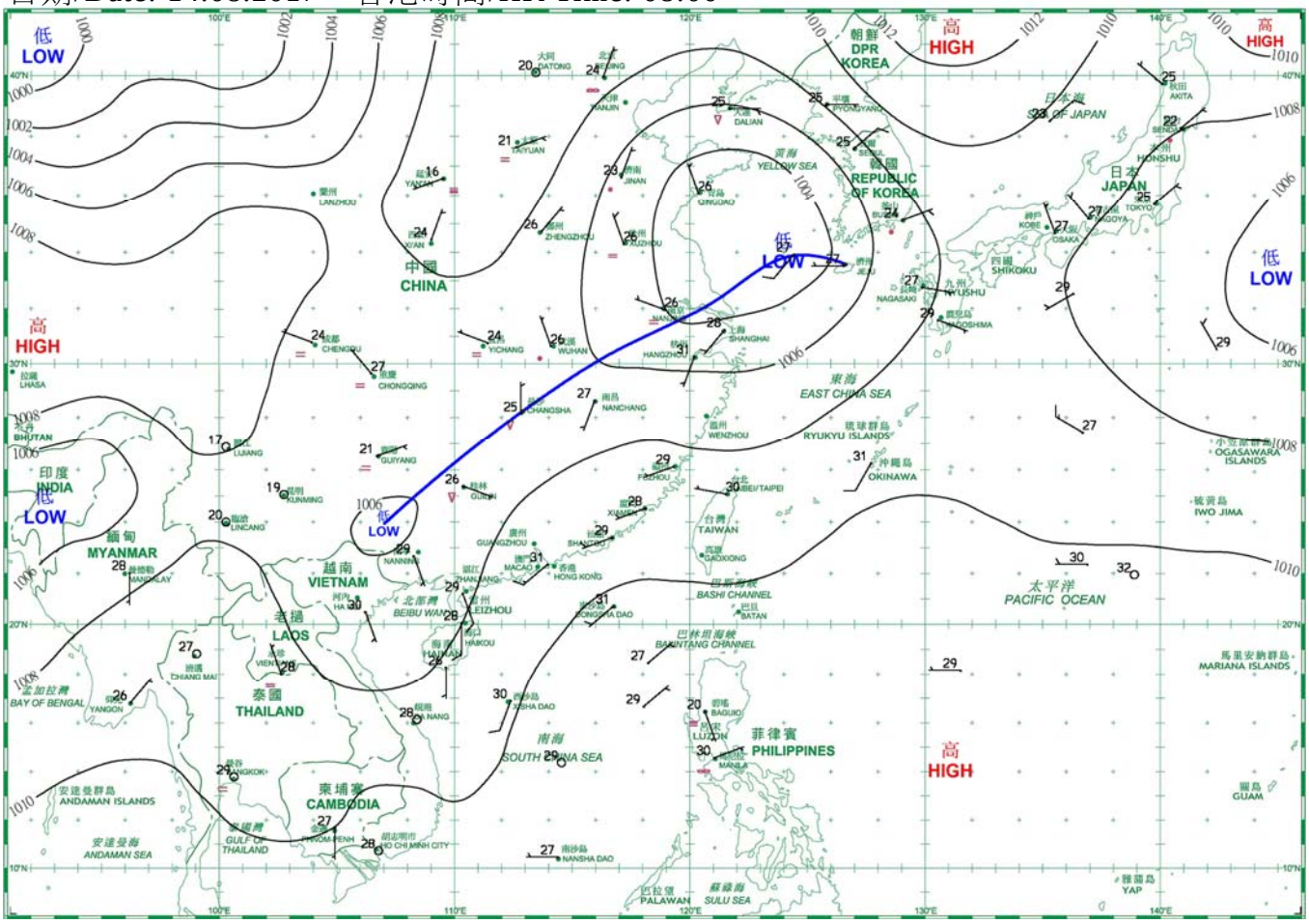

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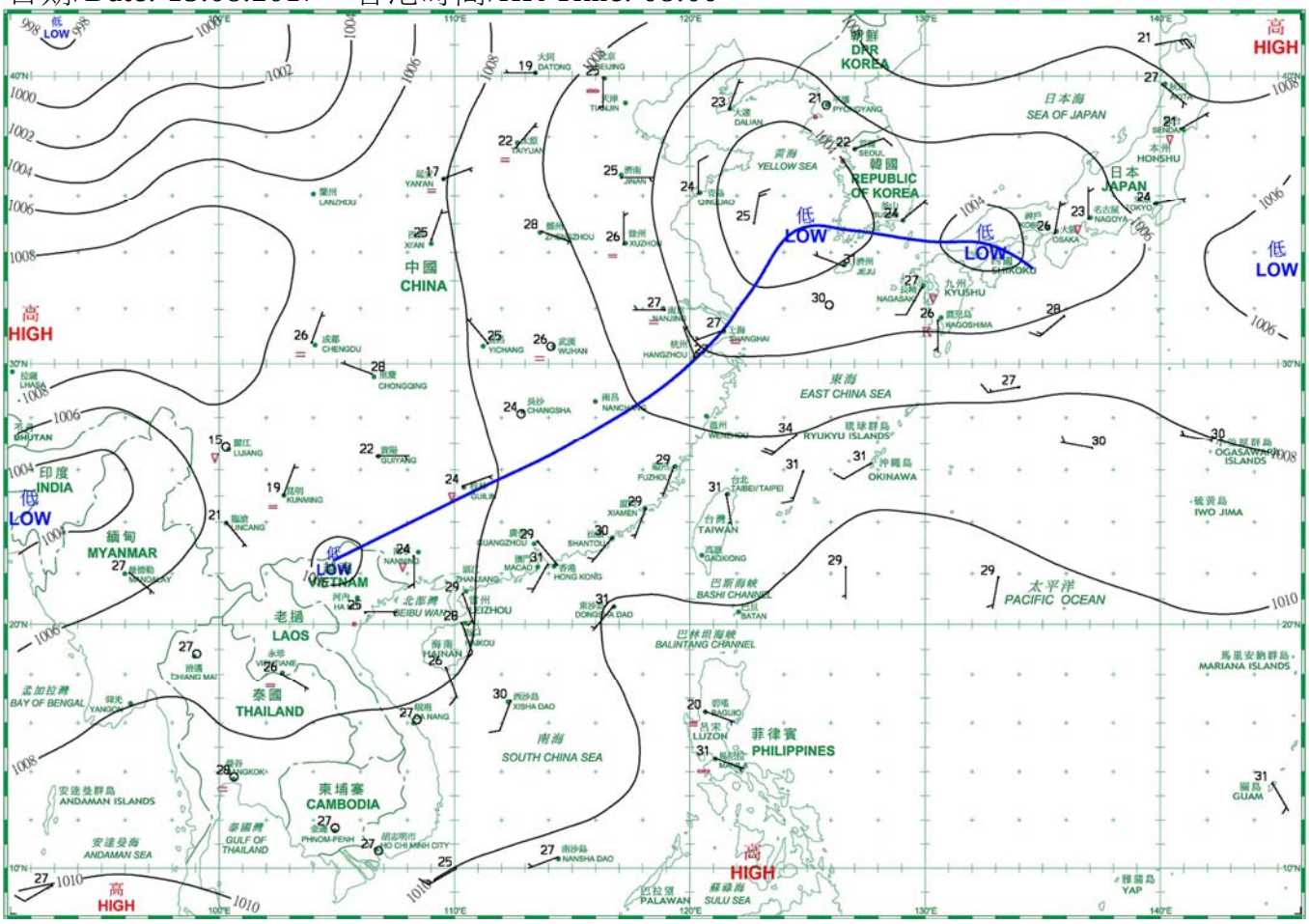

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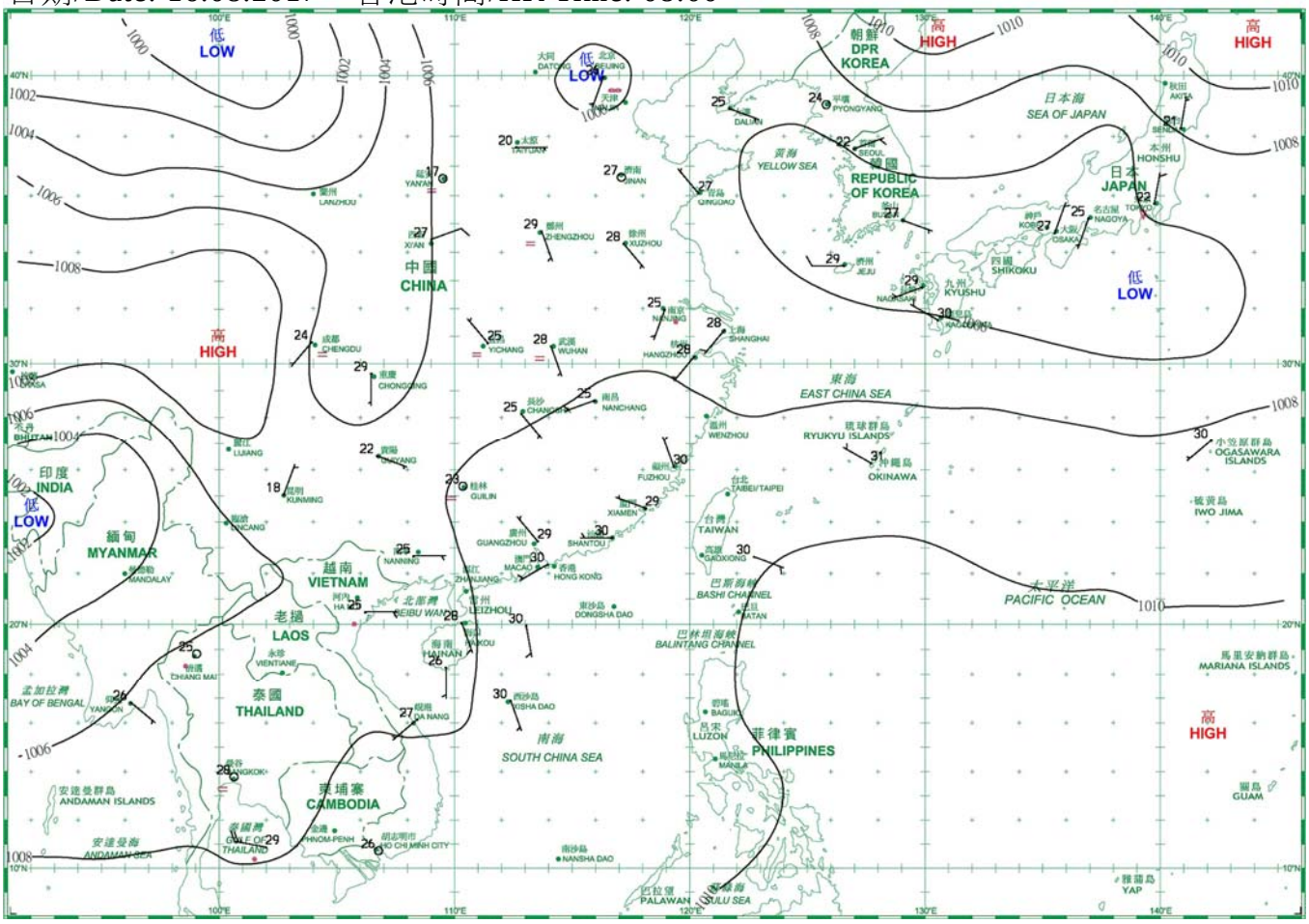
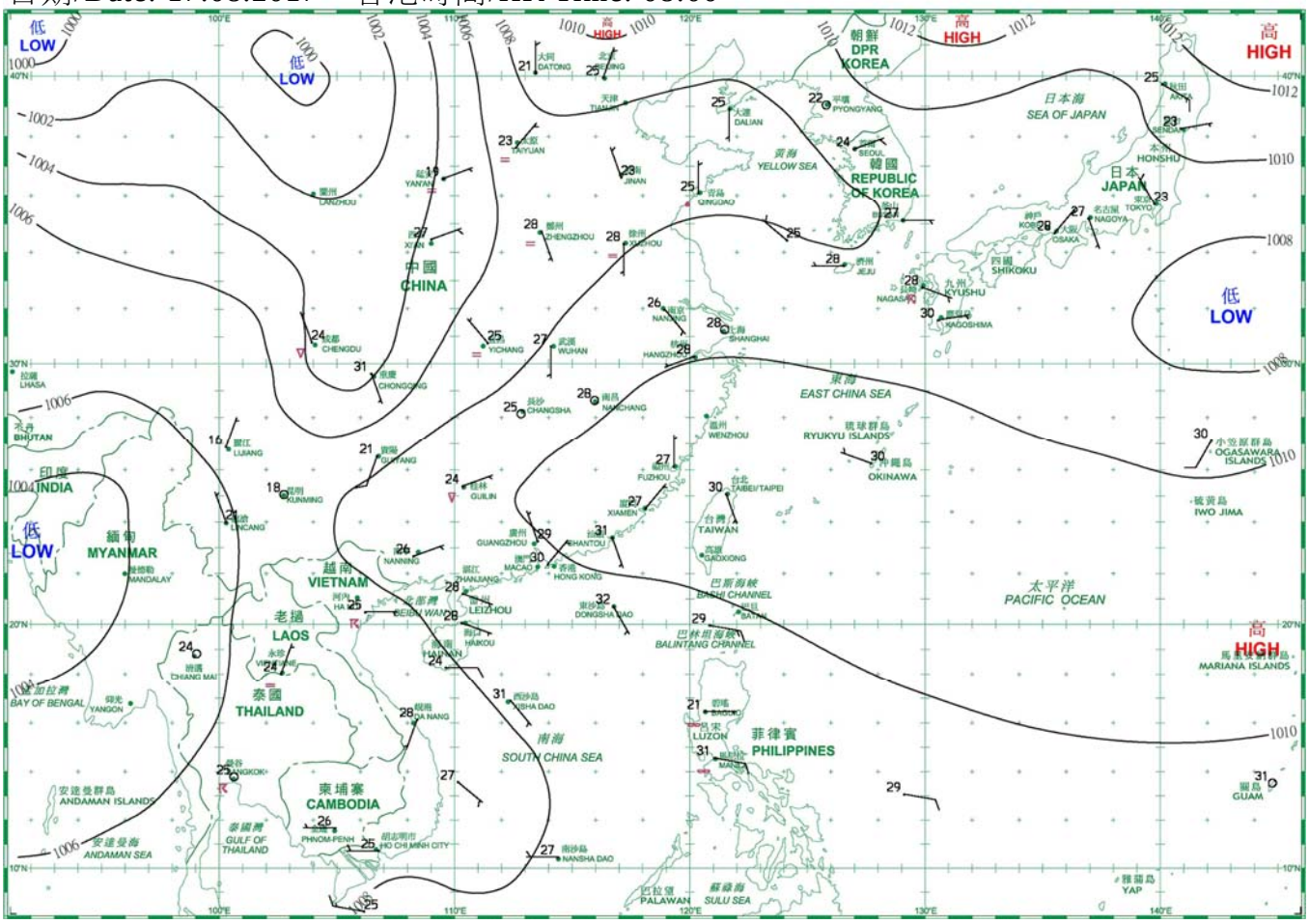


日期/Date: 17.08.2017　香港時間/HK Time: 08:00



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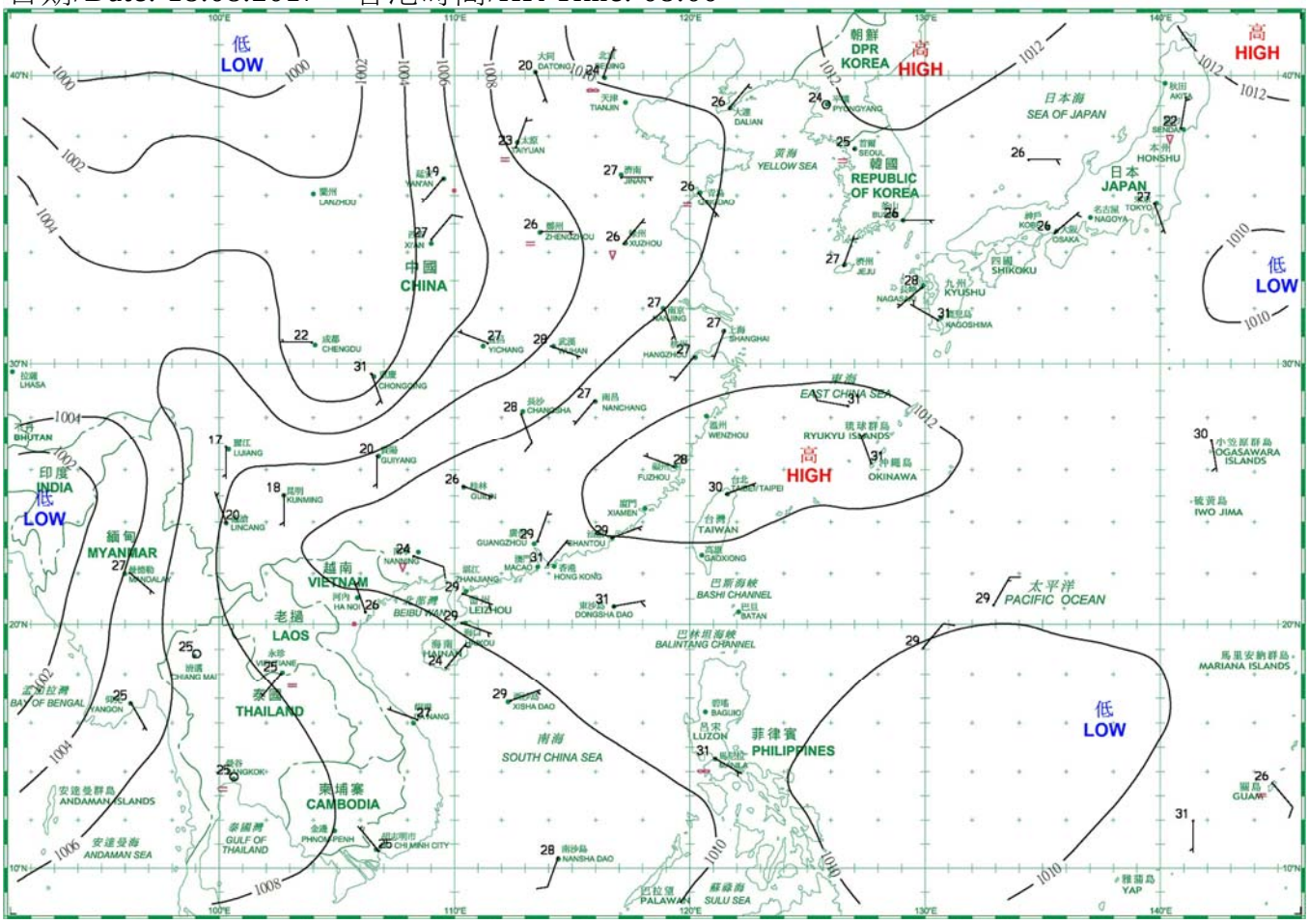

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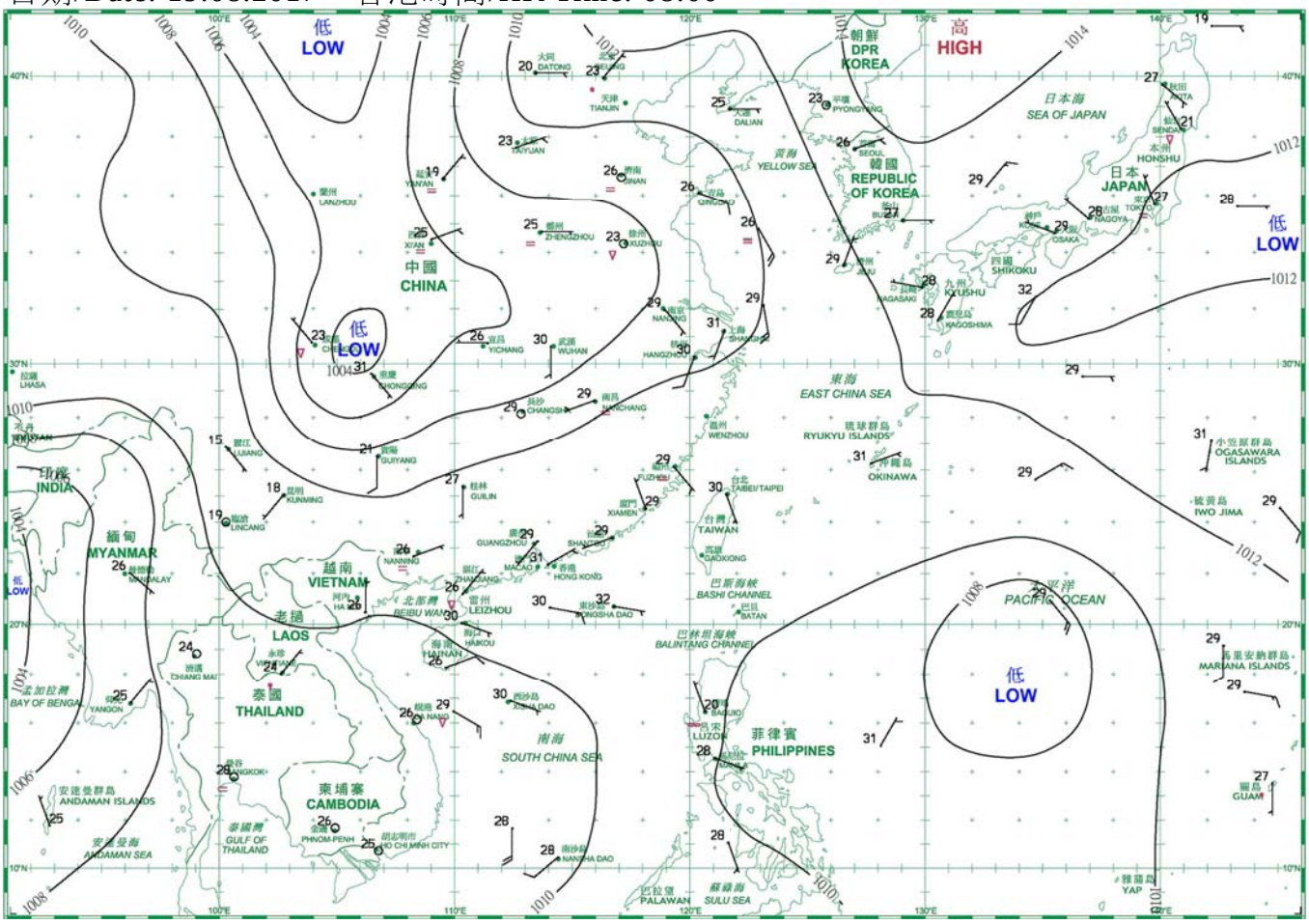

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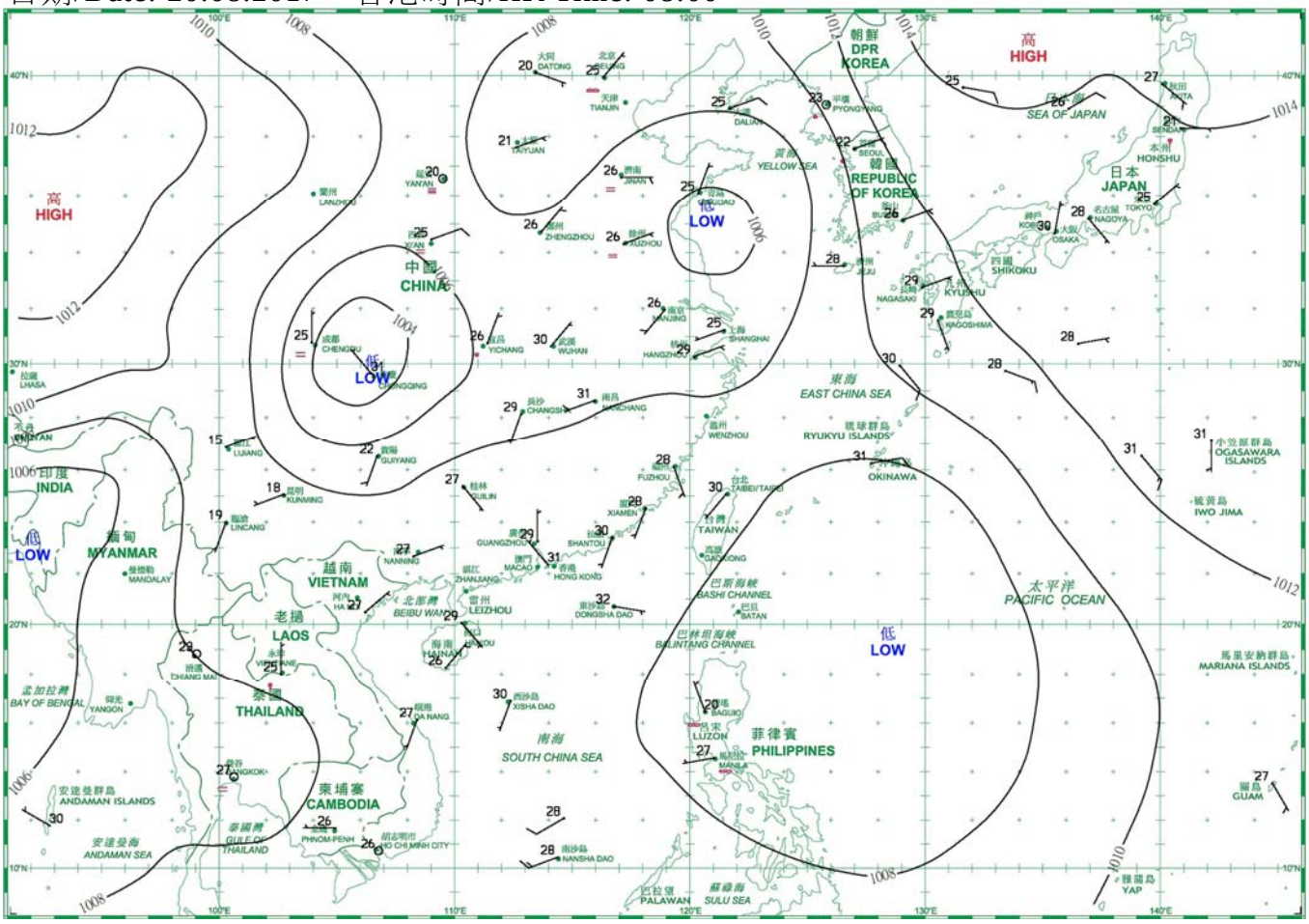

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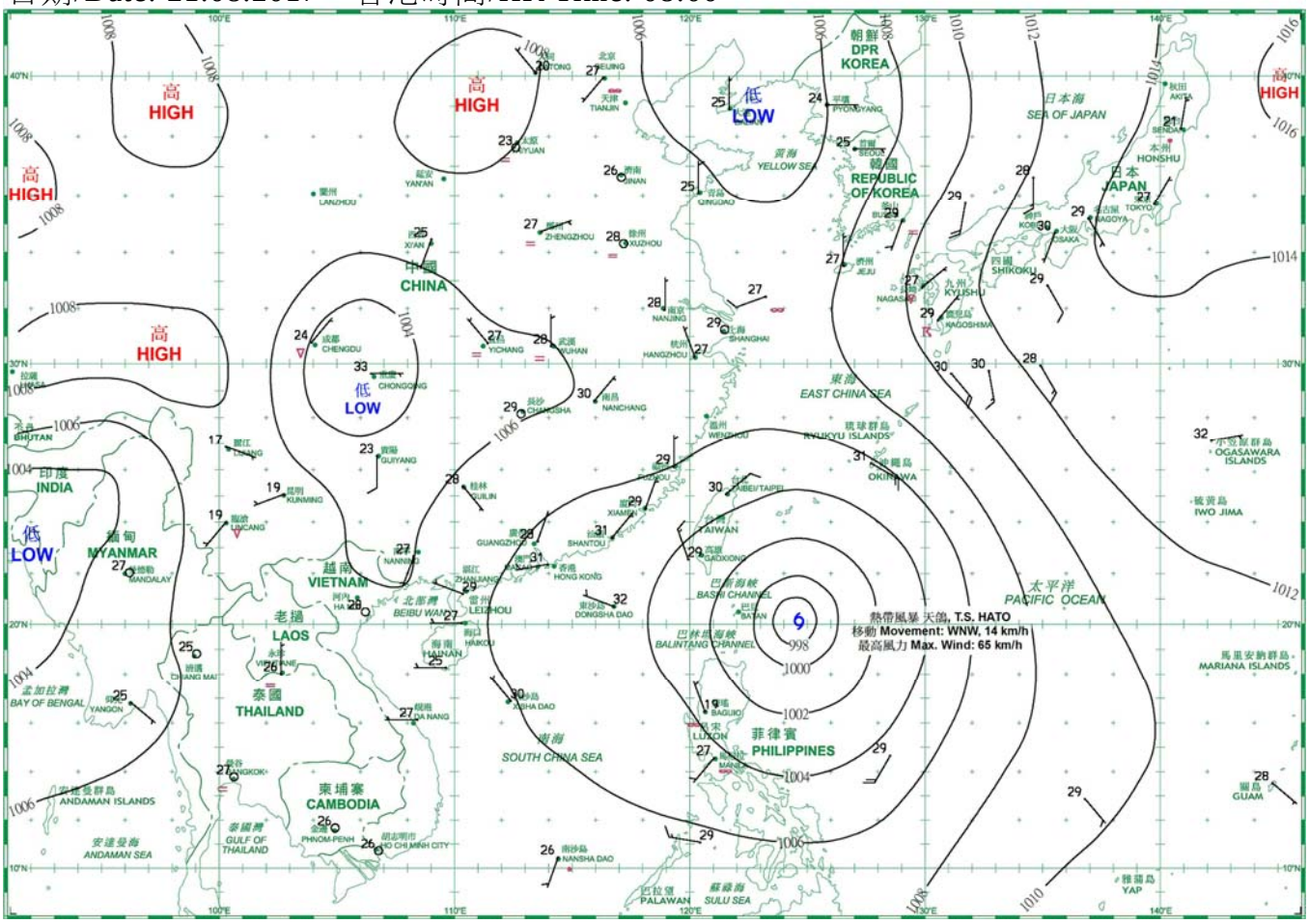

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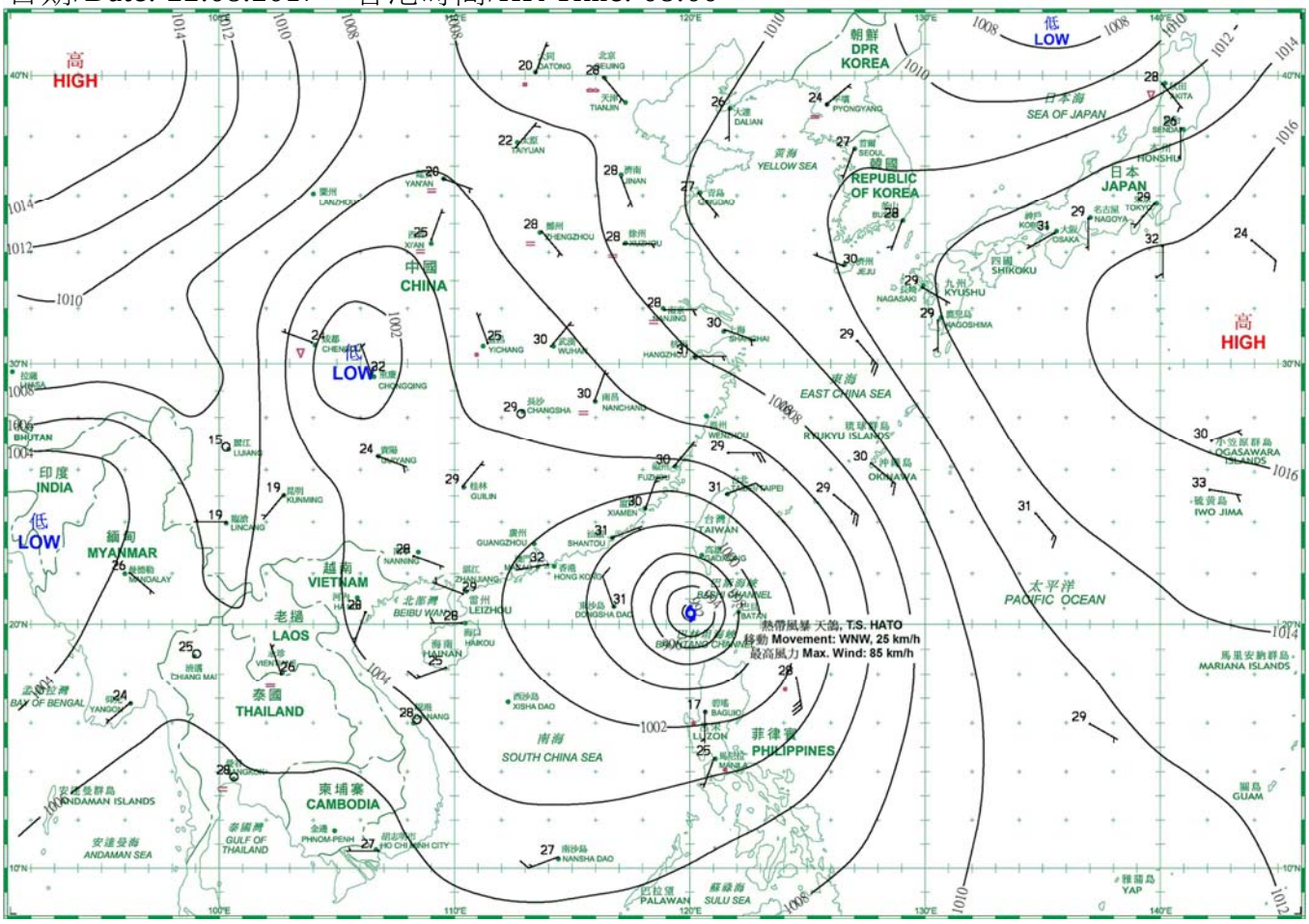

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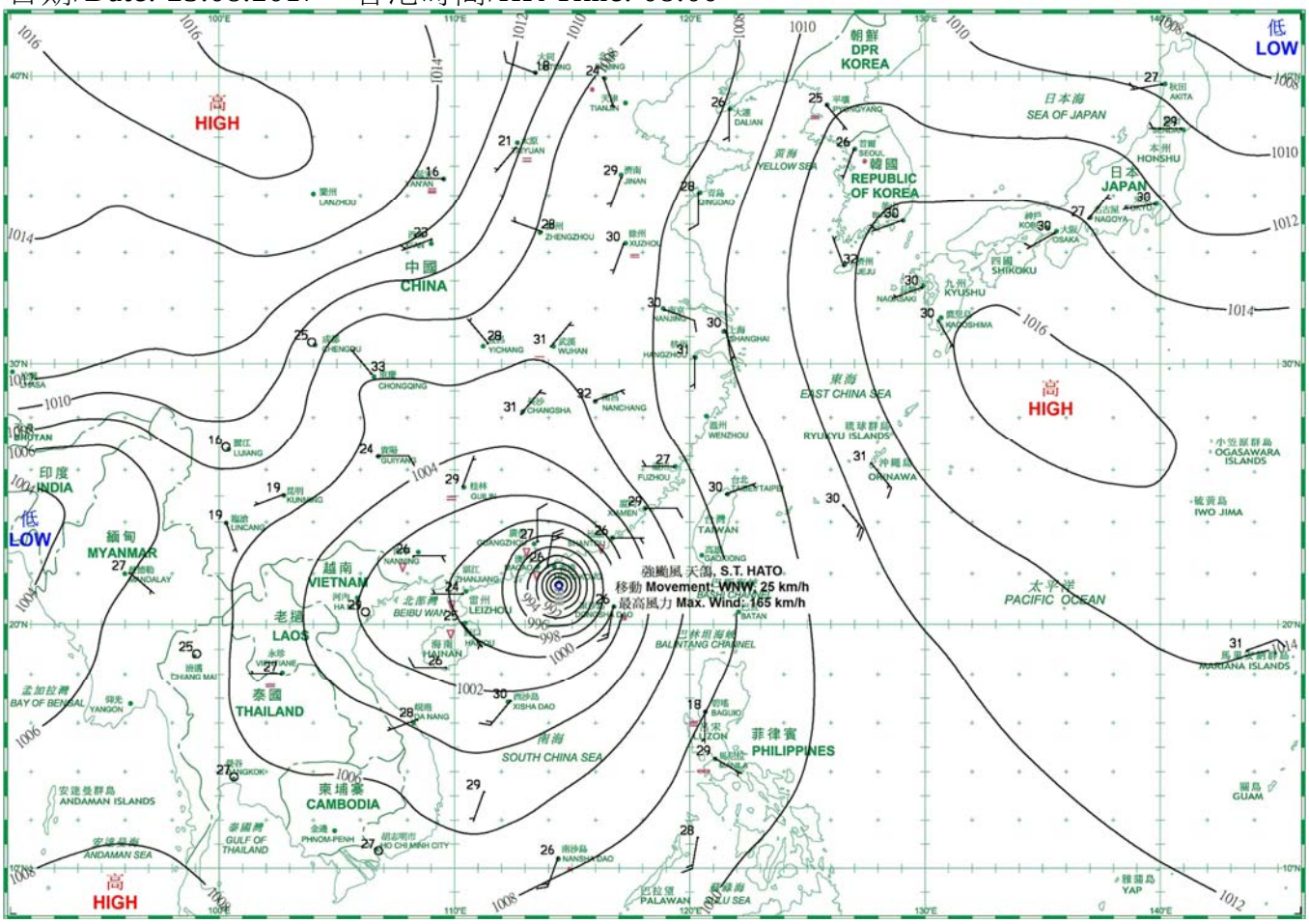
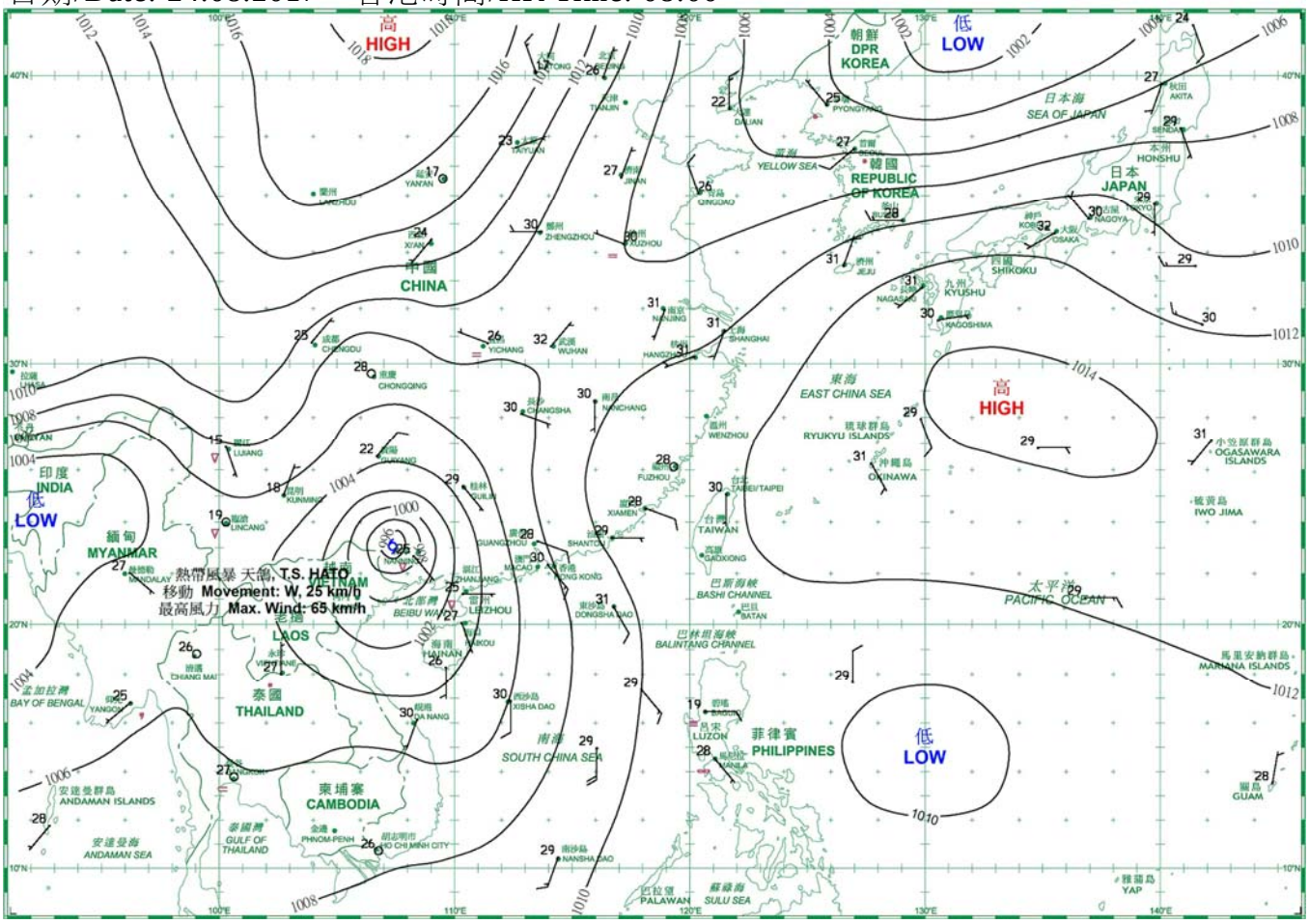
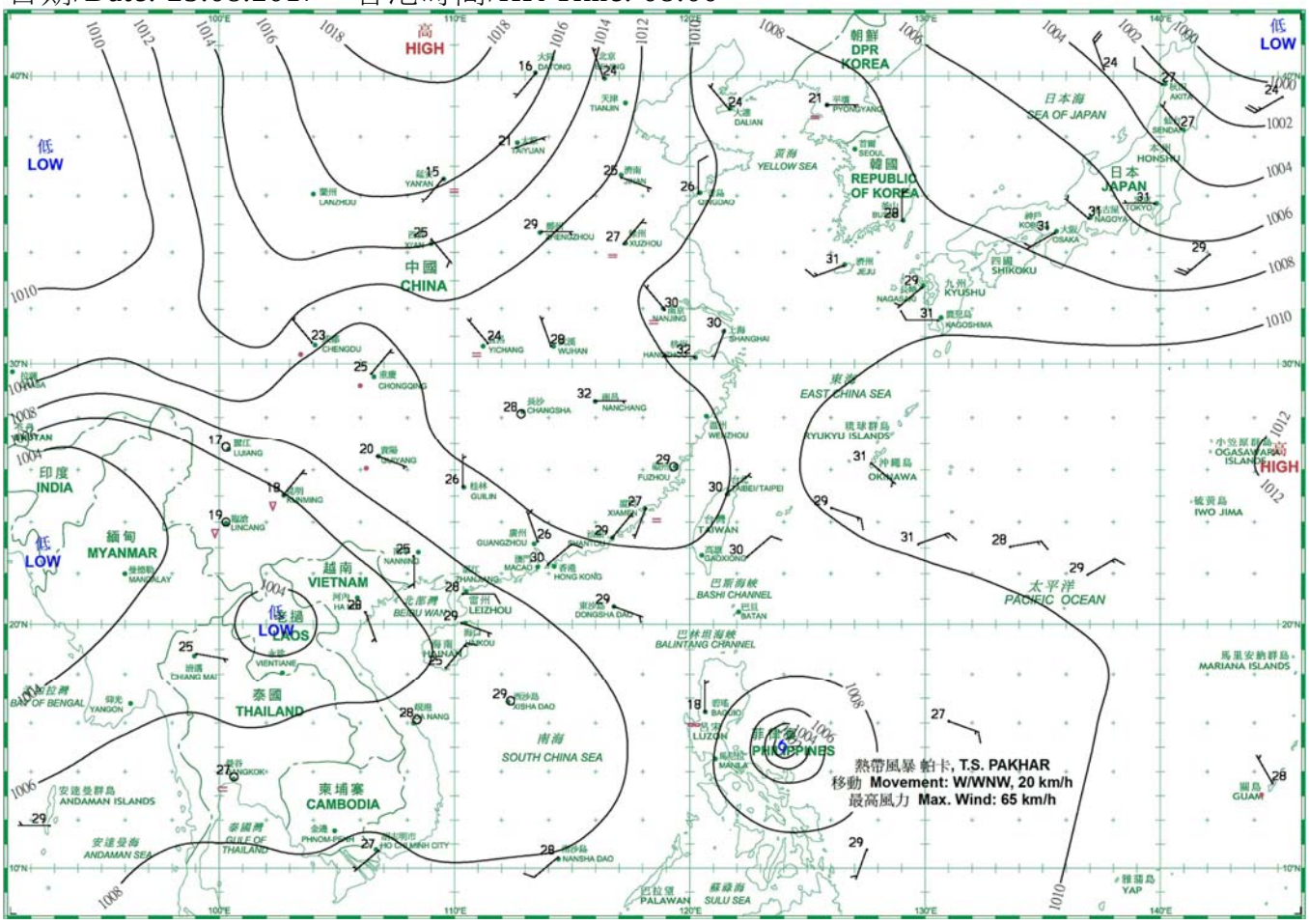


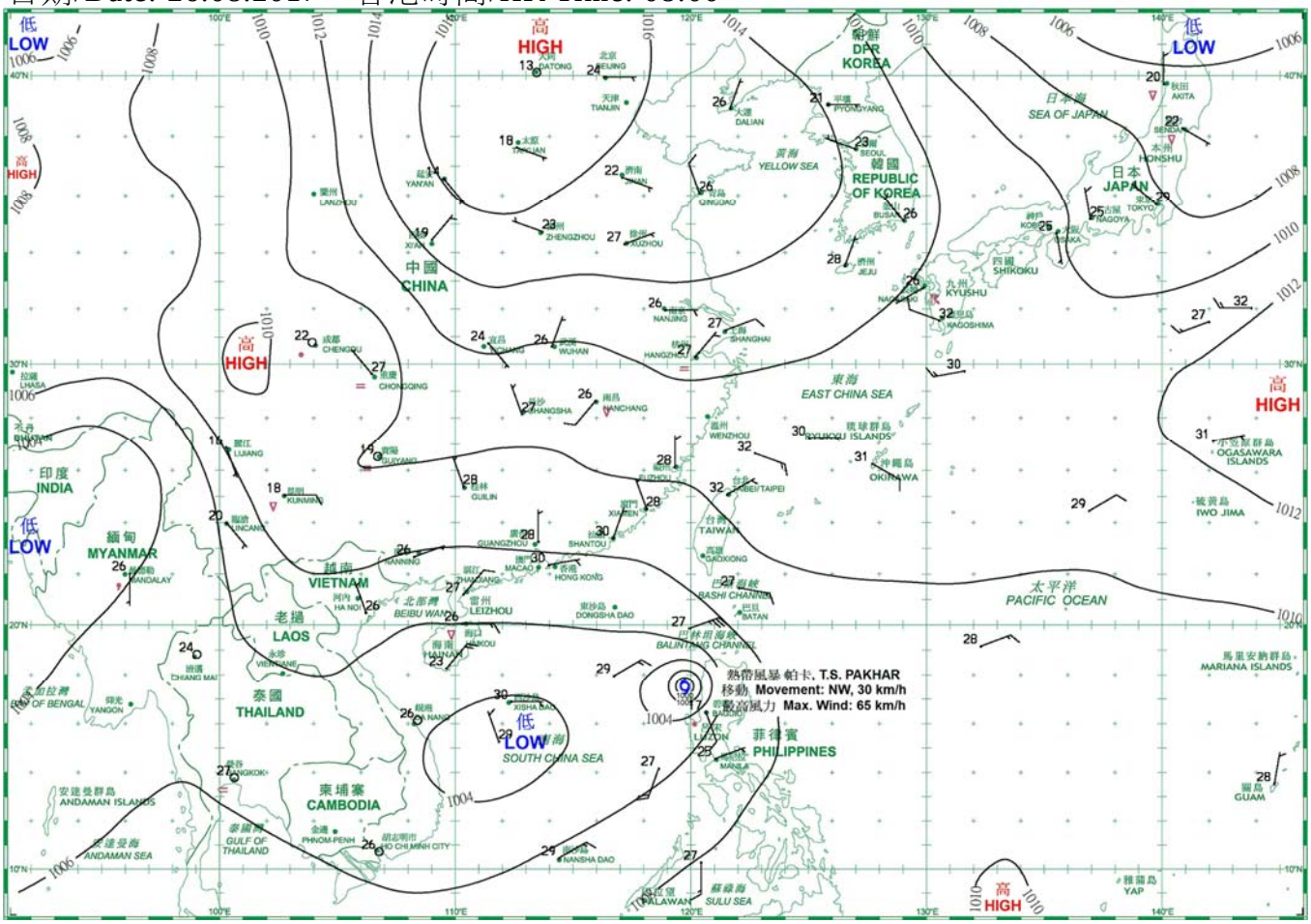
日期/Date: 24.08.2017　香港時間/HK Time: 08:00



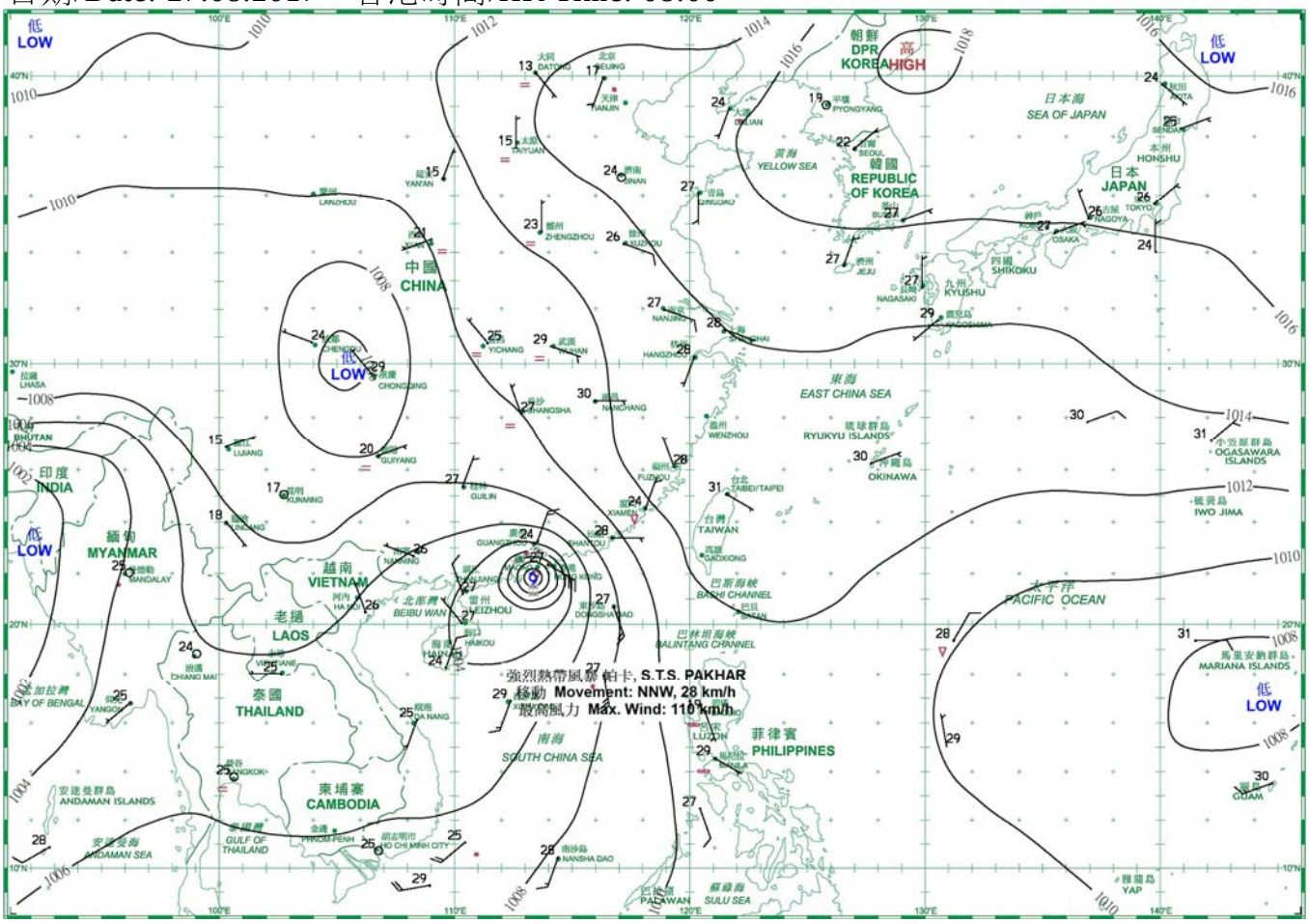
日期/Date: 25.08.2017　香港時間/HK Time: 08:00



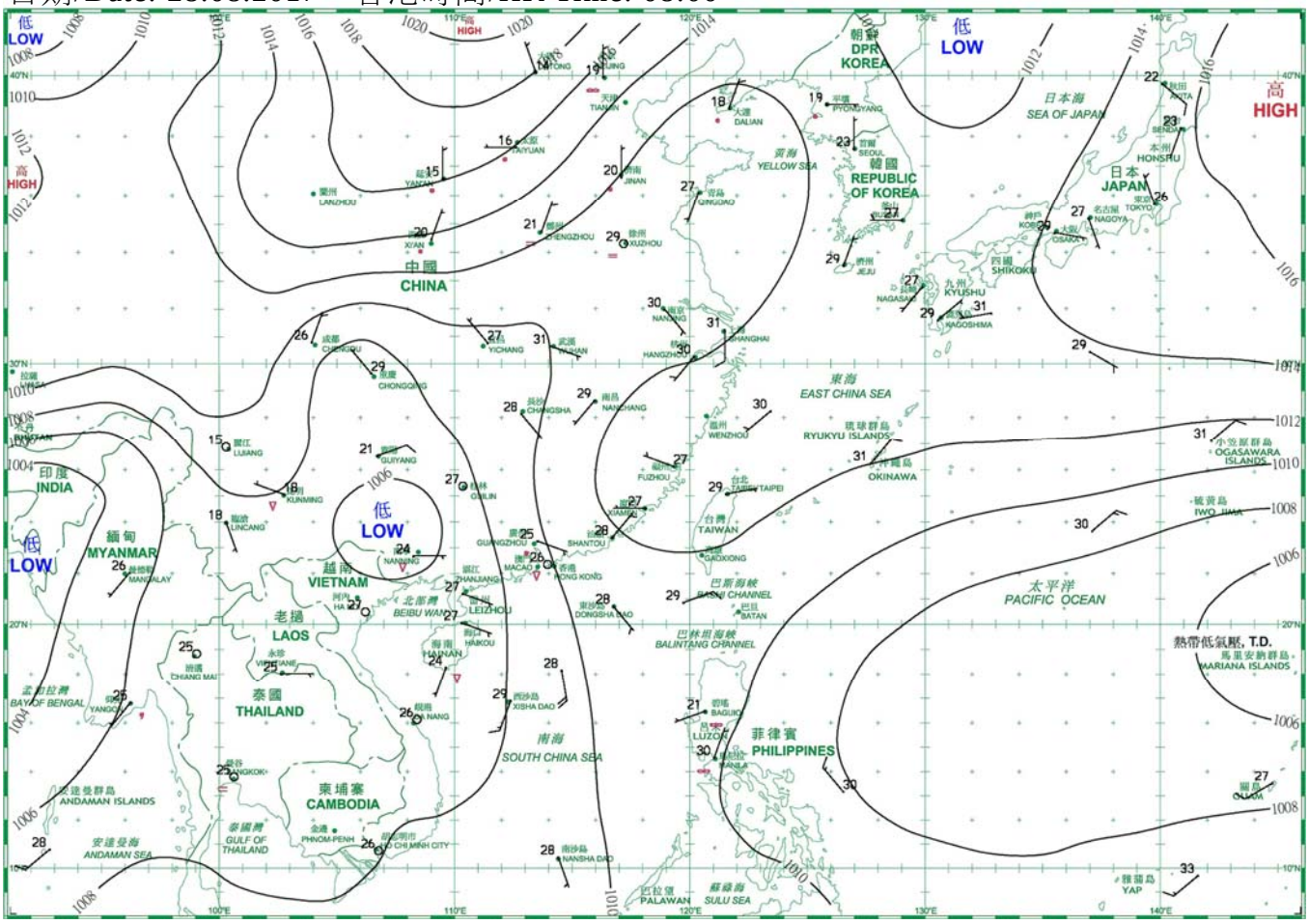
日期/Date: 26.08.2017　香港時間/HK Time: 08:00



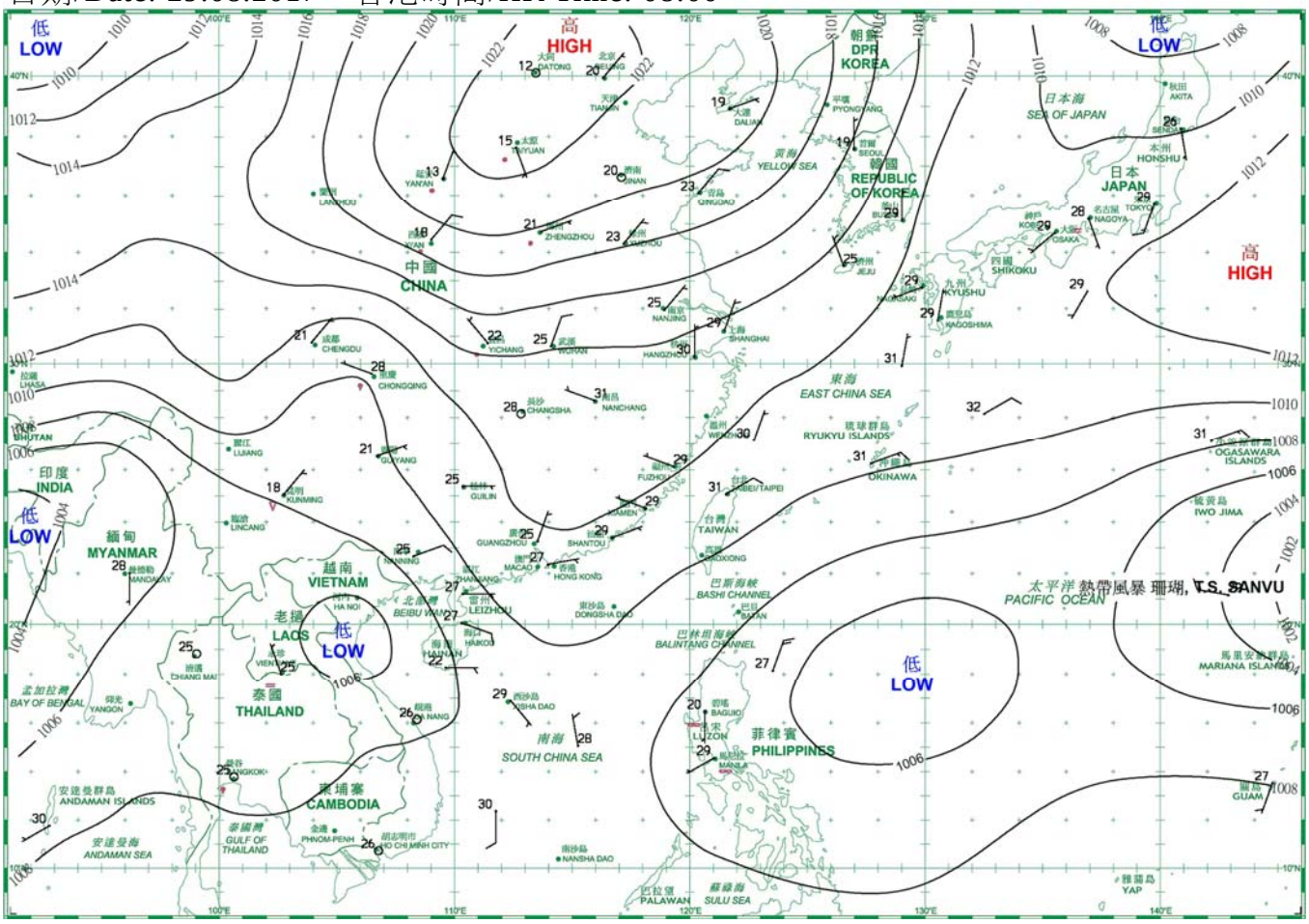
日期/Date: 27.08.2017　香港時間/HK Time: 08:00



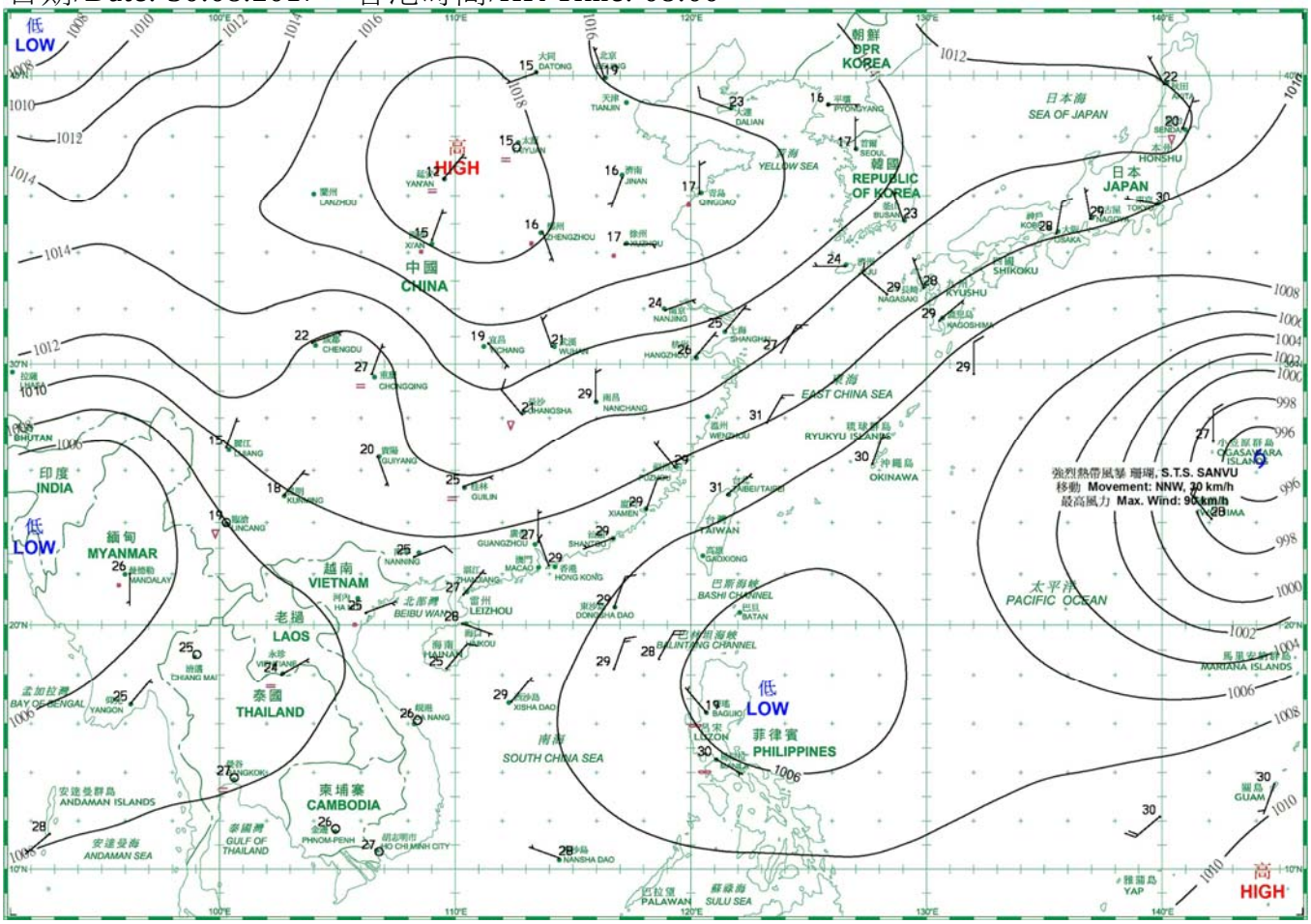
日期/Date: 28.08.2017　香港時間/HK Time: 08:00



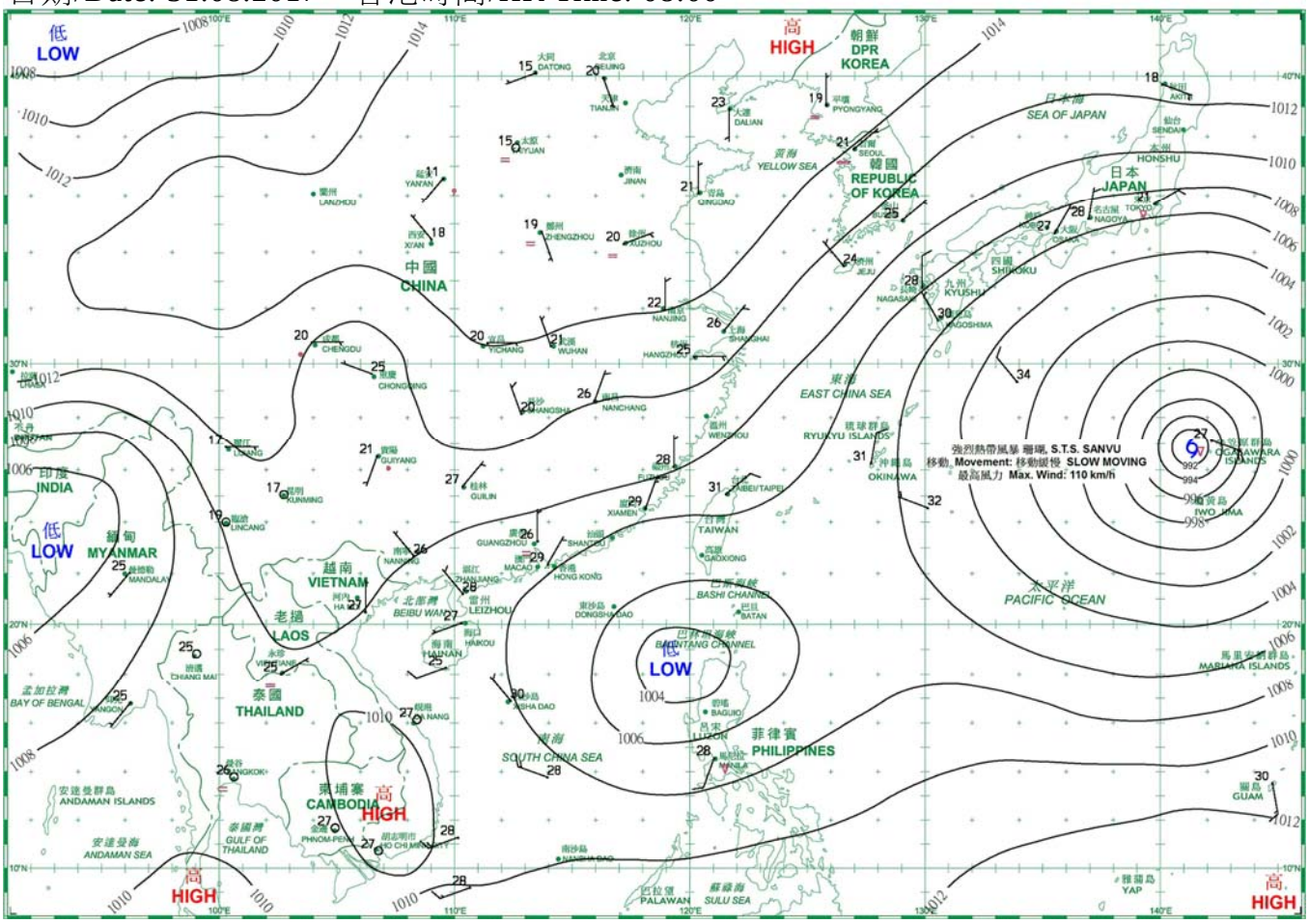
日期/Date: 29.08.2017　香港時間/HK Time: 08:00



日期/Date: 30.08.2017　香港時間/HK Time: 08:00



日期/Date: 31.08.2017　香港時間/HK Time: 08:00



4.1.1 二零一七年八月香港氣象觀測摘錄(一)

4.1.1 Extract of Meteorological Observations in Hong Kong (Part 1), August 2017

日期 Date	平均氣壓 Mean Pressure	氣溫 Air Temperature 最高 Maximum	平均 Mean	最低 Minimum	平均露點溫度 Mean Dew Point Temperature	平均相對濕度 Mean Relative Humidity	平均雲量 Mean Amount of Cloud	總雨量 Total Rainfall
八月 August	百帕斯卡 hPa	°C	°C	°C	°C	%	%	毫米 mm
1	1001.4	33.2	30.5	28.3	26.7	80	88	5.9
2	1002.2	31.0	29.3	27.3	26.0	83	88	14.8
3	1001.8	29.8	27.8	25.3	25.6	88	90	66.7
4	1003.0	29.3	27.6	25.9	25.5	89	79	19.3
5	1005.5	34.0	30.0	27.1	26.1	80	46	0.9
6	1006.4	32.9	30.3	28.5	26.0	78	61	-
7	1006.3	33.0	30.5	27.3	25.9	77	66	6.9
8	1006.6	32.8	30.4	28.4	26.1	78	74	1.9
9	1006.1	31.0	29.6	26.3	25.9	81	85	14.3
10	1006.1	31.4	29.6	27.6	26.0	81	88	11.1
11	1007.6	31.6	30.0	28.9	26.1	79	82	3.5
12	1008.7	32.5	30.0	29.0	25.4	76	72	-
13	1009.1	32.4	29.8	28.6	25.1	76	59	-
14	1008.8	32.5	29.9	28.8	25.0	75	58	Tr
15	1008.4	32.9	29.8	28.1	24.6	74	66	0.2
16	1008.3	31.2	29.3	28.2	24.4	75	81	Tr
17	1009.1	33.0	29.9	27.9	24.5	73	71	-
18	1010.3	34.3	30.4	28.1	25.5	76	60	-
19	1009.8	34.0	30.6	28.4	24.5	71	61	-
20	1007.1	33.4	30.5	28.5	25.3	75	29	-
21	1003.2	34.5	31.3	28.6	25.5	72	42	-
22	999.7	36.6	30.9	28.0	26.1	76	74	2.0
23	996.9	29.5	26.9	25.4	24.8	89	93	67.1
24	1007.8	31.5	29.1	27.3	26.4	86	85	Tr
25	1008.3	32.7	29.2	27.8	25.6	81	81	0.1
26	1006.4	34.3	29.8	26.2	24.3	73	65	6.3
27	1004.3	26.9	25.6	24.0	24.6	95	89	165.3
28	1010.2	26.3	25.2	24.5	24.6	96	90	98.3
29	1010.1	31.4	28.2	24.6	24.0	79	34	-
30	1008.3	31.6	28.9	27.0	24.8	79	49	0.4
31	1007.3	32.8	28.9	26.2	24.3	77	80	4.1
平均/總值 Mean/Total	1006.3	32.1	29.3	27.3	25.3	80	70	489.1
正常* Normal*	1005.2	31.1	28.6	26.6	25.0	81	69	432.2
觀測站 Station	天文台 Hong Kong Observatory							

天文台於八月二十三日 9 時 39 分錄得本月最低氣壓 986.3 百帕斯卡。
The minimum pressure recorded at the Hong Kong Observatory was 986.3 hectopascals at 0939 HKT on 23 August.

天文台於八月二十二日 14 時 0 分錄得本月最高氣溫 36.6 °C。
The maximum air temperature recorded at the Hong Kong Observatory was 36.6 °C at 1400 HKT on 22 August.

天文台於八月二十七日 5 時 14 分錄得本月最低氣溫 24.0 °C。
The minimum air temperature recorded at the Hong Kong Observatory was 24.0 °C at 0514 HKT on 27 August.

京士柏於八月三日 4 時 48 分錄得本月最高1分鐘平均降雨率 140 毫米/小時。
The maximum 1-minute mean rainfall rate recorded at King's Park was 140 millimetres per hour at 0448 HKT on 3 August.

* 1981-2010 氣候平均值（除特別列明外） *(http://www.hko.gov.hk/wxinfo/climat/normal/cnormal08.htm)*

* 1981-2010 Climatological normal, unless otherwise specified *(http://www.hko.gov.hk/wxinfo/climat/normal/enormal08.htm)*

Tr - 微量 (降雨量少於 0.05 毫米)

Tr - Trace of rainfall (amount less than 0.05 mm)

4.1.2 二零一七年八月香港氣象觀測摘錄(二)

4.1.2 Extract of Meteorological Observations in Hong Kong (Part 2), August 2017

日期 Date	出現低能見度的時數# Number of hours of Reduced Visibility#	總日照 Total Bright Sunshine	每日太陽總輻射 Daily Global Solar Radiation	總蒸發量 Total Evaporation	盛行風向 Prevailing Wind Direction	平均風速 Mean Wind Speed
八月 August	小時 hours	小時 hours	兆焦耳/米^2 MJ/m^2	毫米 mm	度 degrees	公里/小時 km/h
1	0	4.6	15.34	7.3	230	30.7
2	0	1.9	11.37	2.4	230	15.5
3	0	0.9	11.04	3.2	070	6.2
4	0	1.4	7.55	1.0	240	11.2
5	0	8.9	21.49	4.3	160	7.1
6	0	11.0	26.17	5.9	240	19.1
7	0	10.3	26.09	5.9	240	24.6
8	0	8.3	23.23	5.5	240	33.1
9	0	1.6	11.24	2.5	240	35.4
10	0	2.5	12.82	2.8	230	30.5
11	0	5.0	14.21	3.4	220	23.2
12	0	9.9	24.05	5.3	230	24.7
13	0	8.6	23.61	5.2	230	22.5
14	0	9.4	22.99	5.2	240	23.6
15	0	9.6	23.92	5.1	240	17.6
16	0	7.3	17.96	4.3	250	9.4
17	0	10.3	21.83	4.6	220	6.4
18	0	7.9	20.18	4.1	130	6.5
19	0	10.2	24.65	5.5	030	7.7
20	0	10.2	25.47	5.7	250	13.6
21	0	10.1	23.55	5.3	260	19.2
22	3	7.3	18.32	5.1	020	14.9
23	0	0.1	2.22	1.4	160	59.7
24	0	7.0	21.09	3.9	110	23.6
25	0	5.9	17.34	3.7	060	18.6
26	0	9.9	25.58	5.2	060	28.3
27	0	-	1.50	1.9	160	62.0
28	0	-	2.97	0.7	140	17.1
29	0	11.1	24.59	4.6	020	11.8
30	5	7.3	15.74	3.0	240	9.9
31	0	6.9	17.33	3.9	350	6.7
平均/總值 Mean/Total	8	205.4	17.92	127.9	230	20.7
正常* Normal*	48.4 §	188.9	15.63	134.9	230	19.4
觀測站 Station	香港國際機場 Hong Kong International Airport	京士柏 King's Park			橫瀾島^ Waglan Island^	

橫瀾島於八月二十三日 9 時 10 分錄得本月最高陣風 193 公里/小時，風向 080 度。
The maximum gust peak speed recorded at Waglan Island was 193 kilometres per hour from 080 degrees at 0910 HKT on 23 August.

低能見度是指能見度低於 8 公里，不包括出現霧、薄霧或降水。
- 在2004年及以前，香港國際機場的能見度讀數是基於專業氣象觀測員每小時的觀測數據。在2005年及以後，讀數是採用位於機場南跑道中間的能見度儀表在每小時前10分鐘的平均數據。這與使用儀器觀測來改進能見度評估的國際趨勢是一致的。
- 在2007年10月10日前曾出現於此摘錄內香港國際機場2005年及以後的低能見度時數資料乃基於專業氣象觀測員每小時的觀測數據。有關資料已於2007年10月10日起改為以機場南跑道中間之能見度儀表在每小時前10分鐘的平均數據計算。

Reduced visibility refers to visibility below 8 kilometres when there is no fog, mist, or precipitation.
- The visibility readings at the Hong Kong International Airport are based on hourly observations by professional meteorological observers in 2004 and before, and average readings over the 10-minute period before the clock hour of the visibility meter near the middle of the south runway from 2005 onwards. The change of the data source in 2005 is an improvement of the visibility assessment using instrumented observations following the international trend.
- Before 10 October 2007, the number of hours of reduced visibility at the Hong Kong International Airport in 2005 and thereafter displayed in this summary was based on hourly visibility observations by professional meteorological observers. Since 10 October 2007, the data have been revised using the average visibility readings over the 10-minute period before the clock hour, as recorded by the visibility meter near the middle of the south runway.

^ 如橫瀾島未能提供數據，則以長洲或其他鄰近氣象站的數據作補充，以計算盛行風向和平均風速。

^ In case the data are not available from Waglan Island, observations of Cheung Chau or other nearby weather stations will be incorporated in computing the Prevailing Wind Direction and Mean Wind Speed.

* 1981-2010 氣候平均值（除特別列明外） *(http://www.hko.gov.hk/wxinfo/climat/normal/cnormal08.htm)*

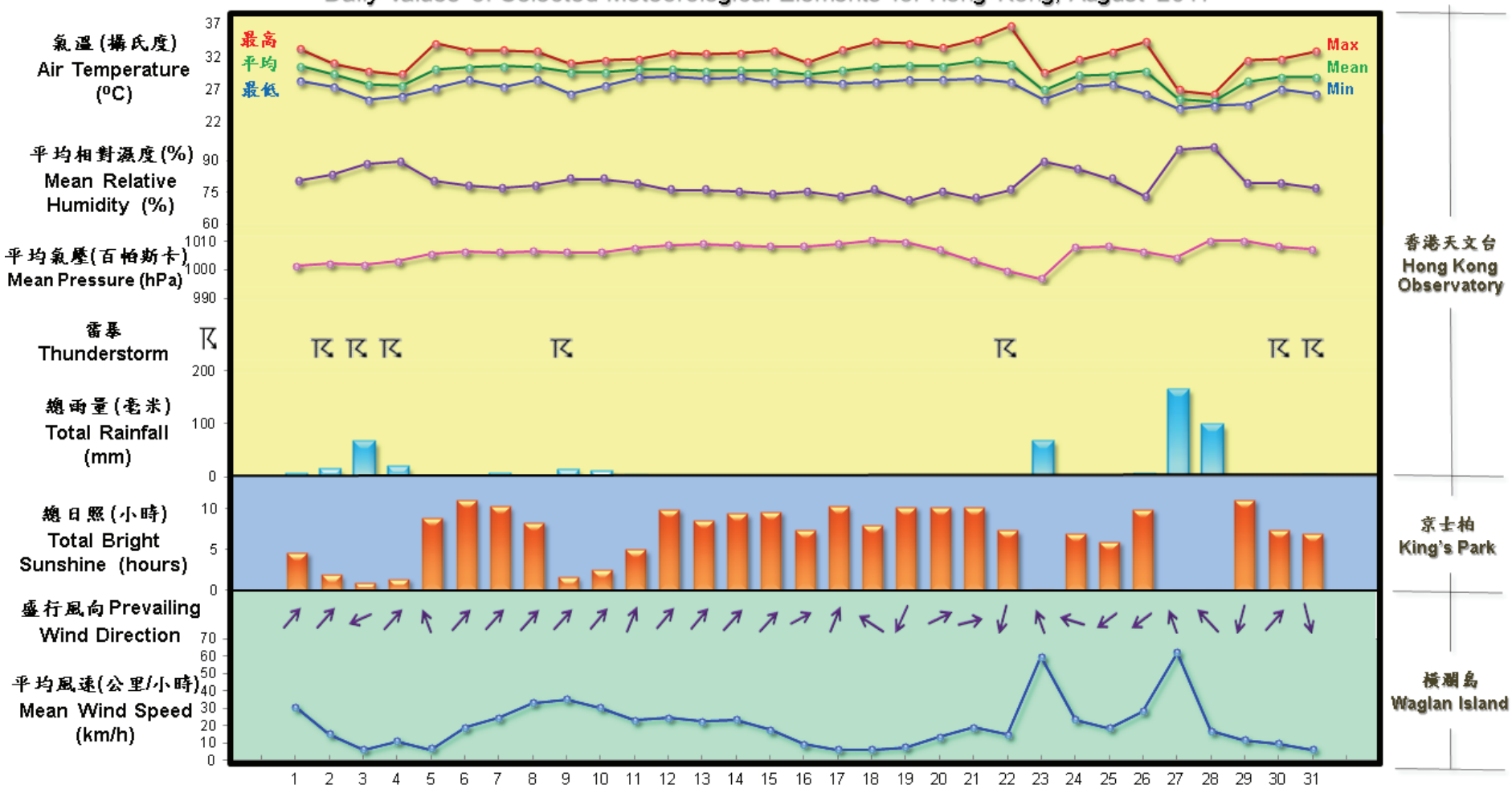
* 1981-2010 Climatological normal, unless otherwise specified *(http://www.hko.gov.hk/wxinfo/climat/normal/enormal08.htm)*

§ 1997-2016 平均值

§ 1997-2016 Mean value

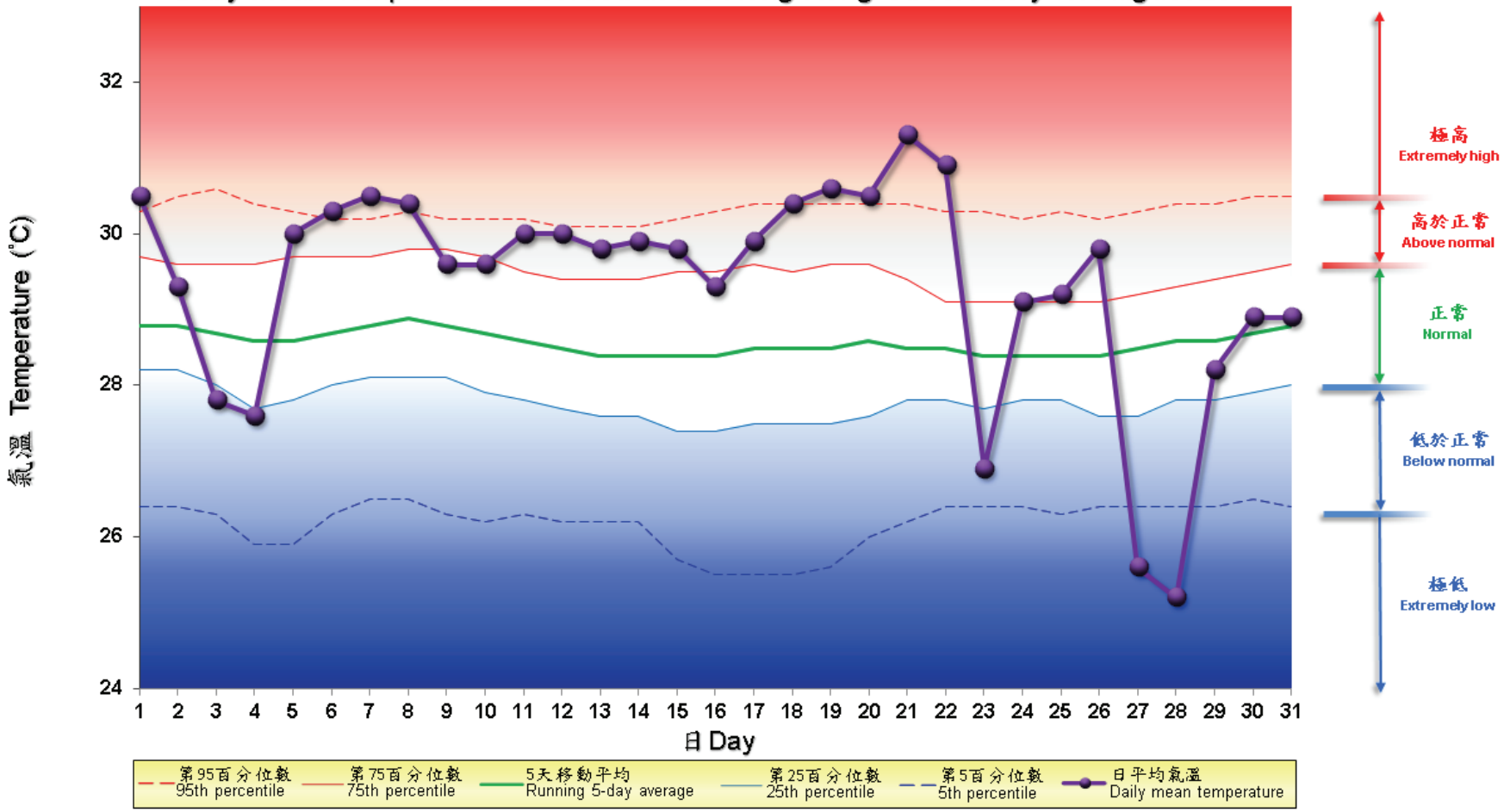
4.2 2017年8月部分香港氣象要素的每日記錄

4.2 Daily Values of Selected Meteorological Elements for Hong Kong, August 2017



4.3 2017年8月香港天文台錄得的日平均氣溫

4.3 Daily Mean Temperature recorded at the Hong Kong Observatory for August 2017



備註：
極高：高於第 95 百分位數
高於正常：介乎第 75 和第 95 百分位數之間
正常：介乎第 25 和第 75 百分位數之間
低於正常：介乎第 5 和第 25 百分位數之間
極低：低於第 5 百分位數
百分位數值及 5 天移動平均值是基於 1981 至 2010 年的數據計算所得

Remarks:
Extremely high: above 95th percentile
Above normal: between 75th and 95th percentile
Normal: between 25th and 75th percentile
Below normal: between 5th and 25th percentile
Extremely low: below 5th percentile
Percentile and 5-day running average values are computed based on the data from 1981 to 2010