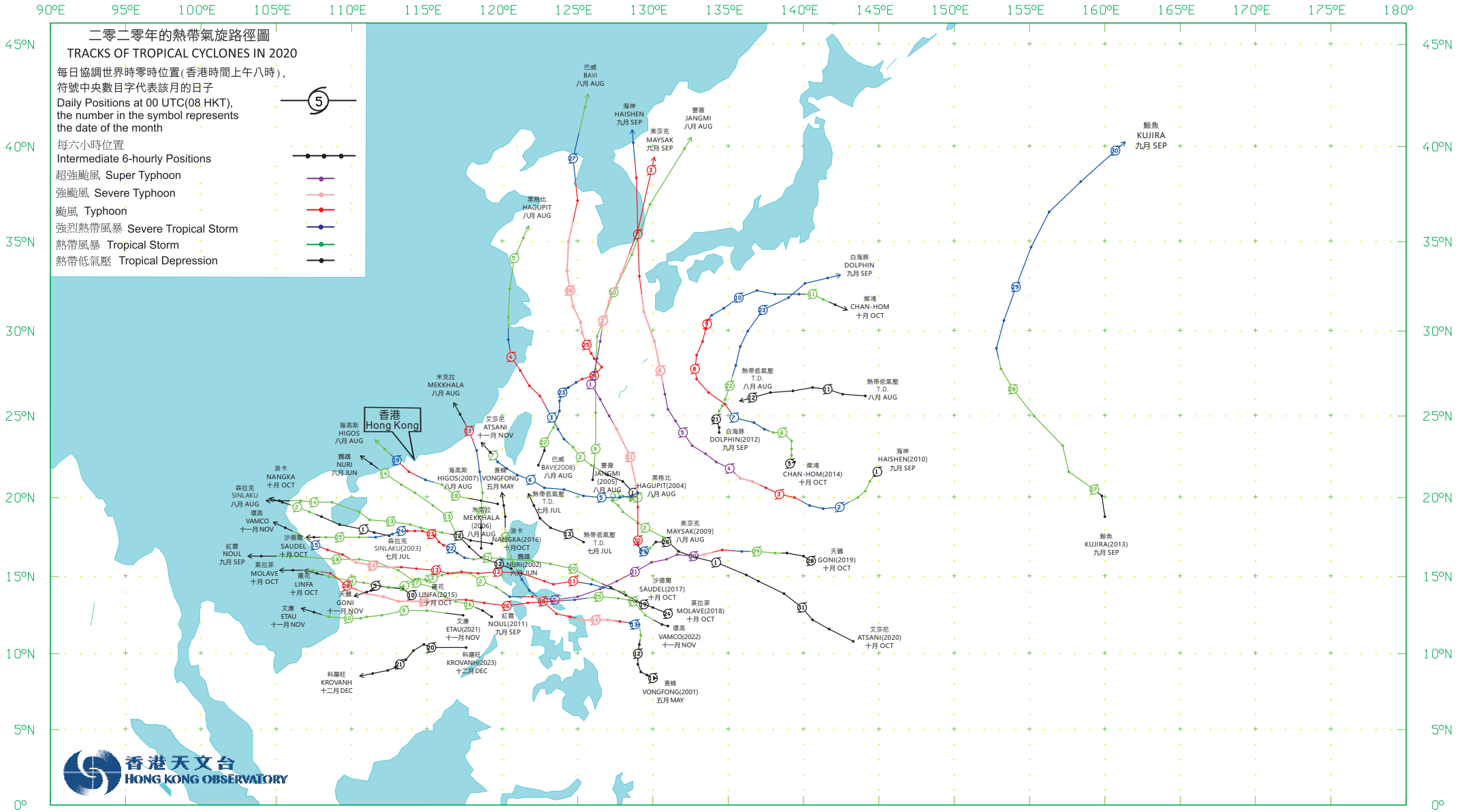
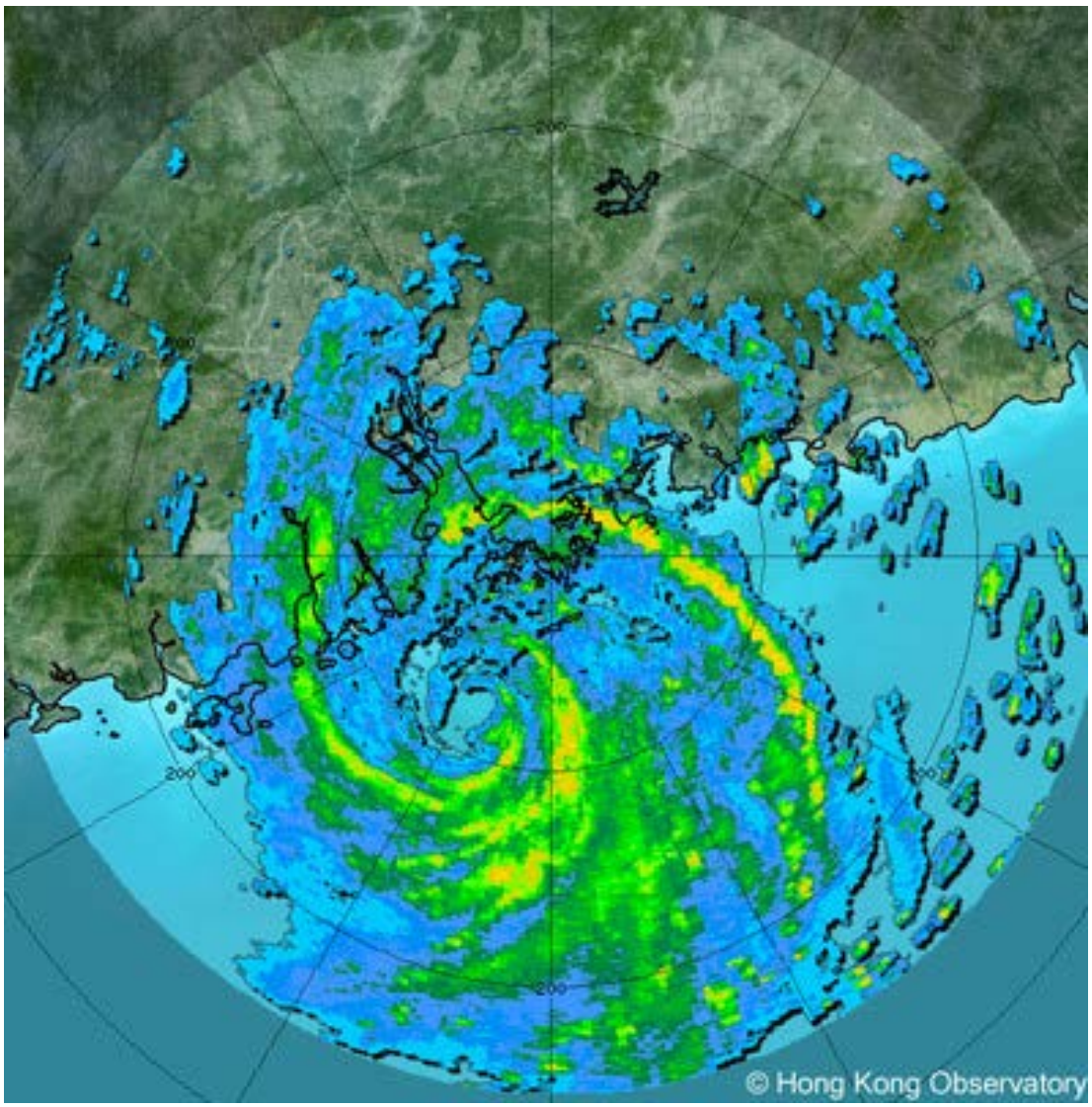

二零二零年的熱帶氣旋路徑圖
TRACKS OF TROPICAL CYCLONES IN 2020
每日協調世界時零時位置(香港時間上午八時),
符號中央數目字代表該月的日子
Daily Positions at 00 UTC(08 HKT),
the number in the symbol represents
the date of the month
每六小時位置
Intermediate 6-hourly Positions
超強颱風 Super Typhoon
強颱風 Severe Typhoon
颱風 Typhoon
強烈熱帶風暴 Severe Tropical Storm
熱帶風暴 Tropical Storm
熱帶低氣壓 Tropical Depression
香港
Hong Kong
巴威
BAVI
八月 AUG
海神
HAISHEN
九月 SEP
薔薇
JANGMI
八月 AUG
美莎克
MAYSAK
九月 SEP
鯨魚
KUJIRA
九月 SEP
黑格比
HAGUPIT
八月 AUG
白海豚
DOLPHIN
九月 SEP
燦鴻
CHAN-HOM
十月 OCT
熱帶低氣壓
T.D.
八月 AUG
米克拉
MEKKHALA
八月 AUG
海高斯
HIGOS
八月 AUG
艾莎尼
ATSANI
十一月 NOV
鸚鵡
NURI
六月 JUN
黃蜂
VONGFONG
五月 MAY
浪卡
NANGKA
十月 OCT
森拉克
SINLAKU
八月 AUG
環高
VAMCO
十一月 NOV
沙德爾
SAUDEL
十月 OCT
紅霞
NOUL
九月 SEP
莫拉菲
MOLAVE
十月 OCT
蘿花
LINFA
十月 OCT
天鵝
GONI
十一月 NOV
艾濤
ETAU
十一月 NOV
科羅旺
KROVANH
十二月 DEC
香港天文台
HONG KONG OBSERVATORY

香港天文台
HONG KONG OBSERVATORY

二零二零年熱帶氣旋

TROPICAL CYCLONES IN 2020



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551.515.2:551.506.1(512.317)

封面

二零二零年八月十九日上午2時正的雷達回波圖像，海高斯的風眼清晰可見。

Cover

Image of radar echoes at 2 a.m. on 19 August 2020, clearly showing the eye of Higos.

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第一節　　引言

1.1　熱帶氣旋刊物的沿革

除了在一九四零至一九四六年因二次大戰而中斷外，天文台自一八八四年以來便一直進行地面氣象觀測，並將整理好的數據撮列於由天文台出版的《氣象資料》年刊內。天文台在一九四七年開始進行高空氣象觀測後，該年刊便分成兩冊：分別是《氣象資料第一冊（地面觀測）》及《氣象資料第二冊（高空觀測）》。一九八一年，年刊第二冊改稱為《無線電探空儀觀測摘要》，而第一冊亦於一九八七年改稱為《香港地面觀測年報》。一九九三年，該兩刊物由一本名為《香港氣象觀測摘要》的新刊物所取代。這份摘要載列了地面及高空的氣象數據。

一八八四至一九三九年期間，部分對香港造成破壞的颱風的報告，曾以附錄形式載於《氣象資料》年刊內。而在一九四七至一九六七年出版的《天文台年報》，更擴充了有關熱帶氣旋的內容，收納所有導致香港吹烈風的熱帶氣旋的報告。其後，年刊系列加推《氣象資料第三冊（熱帶氣旋摘要）》，以記載每年北太平洋西部及南海區域所有熱帶氣旋的資料。此冊第一期在一九七一年出版，內容包括一九六八年赤道至北緯45度、東經100至160度範圍內所有熱帶氣旋的報告。由一九八五年開始，第三冊的覆蓋範圍東面邊界由東經160度伸展至180度。一九八七年，第三冊改稱為《熱帶氣旋年報》，內容大致上維持不變。年報由一九九七年起以中英雙語刊印，一年後加設電腦光碟版，二零零零年以網上版取代印刷版。

在一九三九年及以前，每年北太平洋西部及南海區域的熱帶氣旋的路徑圖都收錄於《氣象資料》年刊內。一九四七至一九六七年的路徑圖則載列於《氣象資料第一冊》內。在早期的刊物內，熱帶氣旋的路徑只顯示每日位置，而每日定位時間在某程度上還未統一。但到了一九四四年以後，則一直維持以每日協調世界時(UTC)零時作定位。此項改變的資料詳載於天文台出版的《技術記錄第十一號第一冊》內。由一九六一年開始，所有熱帶氣旋的路徑圖都顯示每六小時的位置。

為了能回應傳媒、航運界及其他有關人士或團體的需求，天文台自一九六零年開始就影響香港的個別熱帶氣旋編寫臨時報告，盡早為有需要的人士提供資料。初時，天文台只就那些曾導致天文台發出烈風或暴風信號以上的熱帶氣旋編寫臨時報告。自一九六八年起，天文台為所有引致天文台發出熱帶氣旋警告信號的熱帶氣旋編寫臨時報告。

1.2 熱帶氣旋等級

為了讓市民對較強的颱風特別提高警覺，天文台在二零零九年開始將「颱風」分為三級，即「颱風」、「強颱風」和「超強颱風」。根據熱帶氣旋中心附近的最高持續地面風速，熱帶氣旋共分為以下六個級別：

(i) 熱帶低氣壓（T.D.）的最高持續風速為每小時63公里以下。
(ii) 熱帶風暴（T.S.）的最高持續風速為每小時63至87公里。
(iii) 強烈熱帶風暴（S.T.S.）的最高持續風速為每小時88至117公里。
(iv) 颱風#（T.）的最高持續風速為每小時118至149公里。
(v) 強颱風*（S.T.）的最高持續風速為每小時150至184公里。
(vi) 超強颱風*（SuperT.）的最高持續風速為每小時185公里或以上。

1.3 熱帶氣旋命名

從一九四七年至一九九九年，北太平洋西部及南海區域的熱帶氣旋非正式地採用美國軍方「聯合颱風警報中心」所編訂的名單上的名字。由二零零零年開始，日本氣象廳根據一套新名單為每個達到熱帶風暴強度的熱帶氣旋命名。這套名單（表1.1）經颱風委員會通過，共有140個名字，分別由亞太區內14個國家或地區提供。這些名字除了用於為國際航空及航海界發放的預測和警報外，也是向國際傳媒發放熱帶氣旋消息時採用的規範名稱。而名單會每年檢討和更新，通常導致嚴重傷亡的熱帶氣旋會依照受影響國家或地區的要求而被刪除。提供該名字的國家或地區會建議新名字取代。

另外，日本氣象廳在一九八一年起已獲委託為每個在北太平洋西部及南海區域出現而達到熱帶風暴強度的熱帶氣旋編配一個四位數字編號。例如編號"2001"代表在二零二零年區內第一個被日本氣象廳分類為熱帶風暴或更強的熱帶氣旋。在年報內，此編號會顯示在熱帶氣旋名稱後的括弧內，例如強颱風黃蜂（2001）。

二零零九年以前颱風的最高持續風速為每小時118公里或以上。

* 二零零九年新增等級。

1.4 資料來源

年報內的海平面氣壓及地面風資料，是根據天文台氣象站及測風站網絡所錄得的數據。表1.2及1.3分別是該些網絡內各站的位置及海拔高度。

熱帶氣旋產生的最大風暴潮是由裝置在香港多處的潮汐測量器量度。圖1.1是本年報內提及的各個風速表及潮汐測量站的分佈地點。

年報內的雨量資料來自天文台氣象站和雨量站網絡及土力工程處的雨量站。

除特別列明外，年報內提及的最高持續風速均為10分鐘內風速的平均值；每小時平均風速為該小時前60分鐘內的平均風速；每日雨量為當天香港時間午夜前24小時內的總雨量。

1.5 年報內容

年報第二節是二零二零年所有影響北太平洋西部及南海區域的熱帶氣旋的概述。

年報第三節是二零二零年影響香港的熱帶氣旋的個別詳細報告，內容包括：

(i) 該熱帶氣旋對香港造成的影響；
(ii) 發出熱帶氣旋警告信號的過程；
(iii) 香港各地錄得的最高陣風風速及最高每小時平均風速；
(iv) 香港天文台錄得的最低平均海平面氣壓；
(v) 香港天文台及其他地方錄得的每日總雨量；
(vi) 香港各潮汐測量站錄得的最高潮位及最大風暴潮；及
(vii) 氣象衛星雲圖及雷達圖像。

有關熱帶氣旋的各種資料及統計表載於年報第四節內。

二零二零年每個熱帶氣旋的每六小時位置，連同當時的最低中心氣壓及最高持續風速，則表列於年報第五節內。

年報依照內文需要採用了不同的時間系統。正式的時間以協調世界時（即UTC）為準。至於在熱帶氣旋的敍述中，用作表示每天各時段的詞彙，例如“上午”、“下午”、“早上”、“黃昏” 等則是指香港時間。香港時間為協調世界時加八小時。

1.6 香港的熱帶氣旋警告系統

表1.4是香港熱帶氣旋警告信號的定義。

由二零零七年開始，發出3號和8號信號的參考範圍由維多利亞港擴展至由八個涵蓋全港並接近海平面的參考測風站組成的網絡(圖1.1顯示2020年所採用的八個參考測風站)。這些測風站處於較為空曠的位置，地理上的考慮也包括山脈地勢的自然分隔，可概括地反映全港的風勢。

當參考網絡中半數或以上的測風站錄得或預料持續風速達到指標的風速限值，而且風勢可能持續時，天文台會考慮發出3號或8號信號。

Section 1 INTRODUCTION

1.1 Evolution of tropical cyclone publications

Apart from a disruption due to World War II during 1940-1946, surface observations of meteorological elements since 1884 have been summarized and published in the Observatory's annual publication "Meteorological Results". Upper-air observations began in 1947 and from then onwards the annual publication was divided into two parts, namely "Meteorological Results Part I - Surface Observations" and "Meteorological Results Part II - Upper-air Observations". These two publications were re-titled "Surface Observations in Hong Kong" and "Summary of Radiosonde-Radiowind Ascents" in 1987 and 1981 respectively. In 1993, both publications were merged into one revised publication entitled "Summary of Meteorological Observations in Hong Kong", including surface as well as upper-air data.

During the period 1884-1939, reports on some destructive typhoons were printed as Appendices to the "Meteorological Results". This practice was extended and accounts of all tropical cyclones which caused gales in Hong Kong were included in the publication "Director's Annual Departmental Reports" from 1947 to 1967 inclusive. The series "Meteorological Results Part III - Tropical Cyclone Summaries" was subsequently introduced to provide information on tropical cyclones over the western North Pacific and the South China Sea. The first issue, published in 1971, contained reports on tropical cyclones in 1968 within the area bounded by the Equator, 45°N, 100°E and 160°E. The eastern boundary of the area of coverage was extended from 160°E to 180° from 1985 onwards. In 1987, the series was re-titled as "Tropical Cyclones in YYYY" but its contents remained largely the same. Starting from 1997, the series was published in both Chinese and English. The CD-ROM version of the publication first appeared in 1998 and the printed version was replaced by the Internet version in 2000.

Tracks of tropical cyclones in the western North Pacific and the South China Sea were published in "Meteorological Results" up to 1939 and in "Meteorological Results Part I" from 1947 to 1967. In earlier publications, only daily positions were plotted on the tracks and the time of the daily positions varied to some extent, but then remained fixed at 0000 UTC after 1944. Details of the changes are given in the Observatory's publication "Technical Memoir No. 11, Volume 1". From 1961 onwards, six-hourly positions are shown on the tracks of all tropical cyclones.

Provisional reports on individual tropical cyclones affecting Hong Kong were prepared since 1960 to provide early information to meet the needs of the press, shipping companies and others. These reports were printed and supplied on request. Initially, provisional reports were only available for tropical cyclones for which gale or storm signals or above had been issued in Hong Kong. From 1968 onwards, provisional reports were prepared for all tropical cyclones that necessitated the issuance of tropical cyclone warning signals.

1.2 Classification of tropical cyclones

To enhance public awareness of stronger typhoons, the Observatory further categorised 'Typhoon' into 'Typhoon', 'Severe Typhoon' and 'Super Typhoon' starting from the 2009 tropical cyclone season. Tropical cyclones are now classified into the following six categories according to the maximum sustained surface winds near their centres:

(a) A TROPICAL DEPRESSION (T.D.) has maximum sustained winds of less than 63 km/h.
(b) A TROPICAL STORM (T.S.) has maximum sustained winds in the range 63-87 km/h.
(c) A SEVERE TROPICAL STORM (S.T.S.) has maximum sustained winds in the range 88-117 km/h.
(d) A TYPHOON# (T.) has maximum sustained winds of 118-149 km/h.
(e) A SEVERE TYPHOON* (S.T.) has maximum sustained winds of 150-184 km/h.
(f) A SUPER TYPHOON* (SuperT.) has maximum sustained winds of 185 km/h or more.

1.3 Naming of tropical cyclones

Over the western North Pacific and the South China Sea between 1947 and 1999, tropical cyclone names were assigned by the U.S. Armed Forces' Joint Typhoon Warning Center according to a pre-determined but unofficial list. With effect from 2000, the Japan Meteorological Agency has been assigned the responsibility to name tropical cyclones attaining tropical storm intensity according to a new list adopted by the Typhoon Committee. It contains a total of 140 names contributed by 14 countries or territories within the Asia Pacific region (Table 1.1). Apart from being used in forecasts and warnings issued to the international aviation and shipping communities, the names are also used officially in information on tropical cyclones issued to the international press. The list is reviewed every year, and usually names of tropical cyclones that have caused serious damage or casualty will be retired upon the requests of countries or territories affected. Countries or territories providing those names will then propose new names as replacement.

Besides, since 1981, Japan Meteorological Agency has been delegated with the responsibility of assigning to each tropical cyclone in the western North Pacific and the South China Sea attaining tropical storm intensity a numerical code of four digits. For example, the first tropical cyclone of tropical storm intensity or above, as classified by Japan Meteorological Agency, within the region in 2020 was assigned the code "2001". In this report, the associated code immediately follows the name of the tropical cyclone in bracket, e.g. Severe Typhoon Vongfong (2001).

Prior to 2009, the maximum sustained winds of typhoon was defined to be 118 km/h or more.

* New categories adopted since 2009.

1.4 Data sources

Mean sea level pressure and surface wind data presented in this report were obtained from a network of meteorological stations and anemometers operated by the Hong Kong Observatory. Details of such stations are listed in Tables 1.2 and 1.3.

Maximum storm surges caused by tropical cyclones were measured by tide gauges installed at several locations around Hong Kong. The locations of anemometers and tide gauges mentioned in this report are shown in Figure 1.1.

Rainfall data presented in this report were obtained from a network of meteorological and rainfall stations operated by the Hong Kong Observatory, as well as raingauges operated by the Geotechnical Engineering Office.

Throughout this report, maximum sustained surface winds when used without qualification refer to wind speeds averaged over a period of 10 minutes. Hourly mean winds are winds averaged over a 60-minute interval ending on the hour. Daily rainfall amounts are computed over a 24-hour period ending at midnight Hong Kong Time.

1.5 Content

In Section 2, an overview of all the tropical cyclones over the western North Pacific and the South China Sea in 2020 is presented.

The reports in Section 3 are individual accounts of the life history of tropical cyclones affecting Hong Kong in 2020. They include the following information:-

(a) the effects of the tropical cyclone on Hong Kong;
(b) the sequence of display of tropical cyclone warning signals;
(c) the maximum gust peak speeds and maximum hourly mean winds recorded in Hong Kong;
(d) the lowest mean sea level pressure recorded at the Hong Kong Observatory;
(e) the daily amounts of rainfall recorded at the Hong Kong Observatory and selected locations;
(f) the times and heights of the maximum sea level and maximum storm surge recorded at various tide stations in Hong Kong;
(g) satellite and radar imageries.

Statistics and information relating to tropical cyclones are presented in various tables in Section 4.

Six-hourly positions together with the corresponding estimated minimum central pressures and maximum sustained surface winds for individual tropical cyclones in 2020 are tabulated in Section 5.

In this report, different time references are used depending on the contexts. The official reference times are given in Co-ordinated Universal Time and labelled UTC. Times of the day expressed as “a.m.”, “p.m.”, “morning”, “evening” etc. in the tropical cyclone narratives are in Hong Kong Time which is eight hours ahead of UTC.

1.6 Hong Kong's Tropical Cyclone Warning System

Table 1.4 shows the meaning of tropical cyclone warning signals in Hong Kong.

Starting from 2007, the reference for the issuance of No.3 and No.8 signals has been expanded from the Victoria Harbour to a network of eight near-sea level reference anemometers covering the whole of Hong Kong. The eight reference anemometers adopted in 2020 are depicted in Figure 1.1. The reference anemometers have good exposure and geographical distribution, taking into account the physical separation created by Hong Kong's natural terrain. Together, they are used to represent the overall wind condition in Hong Kong.

The Observatory will consider issuing the No. 3 or No. 8 signal, as the case may be, when half or more anemometers in the reference network register or are expected to register sustained strong winds or gale/storm force winds, and that the windy conditions are expected to persist.

表 1.1　　二零二零年一月一日起生效的熱帶氣旋名單

TABLE 1.1　　Tropical cyclone name list effective from 1 January 2020

來源	Contributed by	I	II	III	IV	V
		名字 Name	名字 Name	名字 Name	名字 Name	名字 Name
柬埔寨	Cambodia	達維 Damrey	康妮 Kong-rey	娜基莉 Nakri	科羅旺 Krovanh	翠絲 Trases
中國	China	海葵 Haikui	玉兔 Yutu	風神 Fengshen	杜鵑 Dujuan	木蘭 Mulan
朝鮮	DPR Korea	鴻雁 Kirogi	桃芝 Toraji	海鷗 Kalmaegi	舒力基 Surigae	米雷 Meari
中國香港	Hong Kong, China	鴛鴦 Yun-yeung	萬宜 Man-yi	鳳凰 Fung-wong	彩雲 Choi-wan	馬鞍 Ma-on
日本	Japan	小犬 Koinu	天兔 Usagi	北冕 Kammuri	小熊 Koguma	蝎虎 Tokage
老撾	Lao PDR	布拉萬 Bolaven	帕布 Pabuk	巴蓬 Phanfone	薔琵 Champi	軒嵐諾 Hinnamnor
中國澳門	Macau, China	三巴 Sanba	蝴蝶 Wutip	黃蜂 Vongfong	煙花 In-fa	梅花 Muifa
馬來西亞	Malaysia	杰拉華 Jelawat	聖帕 Sepat	鸚鵡 Nuri	查帕卡 Cempaka	苗柏 Merbok
米克羅尼西亞	Micronesia	艾雲尼 Ewiniar	木恩 Mun	森拉克 Sinlaku	尼伯特 Nepartak	南瑪都 Nanmadol
菲律賓	Philippines	馬力斯 Maliksi	丹娜絲 Danas	黑格比 Hagupit	盧碧 Lupit	塔拉斯 Talas
韓國	RO Korea	格美 Gaemi	百合 Nari	薔薇 Jangmi	銀河 Mirinae	奧鹿 Noru
泰國	Thailand	派比安 Prapiroon	韋帕 Wipha	米克拉 Mekkhala	妮妲 Nida	玫瑰 Kulap
美國	U.S.A.	瑪莉亞 Maria	范斯高 Francisco	海高斯 Higos	奧麥斯 Omais	洛克 Roke
越南	Viet Nam	山神 Son-Tinh	利奇馬 Lekima	巴威 Bavi	康森 Conson	桑卡 Sonca
柬埔寨	Cambodia	安比 Ampil	羅莎 Krosa	美莎克 Maysak	燦都 Chanthu	納沙 Nesat
中國	China	悟空 Wukong	白鹿 Bailu	海神 Haishen	電母 Dianmu	海棠 Haitang
朝鮮	DPR Korea	雲雀 Jongdari	楊柳 Podul	紅霞 Noul	蒲公英 Mindulle	尼格 Nalgae
中國香港	Hong Kong, China	珊珊 Shanshan	玲玲 Lingling	白海豚 Dolphin	獅子山 Lionrock	榕樹 Banyan
日本	Japan	摩羯 Yagi	劍魚 Kajiki	鯨魚 Kujira	圓規 Kompasu	山貓 Yamaneko
老撾	Lao PDR	麗琵 Leepi	法茜 Faxai	燦鴻 Chan-hom	南川 Namtheun	帕卡 Pakhar

表 1.1 (續)

TABLE 1.1 (cont'd)

來源	Contributed by	I	II	III	IV	V
		名字 Name	名字 Name	名字 Name	名字 Name	名字 Name
中國澳門	Macau, China	貝碧嘉 Bebinca	琵琶 Peipah	蓮花 Linfa	瑪瑙 Malou	珊瑚 Sanvu
馬來西亞	Malaysia	普拉桑 Pulasan	塔巴 Tapah	浪卡 Nangka	妮亞圖 Nyatoh	瑪娃 Mawar
米克羅尼西亞	Micronesia	蘇力 Soulik	米娜 Mitag	沙德爾 Saudel	雷伊 Rai	古超 Guchol
菲律賓	Philippines	西馬侖 Cimaron	海貝思 Hagibis	莫拉菲 Molave	馬勒卡 Malakas	泰利 Talim
韓國	RO Korea	飛燕 Jebi	浣熊 Neoguri	天鵝 Goni	鮎魚 Megi	杜蘇芮 Doksuri
泰國	Thailand	山陀兒 Krathon	博羅依 Bualoi	艾莎尼 Atsani	暹芭 Chaba	卡努 Khanun
美國	U.S.A.	百里嘉 Barijat	麥德姆 Matmo	艾濤 Etau	艾利 Aere	蘭恩 Lan
越南	Viet Nam	潭美 Trami	夏浪 Halong	環高 Vamco	桑達 Songda	蘇拉 Saola

註： 在二零二零年，西北太平洋和南海的熱帶氣旋名單上新增了兩個新名字「普拉桑」及「山陀兒」，分別取代舊有名字「溫比亞」及「山竹」。

Note: In 2020, two new names " Pulasan " and " Krathon " have been adopted for tropical cyclones in the western North Pacific and the South China Sea, replacing "Rumbia" and "Mangkhut" respectively.

表 1.2 年報內各氣壓表的海拔高度及所處氣象站的位置

TABLE 1.2 Elevations of various barometers and positions of weather stations mentioned in this annual report

站 Station		位置 Position		氣壓表的海拔高度(米)
		北緯 Latitude N	東經 Longitude E	Elevation of barometer above M.S.L. (m)
香港天文台總部	Hong Kong Observatory Headquarters	22°18’07”	114°10’27”	40
長洲	Cheung Chau	22°12’04”	114°01’36”	79
香港國際機場	Hong Kong International Airport	22°18’34”	113°55’19”	7
京士柏	King’s Park	22°18’43”	114°10’22”	66
流浮山	Lau Fau Shan	22°28’08”	113°59’01”	36
橫瀾島	Waglan Island	22°10’56”	114°18’12”	60

表 1.3　年報內各風速表的海拔高度及所處氣象站的位置

TABLE 1.3　Elevations of various anemometers and positions of the weather stations mentioned in this annual report

站 Station		位置 Position		風速表的海拔高度(米) Elevation of anemometer above M.S.L. (m)
		北緯 Latitude N	東經 Longitude E	
黃麻角(赤柱)	Bluff Head (Stanley)	22°11′51″	114°12′43″	103
中環碼頭	Central Pier	22°17′20″	114°09′21″	30
長洲*	Cheung Chau*	22°12′04″	114°01′36″	99
長洲泳灘	Cheung Chau Beach	22°12′39″	114°01′45″	27
青洲	Green Island	22°17′06″	114°06′46″	107
香港國際機場*	Hong Kong International Airport*	22°18′34″	113°55′19″	14#
啟德*	Kai Tak*	22°18′35″	114°12′48″	16
京士柏	King's Park	22°18′43″	114°10′22″	90
南丫島	Lamma Island	22°13′34″	114°06′31″	17
流浮山*	Lau Fau Shan*	22°28′08″	113°59′01″	50
昂坪	Ngong Ping	22°15′31″	113°54′46″	607
北角	North Point	22°17′40″	114°11′59″	26
坪洲	Peng Chau	22°17′28″	114°02′36″	47
平洲	Ping Chau	22°32′48″	114°25′42″	39
西貢*	Sai Kung*	22°22′32″	114°16′28″	32
沙洲	Sha Chau	22°20′45″	113°53′28″	31
沙螺灣	Sha Lo Wan	22°17′28″	113°54′25″	71
沙田*	Sha Tin*	22°24′09″	114°12′36″	16
石崗	Shek Kong	22°26′10″	114°05′05″	26
九龍天星碼頭	Star Ferry (Kowloon)	22°17′35″	114°10′07″	18
打鼓嶺*	Ta Kwu Ling*	22°31′43″	114°09′24″	28
大美督	Tai Mei Tuk	22°28′31″	114°14′15″	71
大帽山	Tai Mo Shan	22°24′38″	114°07′28″	966
大埔滘	Tai Po Kau	22°26′33″	114°11′03″	11
塔門東	Tap Mun East	22°28′06″	114°21′47″	48
大老山	Tate's Cairn	22°21′28″	114°13′04″	587
將軍澳	Tseung Kwan O	22°18′57″	114°15′20″	52
青衣島蜆殼油庫*	Tsing Yi Shell Oil Depot*	22°20′48″	114°05′11″	43
屯門政府合署	Tuen Mun Government Offices	22°23′26″	113°58′36″	69
橫瀾島	Waglan Island	22°10′56″	114°18′12″	83
濕地公園	Wetland Park	22°28′00″	114°00′32″	15
黃竹坑	Wong Chuk Hang	22°14′52″	114°10′25″	30

所指風速表在北跑道近中間位置

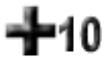
Refer to the wind sensor at the middle of the north runway

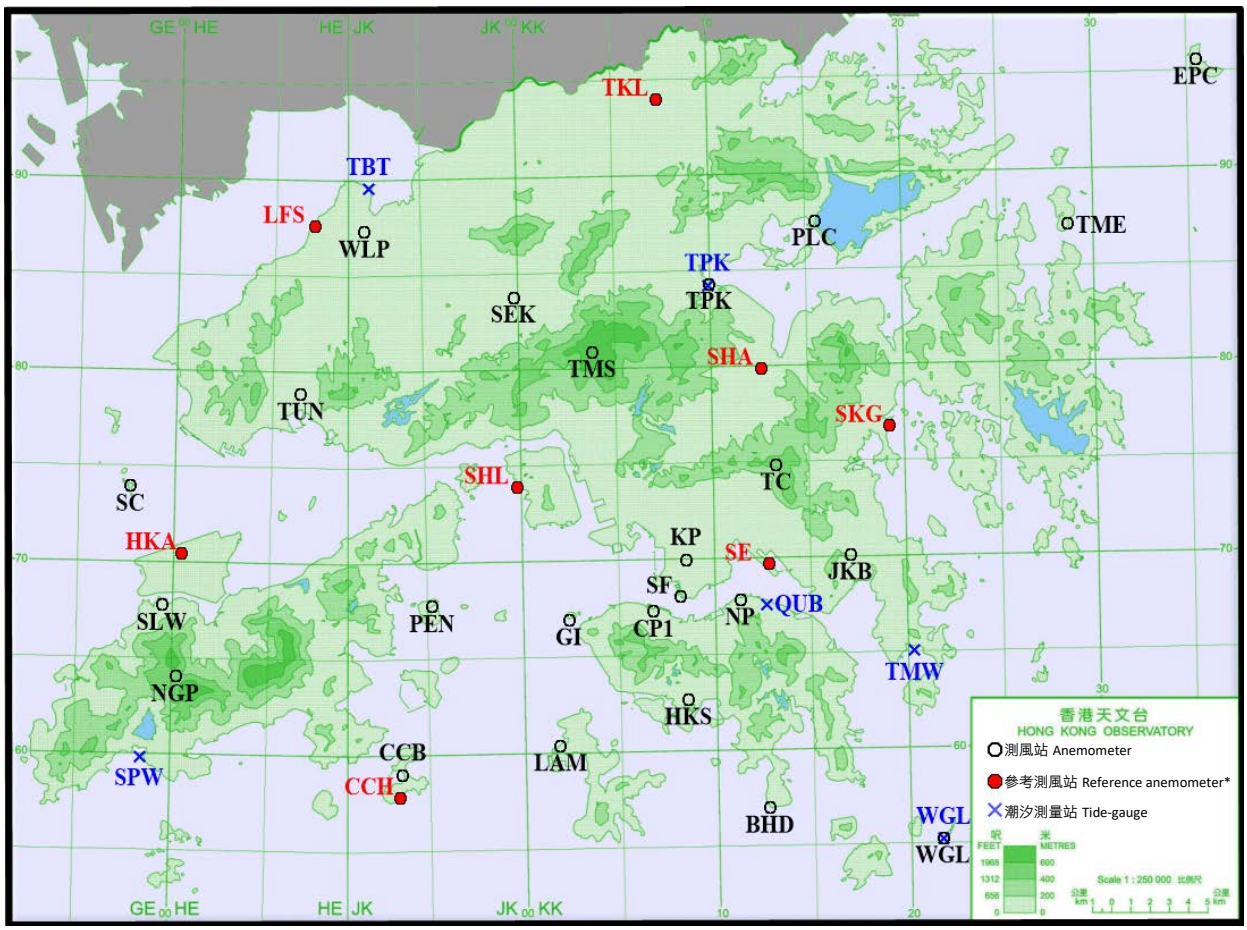
* 參考測風站

* Reference anemometer

表 1.4　　二零二零年香港熱帶氣旋警告信號的意義

TABLE 1.4　Meaning of tropical cyclone warning signals in Hong Kong in 2020

信號 Signals		顯示符號 Symbol Display	信號的意義 Meaning of Signals
戒備 Standby	1		有一熱帶氣旋集結於香港約800公里的範圍內，可能影響本港。 A tropical cyclone is centred within about 800 km of Hong Kong and may affect the territory.
強風 Strong Wind	3		香港近海平面處現正或預料會普遍吹強風，持續風力達每小時41至62公里，陣風更可能超過每小時110公里，且風勢可能持續。 Strong wind is expected or blowing generally in Hong Kong near sea level, with a sustained speed of 41-62 kilometres per hour (km/h), and gusts which may exceed 110 km/h, and the wind condition is expected to persist.
西北 烈風或暴風 NW'LY Gale or Storm	8 西北 NW		香港近海平面處現正或預料會普遍受烈風或暴風從信號所示方向吹襲，持續風力達每小時63至117公里，陣風更可能超過每小時180公里，且風勢可能持續。 Gale or storm force wind is expected or blowing generally in Hong Kong near sea level, with a sustained wind speed of 63-117 km/h from the quarter indicated and gusts which may exceed 180 km/h, and the wind condition is expected to persist.
西南 烈風或暴風 SW'LY Gale or Storm	8 西南 SW		
東北 烈風或暴風 NE'LY Gale or Storm	8 東北 NE		
東南 烈風或暴風 SE'LY Gale or Storm	8 東南 SE		
烈風或暴風風力增強 Increasing Gale or Storm	9		烈風或暴風的風力現正或預料會顯著加強。 Gale or storm force wind is increasing or expected to increase significantly in strength.
颶風 Hurricane	10		風力現正或預料會達到颶風程度，持續風力達每小時118公里或以上，陣風更可能超過每小時220公里。 Hurricane force wind is expected or blowing with sustained speed reaching upwards from 118 km/h and gusts that may exceed 220 km/h.



* 熱帶氣旋警告系統的參考測風站網絡
*Network of reference anemometers in the tropical cyclone warning system

測風站 Anemometers		測風站 Anemometers	
BHD	黃麻角(赤柱) Bluff Head (Stanley)	TMS	大帽山 Tai Mo Shan
CCB	長洲泳灘 Cheung Chau Beach	TUN	屯門政府合署 Tuen Mun Government Offices
CP1	中環碼頭 Central Pier	WLP	濕地公園 Wetland Park
EPC	平洲 Ping Chau	WGL	橫瀾島 Waglan Island
GI	青洲 Green Island	**參考測風站* Reference anemometers***	
HKS	黃竹坑 Wong Chuk Hang	CCH	長洲 Cheung Chau
JKB	將軍澳 Tseung Kwan O	LFS	流浮山 Lau Fau Shan
KP	京士柏 King's Park	HKA	香港國際機場 Hong Kong International Airport
LAM	南丫島 Lamma Island	SE	啟德 Kai Tak
NGP	昂坪 Ngong Ping	SHA	沙田 Sha Tin
NP	北角 North Point	SHL	青衣島蜆殼油庫 Tsing Yi Shell Oil Depot
PEN	坪洲 Peng Chau	SKG	西貢 Sai Kung
PLC	大美督 Tai Mei Tuk	TKL	打鼓嶺 Ta Kwu Ling
SC	沙洲 Sha Chau	**潮汐測量站 Tide-gauge**	
SEK	石崗 Shek Kong	QUB	鰂魚涌 Quarry Bay
SF	九龍天星碼頭 Star Ferry (Kowloon)	SPW	石壁 Shek Pik
SLW	沙螺灣 Sha Lo Wan	TBT	尖鼻咀 Tsim Bei Tsui
TME	塔門東 Tap Mun East	TMW	大廟灣 Tai Miu Wan
TC	大老山 Tate's Cairn	TPK	大埔滘 Tai Po Kau
TPK	大埔滘 Tai Po Kau	WGL	橫瀾島 Waglan Island

圖1.1　　年報內提及的測風站及潮汐測量站之分佈地點

Figure 1.1　　Locations of anemometers and tide gauge stations mentioned in this annual report

第二節　　二零二零年熱帶氣旋概述

2.1　二零二零年的熱帶氣旋回顧

2.1.1　北太平洋西部(包括南海區域)的熱帶氣旋

二零二零年有25個熱帶氣旋影響北太平洋西部及南海區域（即由赤道至北緯45度、東經100至180度所包括的範圍），少於1961-2010年約30個的長期年平均數目。全年有12個熱帶氣旋達到颱風或以上強度，少於1961-2010年約15個的長期年平均數目，其中有三個熱帶氣旋更達到超強颱風程度(中心附近最高持續風速達到每小時185公里或以上)。

圖2.1是二零二零年在北太平洋西部及南海區域熱帶氣旋數目之逐月分佈。

二零二零年內有六個熱帶氣旋在中國登陸，其中兩個在香港300公里內的華南沿岸登陸。四個熱帶氣旋登陸朝鮮半島，六個橫過菲律賓及七個登陸越南。十月的超強颱風天鵝(2019)（圖2.3）是二零二零年北太平洋西部及南海區域最強的熱帶氣旋，其中心附近最高持續風速估計為每小時275公里，而最低海平面氣壓為895百帕斯卡（表4.1）。天鵝亦是本區域自二零一三年十一月超強颱風海燕以來最強的熱帶氣旋。

2.1.2　香港責任範圍內的熱帶氣旋

在二零二零年的25個熱帶氣旋中，有18個出現在香港責任範圍（即北緯10至30度、東經105至125度），多於 1961-2010年約16個的長期年平均數目（表2.1），當中有十個在香港責任範圍內形成。年內，香港天文台總共發出405個供船舶使用的熱帶氣旋警告(表4.2）。

2.1.3　南海區域內的熱帶氣旋

二零二零年共有14個熱帶氣旋影響南海區域（即北緯10至25度、東經105至120度），較1961-2010年約12個的長期年平均數目多，當中有八個在南海上形成。

2.1.4　影響香港的熱帶氣旋

二零二零年香港的颱風季節始於六月十二日，當天隨著熱帶低氣壓鸚鵡(2002)在菲律賓上空形成並進入南海，天文台發出一號戒備信號。十月二十四日強烈熱帶風暴沙德爾(2017) 繼續遠離香港及減弱，二零二零年颱風季節隨著天文台當天取消所有熱帶氣旋警告信號而結束。

年內共有五個熱帶氣旋影響香港（圖2.2），略少於1961-2010年約六個的長期年平均數目(表2.2)。這五個熱帶氣旋分別為六月的熱帶風暴鸚鵡(2002)、七月至八月的熱帶風暴森拉克(2003)、八月的颱風海高斯(2007)、十月的熱帶風暴浪卡(2016)及颱風沙德爾(2017)。海高斯影響香港期間，天文台在八月十九日曾發出九號烈風或暴風風力增強信號，是年內發出的最高熱帶氣旋警告信號，也是繼二零一八年超強颱風山竹吹襲本港以來首次。浪卡吹襲本港期間天文台曾發出八號烈風或暴風信號。其餘三個影響香港的熱帶氣旋均引致天文台發出三號強風信號。

2.1.5 熱帶氣旋的雨量

二零二零年熱帶氣旋為香港帶來的雨量 (即由熱帶氣旋出現於香港600公里範圍內至其消散或離開香港600公里範圍之後72小時期間天文台總部錄得的雨量）共為421.7毫米（表4.8.1），約佔年內總雨量2395.0毫米的百分之17.6，較1961-2010年長期年平均值的728.8毫米少約百分之42.1。

颱風海高斯(2007)為天文台總部帶來172.2毫米的雨量(表4.8.1)，是年內雨量最多的熱帶氣旋。

2.2 每月概述

這一節逐月介紹二零二零年北太平洋西部及南海區域的熱帶氣旋概況。影響香港的各熱帶氣旋及傷亡報告則詳述於第三節。

一月至四月

二零二零年一月至四月並無熱帶氣旋在北太平洋西部及南海區域上形成。

五月

熱帶低氣壓黃蜂(2001)於五月十一日凌晨在馬尼拉之東南偏東約1210公里的北太平洋西部上形成，初時緩慢地向西北偏北移動。黃蜂於五月十二日晚上增強為熱帶風暴，翌日開始迅速增強並轉向西移動。黃蜂於五月十四日凌晨發展為強颱風，早上達到其最高強度，中心附近最高持續風速估計為每小時165公里。隨後兩天黃蜂採取西北路徑橫過菲律賓，並逐漸減弱，最後於五月十六日晚上在呂宋海峽減弱為低壓區 。

根據報章報導，黃蜂吹襲菲律賓期間造成最少一人死亡及一百人受傷，超過一萬間房屋損毀。

六月

熱帶低氣壓鸚鵡(2002)於六月十二日凌晨在馬尼拉之西北偏北約110公里的菲律賓上空形成，並逐漸增強。日間鸚鵡向西北移動橫過南海。翌日凌晨鸚鵡發展為熱帶風暴，下午達到其最高強度，中心附近最高持續風速估計為每小時75公里。鸚鵡於六月十四日早上稍後時間在廣東陽江市登陸，下午在廣東內陸減弱為低壓區。

七月至九月

一個熱帶低氣壓於七月十三日凌晨在馬尼拉之東北偏東約550公里的北太平洋西部上形成，中心附近最高持續風速估計為每小時45公里。該熱帶低氣壓大致向西北移動，翌日凌晨在呂宋海峽減弱為低壓區。

一個季風低壓於七月三十日進入南海，並於七月三十一日晚上發展為熱帶低氣壓，大致向西北偏西移向海南島。該熱帶低氣壓在八月一日下午被命名為森拉克(2003)。翌日凌晨森拉克在北部灣增強為熱帶風暴及達到其最高強度，最高持續風速估計為每小時65公里。森拉克於八月二日早上在越南北部登陸，晚上在越南內陸減弱為低壓區。

熱帶低氣壓黑格比(2004)於八月一日早上在沖繩島以南約670公里的北太平洋西部上形成，大致採取西北路徑橫過台灣以東海域並逐漸增強。黑格比於八月三日下午發展為颱風，晚上達到最高強度，中心附近最高持續風速估計為每小時140公里。黑格比於八月四日清晨在浙江沿岸登陸及減弱。隨後黑格比轉向偏北方向橫過浙江至江蘇一帶，翌日採取東北路徑進入黃海。黑格比最後於當晚在黃海演變為一股溫帶氣旋。

根據報章報導，黑格比掠過台灣附近期間造成至少一人死亡及一人受傷。黑格比亦為浙江及江蘇帶來狂風大雨，多處嚴重水浸。浙江最少有兩人死亡，逾188萬用戶停電。

熱帶低氣壓薔薇(2005)於八月九日凌晨在沖繩島之西南偏南約600公里的北太平洋西部上形成，當日早上增強為熱帶風暴，日間迅速向北橫過琉球群島一帶。八月十日薔薇達到最高強度，中心附近最高持續風速估計為每小時85公里。日間薔薇採取向東北偏北路徑掠過朝鮮半島東南部，翌日清晨在本州以北的海域演變為一股溫帶氣旋 。

熱帶低氣壓米克拉(2006)於八月九日晚上在東沙之東南偏南約470公里的南海東北部上形成，向偏北方向移動，翌日早上增強為熱帶風暴。當晚米克拉迅速增強，八月十一日早上發展為颱風，登陸福建前達到最高強度，中心附近最高持續風速估計為每小時130公里。米克拉日間移入福建內陸並逐漸消散。

根據報章報導，米克拉吹襲福建期間，多處有樹木倒塌，約16萬戶電力中斷。

一個熱帶低氣壓於八月十日晚上在硫黃島之東北偏東約320公里的北太平洋西部上形成，中心附近最高持續風速估計為每小時45公里，大致向偏西方向移動，移向琉球群島一帶。該熱帶低氣壓於八月十二日早上在琉球群島附近減弱為低壓區。

熱帶低氣壓海高斯(2007)於八月十七日晚上在香港之東南偏東約650公里的南海東北部上形成，大致向西北移動橫過南海北部。翌日海高斯迅速增強，下午發展為強烈熱帶風暴並趨向珠江口一帶。當晚海高斯在珠江口附近進一步增強為颱風，八月十九日凌晨達到最高強度，中心附近最高持續風速估計為每小時130公里。海高斯於八月十九日早上在珠海登陸，日間移入廣東西部並逐漸減弱，晚上在廣西減弱為低壓區。

根據報章報導，海高斯在澳門造成15人受傷，內港低窪地區出現水浸。

熱帶低氣壓巴威(2008)於八月二十一日晚上在台北之東南偏南約350公里的北太平洋西部上形成，初時大致向東北漂移及逐漸增強。巴威於八月二十四日移速減慢及發展為颱風。翌日巴威進一步增強為強颱風及達到最高強度，中心附近最高持續風速估計為每小時165公里。其後巴威加速向偏北方向橫過東海及黃海，八月二十七日早上在朝鮮半島西北部附近登陸，當晚在中國東北部演變為一股溫帶氣旋 。

根據報章報導，巴威吹襲朝鮮期間造成最少一人死亡，多處有樹木倒塌及電線桿被吹倒，部分道路水浸。

熱帶低氣壓美莎克(2009)於八月二十八日早上在馬尼拉之東北偏東約1100公里的北太平洋西部上形成，隨後兩天在菲律賓以東海域徘徊並增強。美莎克於八月三十日凌晨發展為颱風及加速向偏北方向移動。美莎克於八月三十一日晚上進一步增強為超強颱風，採取西北偏北路徑移向琉球群島一帶。美莎克於九月一日早上達到最高強度，中心附近最高持續風速估計為每小時195公里。隨後美莎克轉向東北偏北移動，先後橫過東海及朝鮮半島。美莎克最後於九月三日下午在朝鮮半島東北部海域演變為一股溫帶氣旋 。

根據報章報導，美莎克吹襲日本期間，造成至少26人受傷。一艘貨船在鹿兒島縣奄美大島附近海域上沉沒，船上最少42人失蹤。而美莎克掠過朝鮮半島期間亦造成至少兩人死亡及12人受傷。

熱帶低氣壓海神(2010)於九月一日早上在硫黃島之東南約510公里的北太平洋西部上形成，當日向西南移動並逐漸增強。海神於九月二日轉向西北偏西移動橫過北太平洋西部，翌日凌晨增強為颱風。海神於九月四日進一步發展為超強颱風及達到最高強度，中心附近最高持續風速估計為每小時220公里。隨後海神逐漸轉向西北偏北移動，先後橫過日本九州以西海域及朝鮮半島，並逐漸減弱。海神最後於九月八日凌晨在中國東北部演變為一股溫帶氣旋。

根據報章報導，海神吹襲日本期間造成至少兩人死亡、四人失蹤及100人受傷。海神是繼美莎克之後一星期內第二個吹襲朝鮮半島的風暴，在當地造成至少兩人死亡及廣泛地區水浸，多間房屋受到破壞。

熱帶低氣壓紅霞(2011)於九月十五日晚上在西沙之東南偏東約900公里的南海南部上形成，向西北偏西移動並逐漸增強。紅霞於九月十六日早上增強為熱帶風暴，當晚達到最高強度，中心附近最高持續風速估計為每小時85公里。紅霞於九月十八日橫過越南中部並減弱，最後於晚上在中南半島減弱為一個低壓區。

根據報章報導，紅霞吹襲越南期間造成至少六人死亡。

熱帶低氣壓白海豚(2012)於九月二十日晚上在大阪以南約1190公里的北太平洋西部上形成，向東北偏北方向緩慢移動並逐漸增強。九月二十二日下午白海豚發展為強烈熱帶風暴，晚上達到最高強度，中心附近最高持續風速估計為每小時105公里。隨後白海豚轉向東北偏東移動，最後於九月二十四日在日本以東海域上演變為一股溫帶氣旋。

熱帶低氣壓鯨魚(2013)於九月二十六日晚上在硫黃島之東南偏東約2040公里的太平洋西部上形成，大致向西北移動並逐漸增強。鯨魚於九月二十八日晚上增強為強烈熱帶風暴，翌日達到最高強度，中心附近最高持續風速估計為每小時110公里。隨後鯨魚逐漸轉向東北移動，最後於九月三十日在日本以東的北太平洋西部演變為一股溫帶氣旋。

十月至十一月

熱帶低氣壓燦鴻(2014)於十月五日凌晨在硫黃島之西南約350公里的北太平洋西部上形成，初時向北漂移。燦鴻翌日轉向西北偏西移動，橫過日本以南海域並逐漸增強。燦鴻於十月七日下午發展為颱風，晚上達到最高強度，中心附近最高持續風速估計為每小時130公里。隨後數天燦鴻逐漸轉為向東移動並減弱，最後於十月十二日凌晨在硫黃島以北的西北太平洋上減弱為一個低壓區。

熱帶低氣壓蓮花(2015)於十月十日早上在峴港之東南偏東約670 公里的南海南部上形成，向偏西方向移動，移向越南中部並逐漸增強。蓮花於十月十一日凌晨發展為熱帶風暴，早上達到最高強度，中心附近最高持續風速估計為每小時75公里。當日下午蓮花於越南中部登陸，翌日在中南半島減弱為一個低壓區。

根據報章報導，蓮花為越南帶來暴雨，造成至少17人死亡，13人失蹤。

熱帶低氣壓浪卡(2016)於十月十一日下午在東沙之東南約500公里的南海中部上形成，隨後採取西北偏西路徑移向海南島，並逐漸增強。浪卡於十月十二日下午增強為熱帶風暴，當晚達到其最高強度，中心附近最高持續風速估計為每小時85公里。浪卡於十月十三日晚上橫過海南島並逐漸減弱，翌日進入北部灣，當晚在越南內陸減弱為低壓區。

根據報章報導，浪卡吹襲海南期間，一艘貨輪於琼州海峽附近翻沉，船上有兩人遇難、三人失蹤。浪卡亦為越南帶來狂風大雨，造成最少兩人死亡、一人失蹤。

熱帶低氣壓沙德爾(2017)於十月十九日早上在馬尼拉以東約920公里的北太平洋西部上形成，大致向西北偏西移動，並逐漸增強。沙德爾於十月二十日晚上橫過呂宋，翌日早上進入南海中部。日間沙德爾轉向西北方向移動。沙德爾於十月二十二日增強為颱風，翌日達到其最高強度，中心附近最高持續風速估計為每小時140公里。受乾燥的東北季候風影響，沙德爾隨後轉向偏西方向移動，並逐漸減弱。最後於十月二十五日晚上在越南中部以東海域減弱為一個低壓區。

根據報章報導，沙德爾吹襲菲律賓期間，當地出現洪水及山泥傾瀉，超過6000人需要撤離。

熱帶低氣壓莫拉菲(2018)於十月二十四日早上在馬尼拉以東約1100 公里的北太平洋西部上形成，大致向偏西方向移動並迅速增強。莫拉菲於十月二十五日晚上增強為颱風，隨後橫過菲律賓中部，翌日早上進入南海南部。莫拉菲於十月二十七日進一步發展為強颱風並達到其最高強度，中心附近最高持續風速估計為每小時165公里。隨後莫拉菲逐漸減弱，並於十月二十八日中午前後在越南中部登陸。莫拉菲最後於十月二十九日在中南半島減弱為一個低壓區。

根據報章報導，莫拉菲為菲律賓帶來狂風暴雨，造成至少9 人死亡、6人受傷、2人失踪。莫拉菲亦在越南造成至少27人死亡及74 人失踪。

熱帶低氣壓天鵝(2019)於十月二十八日早上在馬尼拉以東約2100公里的北太平洋西部上形成，向西至西南偏西移動並迅速增強。天鵝於十月三十日早上增強為超強颱風，並於十一月一日凌晨達到最高強度，中心附近最高持續風速估計為每小時275 公里。天鵝是本區域自二零一三年十一月超強颱風海燕以來最強的熱帶氣旋，當晚橫過菲律賓中部並減弱。隨後數天天鵝橫過南海中部，並在十一月五日晚上在越南以東海域減弱為一個低壓區。

根據報章報導，超強颱風天鵝正面吹襲菲律賓，造成最少25人死亡，超過17萬間房屋受損。

熱帶低氣壓艾莎尼(2020)於十月三十日下午在關島之西南偏南約350公里的北太平洋西部上形成，隨後兩天大致向西北移動，移向菲律賓以東海域並逐漸增強。十一月二日凌晨艾莎尼增強成為熱帶風暴，翌日凌晨艾莎尼移速開始減慢，在菲律賓東北海域徘徊。十一月四日艾莎尼增強為強烈熱帶風暴，翌日達到最高強度，中心附近最高持續風速估計為每小時105公里。隨後艾莎尼加速向西北偏西方向移動，移向台灣南部沿岸海域。十一月七日艾莎尼進入南海東北部並迅速減弱，晚上在台灣海峽減弱為一個低壓區。

熱帶低氣壓艾濤(2021)於十一月八日晚上在南沙之東北約410公里的南海南部上形成，向西移動。艾濤於十一月九日增強為熱帶風暴，當晚達到最高強度，中心附近最高持續風速估計為每小時75公里。艾濤於十一月十日在越南南部登陸並迅速減弱，當晚在中南半島減弱為一個低壓區。

熱帶低氣壓環高(2022)於十一月九日下午在馬尼拉之東南偏東約1130公里的北太平洋西部上形成，向西北偏西方向移動，並迅速增強。環高於十一月十一日早上發展為颱風並橫過呂宋，翌日早上進入南海中部。環高向偏西方向移動，於十一月十四日增強為強颱風，並達到最高強度，中心附近最高持續風速估計為每小時175公里。環高隨後迅速減弱，翌日下午在越南中部登陸，最後於當晚在中南半島減弱為一個低壓區。

根據報章報導，環高吹襲菲律賓期間，造成至少101人死亡，85人受傷及10人失蹤。環高亦在越南造成最少1 人死亡，5人受傷。

十二月

熱帶低氣壓科羅旺(2023)於十二月二十日凌晨在南沙以東約350公里的南海南部上形成，向西至西南偏西移動並逐漸增強。科羅旺於十二月二十日晚上達到最高強度，中心附近最高持續風速估計為每小時55 公里。隨後科羅旺繼續採取西南路徑，移向越南以南海域並逐漸減弱。最後科羅旺於十二月二十二日在越南以南海域減弱為一個低壓區。

備註：人命傷亡及財物損毀數據是根據報章報導輯錄而成。

Section 2 TROPICAL CYCLONE OVERVIEW FOR 2020

2.1 Review of tropical cyclones in 2020

2.1.1 Tropical cyclones over the western North Pacific (including the South China Sea)

In 2020, a total of 25 tropical cyclones occurred over the western North Pacific (WNP) and the South China Sea (SCS) bounded by the Equator, 45°N, 100°E and 180°, less than the long-term (1961 - 2010) average figure of around 30. During the year, 12 of the tropical cyclones attained typhoon intensity or above, less than the long-term average (1961 - 2010) of about 15, with three of them reaching super typhoon intensity (maximum 10-minute wind speed of 185 km/h or above near the centre).

Figure 2.1 shows the monthly frequencies of the occurrence of tropical cyclones in WNP and SCS in 2020.

During the year, six tropical cyclones made landfall over China, with two of them crossing the south China coast within 300 km of Hong Kong. Four tropical cyclones made landfall over the Korean Peninsula, six traversed the Philippines and seven made landfall over Vietnam. With an estimated maximum sustained wind speed of 275 km/h and a minimum sea-level pressure of 895 hPa near the centre (Table 4.1), Super Typhoon Goni (2019) in October (Figure 2.3) is the most intense tropical cyclone over the WNP and the SCS in 2020. It is also the most intense tropical cyclone in the region since Super Typhoon Haiyan in November 2013.

2.1.2 Tropical cyclones in Hong Kong's area of responsibility

Amongst the 25 tropical cyclones in 2020, 18 of them occurred inside Hong Kong's area of responsibility (i.e. the area bounded by 10°N, 30°N, 105°E and 125°E), more than the long-term annual average (1961-2010) figure of around 16 (Table 2.1). Ten of them developed within Hong Kong's area of responsibility. Altogether, 405 tropical cyclone warnings to ships and vessels were issued by the Hong Kong Observatory this year (Table 4.2).

2.1.3 Tropical cyclones over the South China Sea

14 tropical cyclones affected SCS bounded by 10°N, 25°N, 105°E and 120°E in 2020, more than the long-term annual average (1961-2010) of around 12. Eight of them formed within SCS.

2.1.4 Tropical cyclones affecting Hong Kong

In 2020, the typhoon season in Hong Kong started on 12 June when Tropical Depression Nuri (2002) formed over the Philippines and entered the SCS, necessitating the issuance of the Standby Signal No. 1. The typhoon season ended with the cancellation of all tropical cyclone warning signals on 24 October when Severe Tropical Storm Saudel (2017) moved away from Hong Kong and weakened that day.

Five tropical cyclones affected Hong Kong during 2020 (Figure 2.2), slightly less than the long-term (1961-2010) average of about six in a year (Table 2.2). They were Tropical Storm Nuri (2002) in June, Tropical Storm Sinlaku (2003) in July to August, Typhoon Higos (2007) in August, Tropical Storm Nangka (2016) and Typhoon Saudel (2017) in October. The No. 9 Increasing Gale or Storm Signal was issued by the Hong Kong Observatory during the passage of Higos on 19 August. It was the highest tropical cyclone warning signal issued in 2020 and for the first time since Super Typhoon Mangkhut hitting Hong Kong in 2018. The No. 8 Gale or Storm Signal was issued during the passage of Nangka. The rest of the three tropical cyclones all necessitated the issuance of the Strong Wind Signal No. 3 in Hong Kong.

2.1.5 Tropical cyclone rainfall

Tropical cyclone rainfall (total rainfall recorded at the Hong Kong Observatory Headquarters from the time when a tropical cyclone comes within 600 km of Hong Kong to 72 hours after it has dissipated or moved more than 600 km away from Hong Kong) in 2020 was 421.7 mm (Table 4.8.1). This accounted for approximately 17.6 % of the year's total rainfall of 2395.0 mm and was about 42.1 % below the 1961-2010 long-term average of 728.8 mm.

Typhoon Higos (2007) brought 172.2 mm of rainfall to the Hong Kong Observatory Headquarters (Table 4.8.1) and was the wettest tropical cyclone in 2020.

2.2 Monthly overview

A monthly overview of tropical cyclones in 2020 is given in this section. Detailed reports on tropical cyclones affecting Hong Kong, including reports of damage, are presented in Section 3.

JANUARY TO APRIL

No tropical cyclone formed over the western North Pacific and the South China Sea from January to April 2020.

MAY

Vongfong (2001) formed as a tropical depression over the western North Pacific about 1210 km east-southeast of Manila in the small hours on 11 May. It moved north-northwestwards slowly at first. Vongfong intensified into a tropical storm on the night of 12 May. It started to intensify rapidly and turned to move westwards the next day. Vongfong developed into a severe typhoon in the small hours on 14 May and reached its peak intensity in the morning with an estimated sustained wind of 165 km/h near its centre. It moved northwestwards across the Philippines and weakened gradually in the following two days. Vongfong finally degenerated into an area of low pressure over the Luzon Strait on the night of 16 May.

According to press reports, Vongfong brought at least one death and 100 injuries and damaged more than 10000 houses during its passage to the Philippines.

JUNE

Nuri (2002) formed as a tropical depression over the Philippines about 110 km north-northwest of Manila in the small hours on 12 June and intensified gradually. It moved generally northwestward across the South China Sea during the day. Nuri developed into a tropical storm in the small hours on 13 June and reached its peak intensity with an estimated sustained wind of 75 km/h near its centre in the afternoon. Nuri made landfall over Yangjiang of Guangdong later in the morning of 14 June and weakened into an area of low pressure over inland Guangdong in the afternoon.

JULY TO SEPTEMBER

A tropical depression formed over the western North Pacific about 550 km east-northeast of Manila in the small hours on 13 July with an estimated sustained wind of 45 km/h near its centre. It generally tracked northwestwards and weakened into an area of low pressure over the Luzon Strait in the small hours of the next day.

A monsoon depression entered the South China Sea on 30 July and developed into a tropical depression the next night. The tropical depression generally tracked west-northwestward towards Hainan Island and was named Sinlaku (2003) on the afternoon of 1 August. Sinlaku intensified into a tropical storm over Beibu Wan in the small hours of the next day and reached its peak intensity with an estimated maximum sustained wind of 65 km/h. It made landfall over the northern part of Vietnam on the morning of 2 August and weakened into an area of low pressure over inland Vietnam that night.

Tropical depression Hagupit (2004) formed over the western North Pacific about 670 km south of Okinawa on the morning of 1 August. It moved generally northwestward across the seas east of Taiwan and intensified gradually. Hagupit developed into a typhoon on the afternoon of 3 August and reached its peak intensity at night with an estimated maximum sustained wind of 140 km/h near its centre. Hagupit made landfall over the coast of Zhejiang in the early morning of 4 August and weakened. It then turned to move northward across the vicinity of Zhejiang and Jiangsu and then tracked northeastward entered the Yellow Sea the next day. Hagupit finally evolved into an extratropical cyclone over the Yellow Sea at night.

According to press reports, Hagupit left at least one death and one injury when it skirted past the vicinity of Taiwan. Hagupit also brought heavy rain and squalls to Zhejiang and Jiangsu and there were severe flooding in many places. At least two persons were killed in Zhejiang and power supply to over 1.8 million households was suspended.

Jangmi (2005) formed as a tropical depression over the western North Pacific about 600 km south-southwest of Okinawa in the small hours on 9 August. It intensified into a tropical storm in the morning and rapidly moved northward across the vicinity of Ryukyu Islands. Jangmi reached its peak intensity on 10 August with an estimated maximum sustained wind of 85 km/h near its centre. It tracked north-northeast across the southeastern part of the Korean Peninsula during the day and evolved into an extratropical cyclone over the seas north of Honshu in the early morning of the next day.

Mekkhala (2006) formed as a tropical depression over the northeastern part of the South China Sea about 470 km south-southeast of Dongsha on the night of 9 August and moved northwards. It intensified into a tropical storm the next morning. Mekkhala rapidly intensified at night and developed into a typhoon on the morning of 11 August. It reached its peak intensity before making landfall over Fujian with an estimated maximum sustained wind of 130 km/h near its centre. Mekkhala moved inland Fujian and dissipated gradually during the day.

According to press reports, many trees were fallen in Fujian during the passage of Mekkhala. Power supply to more than 160 000 households was suspended.

A tropical depression was formed over the western North Pacific about 320 km east-northeast of Iwo Jima on the night of 10 August with an estimated sustained wind of 45 km/h near its centre. It moved generally westward towards the vicinity of Ryukyu Islands. The tropical depression degenerated into an area of low pressure near Ryukyu Islands on the morning of 12 August.

Higos (2007) formed as a tropical depression over the northeastern part of the South China Sea at about 650 km east-southeast of Hong Kong on the night of 17 August. It generally moved northwestwards across the northern part of the South China Sea. While edging towards the vicinity of the Pearl River Estuary, Higos intensified rapidly the next day and developed into a severe tropical storm in the afternoon. Higos further intensified into a typhoon near the Pearl River Estuary that night, reaching its peak intensity in the small hours of 19 August with an estimated maximum sustained wind of 130 km/h near its centre. It made landfall over Zhuhai on the morning of 19 August. Higos then moved into the western part of Guangdong and weakened gradually during the day. It degenerated into an area of low pressure over Guangxi that night.

According to press reports, 15 persons were injured in Macao during the passage of Higos. There were flooding in low lying areas in Inner Harbour.

Bavi (2008) formed as a tropical depression over the western North Pacific about 350 km south-southeast of Taibei on the night of 21 August. It drifted generally northeastwards at first and intensified gradually. Bavi slowed down and developed into a typhoon on 24 August. It further intensified into a severe typhoon the next day and reached its peak intensity with an estimated maximum sustained wind of 165 km/h near its centre. Bavi then picked up speed to move northwards across the East China Sea and the Yellow Sea. It made landfall near vicinity of the northwestern part of the Korean Peninsula on the morning of 27 August. Bavi evolved into an extratropical cyclone over the northeastern part of China that night.

According to press reports, Bavi left at least one death to DPR Korea during its passage. There were fallen trees and electric poles in many places. Some of the roads were flooded.

Maysak (2009) formed as a tropical depression over the western North Pacific about 1100 km east-northeast of Manila on the morning of 28 August. It lingered around the sea areas east of the Philippines and intensified in the following two days. Maysak developed into a typhoon in the small hours of 30 August and accelerated northward. It further intensified into a super typhoon on the night of 31 August and tracked north-northwestward towards the vicinity of Ryukyu Islands. Maysak reached its peak intensity on the morning of 1 September with an estimated sustained wind of 195 km/h near its centre. Maysak then turned to move north-northeastward and swept across the East China Sea and the Korean Peninsula. It finally evolved into an extratropical cyclone on the afternoon of 3 September over the seas northeast of the Korean Peninsula.

According to press reports, at least 26 people were injured in Japan during the passage of Maysak. A cargo ship sank near Amami Oshima of the Kagoshima Prefecture with at least 42 people on board missing. Besides, at least two persons were killed and 12 people were injured when Maysak moved across the Korean Peninsula.

Haishen (2010) formed as a tropical depression over the western North Pacific about 510 km southeast of Iwo Jima on the morning of 1 September. It moved southwestward and intensified gradually on that day. Haishen turned to track west-northwestward across the western North Pacific on 2 September and developed into a typhoon in the small hours on 3 September. Haishen further intensified into a super typhoon on 4 September and reached its peak intensity with an estimated maximum sustained wind of 220 km/h near its centre. Turning to track north-northwestward gradually, Haishen swept across the seas west of Kyushu and then the Korean Peninsula and weakened gradually. Haishen finally evolved into an extratropical cyclone over the northeastern part of China in the small hours on 8 September.

According to press reports, Haishen left at least two deaths, four missing and 100 injuries in Japan during its passage. Haishen was the second storm hitting the Korean Peninsula within a week after Maysak, causing at least two deaths and wide-spread flooding. Many houses were damaged.

Noul (2011) formed as a tropical depression over the southern part of the South China Sea about 900 km east-southeast of Xisha on the night of 15 September. It moved west-northwestward and intensified gradually. Noul developed into a tropical storm on the morning of 16 September. It reached its peak intensity that night with an estimated maximum sustained wind of 85 km/h near its centre. Noul moved across the central part of Vietnam on 18 September and weakened. It finally degenerated into an area of low pressure over the Indochina Peninsula at night.

According to press reports, at least six people were killed in Vietnam during the passage of Noul.

Dolphin (2012) formed as a tropical depression over the western North Pacific about 1190 km south of Osaka on the night of 20 September. It tracked north-northeastward slowly and intensified gradually. Dolphin developed into a severe tropical storm on the afternoon of 22 September and reached its peak intensity that night with an estimated maximum sustained wind of 105 km/h near its centre. Dolphin then turned to move east-northeastward and finally evolved into an extratropical cyclone over the seas east of Japan on 24 September.

Kujira (2013) formed over the western North Pacific about 2040 km east-southeast of Iwo Jima on the night of 26 September. It moved generally northwestward and intensified gradually. Kujira intensified into a severe tropical storm on the night of 28 September and reached its peak intensity in the next morning with an estimated maximum sustained wind of 110 km/h near its centre. Kujira then gradually turned to track northeastward and finally evolved into an extratropical cyclone over the western North Pacific east of Japan on 30 September.

OCTOBER TO NOVEMBER

Chan-hom (2014) formed as a tropical depression over the western North Pacific about 350 km southwest of Iwo Jima in the small hours on 5 October and drifted northwards at first. Chan-hom turned to move west-northwestwards across the sea areas south of Japan the next day and intensified gradually. Chan-hom developed into a typhoon on the afternoon of 7 October and reached its peak intensity at night with an estimated maximum sustained wind of 130 km/h near its centre. Chan-hom turned gradually to move eastwards and weakened in the following few days. It finally degenerated into an area of low pressure over the western North Pacific to the north of Iwo Jima in the small hours on 12 October.

Linfa (2015) formed as a tropical depression over the southern part of the South China Sea about 670 km east-southeast of Da Nang on the morning of 10 October. It moved westwards towards the central part of Vietnam and intensified gradually. Linfa developed into a tropical storm in the small hours on 11 October, reaching its peak intensity in the morning with an estimated sustained wind of 75 km/h near its centre. Linfa made landfall over the central part of Vietnam in the afternoon and degenerated into an area of low pressure over Indo-China the next day.

According to press reports, Linfa brought torrential rain to Vietnam, leading to at least 17 deaths and 13 missing.

Nangka (2016) formed as a tropical depression over the central part of the South China Sea about 500 km southeast of Dongsha on the afternoon of 11 October. It then moved west-northwestwards towards Hainan Island and intensified gradually. Nangka intensified into a tropical storm on the afternoon of 12 October, reaching its peak intensity at night with an estimated maximum sustained wind of 85 km/h near its centre. It moved across Hainan Island on the night of 13 October and weakened gradually. Nangka entered Beibu Wan the next day and finally degenerated into an area of low pressure over inland Vietnam that night.

According to press reports, a cargo ship overturned near Qiongzhou Strait when Nangka was striking Hainan. Two crew members on board died and three were missing. Nangka also brought heavy rain and squalls to Vietnam, leaving at least two deaths and one missing.

Saudel (2017) formed as a tropical depression over the western North Pacific about 920 km east of Manila on the morning of 19 October. Saudel moved generally west-northwestwards and intensified gradually. It moved across Luzon on the night of 20 October and entered the central part of the South China Sea in the next morning. Saudel turned to move northwestwards during the day. It intensified into a typhoon on 22 October and reached its peak intensity the next day with an estimated sustained wind of 140 km/h near its centre. Affected by the dry northeast monsoon, Saudel then turned to track westwards and weakened gradually. It finally degenerated into an area of low pressure over the seas east of central Vietnam on the night of 25 October.

According to press reports, over 6000 people were evacuated because of flooding and landslips in the Philippines during the passage of Saudel.

Molave (2018) formed as a tropical depression over the western North Pacific about 1100km east of Manila on the morning of 24 October. It moved generally westwards and intensified rapidly. Molave intensified into a typhoon on the night of 25 October and then moved across the central part of the Philippines. It entered the southern part of the South China Sea in the next morning. Molave further developed into a severe typhoon on 27 October, reaching its peak intensity with an estimated sustained wind of 165 km/h near its centre. Molave then weakened gradually and made landfall over the central part of Vietnam around noon on 28 October. Molave finally degenerated into an area of low pressure over Indo-China on 29 October.

According to press report, Molave brought torrential rain and squalls to the Philippines, leaving at least 9 deaths, 6 injuries and 2 missing. At least 27 people were killed and 74 were missing in Vietnam during the passage of Molave.

Goni (2019) formed as a tropical depression over the western North Pacific about 2100 km east of Manila on the morning of 28 October. It moved west to west-southwestwards and intensified rapidly. Goni intensified into a super typhoon on the morning of 30 October and reached its peak intensity in the small hours on 1 November with an estimated maximum sustained wind of 275 km/h near its centre. Goni is the most intense tropical cyclone in the region since Super Typhoon Haiyan in November 2013. It moved across the central part of the Philippines and weakened that night. Goni traversed the central part of the South China Sea in the following couple of days and degenerated into an area of low pressure over the seas east of Vietnam on 5 November.

According to press reports, the Philippines was directly hit by Super Typhoon Goni. At least 25 people were killed and over 170 000 houses were damaged.

Atsani (2020) formed as a tropical depression over the western North Pacific about 350 km south-southwest of Guam on the afternoon of 30 October. It moved generally northwestwards in the following two days. It moved towards the seas east of the Philippines and intensified gradually. Atsani intensified into a tropical storm in the small hours on 2 November. Atsani began to slow down in the small hours the next day and lingered over the seas northeast of the Philippines. Atsani intensified into a severe tropical storm on 4 November and reached its peak intensity the next day with an estimated maximum sustained wind of 105 km/h near its centre. It then picked up its speed to move west-northwestwards towards the coastal waters of southern part of Taiwan. Atsani entered the northeastern part of the South China Sea on 7 November and weakened rapidly. It finally degenerated into an area of low pressure over Taiwan Strait at night.

Etau (2021) formed as a tropical depression over the southern part of the South China Sea about 410 km northeast of Nansha on the night of 8 November and moved westwards. It intensified into a tropical storm on 9 November and reached its peak intensity that night with an estimated maximum sustained wind of 75 km/h near its centre. Etau made landfall over the southern part of Vietnam on 10 November and weakened rapidly. It degenerated into an area of low pressure over Indo-China that night.

Vamco (2022) formed as a tropical depression over the western North Pacific about 1130 km east-southeast of Manila on the afternoon of 9 November. It moved west-northwestwards and intensified rapidly. Vamco developed into a typhoon on the morning of 11 November and moved across Luzon. It entered the central part of the South China Sea the next morning. It tracked westwards and intensified into a severe typhoon on 14 November, reaching its peak intensity with an estimated maximum sustained wind of 175 km/h near its centre. Vamco then weakened rapidly and made landfall over the central part of Vietnam the next afternoon. It finally degenerated into an area of low pressure over Indo-China that night.

According to press reports, Vamco left at least 101 deaths, 85 injuries and 10 missing in the Philippines during its passage. In Vietnam, at least one people was killed and 5 others were injured during the passage of Vamco.

DECEMBER

Krovanh (2023) formed as a tropical depression over the southern part of the South China Sea about 350 km east of Nansha in the small hours on 20 December. It moved west to west-southwestwards and intensified gradually. Krovanh reached its peak intensity with an estimated maximum sustained wind of 55 km/h near its centre on the night of 20 December. Krovanh then continued to track southwestwards towards the seas south of Vietnam and weaken gradually. Krovanh finally degenerated into an area of low pressure over the seas south of Vietnam on 22 December.

Note: Casualties and damage figures were compiled from press reports.

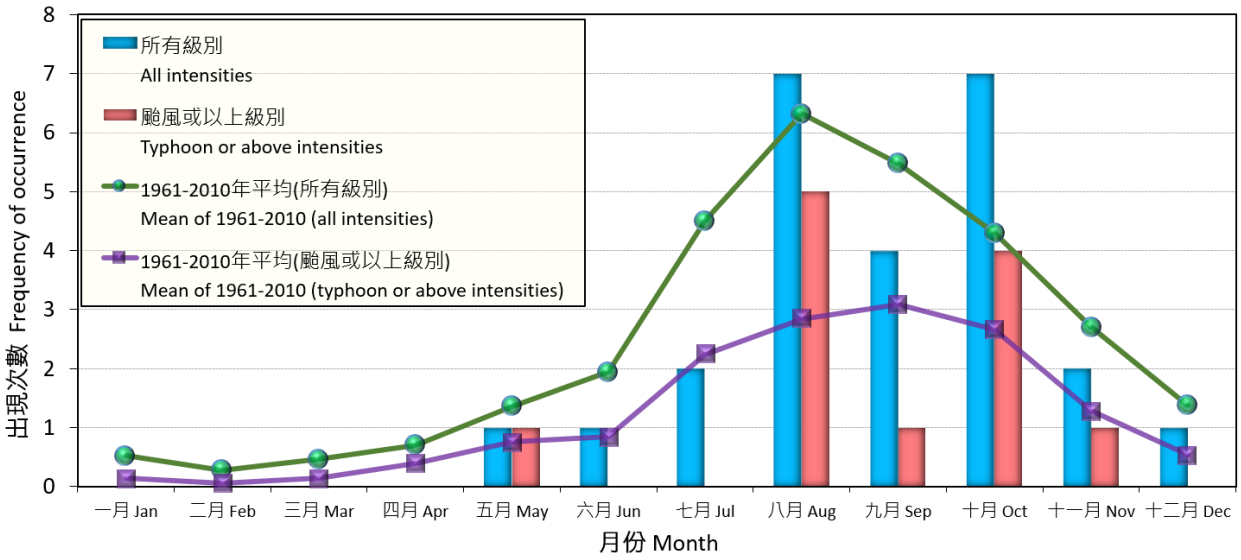


圖 2.1　二零二零年在北太平洋西部及南海區域的熱帶氣旋出現次數之每月分佈 (以熱帶氣旋在該月初次出現為準，假如一熱帶氣旋在九月形成並在十月首次增強為颱風或以上級別，它在「所有級別」及「颱風或以上級別」的統計數字將分別計算在九月及十月份內)。

Figure 2.1　Monthly frequencies of the occurrence of tropical cyclones in the western North Pacific and the South China Sea in 2020 (based on the first occurrence of the tropical cyclone in the month; for example if a tropical cyclone forms in September and first intensifies into typhoon or above intensities in October, its related statistics for “all intensities” and “typhoon or above intensities” will be counted in September and October respectively).

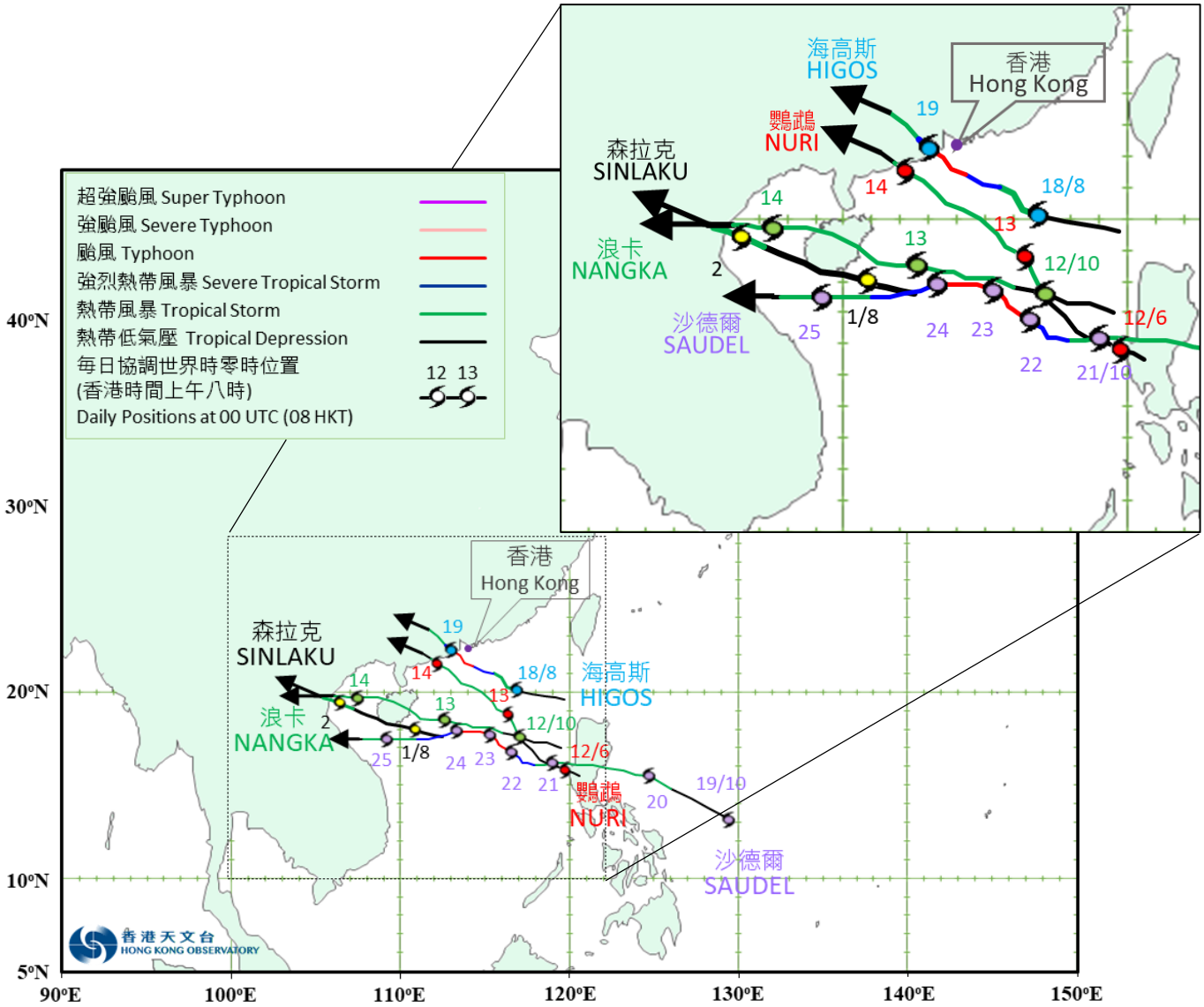


圖 2.2　　二零二零年五個影響香港的熱帶氣旋的路徑圖。

Figure 2.2　　Tracks of the five tropical cyclones affecting Hong Kong in 2020.

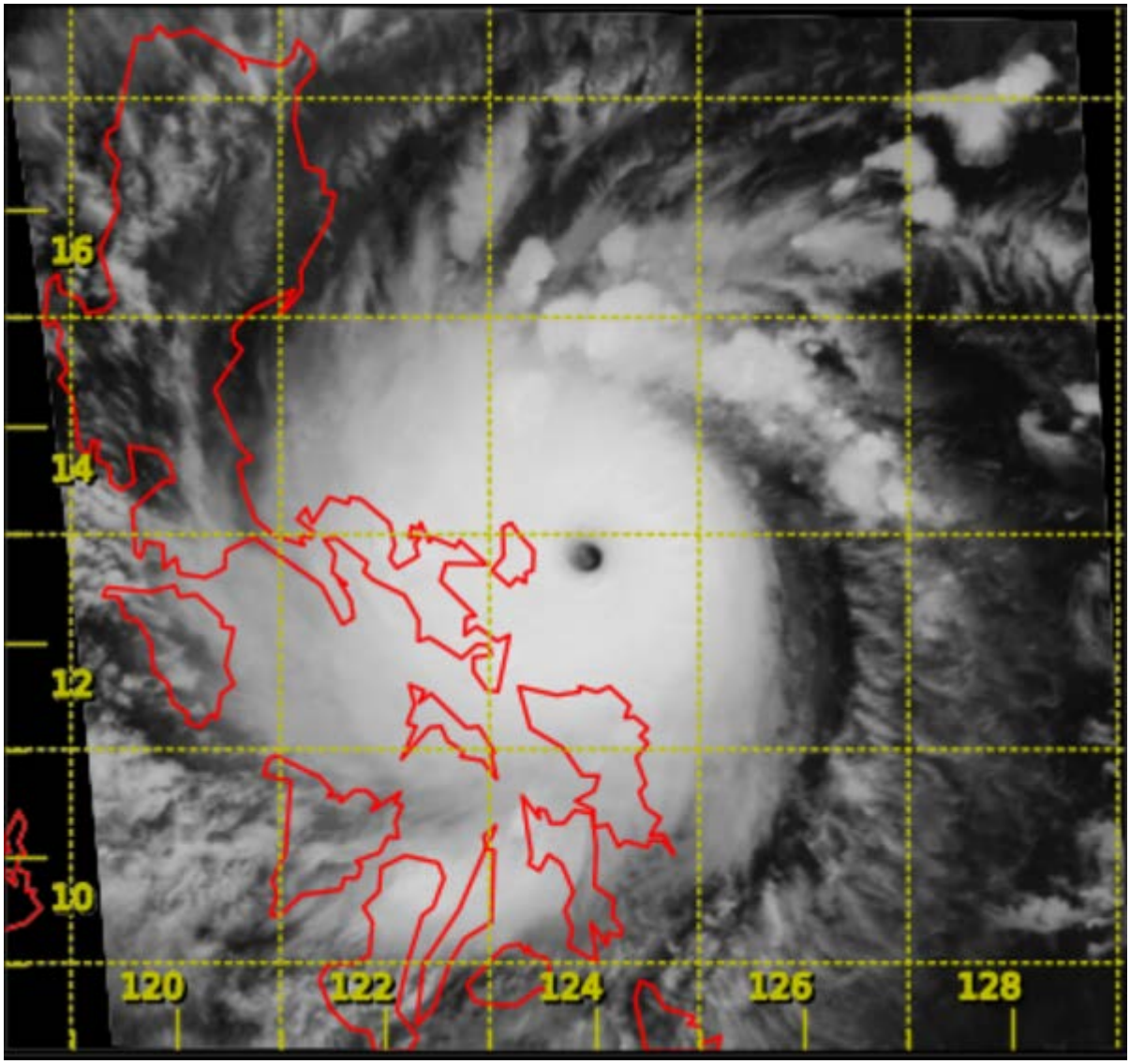


圖2.3　二零二零年十一月一日上午2時左右超強颱風天鵝(2019)的紅外線衛星圖片，當時天鵝達到其最高強度，中心附近最高持續風速估計為每小時275公里，而最低中心氣壓為895百帕斯卡。

Figure 2.3　Infra-red satellite imagery of Super Typhoon Goni (2019) around 2 a.m. on 1 November 2020, when Goni was at its peak intensity with estimated maximum sustained winds of 275 km/h near its centre and minimum sea-level pressure of 895 hPa.

〔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).]

表 2.1　在香港責任範圍內(10°-30°N, 105°-125°E)熱帶氣旋出現之每月分佈(以熱帶氣旋在該月初次出現為準)

Table 2.1　Monthly distribution of the occurrence of tropical cyclones in Hong Kong's area of responsibility (10° - 30°N, 105° - 125°E), based on the first occurrence of the tropical cyclone in the month

月份 Month / 年份 Year	一月 Jan	二月 Feb	三月 Mar	四月 Apr	五月 May	六月 Jun	七月 Jul	八月 Aug	九月 Sep	十月 Oct	十一月 Nov	十二月 Dec	共 Total
1961					3	5	2	5	4	3	1	1	24
1962					3		4	5	4	1	3		20
1963						3	3	3	2			2	13
1964					1	1	5	3	6	3	6	1	26
1965	1				2	3	4	3	2		1		16
1966					2		5	2	3	2	2	1	17
1967			1	1		1	2	6	1	2	3		17
1968							2	4	2	1	3		12
1969							3	3	4	1			11
1970		1				2	2	3	4	5	3		20
1971				1	2	2	5	3	3	4			20
1972	1					3	2	4	2	1	1	1	15
1973							4	4	2	4	3		17
1974						3	2	4	2	4	4	2	21
1975	1					1		3	2	3	1	1	12
1976					1	1	1	4	1		1	1	10
1977						1	4	1	3		1		10
1978	1			1		2	2	4	5	4	1		20
1979				1	2	1	3	5	2	2	1	1	18
1980			1		3	1	5	2	3	1	1		17
1981						3	3	3	1	1	3	1	15
1982			2		1	1	3	3	3	1		2	16
1983						1	3	1	3	5	2		15
1984						2	2	4	2	2	2		14
1985						2	2	2	4	4	1		15
1986					1	1	1	4	1	3	3	2	16
1987						1	3	2	1	1	3	1	12
1988	1				1	3	1	1	2	5	2	1	17
1989					2	1	4	2	4	3	1		17
1990					1	4	2	3	3	3	2		18
1991				1	1	1	3	2	2	1	3		14
1992						2	3	2	2	2			11
1993						1	1	2	3	2	2	3	14
1994				1	1	2	6	5	2	2		1	20
1995						1	1	5	5	3	1	1	17
1996		1		1	2		3	3	2	1	2		15
1997					1		1	4	1	2	1		10
1998							1	3	4	3	3	1	15
1999				1		1	1	2	3	2	1	1	12
2000					2	1	3	5	3	3	2	1	20
2001					1	2	4	2	2	1	1	1	14
2002	1					1	3	2	3				10
2003				1	1	2	2	3	1	1	1		12
2004			1		1	3	2	2	2	1	2	1	15
2005			1				2	3	4	3	2		15
2006					1	1	3	3	4	1	2	1	16
2007							1	4	3	1	3		12
2008				1	2	1	2	3	5	1	2		17
2009					2	2	3	2	3	4	1		17
2010							3	4	2	2			11
2011					2	3	1	2	2	2			12
2012				1		3	2	3	1	2		2	14
2013						2	3	4	4	3	3		19
2014	1					1	2		3		1	2	10
2015	1			1	1	1	2	2	2	2		1	13
2016					1		3	1	4	3	1	2	15
2017	1			1		1	6	3	4	2	3	1	22
2018	1					2	4	4	2	1	2	1	17
2019							3	3	3	1	3	2	15
2020					1	1	2	4	1	4	4	1	18
平均 Average (1961-2010)	0.1	0.0	0.1	0.2	0.8	1.4	2.6	3.1	2.7	2.1	1.7	0.6	15.6

表 2.2　影響香港的熱帶氣旋之每月分佈

Table 2.2　Monthly distribution of tropical cyclones affecting Hong Kong

月份 Month # / 年份 Year	一月 Jan	二月 Feb	三月 Mar	四月 Apr	五月 May	六月 Jun	七月 Jul	八月 Aug	九月 Sep	十月 Oct	十一月 Nov	十二月 Dec	共 Total
1961					1		3		2				6
1962							2	1		1			4
1963						1	1	1	1				4
1964					1	1		1	4	3			10
1965						1	2		2		1		6
1966					1		3	1	1				6
1967				1		1	1	3		1	1		8
1968							1	3	2				6
1969							1		2	1			4
1970							1	2	1	2			6
1971					1	2	3	1	1	1			9
1972						2	1	1			1		5
1973							2	3	2	2			9
1974						2	1		2	4	1	1	11
1975						1		1	2	3			7
1976						1	1	2	1				5
1977						1	3	1	3				8
1978				1			1	2	2	2			8
1979							2	2	2				6
1980					1	1	4	1	2	1			10
1981						1	2	1	1				5
1982						1	2		1	1			5
1983							3		2	2			7
1984						1	1	2	1				5
1985						1	1		2	1			5
1986							1	2		1			4
1987						1		2	1	1			5
1988					1	1	1		1	2			6
1989					1	1	2		1	2			7
1990					1	2	1	1	1				6
1991							3	1	2				6
1992						1	3	1					5
1993						1	1	2	3	1	1		9
1994						2		1	1				4
1995							1	4	2	1			8
1996							2	2	2	1			7
1997							1	1					2
1998								2	1	2			5
1999				1		1	1	1	3	1			8
2000						1	2	2	1		1		7
2001						2	2	1	1				6
2002								2	1				3
2003							2	1	1				4
2004						1	1	1					3
2005								1	2				3
2006					1	1		3	1	1			7
2007								1	1				2
2008				1		1		2	1	1			6
2009						2	2	1	3				8
2010							2	1	1	1			5
2011						2	1		1	1			5
2012						2	1	2					5
2013						2	1	2	1		1		7
2014						1	1		2				4
2015						1	1			1			3
2016					1		2	1	2	3			9
2017						1	1	2	2	1			7
2018						1	1	1	2	1			6
2019							2	2	1				5
2020						1	1	1		2			5
平均 Average (1961-2010)	0.0	0.0	0.0	0.1	0.2	0.7	1.5	1.3	1.5	0.9	0.1	0.0	6.0

熱帶氣旋警告信號首次發出的月份。#The month that the tropical cyclone warning signal was first issued.

第三節　　二零二零年影響香港的熱帶氣旋

3.1　熱帶風暴鸚鵡 (2002)：二零二零年六月十二日至十四日

鸚鵡是二零二零年首個影響香港的熱帶氣旋。

熱帶低氣壓鸚鵡於六月十二日凌晨在馬尼拉之西北偏北約110公里的菲律賓上空形成，並逐漸增強。日間鸚鵡向西北移動橫過南海。翌日凌晨鸚鵡發展為熱帶風暴，下午達到其最高強度，中心附近最高持續風速估計為每小時75公里。鸚鵡於六月十四日早上稍後時間在廣東陽江市登陸，下午在廣東內陸減弱為低壓區。

香港天文台在六月十二日晚上8時20分發出一號戒備信號，當時鸚鵡集結在香港之東南偏南約710公里。當晚及翌日早上本港吹輕微至和緩東至東北風。隨著鸚鵡靠近廣東沿岸，天文台在六月十三日下午3時40分發出三號強風信號，當時鸚鵡集結在香港之東南偏南約290公里。下午本港風勢逐漸增強，晚間吹清勁至強風程度的東至東南風，高地間中吹烈風。鸚鵡於六月十四日上午2時左右最接近本港，其中心在香港之西南偏南約190公里左右掠過。隨著鸚鵡逐漸減弱及遠離香港，天文台在六月十四日上午10時40分以一號戒備信號取代三號強風信號，並於當日下午1時20分取消所有熱帶氣旋警告信號。

在鸚鵡的影響下，尖鼻咀錄得最高潮位(海圖基準面以上) 及最大風暴潮(天文潮高度以上) 分別為2.22米及0.45米。天文台總部於六月十三日下午4時48分錄得最低瞬時海平面氣壓1002.5百帕斯卡。

六月十三日本港天氣酷熱及部分時間有陽光，亦有幾陣狂風驟雨及局部地區雷暴。受鸚鵡相關的外圍雨帶影響，六月十三日晚上及六月十四日本港有狂風驟雨，多處地區錄得超過30毫米雨量。

鸚鵡吹襲香港期間，一名市民在大嶼山下長沙海灘滑浪期間不幸遇溺身亡。一艘雙體船在西貢因大浪翻側，船上13人墮海獲救，當中一人受傷。

Section 3 TROPICAL CYCLONES AFFECTING HONG KONG IN 2020

3.1 Tropical Storm Nuri (2002): 12 to 14 June 2020

Nuri was the first tropical cyclone affecting Hong Kong in 2020.

Nuri formed as a tropical depression over the Philippines about 110 km north-northwest of Manila in the small hours of 12 June and intensified gradually. It moved generally northwestward across the South China Sea during the day. Nuri developed into a tropical storm in the small hours of 13 June and reached its peak intensity with an estimated sustained wind of 75 km/h near its centre in the afternoon. Nuri made landfall over Yangjiang of Guangdong later in the morning of 14 June and weakened into an area of low pressure over inland Guangdong in the afternoon.

The Standby Signal No. 1 was issued by the Hong Kong Observatory at 8:20 p.m. on 12 June when Nuri was about 710 km south-southeast of Hong Kong. Local winds were light to moderate east to northeasterlies that night and the next morning. As Nuri edged closer to the coast of Guangdong, the Strong Wind Signal No. 3 was issued at 3:40 p.m. on 13 June when Nuri was about 290 km south-southeast of Hong Kong. Local winds strengthened gradually in the afternoon and became fresh to strong east to southeasterlies with occasionally gales on high ground during the night. Nuri came closest to Hong Kong at around 2 a.m. on 14 June, skirting past about 190 km south-southwest of the territory. With Nuri departing from Hong Kong and weakening gradually, the No. 3 Strong wind Signal was replaced by the Standby Signal No.1 at 10:40 a.m. on 14 June, and all tropical cyclone warning signals were cancelled at 1:20 p.m. on that day.

Under the influence of Nuri, a maximum sea level (above chart datum) of 2.22 m and a maximum storm surge of 0.45 m (above astronomical tide) were recorded at Tsim Bei Tsui. At the Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 1002.5 hPa was recorded at 4:48 p.m. on 13 June.

The weather of Hong Kong was very hot with sunny periods on 13 June. There were also a few squally showers and isolated thunderstorms. Under the influence of the outer rainbands associated with Nuri, there were squally showers on the night of 13 June and on 14 June. More than 30 millimetres of rainfall were recorded over many places in Hong Kong.

In Hong Kong, a person was tragically drowned in the rough seas while surfing in Lower Cheung Sha Beach of Lantau Island during the passage of Nuri. A catamaran was overturned under rough sea conditions. 13 people on broad fell into sea and were later rescued. One of them was injured.

表 3.1.1　在鸚鵡影響下，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 3.1.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when the tropical cyclone warning signals for Nuri were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		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
中環碼頭	Central Pier	東南偏東	ESE	63	13/6	23:28	東南偏東	ESE	33	13/6	23:00
長洲	Cheung Chau	東	E	71	13/6	22:23	東	E	54	14/6	01:00
長洲泳灘	Cheung Chau Beach	東	E	69	14/6	00:48	東	E	50	13/6	23:00
青洲	Green Island	南	S	69	14/6	05:56	東北偏東	ENE	45	13/6	20:00
香港國際機場	Hong Kong International Airport	東南	SE	65	14/6	06:43	東	E	34	14/6	02:00
啟德	Kai Tak	東北偏東	ENE	62	13/6	21:44	東南偏東	ESE	30	14/6	03:00
京士柏	King's Park	東	E	57	13/6	23:50	東	E	28	13/6	23:00
南丫島	Lamma Island	東南	SE	63	14/6	05:58	東	E	32	13/6	23:00
流浮山	Lau Fau Shan	東南	SE	51	14/6	06:33	東北偏東	ENE	28	13/6	20:00
北角	North Point	東北偏東	ENE	57	13/6	18:26	東	E	35	13/6	21:00
坪洲	Peng Chau	東南	SE	58	14/6	06:00	東	E	36	13/6	22:00
平洲	Ping Chau	東南	SE	42	14/6	02:45	東	E	10	13/6	16:00
							東	E	10	13/6	20:00
西貢	Sai Kung	東南偏南	SSE	64	14/6	06:10	東南偏南	SSE	36	14/6	04:00
沙洲	Sha Chau	南	S	66	14/6	09:28	東南	SE	40	14/6	02:00
沙螺灣	Sha Lo Wan	東南偏東	ESE	69	14/6	03:55	東南偏東	ESE	26	14/6	02:00
							東南偏東	ESE	26	14/6	05:00
沙田	Sha Tin	東南偏南	SSE	48	14/6	01:42	東南	SE	19	14/6	02:00
							東南偏南	SSE	19	14/6	05:00
九龍天星碼頭	Star Ferry (Kowloon)	東南偏東	ESE	59	14/6	02:19	東	E	33	13/6	23:00
		東南偏東	ESE	59	14/6	06:05					
打鼓嶺	Ta Kwu Ling	東	E	51	13/6	23:08	東	E	21	14/6	00:00
大美督	Tai Mei Tuk	東	E	68	13/6	22:48	東	E	46	13/6	23:00
大帽山	Tai Mo Shan	東南偏東	ESE	103	13/6	21:47	東南偏東	ESE	75	14/6	00:00
大埔滘	Tai Po Kau	東南	SE	55	14/6	01:57	東	E	32	13/6	22:00
塔門東	Tap Mun East	東南偏東	ESE	73	13/6	22:34	東南偏東	ESE	52	13/6	23:00
大老山	Tate's Cairn	-	-	84	13/6	22:25	-	-	58	13/6	22:00
將軍澳	Tseung Kwan O	東南偏東	ESE	53	14/6	01:44	東南偏東	ESE	15	14/6	02:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南	SE	56	14/6	06:18	東南偏東	ESE	26	14/6	05:00
屯門政府合署	Tuen Mun Government Offices	東南偏南	SSE	51	14/6	06:25	東南偏南	SSE	24	14/6	07:00
橫瀾島	Waglan Island	東北偏東	ENE	75	13/6	18:57	東南偏東	ESE	54	14/6	02:00
濕地公園	Wetland Park	東南偏東	ESE	35	13/6	16:12	東	E	15	13/6	17:00
黃竹坑	Wong Chuk Hang	東	E	67	14/6	01:35	東	E	23	13/6	23:00

黃麻角(赤柱)、昂坪、石崗 - 沒有資料　Bluff Head (Stanley), Ngong Ping, Shek Kong - data not available

大老山 - 沒有風向資料　Tate's Cairn - wind direction not available

表 3.1.2　在鸚鵡影響下，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程度的時段

Table 3.1.2　Periods during which sustained strong winds were attained at the eight reference anemometers in the tropical cyclone warning system when tropical cyclone warning signals for Nuri were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		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	
		日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time
長洲	Cheung Chau	13/6	20:20	14/6	07:38
香港國際機場	Hong Kong International Airport	14/6	09:24	14/6	09:30
西貢	Sai Kung	14/6	01:41	14/6	06:23

啟德、流浮山、沙田、打鼓嶺及青衣島蜆殼油庫的持續風力未達到強風程度。

The sustained wind speed did not attain strong force at Kai Tak, Lau Fau Shan, Sha Tin, Ta Kwu Ling and Tsing Yi Shell Oil Depot.

* 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

註:　本表列出持續風力達到強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 winds. Winds might fluctuate above or below the specified wind speeds in between the times indicated.

表 3.1.3　鸚鵡影響香港期間，香港天文台總部及其他各站所錄得的日雨量
Table 3.1.3　Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Nuri

站 (參閱圖 3.1.2) Station (See Fig. 3.1.2)			六月十二日 12 Jun	六月十三日 13 Jun	六月十四日 14 Jun	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory (HKO)			0.0	11.7	29.3	41.0
香港國際機場 Hong Kong International Airport (HKA)			微量 Trace	3.6	14.5	18.1
長洲 Cheung Chau (CCH)			[0.0]	[5.5]	7.0	[12.5]
H23	香港仔	Aberdeen	0.0	10.5	15.5	26.0
N05	粉嶺	Fanling	0.0	12.5	15.5	28.0
N13	糧船灣	High Island	0.0	8.0	9.5	17.5
K04	佐敦谷	Jordan Valley	0.0	11.0	26.5	37.5
N06	葵涌	Kwai Chung	0.0	7.5	30.5	38.0
H12	半山區	Mid Levels	0.0	6.5	30.0	36.5
N09	沙田	Sha Tin	0.5	11.0	24.0	35.5
H19	筲箕灣	Shau Kei Wan	0.0	8.5	29.0	37.5
SEK	石崗	Shek Kong	[0.0]	[9.5]	18.5	[28.0]
K06	蘇屋邨	So Uk Estate	0.0	10.5	29.5	40.0
R31	大美督	Tai Mei Tuk	0.0	5.5	26.5	32.0
R21	踏石角	Tap Shek Kok	0.0	10.5	5.0	15.5
N17	東涌	Tung Chung	0.0	7.5	27.0	34.5
TMR	屯門水庫	Tuen Mun Reservoir	0.0	7.7	11.8	19.5

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

表 3.1.4　鸚鵡影響香港期間，香港各潮汐站所錄得的最高潮位及最大風暴潮
Table 3.1.4　Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Nuri

站 (參閱圖 1.1) Station (See Fig. 1.1)		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	1.99	13/6	12:40	0.26	14/6	01:58
石壁	Shek Pik	2.03	13/6	15:07	0.28	14/6	01:32
大廟灣	Tai Miu Wan	1.98	13/6	12:34	0.30	14/6	01:34
大埔滘	Tai Po Kau	2.03	13/6	12:36	0.40	14/6	00:12
尖鼻咀	Tsim Bei Tsui	2.22	13/6	15:43	0.45	14/6	03:59

橫瀾島 - 沒有資料　Waglan Island - data not available

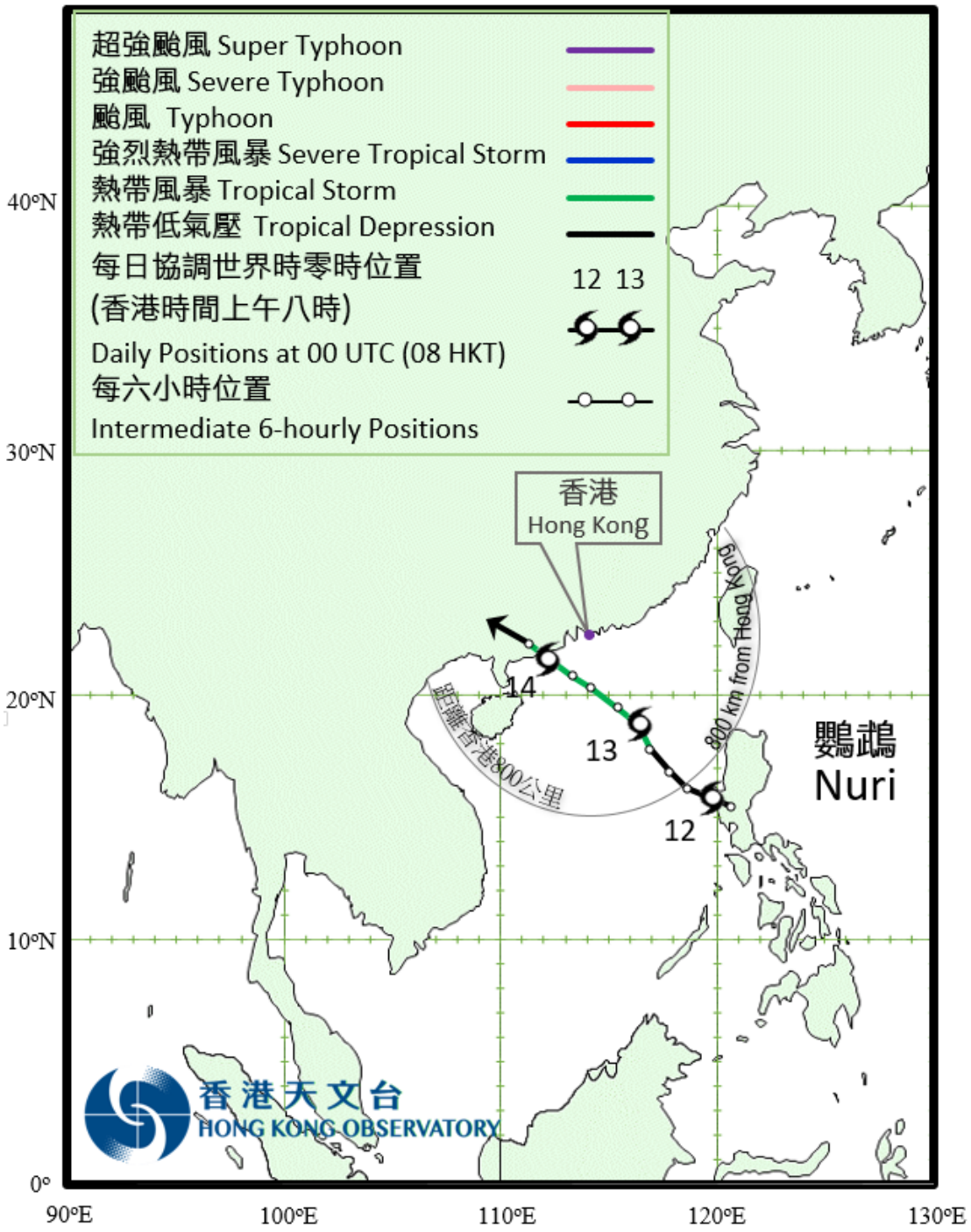


圖 3.1.1　　二零二零年六月十二日至十四日鸚鵡的路徑圖。

Figure 3.1.1　Track of Nuri: 12 – 14 June 2020.

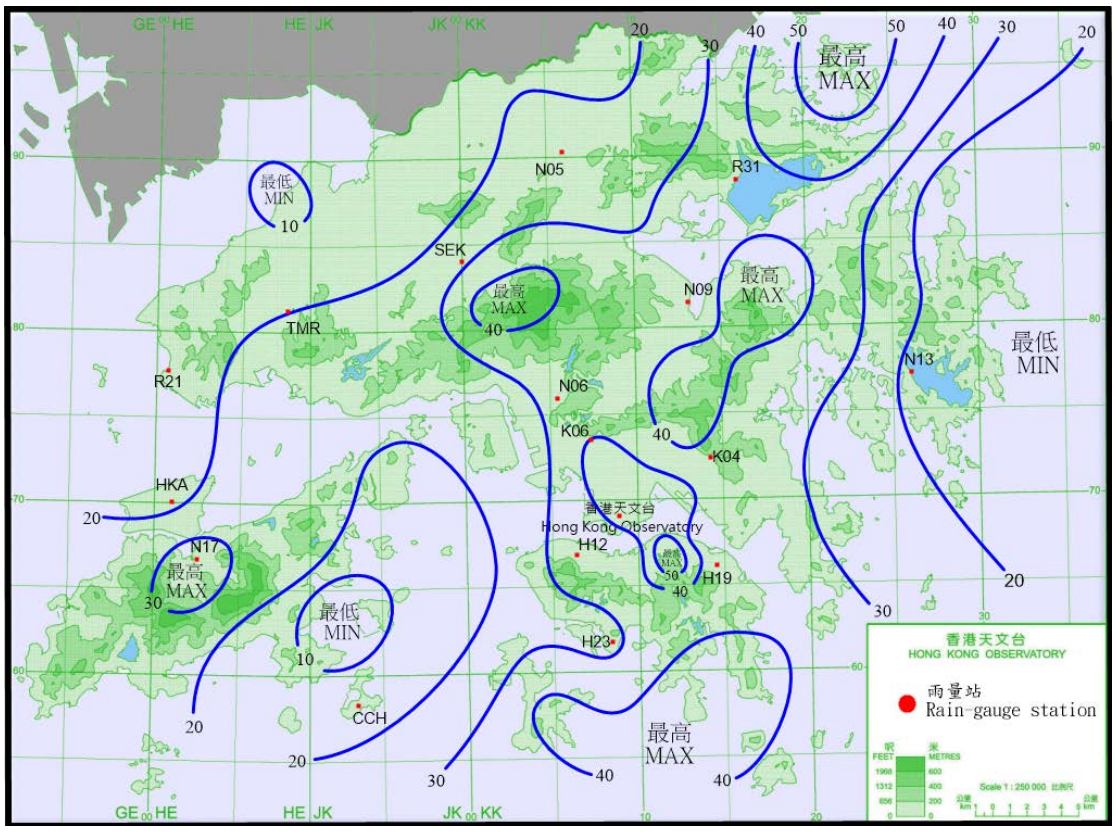


圖 3.1.2　　二零二零年六月十二日至十四日的雨量分佈
(等雨量線單位為毫米)。

Figure 3.1.2　　Rainfall distribution on 12 - 14 June 2020 (isohyets in millimetres).

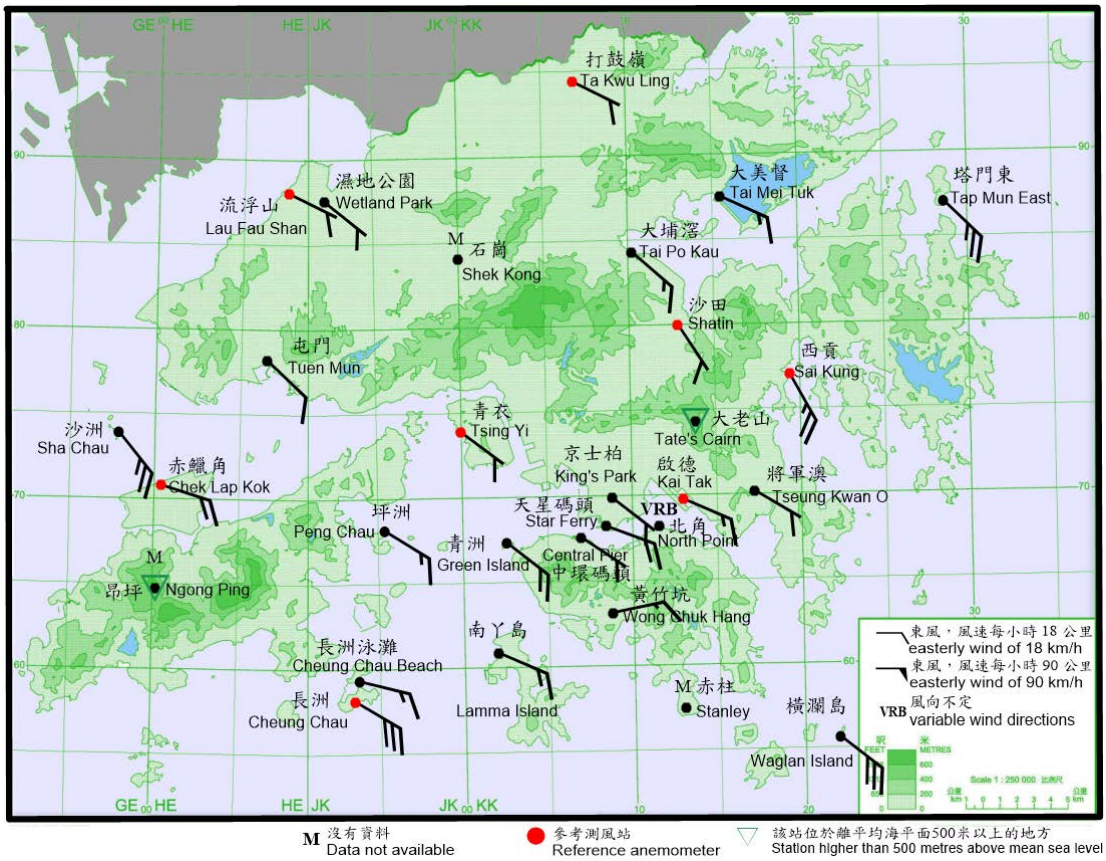


圖 3.1.3　二零二零年六月十四日上午1時50分香港各站錄得的十分鐘平均風向和風速。當時西貢、長洲、沙洲、塔門東及橫瀾島的風力達到強風程度。

Figure 3.1.3　10-minute mean wind direction and speed recorded at various stations in Hong Kong at 1:50 a.m. on 14 June 2020. Winds reached strong force at Sai Kung, Cheung Chau, Sha Chau, Tap Mun East and Waglan Island at that time.

註：　大老山並沒有風向資料。北角及大老山當時錄得的十分鐘平均風速分別為每小時10及27公里。

Note: Wind direction information is not available for Tate's Cairn. The 10-minute mean wind speeds recorded at North Point and Tate's Cairn were 10 km/h and 27 km/h respectively at that time.

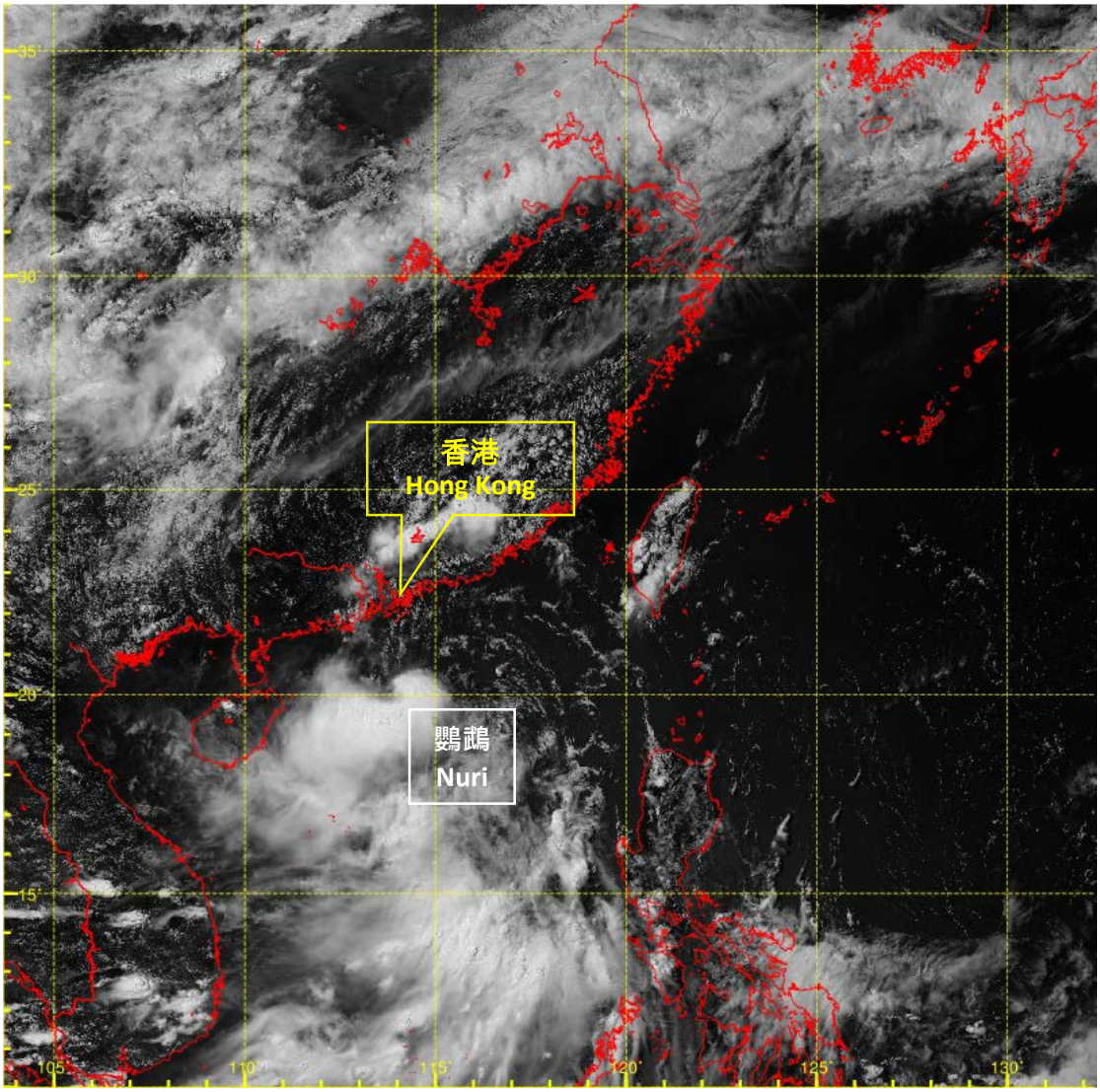


圖 3.1.4　二零二零年六月十三日下午2時左右的可見光衛星圖片，當時鸚鵡達到其最高強度，中心附近最高持續風速估計為每小時75公里。

Figure 3.1.4　Visible satellite imagery around 2 p.m. on 13 June 2020, when Nuri was at its peak intensity with an estimated sustained wind of 75 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).]

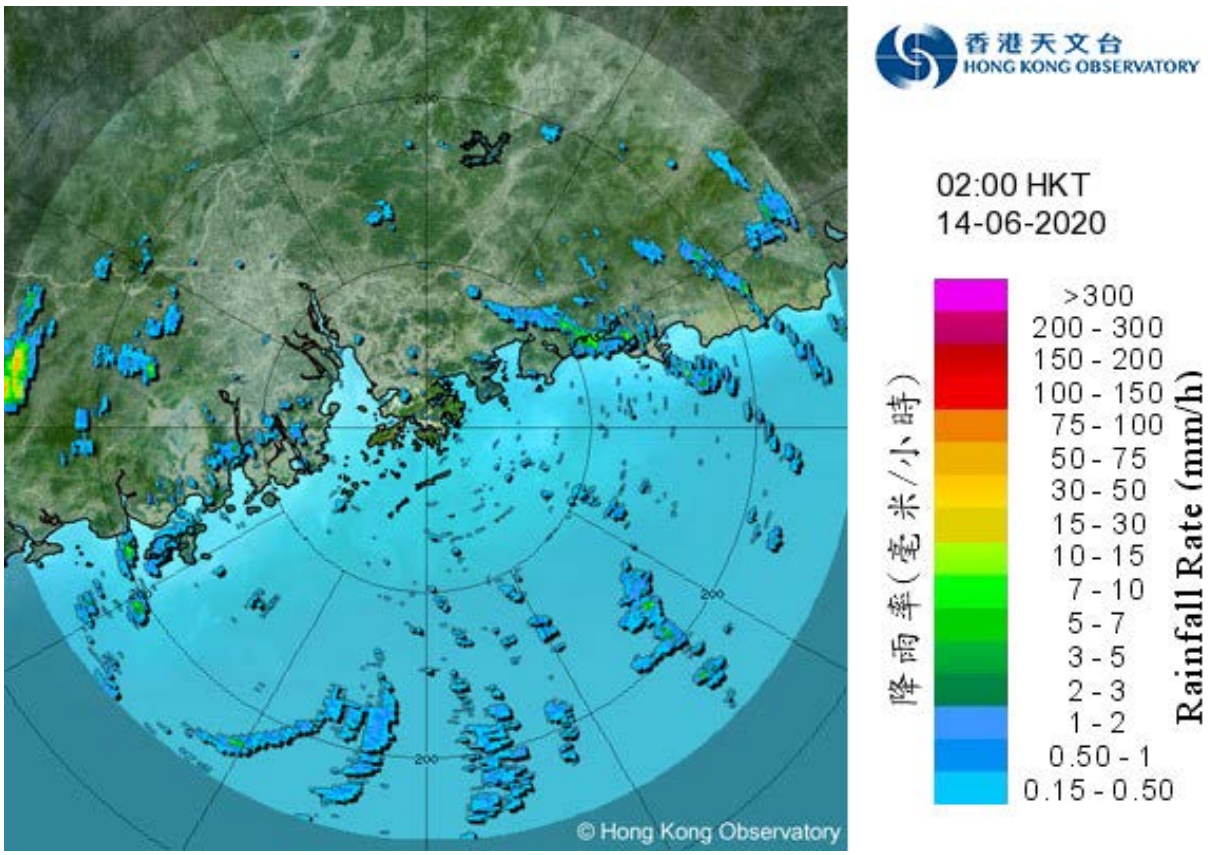


圖 3.1.5　二零二零年六月十四日上午 2 時的雷達回波圖像，當時鸚鵡最接近本港，其中心在香港之西南偏南約 190 公里左右掠過。

Figure 3.1.5　Image of radar echoes at 2 a.m. on 14 June 2020 when Nuri came closest to Hong Kong, skirting past about 190 km south-southwest of the territory.

3.2 熱帶風暴森拉克 (2003)：二零二零年七月三十一日至八月二日

森拉克是二零二零年第二個影響香港的熱帶氣旋。

一個季風低壓於七月三十日進入南海，並於七月三十一日晚上發展為熱帶低氣壓，大致向西北偏西移向海南島。該熱帶低氣壓在八月一日下午被命名為森拉克。翌日凌晨森拉克在北部灣增強為熱帶風暴及達到其最高強度，最高持續風速估計為每小時65公里。森拉克於八月二日早上在越南北部登陸，晚上在越南內陸減弱為低壓區。

天文台在七月三十一日上午7時05分發出強烈季候風信號。在副熱帶高壓脊及季風低壓的外圍環流共同影響下，當日香港普遍吹達強風程度的偏東風，離岸及高地間中吹烈風。隨著該季風低壓發展為熱帶低氣壓，天文台在七月三十一日晚上8時40分發出三號強風信號，取代強烈季候風信號，當時森拉克集結在香港之西南偏南約550公里。這是天文台歷來第六次於取消強烈季候風信號後直接改發三號強風信號，而對上一次是1993年的颱風黛蒂。七月三十一日晚上及翌日香港普遍吹達強風程度的東至東南風，離岸及高地間中吹烈風。隨著森拉克遠離本港，本港風力逐漸減弱，天文台在八月一日晚上9時10分以一號戒備信號取代三號強風信號，並於晚上11時15分取消所有熱帶氣旋警告信號。

在森拉克的影響下，尖鼻咀錄得最高潮位(海圖基準面以上) 2.91米，而大埔滘則錄得最大風暴潮(天文潮高度以上)0.54米。天文台總部於八月一日上午2時57分錄得最低瞬時海平面氣壓1003.0百帕斯卡。

受到森拉克相關的外圍雨帶影響，七月三十一日及八月一日本港間中有狂風大驟雨及雷暴，期間本港普遍錄得超過70毫米雨量。

森拉克吹襲香港期間，本港有多宗塌樹報告，多處有物件被吹倒。在尖沙咀，有樹木倒塌引致兩人受傷，另外有圍板被強風吹翻，導致兩輛私家車損毀及一人受傷。觀塘及將軍澳分別有帳篷及棚架被強風吹塌。薄扶林亦有膠圍欄被強風吹走，擊傷一名途人。

3.2 Tropical Storm Sinlaku (2003): 31 July to 2 August 2020

Sinlaku was the second tropical cyclone affecting Hong Kong in 2020.

A monsoon depression entered the South China Sea on 30 July and developed into a tropical depression the next night. The tropical depression generally tracked west-northwestward towards Hainan Island and was named Sinlaku on the afternoon of 1 August. Sinlaku intensified into a tropical storm over Beibu Wan in the small hours of the next day and reached its peak intensity with an estimated maximum sustained wind of 65 km/h. It made landfall over the northern part of Vietnam on the morning of 2 August and weakened into an area of low pressure over inland Vietnam that night.

The Strong Monsoon Signal was issued by the Hong Kong Observatory at 7:05 a.m. on 31 July. Under the combined effect of the subtropical ridge and outer circulation of the monsoon depression, local winds were generally strong easterlies with occasionally gales offshore and on high ground on that day. With the monsoon depression developing into a tropical depression, the Strong Wind Signal No. 3 was issued to replace the Strong Monsoon Signal at 8:40 p.m. on 31 July when Sinlaku was about 550 km south-southwest of Hong Kong. This was the sixth time on record that the Strong Wind Signal No. 3 was issued directly to replace the Strong Monsoon Signal. The last time it happened was in 1993 due to Typhoon Dot. Local winds were generally strong east to southeasterlies on the night of 31 July and during the day on 1 August with occasionally gales offshore and on high ground. With Sinlaku moving further away from Hong Kong, local winds subsided gradually and the Strong Wind Signal No. 3 was replaced by the Standby Signal No.1 at 9:10 p.m. on 1 August. All tropical cyclone warning signals were cancelled at 11:15 p.m. at night.

Under the influence of Sinlaku, a maximum sea level (above chart datum) of 2.91 m and a maximum storm surge of 0.54 m (above astronomical tide) were recorded at Tsim Bei Tsui and Tai Po Kau respectively. At the Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 1003.0 hPa was recorded at 2:57 a.m. on 1 August.

Affected by the outer rainbands of Sinlaku, there were occasional squally heavy showers and thunderstorms on 31 July and 1 August. More than 70 millimetres of rainfall were generally recorded in Hong Kong during these two days.

There were a number of reports of fallen trees in Hong Kong during the passage of Sinlaku. Incidents of blowing down objects were also reported in many places. In Tsim Sha Tsui, two people were injured by a fallen tree while hoarding boards toppled by strong winds also caused one person injured and two vehicles damaged. A canopy in Kwun Tong and scaffolding in Tseung Kwan O collapsed under high winds. In Pok Fu Lam, some plastic fences were blown away and wounded a passer-by.

表 3.2.1　在森拉克影響下，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 3.2.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when tropical cyclone warning signals for Sinlaku were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		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)	東南	SE	78	31/7	21:46	東南偏東	ESE	44	1/8	08:00
中環碼頭	Central Pier	東	E	71	1/8	04:49	東南偏東	ESE	35	1/8	11:00
長洲	Cheung Chau	東南	SE	109	31/7	23:24	東南偏東	ESE	64	1/8	08:00
長洲泳灘	Cheung Chau Beach	東南偏東	ESE	103	1/8	14:46	東	E	59	1/8	08:00
青洲	Green Island	南	S	88	1/8	14:59	東北偏東	ENE	39	1/8	04:00
香港國際機場	Hong Kong International Airport	東	E	78	1/8	12:47	東南偏東	ESE	37	1/8	13:00
啟德	Kai Tak	東南偏東	ESE	86	31/7	23:32	東	E	32	1/8	00:00
京士柏	King's Park	東南偏東	ESE	89	1/8	03:03	東南偏東	ESE	32	1/8	08:00
南丫島	Lamma Island	東南偏東	ESE	71	1/8	12:27	東南偏東	ESE	35	1/8	13:00
		東南偏東	ESE	71	1/8	12:29					
流浮山	Lau Fau Shan	東南	SE	60	1/8	15:25	東南偏東	ESE	23	1/8	16:00
北角	North Point	東	E	65	31/7	22:11	東	E	37	31/7	23:00
坪洲	Peng Chau	南	S	76	1/8	14:58	東	E	40	1/8	07:00
平洲	Ping Chau	東南	SE	39	1/8	15:18	東	E	12	1/8	04:00
西貢	Sai Kung	東南偏南	SSE	85	31/7	23:34	東南偏南	SSE	38	1/8	16:00
沙洲	Sha Chau	東南	SE	77	1/8	15:06	東南	SE	37	1/8	16:00
沙螺灣	Sha Lo Wan	東南偏東	ESE	77	1/8	07:52	東	E	29	1/8	08:00
沙田	Sha Tin	東北	NE	54	31/7	22:14	東南偏南	SSE	16	1/8	16:00
							東南	SE	16	1/8	18:00
九龍天星碼頭	Star Ferry (Kowloon)	東南偏東	ESE	76	1/8	08:46	東	E	39	1/8	09:00
打鼓嶺	Ta Kwu Ling	東南偏東	ESE	62	1/8	10:35	東	E	21	1/8	11:00
							東	E	21	1/8	13:00
大美督	Tai Mei Tuk	東北偏東	ENE	92	1/8	01:50	東	E	55	1/8	08:00
大帽山	Tai Mo Shan	東南偏東	ESE	125	31/7	23:54	東南偏東	ESE	79	1/8	08:00
大埔滘	Tai Po Kau	東南偏東	ESE	79	1/8	07:51	東南偏東	ESE	39	1/8	08:00
塔門東	Tap Mun East	東南	SE	87	1/8	01:37	東南偏東	ESE	53	1/8	08:00
大老山	Tate's Cairn	東南偏東	ESE	96	1/8	12:03	東南偏東	ESE	60	31/7	23:00
將軍澳	Tseung Kwan O	東南偏南	SSE	55	1/8	14:59	東南偏東	ESE	14	1/8	10:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東	E	64	31/7	23:25	東南偏東	ESE	23	31/7	23:00
		東	E	64	31/7	23:26					
屯門政府合署	Tuen Mun Government Offices	東南偏南	SSE	61	1/8	15:09	東南	SE	23	1/8	16:00
橫瀾島	Waglan Island	東南	SE	85	1/8	15:03	東	E	55	31/7	23:00
							東	E	55	1/8	05:00
濕地公園	Wetland Park	東	E	42	1/8	06:22	東	E	17	1/8	09:00
黃竹坑	Wong Chuk Hang	東	E	71	1/8	12:17	東北偏東	ENE	24	1/8	08:00

昂坪、石崗 - 沒有資料　Ngong Ping, Shek Kong - data not available

表 3.2.2　在森拉克影響下，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程度的時段

Table 3.2.2　Periods during which sustained strong winds were attained at the eight reference anemometers in the tropical cyclone warning system when tropical cyclone warning signals for Sinlaku were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		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	
		日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time
長洲	Cheung Chau	31/7	20:40	1/8	22:54
香港國際機場	Hong Kong International Airport	1/8	08:05	1/8	15:08
啟德	Kai Tak	31/7	23:36	1/8	15:26
西貢	Sai Kung	31/7	23:36	1/8	15:31

流浮山、沙田、打鼓嶺及青衣島蜆殼油庫的持續風力未達到強風程度。

The sustained wind speed did not attain strong force at Lau Fau Shan, Sha Tin, Ta Kwu Ling and Tsing Yi Shell Oil Depot.

* 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

註:　本表列出持續風力達到強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 winds. Winds might fluctuate above or below the specified wind speeds in between the times indicated.

表 3.2.3　森拉克影響香港期間，香港天文台總部及其他各站所錄得的日雨量
Table 3.2.3　Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Sinlaku

站 (參閱圖 3.2.2) Station (See Fig. 3.2.2)			七月三十一日 31 Jul	八月一日 1 Aug	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory (HKO)			36.6	28.3	64.9
香港國際機場 Hong Kong International Airport (HKA)			33.1	28.6	61.7
長洲 Cheung Chau (CCH)			52.5	17.5	70.0
H23	香港仔	Aberdeen	70.0	16.5	86.5
N05	粉嶺	Fanling	28.0	68.5	96.5
N13	糧船灣	High Island	40.0	36.0	76.0
K04	佐敦谷	Jordan Valley	35.5	49.0	84.5
N06	葵涌	Kwai Chung	30.5	46.0	76.5
H12	半山區	Mid Levels	35.5	29.0	64.5
SHA	沙田	Sha Tin	57.0	43.0	100.0
H19	筲箕灣	Shau Kei Wan	51.0	28.5	79.5
SEK	石崗	Shek Kong	[32.5]	39.5	[72.0]
K06	蘇屋邨	So Uk Estate	34.5	43.0	77.5
R31	大美督	Tai Mei Tuk	19.0	42.5	61.5
R21	踏石角	Tap Shek Kok	42.5	45.5	88.0
N17	東涌	Tung Chung	48.0	43.5	91.5
TMR	屯門水庫	Tuen Mun Reservoir	10.6	33.8	44.4

註：　[ ] 基於不完整的每小時雨量數據。

Note :　[ ] based on incomplete hourly data.

表 3.2.4　森拉克影響香港期間，香港各潮汐站所錄得的最高潮位及最大風暴潮
Table 3.2.4　Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Sinlaku

站 (參閱圖 1.1) Station (See Fig. 1.1)		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	2.51	1/8	07:40	0.35	31/7	20:54
石壁	Shek Pik	2.71	1/8	07:36	0.36	1/8	07:37
大廟灣	Tai Miu Wan	2.58	1/8	07:28	0.47	31/7	21:25
大埔滘	Tai Po Kau	2.60	1/8	08:57	0.54	31/7	22:07
尖鼻咀	Tsim Bei Tsui	2.91	1/8	07:21	0.40	1/8	00:49

橫瀾島 - 沒有資料　Waglan Island - data not available

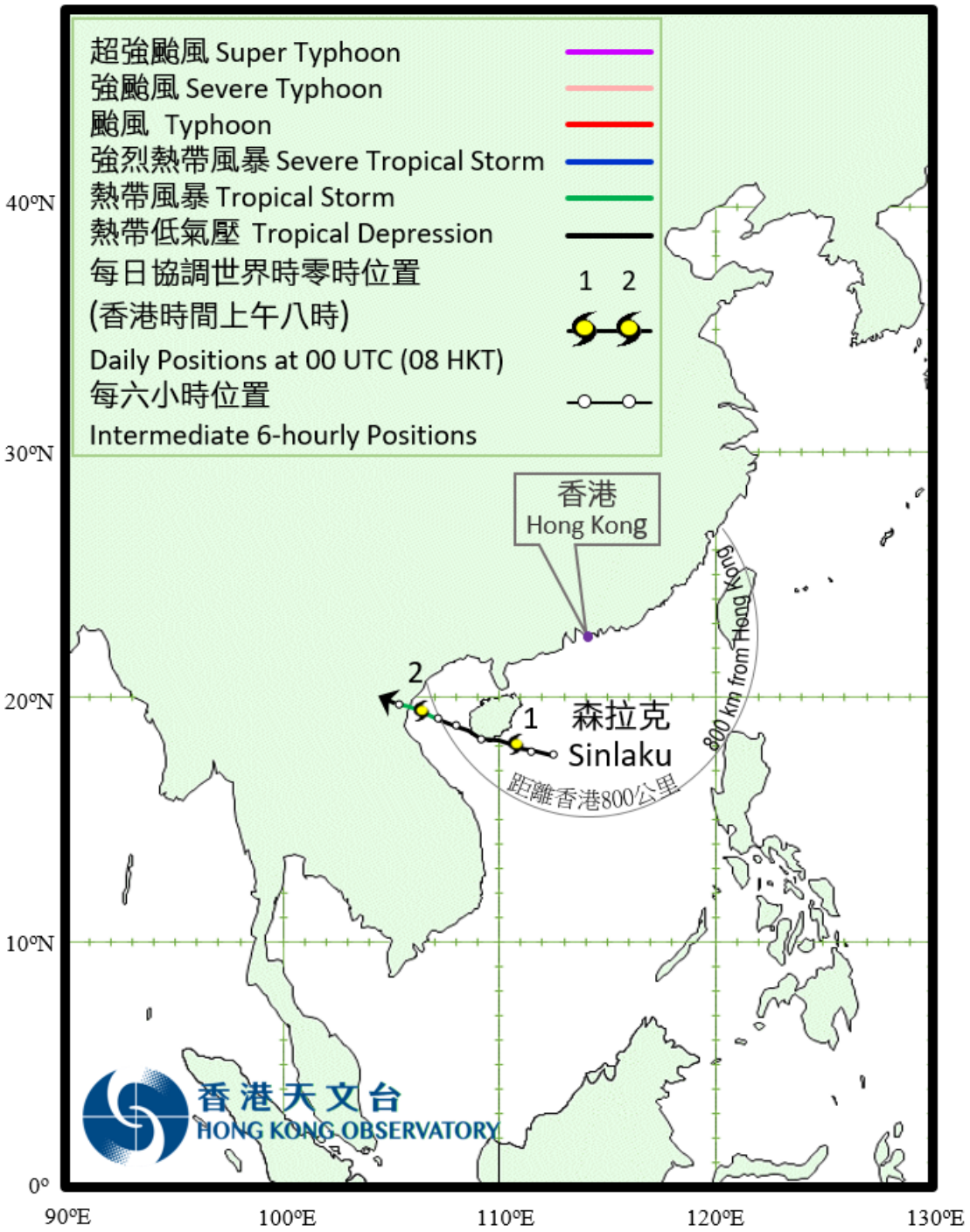


圖 3.2.1　　二零二零年七月三十一日至八月二日森拉克的路徑圖。

Figure 3.2.1　　Track of Sinlaku : 31 July – 2 August 2020.

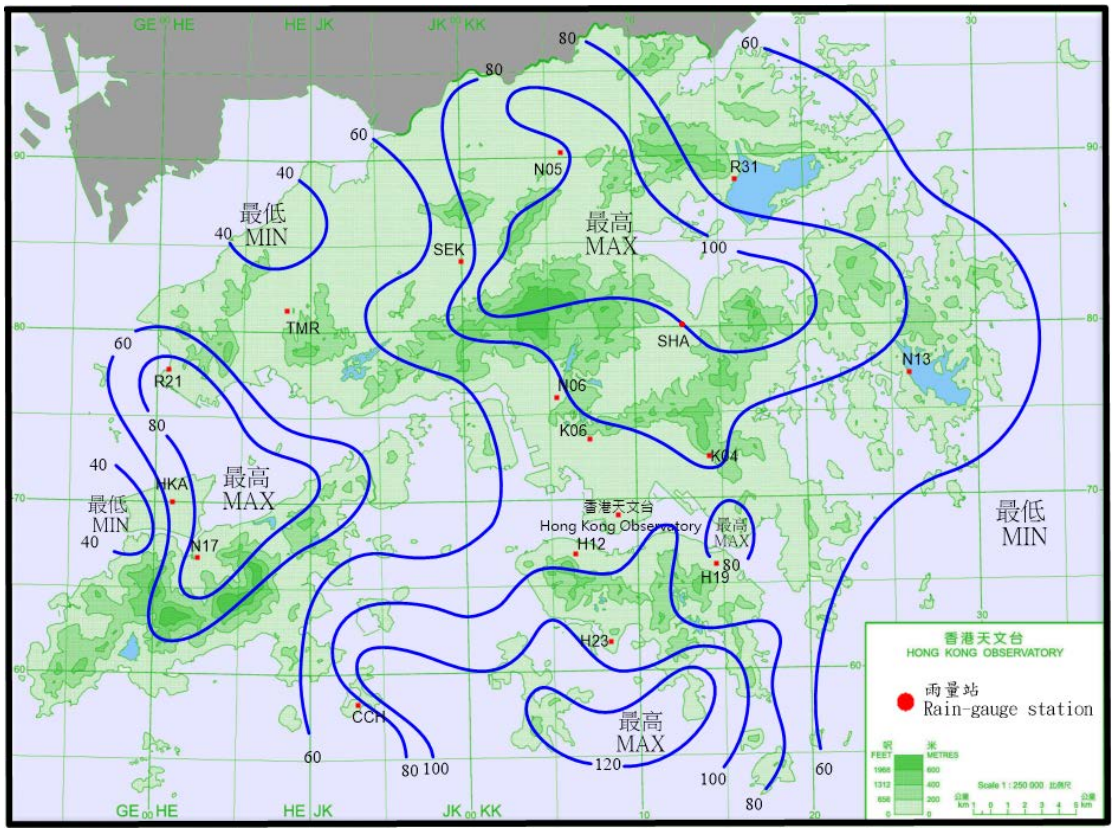


圖 3.2.2　二零二零年七月三十一日至八月一日的雨量分佈(等雨量線單位為毫米)。

Figure 3.2.2　Rainfall distribution on 31 July - 1 August 2020 (isohyets in millimetres).

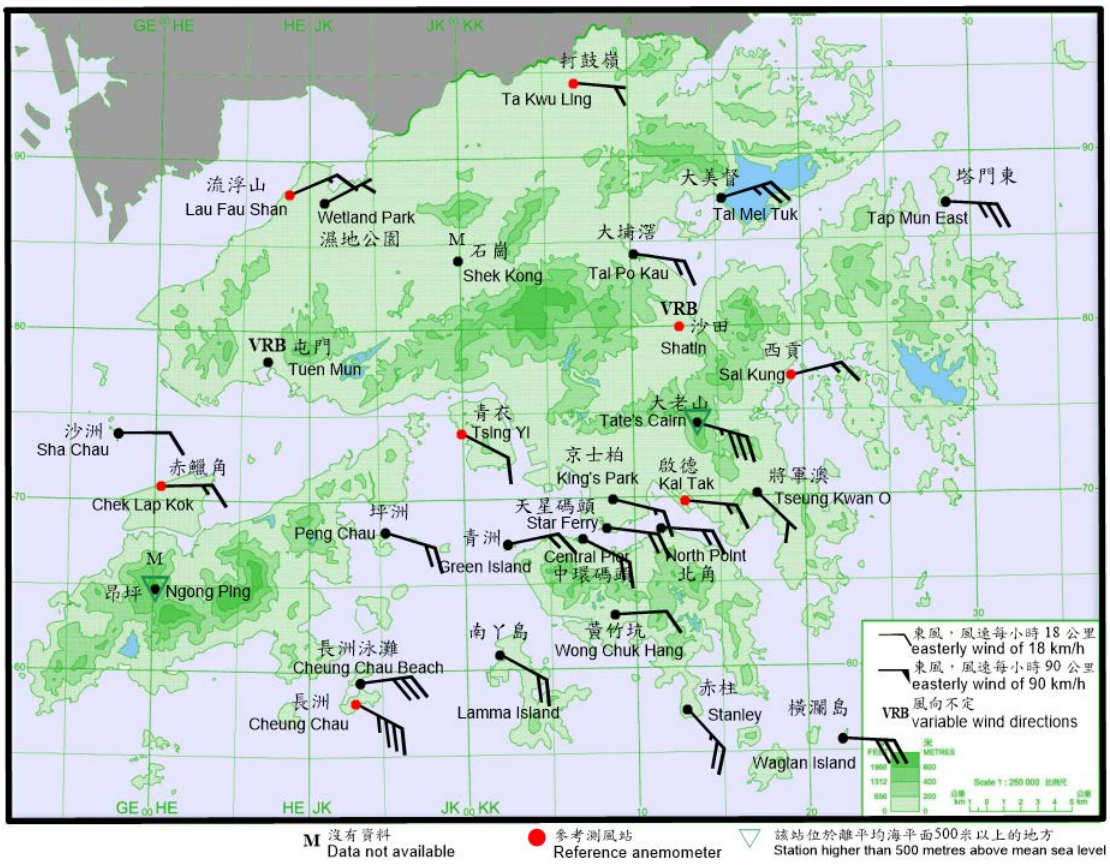


圖 3.2.3　二零二零年七月三十一日下午11時30分香港各站錄得的十分鐘平均風向和風速。當時塔門東、大老山、長洲泳灘、大美督及橫瀾島的風力達到強風程度。長洲的風力達到烈風程度。

Figure 3.2.3　10-minute mean wind direction and speed recorded at various stations in Hong Kong at 11:30 p.m. on 31 July 2020. Winds reached strong force at Tap Mun East, Tate's Cairn, Cheung Chau Beach, Tai Mei Tuk and Waglan Island at that time. Winds reached gale force at Cheung Chau.

註：　沙田及屯門當時錄得的十分鐘平均風速分別為每小時8及7公里。

Note: The 10-minute mean wind speeds recorded at Sha Tin and Tun Mun were 8 km/h and 7 km/h respectively at the time.

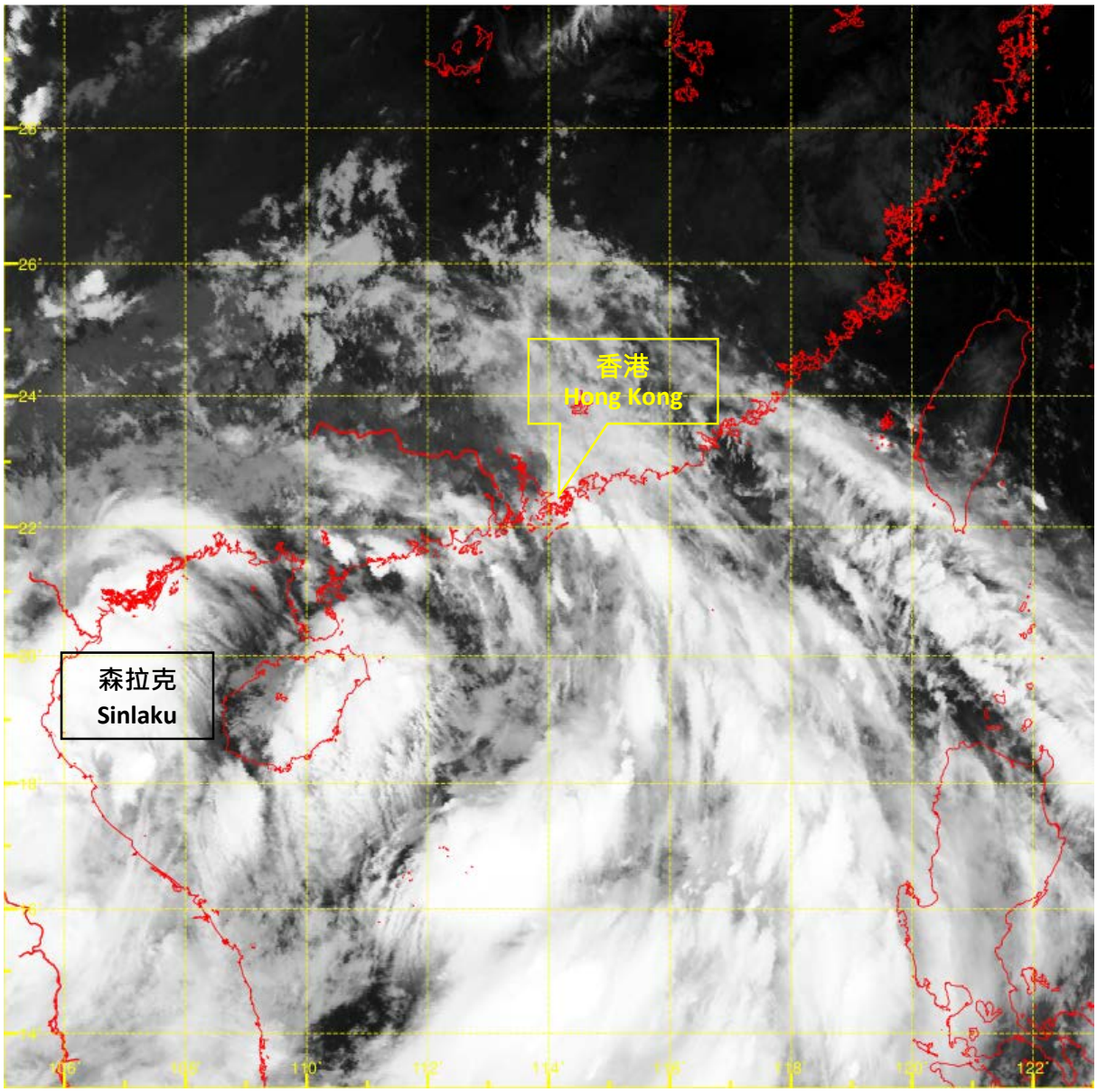


圖 3.2.4　二零二零年八月二日上午2時左右的紅外線衛星圖片，當時森拉克達到其最高強度，中心附近最高持續風速估計為每小時65公里。

Figure 3.2.4　Infra-red satellite imagery around 2 a.m. on 2 August 2020, when Sinlaku was at its peak intenisty with an estimated sustained wind of 65 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).]

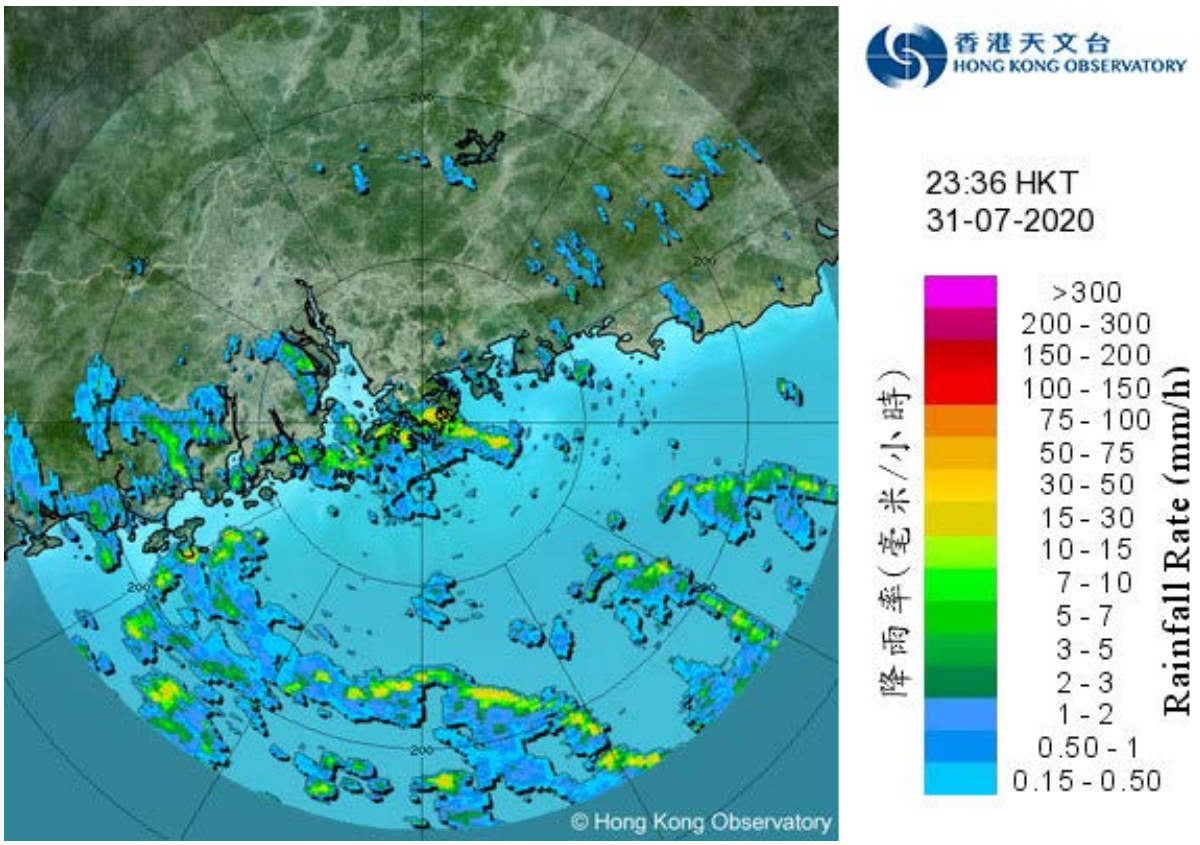


圖 3.2.5　二零二零年七月三十一日晚上11時36分的雷達回波圖像，當時與森拉克相關的外圍雨帶正影響香港。

Figure 3.2.5　Image of radar echoes at 11:36 p.m. on 31 July 2020. The outer rainbands associated with Sinlaku were affecting Hong Kong at that time.

3.3 颱風海高斯(2007)：二零二零年八月十七日至十九日

海高斯是二零二零年第三個影響香港的熱帶氣旋。海高斯吹襲香港期間，天文台需要發出九號烈風或暴風風力增強信號，是自二零一八年超強颱風山竹吹襲本港以來的首次。

熱帶低氣壓海高斯於八月十七日晚上在香港之東南偏東約650公里的南海東北部上形成，大致向西北移動橫過南海北部。翌日海高斯迅速增強，下午發展為強烈熱帶風暴並趨向珠江口一帶。當晚海高斯在珠江口附近進一步增強為颱風，八月十九日凌晨達到最高強度，中心附近最高持續風速估計為每小時130公里。海高斯於八月十九日早上在珠海登陸，日間移入廣東西部並逐漸減弱，晚上在廣西減弱為低壓區。

根據報章報導，海高斯在澳門造成15人受傷，內港低窪地區出現水浸。

香港天文台在八月十八日上午3時40分發出一號戒備信號，當時海高斯集結在香港之東南偏東約490公里。早上本港吹和緩東北風。隨著海高斯靠近廣東沿岸，天文台在當日下午2時20分發出三號強風信號，當時海高斯位於香港之東南約250公里。傍晚時分本港普遍吹清勁至強風程度的東至東北風。由於海高斯採取較為接近香港的路徑移動並繼續增強，天文台在八月十八日晚上10時40分發出八號東北烈風或暴風信號，當時海高斯集結在香港天文台以南約100公里。午夜前後本港風力迅速增強，普遍吹強風至烈風程度的偏東風。由於預料當海高斯在香港西南面近距離掠過時，本港風力會顯著增強，天文台在八月十九日上午1時30分發出九號烈風或暴風風力增強信號，當時海高斯已移至天文台以南約90公里。凌晨時分香港多處吹達烈風程度的東至東南風，離岸吹暴風，部分高地風力更達颶風程度。海高斯在八月十九日上午5時左右最接近香港，其中心位於香港天文台之西南偏西約80公里。早上海高斯在珠海登陸，本港風力減弱，天文台在上午7時40分改發八號東南烈風或暴風信號，取代九號烈風或暴風風力增強信號。隨著海高斯繼續減弱及遠離香港，天文台在上午11時10分改發三號強風信號，並在當日下午1時20分取消所有熱帶氣旋警告信號。

在海高斯的影響下，大帽山、長洲及橫瀾島錄得的最高每小時平均風速分別為每小時98、98及82公里，而最高陣風則分別為每小時158、129及112公里。尖鼻咀錄得最高潮位3.38米(海圖基準面以上)及最大風暴潮(天文潮高度以上) 1.02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	1001.2	19/8	上午 2 時 51 分
香港國際機場	999.4	19/8	上午 4 時 40 分
長洲	998.5	19/8	上午 3 時 58 分
京士柏	1001.5	19/8	上午 3 時 31 分
流浮山	1000.8	19/8	上午 4 時 26 分
坪洲	1000.3	19/8	上午 3 時 59 分
沙田	1002.2	19/8	上午 3 時 38 分
上水	1001.2	19/8	上午 4 時 01 分
打鼓嶺	1001.7	19/8	上午 4 時 10 分
大埔	1001.9	19/8	上午 3 時 53 分
橫瀾島	1000.5	19/8	上午 2 時 36 分

受海高斯的相關雨帶影響，八月十八日及十九日本港有狂風大驟雨及雷暴，期間大部分地區錄得超過150毫米雨量，天文台曾發出黃色暴雨警告及山泥傾瀉警告。

海高斯吹襲香港期間，最少有7人受傷，另有約800宗塌樹報告及2宗水浸報告。風暴下兩人在塔門露營被困，需要警務人員協助離開。石門有私家車被塌樹擊中損毀。將軍澳有單位的玻璃窗被吹毀。大澳曾出現海水倒灌，部份地方有輕微水浸。香港國際機場有14班航班需要轉飛其他地方。

3.3 Typhoon Higos (2007): 17 to 19 August 2020

Higos was the third tropical cyclone affecting Hong Kong in 2020. The Increasing Gale or Storm Signal, No. 9 was issued during the passage of Higos, the first time since Super Typhoon Mangkhut hitting Hong Kong in 2018.

Higos formed as a tropical depression over the northeastern part of the South China Sea at about 650 km east-southeast of Hong Kong on the night of 17 August. It generally moved northwestwards across the northern part of the South China Sea. While edging towards the vicinity of the Pearl River Estuary, Higos intensified rapidly the next day and developed into a severe tropical storm in the afternoon. Higos further intensified into a typhoon near the Pearl River Estuary that night, reaching its peak intensity in the small hours of 19 August with an estimated maximum sustained wind of 130 km/h near its centre. It made landfall over Zhuhai on the morning of 19 August. Higos then moved into the western part of Guangdong and weakened gradually during the day. It degenerated into an area of low pressure over Guangxi that night.

According to press reports, 15 persons were injured in Macao during the passage of Higos. There were flooding in low lying areas in Inner Harbour.

The Standby Signal No. 1 was issued at 3:40 a.m. on 18 August when Higos was about 490 km east-southeast of Hong Kong. Local winds were moderate northeasterlies in the morning. With Higos edging closer to the coast of Guangdong, the Strong Wind Signal No. 3 was issued at 2:20 p.m. on that day when Higos was about 250 km southeast of Hong Kong. Locally, winds became generally fresh to strong east to northeasterlies in the evening. As Higos adopted a track closer to Hong Kong and continued to intensify, the No. 8 Northeast Gale or Storm Signal was issued at 10:40 p.m. on 18 August when Higos was about 100 km south of the Hong Kong Observatory. Local winds strengthened rapidly around midnight with strong to gale easterlies generally affecting Hong Kong. As winds over Hong Kong were expected to increase significantly when Higos skirted past to the southwest of Hong Kong closely, the Increasing Gale or Storm Signal No. 9 was issued at 1:30 a.m. on 19 August when Higos was about 90 km south of the Hong Kong Observatory. Up to gale force east to southeasterly winds affected many places in Hong Kong in the early morning on 19 August, with winds reaching storm force offshore and hurricane force on some of the high ground. Higos came closest to Hong Kong around 5 a.m. on 19 August with its centre passing about 80 km west-southwest of the Hong Kong Observatory. Higos made landfall over Zhuhai in the morning while local winds subsided. The No. 8 Southeast Gale or Storm Signal was issued at 7:40 a.m. to replace the Increasing Gale or Storm Signal No. 9. As Higos continued to weaken and depart from Hong Kong, the Strong Wind Signal No. 3 was issued at 11:10 a.m. and all tropical cyclone warning signals were cancelled at 1:20 p.m. that day.

Under the influence of Higos, maximum hourly mean winds of 98, 98 and 82 km/h and maximum gusts of 158, 129 and 112 km/h were recorded at Tai Mo Shan, Cheung Chau and Waglan Island respectively. A maximum sea level (above chart datum) of 3.38 m and a maximum storm surge (above astronomical tide) of 1.02 m were recorded at Tsim Bei Tsui. 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	1001.2	19/8	2:51 a.m.
Hong Kong International Airport	999.4	19/8	4:40 a.m.
Cheung Chau	998.5	19/8	3:58 a.m.
King's Park	1001.5	19/8	3:31 a.m.
Lau Fau Shan	1000.8	19/8	4:26 a.m.
Peng Chau	1000.3	19/8	3:59 a.m.
Shatin	1002.2	19/8	3:38 a.m.
Sheung Shui	1001.2	19/8	4:01 a.m.
Ta Kwu Ling	1001.7	19/8	4:10 a.m.
Tai Po	1001.9	19/8	3:53 a.m.
Waglan Island	1000.5	19/8	2:36 a.m.

Under the influence of the rain bands associated with Higos, there were heavy squally showers and thunderstorms in Hong Kong on 18 and 19 August. More than 150 millimetres of rainfall were recorded over the territory during this period and the Amber Rainstorm Warning and the Landslip Warning were once issued.

In Hong Kong, at least 7 people were injured during the passage of Higos. There were around 800 reports of fallen trees and 2 reports of flooding. Two campers were stranded in Tap Mun and had to be rescued by police officers. Private cars were damaged by a fallen tree in Shek Mun. Windows were broken in an apartment building in Tseung Kwan O. There were backflow of sea water in Tai O and reports of minor flooding in some areas. 14 flights to the Hong Kong International Airport were diverted.

表 3.3.1　在海高斯影響下，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 3.3.1　Maximum gust peak speeds and maximum hourly mean wind speeds with associated wind directions recorded at various stations when the tropical cyclone warning signals for Higos were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		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)	東南偏東	ESE	94	19/8	02:26	東南偏南	SSE	62	19/8	05:00
中環碼頭	Central Pier	東南偏東	ESE	91	19/8	03:40	東南偏東	ESE	42	19/8	04:00
長洲	Cheung Chau	東南	SE	129	19/8	04:30	東南	SE	98	19/8	05:00
長洲泳灘	Cheung Chau Beach	東	E	112	19/8	02:34	東	E	75	19/8	03:00
青洲	Green Island	東南偏南	SSE	97	19/8	06:05	東南偏東	ESE	49	19/8	05:00
香港國際機場	Hong Kong International Airport	東南偏東	ESE	104	19/8	05:54	東	E	62	19/8	05:00
啟德	Kai Tak	東南偏東	ESE	88	19/8	03:53	東南偏東	ESE	44	19/8	04:00
京士柏	King's Park	東南偏東	ESE	87	19/8	03:56	東南偏東	ESE	38	19/8	03:00
南丫島	Lamma Island	東南偏東	ESE	90	19/8	04:30	東南偏東	ESE	51	19/8	05:00
流浮山	Lau Fau Shan	東南偏東	ESE	80	19/8	05:42	東南偏東	ESE	34	19/8	06:00
北角	North Point	東	E	83	19/8	02:52	東	E	44	19/8	00:00
坪洲	Peng Chau	東南偏東	ESE	82	19/8	03:42	東南偏東	ESE	49	19/8	03:00
平洲	Ping Chau	東南	SE	51	19/8	02:17	東北偏東	ENE	12	18/8	22:00
西貢	Sai Kung	東南	SE	78	19/8	04:36	東南偏南	SSE	48	19/8	05:00
沙洲	Sha Chau	東南偏南	SSE	119	19/8	06:19	東南偏南	SSE	67	19/8	07:00
沙螺灣	Sha Lo Wan	東	E	115	19/8	03:46	東	E	42	19/8	04:00
沙田	Sha Tin	東南偏南	SSE	66	19/8	03:59	東南	SE	23	19/8	06:00
九龍天星碼頭	Star Ferry (Kowloon)	東南偏東	ESE	89	19/8	03:38	東	E	49	19/8	04:00
		東南偏東	ESE	89	19/8	03:39					
打鼓嶺	Ta Kwu Ling	東北偏東	ENE	60	19/8	01:43	東	E	24	19/8	05:00
大美督	Tai Mei Tuk	東	E	94	19/8	03:45	東	E	54	19/8	04:00
大帽山	Tai Mo Shan	東南	SE	158	19/8	04:28	東南偏東	ESE	98	19/8	05:00
大埔滘	Tai Po Kau	東	E	82	19/8	03:45	東南偏東	ESE	48	19/8	04:00
塔門東	Tap Mun East	東南	SE	101	19/8	05:30	東南偏東	ESE	66	19/8	03:00
							東南偏東	ESE	66	19/8	05:00
大老山	Tate's Cairn	東南	SE	124	19/8	01:41	東南偏東	ESE	71	19/8	01:00
將軍澳	Tseung Kwan O	東南偏東	ESE	65	19/8	04:38	東南偏東	ESE	21	19/8	05:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南偏東	ESE	78	19/8	05:28	東南	SE	30	19/8	07:00
屯門政府合署	Tuen Mun Government Offices	東南	SE	92	19/8	04:43	東南	SE	35	19/8	06:00
橫瀾島	Waglan Island	東	E	112	19/8	02:36	東南偏東	ESE	82	19/8	04:00
濕地公園	Wetland Park	東南	SE	59	19/8	05:05	東南	SE	24	19/8	06:00
黃竹坑	Wong Chuk Hang	東北	NE	91	19/8	01:25	東北偏東	ENE	32	19/8	02:00

昂坪、石崗 - 沒有資料　Ngong Ping, Shek Kong - data not available

表 3.3.2　在海高斯影響下，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 3.3.2　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 Higos were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		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	18/8	15:33	19/8	12:17	19/8	00:22	19/8	06:10
香港國際機場	Hong Kong International Airport	19/8	01:59	19/8	09:01	19/8	03:52	19/8	05:17
啟德	Kai Tak	19/8	01:35	19/8	05:43	-			
西貢	Sai Kung	18/8	15:13	19/8	10:07	-			

流浮山、沙田、打鼓嶺及青衣島蜆殼油庫的持續風力未達到強風程度。

The sustained wind speed did not attain strong force at Lau Fau Shan, Sha Tin, Ta Kwu Ling and Tsing Yi Shell Oil Depot.

- 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 3.3.3　海高斯影響香港期間，香港天文台總部及其他各站所錄得的日雨量
Table 3.3.3　Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Higos

站 (參閱圖 3.3.2) Station (See Fig. 3.3.2)			八月十八日 18 Aug	八月十九日 19 Aug	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory (HKO)			52.7	119.5	172.2
香港國際機場 Hong Kong International Airport (HKA)			66.8	104.2	171.0
H23	香港仔	Aberdeen	52.5	61.0	113.5
N05	粉嶺	Fanling	32.0	71.5	103.5
N13	糧船灣	High Island	40.5	67.0	107.5
K04	佐敦谷	Jordan Valley	79.5	110.5	190.0
N06	葵涌	Kwai Chung	70.5	106.0	176.5
H12	半山區	Mid Levels	77.5	137.5	215.0
N09	沙田	Sha Tin	67.5	107.5	175.0
H19	筲箕灣	Shau Kei Wan	82.5	112.5	195.0
SEK	石崗	Shek Kong	54.5	98.5	153.0
K06	蘇屋邨	So Uk Estate	76.5	112.5	189.0
R31	大美督	Tai Mei Tuk	63.0	67.0	130.0
R21	踏石角	Tap Shek Kok	31.0	119.0	150.0
N17	東涌	Tung Chung	58.5	106.5	165.0
TMR	屯門水庫	Tuen Mun Reservoir	33.9	108.6	142.5

長洲 - 沒有資料　Cheung Chau - data not available

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

表 3.3.4　海高斯影響香港期間，香港各潮汐站所錄得的最高潮位及最大風暴潮
Table 3.3.4　Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Higos

站 (參閱圖 1.1) Station (See Fig. 1.1))		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	2.75	19/8	07:28	0.51	19/8	03:48
石壁	Shek Pik	3.00	19/8	07:22	0.71	19/8	05:26
大廟灣	Tai Miu Wan	2.79	19/8	07:40	0.64	19/8	04:49
大埔滘	Tai Po Kau	2.77	19/8	06:43	0.61	19/8	00:54
尖鼻咀	Tsim Bei Tsui	3.38	19/8	07:50	1.02	19/8	07:43

橫瀾島 - 沒有資料　Waglan Island - data not available

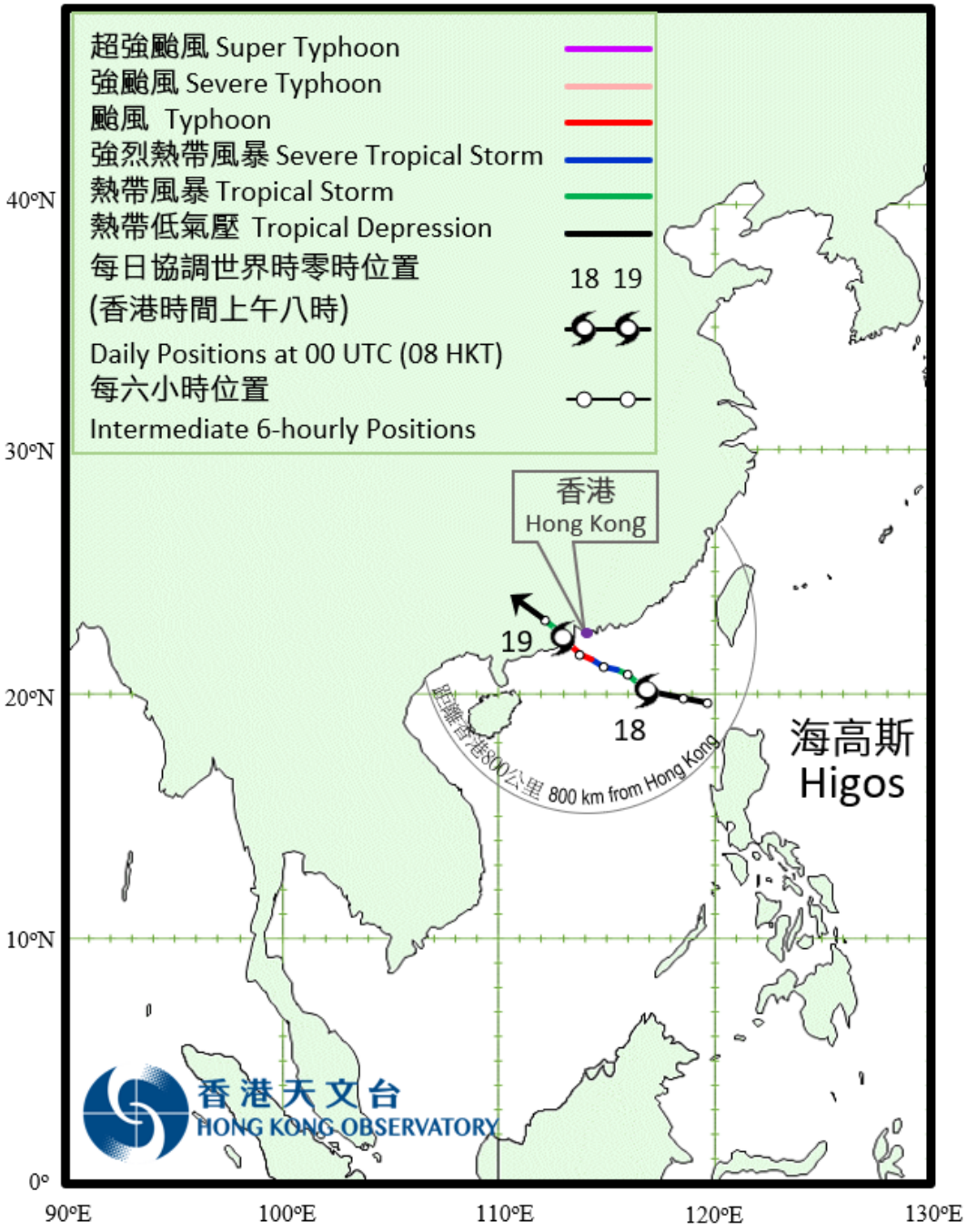


圖 3.3.1a　　二零二零年八月十七日至十九日海高斯的路徑圖。

Figure 3.3.1a　Track of Higos: 17 – 19 August 2020.

圖 3.3.1b　　海高斯接近香港時的路徑圖。

Figure 3.3.1b　Track of Higos near Hong Kong.

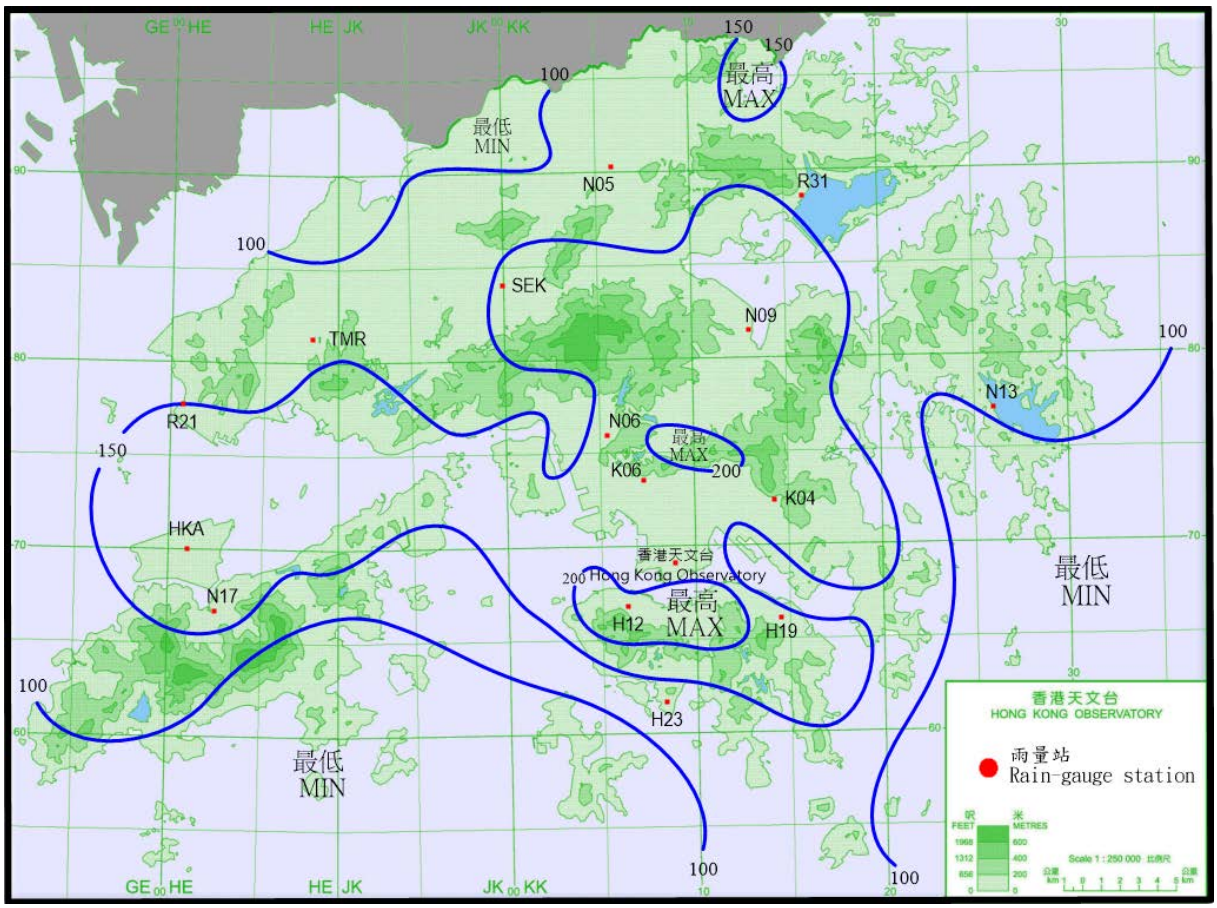


圖 3.3.2　　二零二零年八月十八至十九日的雨量分佈(等雨量線單位為毫米)。

Figure 3.3.2　Rainfall distribution on 18 - 19 August 2020 (isohyets in millimetres).

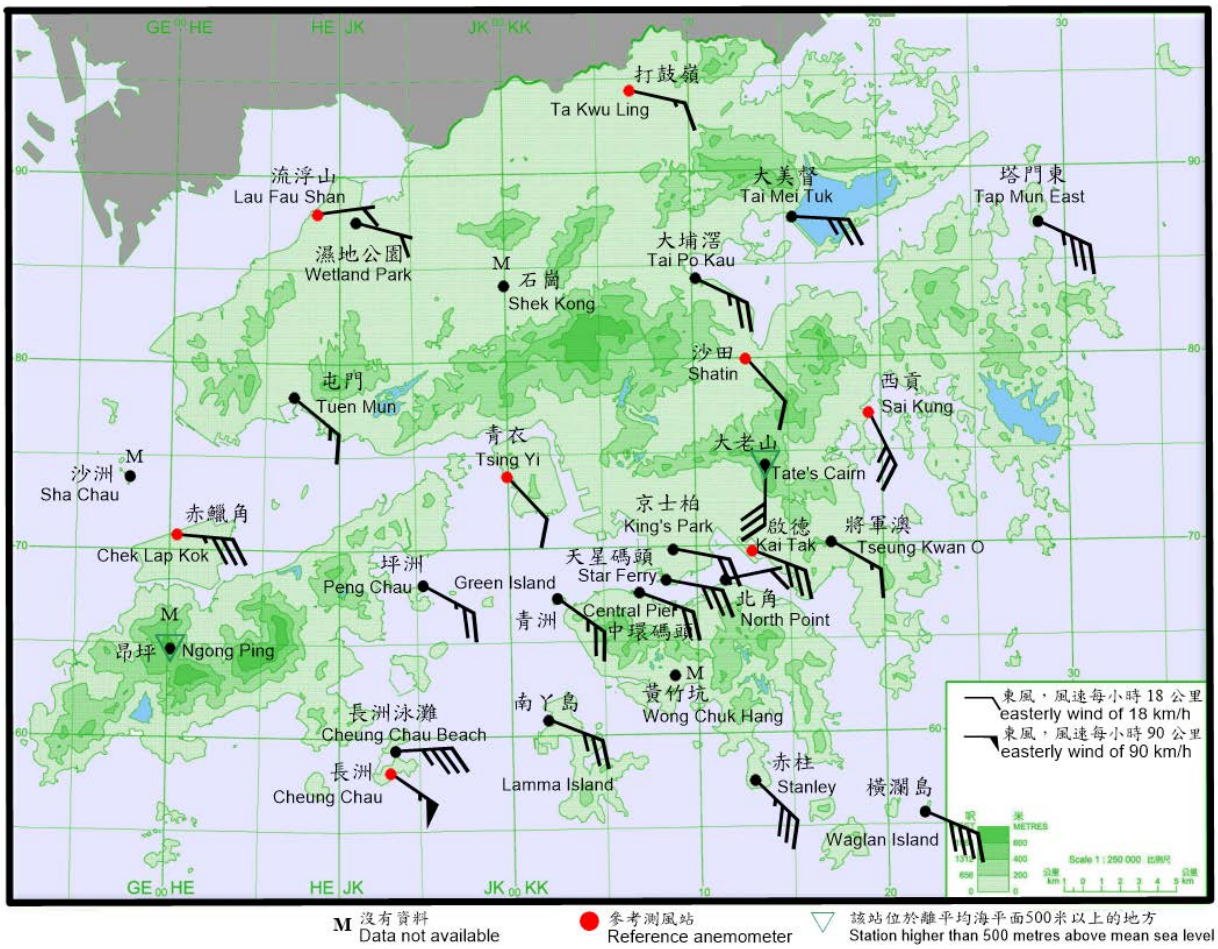


圖 3.3.3　二零二零年八月十九日上午 4 時正香港各站錄得的十分鐘平均風向和風速。當時長洲的風力達到暴風程度，而橫瀾島及長洲泳灘的風力達到烈風程度。

Figure 3.3.3　10-minute mean wind direction and speed recorded at various stations in Hong Kong at 4 a.m. on 19 August 2020. Winds at Cheung Chau reached storm force at that time, while winds at Waglan Island and Cheung Chau Beach reached gale force.

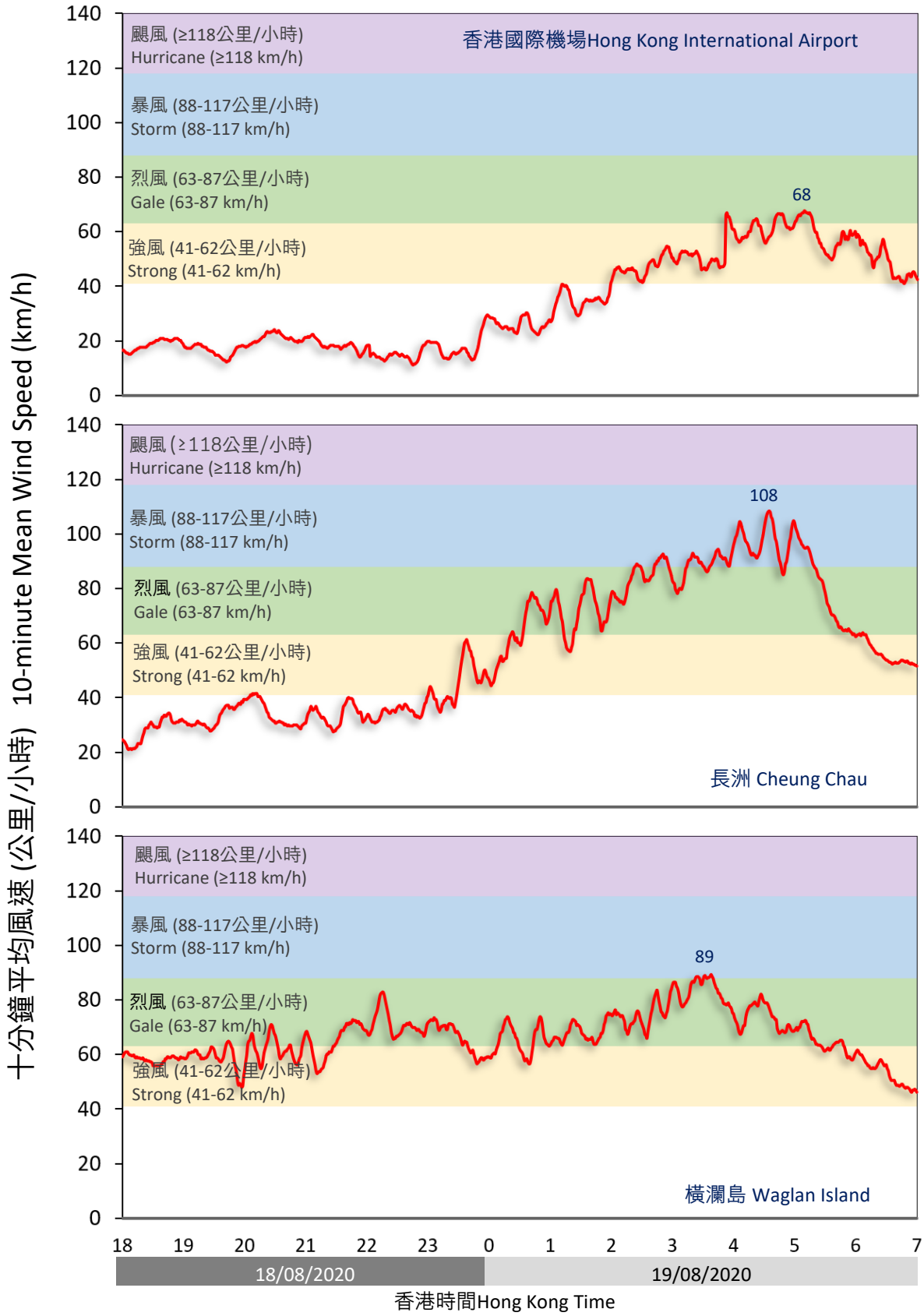


圖 3.3.4　二零二零年八月十八日至十九日在香港國際機場、長洲及橫瀾島錄得的十分鐘平均風速。

Figure 3.3.4　Traces of 10-minute mean wind speed recorded at Hong Kong International Airport, Cheung Chau and Waglan Island on 18 and 19 August 2020.

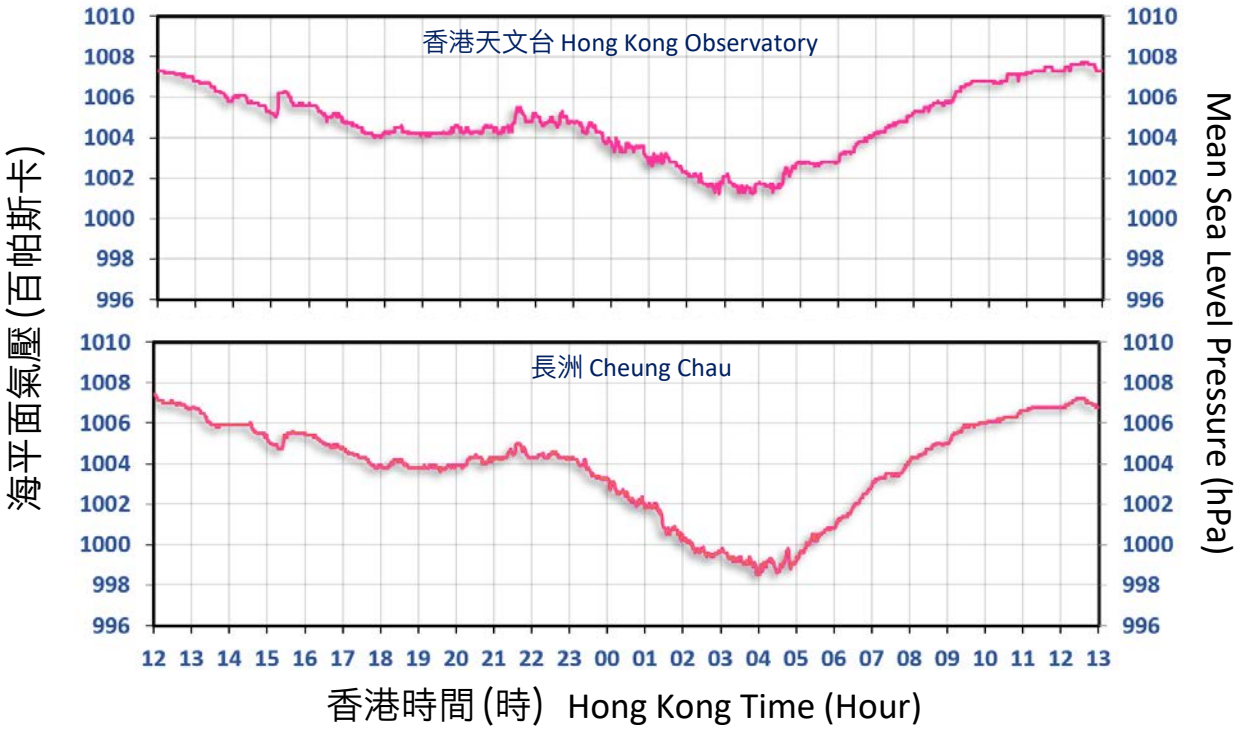


圖 3.3.5 二零二零年八月十八及十九日香港天文台及長洲錄得的海平面氣壓。

Figure 3.3.5 Traces of mean sea-level pressure recorded at the Hong Kong Observatory and Cheung Chau on 18 and 19 August 2020.

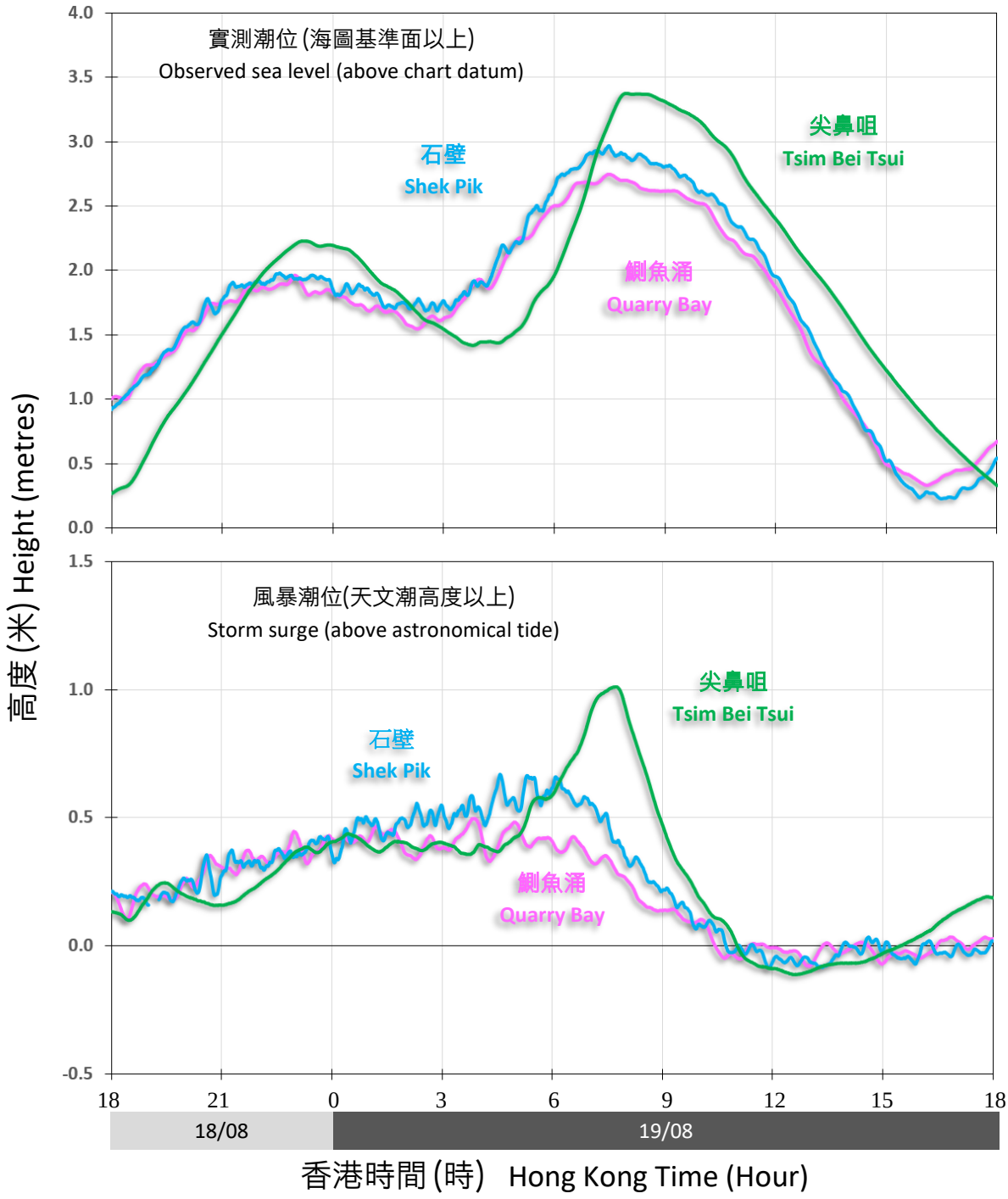


圖 3.3.6　二零二零年八月十八日及十九日在鰂魚涌、尖鼻咀及石壁錄得的潮位(海圖基準面以上)及風暴潮(天文潮高度以上)。

Figure 3.3.6　Traces of sea level (above chart datum) and storm surge (above astronomicaltide) recorded at Quarry Bay, Tsim Bei Tsui and Shek Pik on 18 and 19 August 2020.

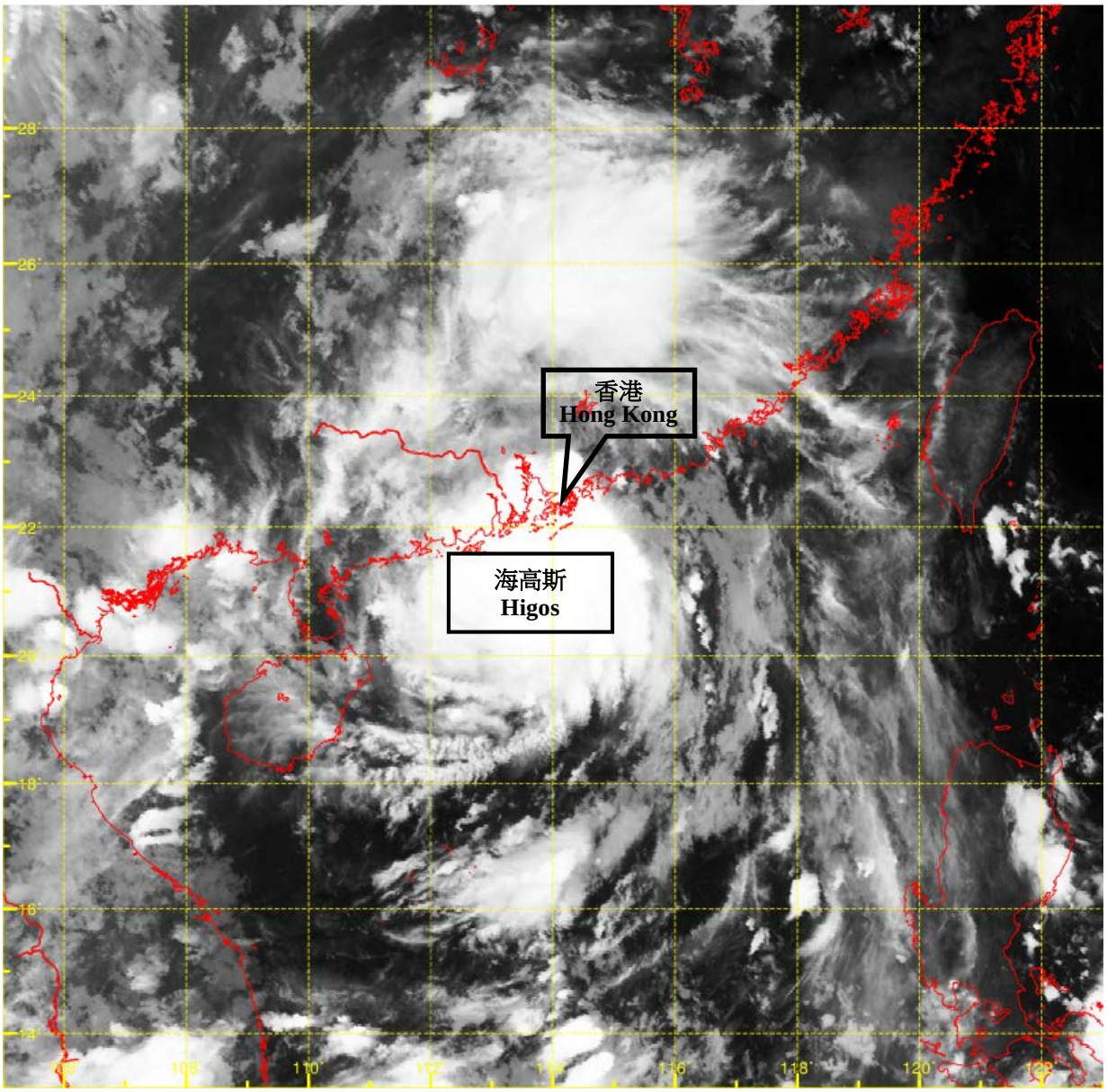


圖 3.3.7　二零二零年八月十九日上午 2 時左右的紅外線衛星圖片，當時海高斯達到其最高強度，中心附近最高持續風速估計為每小時 130 公里。海高斯的對流雲團較為細小，直徑只有約 400 公里。

Figure 3.3.7　Infra-red satellite imagery around 2 a.m. on 19 August 2020, when Higos was at its peak intensity with estimated maximum sustained winds of 130 km/h near its centre. The convection of Higos was relatively small with a diameter of only around 400 km.

〔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).]

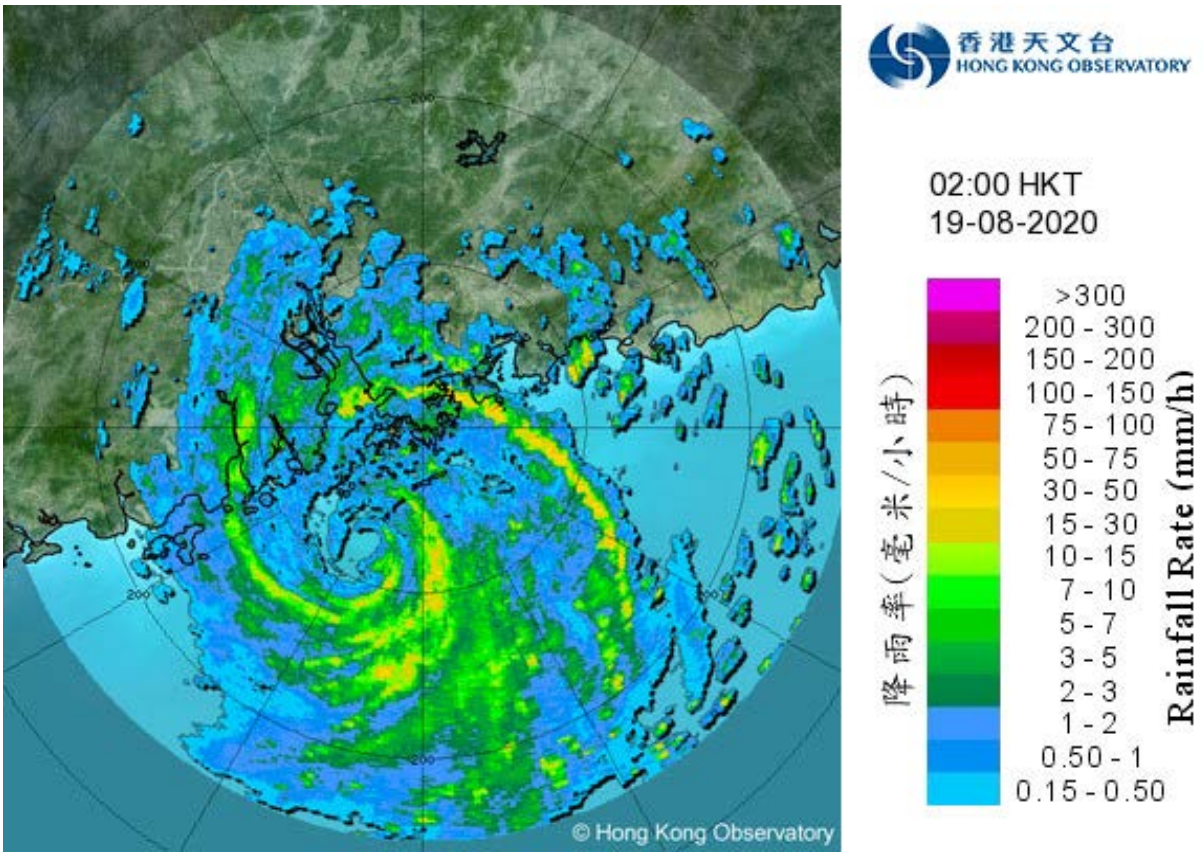


圖 3.3.8a　二零二零年八月十九日上午 2 時正的雷達回波圖像，海高斯的風眼清晰可見。

Figure 3.3.8a　Image of radar echoes at 2 a.m. on 19 August 2020, clearly showing the eye of Higos.

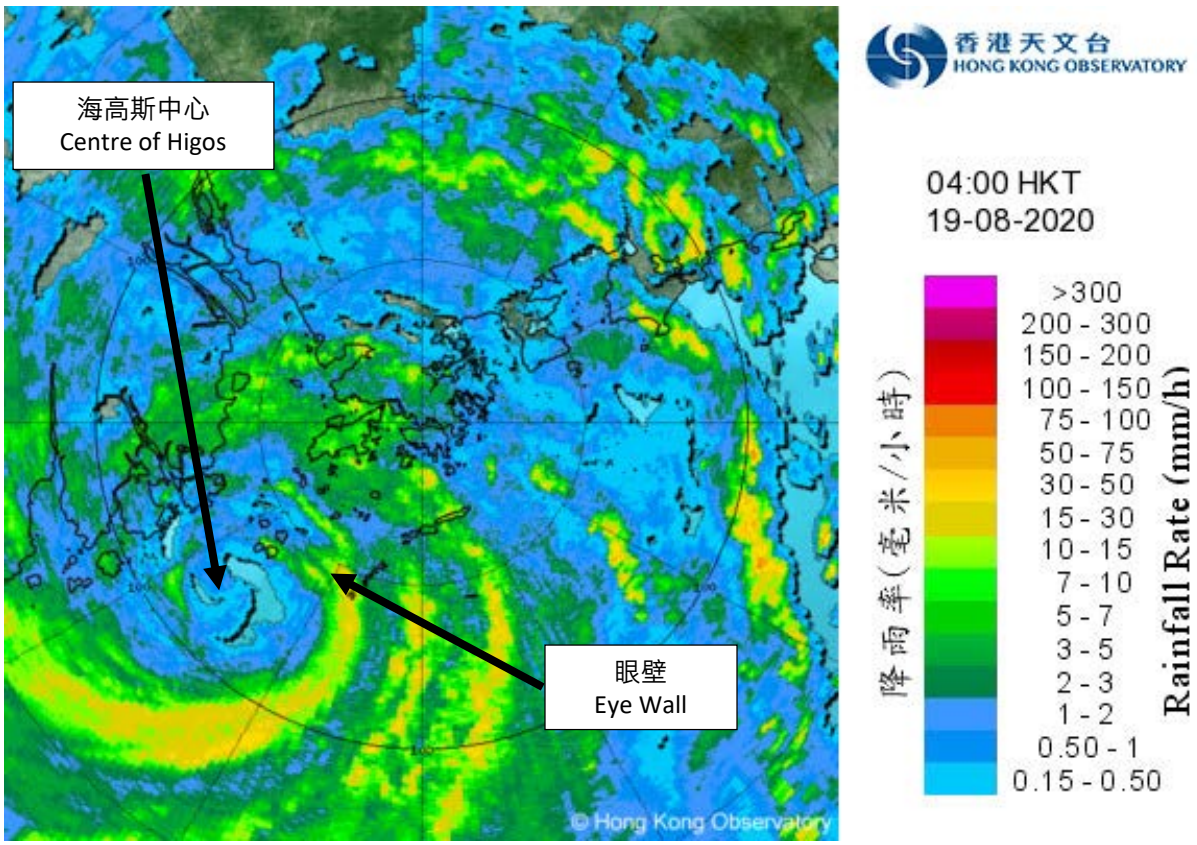


圖 3.3.8b　二零二零年八月十九日上午4時正的雷達回波圖像，當時海高斯的眼壁相當接近本港西南部地區。眼壁是最接近颱風中心的環型對流雨帶，該區的風力最強，雨勢最大。當時受眼壁影響的地區錄得持續颶風。

Figure 3.3.8b　Image of radar echoes at 4 a.m. on 19 August 2020. The eye wall of Higos was very close to the southwestern part of Hong Kong. The eye wall is the inner most ring of convection near the centre of a typhoon, containing most intense winds and heavy rain. Sustained hurricane force winds were recorded at the area covered by the eye wall at that time.

3.4 熱帶風暴浪卡 (2016)：二零二零年十月十一日至十四日

浪卡是二零二零年第四個影響香港的熱帶氣旋。雖然浪卡在香港以南約440公里掠過，但在其與東北季候風的共同影響下，天文台需要發出年內第二個八號烈風或暴風信號。浪卡是一九六一年以來距離香港最遠而發出八號烈風或暴風信號的熱帶氣旋。

熱帶低氣壓浪卡於十月十一日下午在東沙之東南約500公里的南海中部上形成，隨後採取西北偏西路徑移向海南島，並逐漸增強。浪卡於十月十二日下午增強為熱帶風暴，當晚達到其最高強度，中心附近最高持續風速估計為每小時85公里。浪卡於十月十三日晚上橫過海南島並逐漸減弱，翌日進入北部灣，當晚在越南內陸減弱為低壓區。

根據報章報導，浪卡吹襲海南期間，一艘貨輪於琼州海峽附近翻沉，船上有兩人遇難、三人失蹤。浪卡亦為越南帶來狂風大雨，造成最少兩人死亡、一人失蹤。

香港天文台在十月十一日晚上8時40分發出一號戒備信號，當時浪卡集結在香港之東南約780公里。翌日本港普遍吹和緩東至東北風。隨著浪卡逐漸靠近華南沿岸，天文台在十月十二日下午5時10分發出三號強風信號，當時浪卡位於香港之東南偏南約480公里。晚間本港風勢開始增強，離岸及高地吹強風。浪卡於十月十三日上午2時最接近香港，在香港以南約440公里附近掠過。隨著浪卡逐漸移到香港之南至西南方，並與東北季候風的共同影響下，天文台預料本港風勢會進一步增強，在十月十三日上午5時40分發出八號東北烈風或暴風信號，當時浪卡位於香港以南約450公里。日間本港普遍吹強風程度的東至東北風，離岸及高地吹烈風。整體來說，香港南部地區風勢較大，多處錄得烈風，而北部則風勢較弱。當浪卡在海南島登陸及逐漸減弱，天文台於十月十三日晚上7時40分改發三號強風信號。浪卡在十月十四日凌晨進入北部灣並遠離香港，對本港的影響減退，天文台於當日上午2時40分取消所有熱帶氣旋警告信號。但在東北季候風的影響下，本港多處地區仍然吹強風，天文台隨即發出強烈季候風信號，直至翌日上午10時15分取消。

在浪卡的影響下，橫瀾島、長洲泳灘及在維多利亞港的青洲錄得的最高每小時平均風速分別為每小時82、66及66公里，而最高陣風則分別為每小時97、90及91公里。大埔滘錄得最高潮位2.79米(海圖基準面以上)，而石壁則錄得最大風暴潮(天文潮高度以上)0.74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	1006.7	12/10	下午3時53分
香港國際機場	1006.6	12/10	下午3時37分
長洲	1006.1	12/10	下午3時52分
京士柏	1006.3	12/10	下午3時15分
流浮山	1006.2	12/10	下午3時11分
坪洲	1006.6	12/10	下午3時59分
沙田	1007.0	12/10	下午3時05分
上水	1006.5	12/10	下午3時32分
打鼓嶺	1006.8	12/10	下午3時07分
大埔	1007.3	12/10	下午3時10分
橫瀾島	1006.8	12/10	下午4時37分

十月十一日及十二日本港大致天晴及乾燥。隨著浪卡的外圍雨帶逐漸靠近廣東沿岸，十月十二日晚上及十月十三日本港多雲有雨。雖然浪卡遠離，但在東北季候風的影響下，十月十四日本港仍然有幾陣雨。十月十一日至十四日期間本港大部分地區錄得超過20毫米雨量。

浪卡吹襲香港期間，最少有3人受傷，另有接近250宗塌樹報告。深水埗及元朗分別有的士及客貨車被塌樹擊中損毀。荃灣亦有村屋被樹枝壓毀。西區有商業大廈外牆的帆布廣告被強風吹翻，現場交通受阻。

3.4 Tropical Storm Nangka (2016): 11 to 14 October 2020

Nangka was the fourth tropical cyclone that affected Hong Kong in 2020. Although Nangka skirted past at about 440 km south of Hong Kong, its combined effect with the northeast monsoon necessitated the issuance of the second No. 8 Gale or Storm Signal this year. Nangka is also the farthest tropical cyclone with the issuance of No. 8 Gale or Storm Signal in Hong Kong since 1961.

Nangka formed as a tropical depression over the central part of the South China Sea about 500 km southeast of Dongsha on the afternoon of 11 October. It then moved west-northwestwards towards Hainan Island and intensified gradually. Nangka intensified into a tropical storm on the afternoon of 12 October, reaching its peak intensity at night with an estimated maximum sustained wind of 85 km/h near its centre. It moved across Hainan Island on the night of 13 October and weakened gradually. Nangka entered Beibu Wan on 14 October and finally degenerated into an area of low pressure over inland Vietnam at night.

According to press reports, a cargo ship overturned near Qiongzhou Strait when Nangka was hitting Hainan. Two crew members on board died and three were missing. Nangka also brought heavy rain and squalls to Vietnam, leaving at least two deaths and one missing.

In Hong Kong, the Standby Signal No. 1 was issued at 8:40 p.m. on 11 October when Nangka was about 780 km southeast of the territory. Moderate east to northeasterly winds generally affected Hong Kong the next day. With Nangka edging closer to the south China coast, the Strong Wind Signal No. 3 was issued at 5:10 p.m. on 12 October when Nangka was about 480 km south-southeast of Hong Kong. Local winds started to strengthen during the night with winds reaching strong force offshore and on high ground. Nangka came closest to Hong Kong at around 2 a.m. on 13 October with its centre passing about 440 km south of Hong Kong. With Nangka moving gradually to the south to southwest of Hong Kong, local winds were expected to strengthen further under its combined effect with the northeast monsoon. The No. 8 Northeast Gale or Storm Signal was issued at 5:40 a.m. on 13 October when Nangka was about 450 km south of Hong Kong. Local winds were generally strong east to northeasterlies during the day, reaching gale force offshore and on high ground. Overall, winds were generally stronger over the southern part of Hong Kong with numerous places recording gale force wind, while winds were weaker over the northern part of the territory. When Nangka made landfall over Hainan Island and weakened gradually, the Strong Wind Signal No. 3 was issued at 7:40 p.m. on 13 October. After Nangka entered Beibu Wan in the small hours on 14 October and moved far away from Hong Kong, its impact to territory had diminished and all tropical cyclone warning signals were cancelled at 2:40 a.m. on that day. Nevertheless, strong winds still affected many places in Hong Kong under the influence of the northeast monsoon. The Strong Monsoon Signal was issued immediately afterwards and lasted till 10:15 a.m. the following day.

Under the influence of Nangka, maximum hourly mean winds of 82, 66 and 66 km/h and maximum gusts of 97, 90 and 91 km/h were recorded at Waglan Island, Cheung Chau Beach and Green Island in the Victoria Harbour respectively. A maximum sea level (above chart datum) of 2.79 m was recorded at Tai Po Kau, and a maximum storm surge (above astronomical tide) of 0.74 m was recorded at Shek Pik. 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	1006.7	12/10	3:53 p.m.
Hong Kong International Airport	1006.6	12/10	3:37 p.m.
Cheung Chau	1006.1	12/10	3:52 p.m.
King's Park	1006.3	12/10	3:15 p.m.
Lau Fau Shan	1006.2	12/10	3:11 p.m.
Peng Chau	1006.6	12/10	3:59 p.m.
Sha Tin	1007.0	12/10	3:05 p.m.
Sheung Shui	1006.5	12/10	3:32 p.m.
Ta Kwu Ling	1006.8	12/10	3:07 p.m.
Tai Po	1007.3	12/10	3:10 p.m.
Waglan Island	1006.8	12/10	4:37 p.m.

Locally, it was mainly fine and dry on 11 and 12 October. With the outer rainbands of Nangka edging closer to the coast of Guangdong gradually, it was cloudy with rain in Hong Kong on the night of 12 October and on 13 October. Although Nangka had moved away, there were still a few rain patches in Hong Kong on 14 October under the influence of the northeast monsoon. More than 20 millimetres of rainfall were recorded over most parts of the territory during 11 – 14 October.

In Hong Kong, at least three people were injured during the passage of Nangka and there were around 250 reports of fallen trees. A taxi and a passenger van were hit by fallen trees at Sham Shui Po and Yuen Long respectively. A village house in Tsuen Wan was damaged by falling branches. An advertisement banner of a commercial building in western District was blown down, disrupting the traffic nearby.

表 3.4.1　在浪卡影響下，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 3.4.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when the tropical cyclone warning signals for Nangka were in force.

站 (參閱圖 1.1) Station (See Fig. 1.1)		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	E	77	13/10	11:46	東	E	40	13/10	21:00
中環碼頭	Central Pier	東	E	71	13/10	19:21	東	E	42	13/10	15:00
							東	E	42	13/10	16:00
長洲	Cheung Chau	東	E	81	13/10	13:27	東	E	56	14/10	00:00
		東	E	81	14/10	01:42					
長洲泳灘	Cheung Chau Beach	東北偏東	ENE	90	13/10	13:31	東北偏東	ENE	66	13/10	20:00
青洲	Green Island	東北偏東	ENE	91	13/10	19:32	東北偏東	ENE	66	13/10	20:00
香港國際機場	Hong Kong International Airport	東	E	62	13/10	12:26	東	E	42	13/10	13:00
		東北偏東	ENE	62	13/10	13:47					
啟德	Kai Tak	東北偏東	ENE	70	13/10	19:24	東	E	29	14/10	02:00
京士柏	King's Park	東	E	69	13/10	19:36	東	E	28	14/10	02:00
南丫島	Lamma Island	東南偏東	ESE	82	13/10	19:45	東	E	35	14/10	00:00
流浮山	Lau Fau Shan	東北偏東	ENE	48	14/10	00:27	東北偏東	ENE	26	13/10	17:00
							東北偏東	ENE	26	13/10	18:00
							東北偏東	ENE	26	13/10	19:00
北角	North Point	東	E	77	13/10	18:35	東	E	44	14/10	02:00
坪洲	Peng Chau	東	E	82	13/10	19:27	東	E	54	13/10	20:00
平洲	Ping Chau	東北偏東	ENE	40	13/10	20:59	東	E	16	13/10	23:00
西貢	Sai Kung	東北偏東	ENE	81	13/10	19:26	東北偏東	ENE	48	13/10	12:00
沙洲	Sha Chau	東北	NE	57	13/10	10:14	東	E	36	14/10	00:00
沙螺灣	Sha Lo Wan	東	E	70	13/10	19:44	東	E	37	13/10	20:00
		東	E	70	13/10	19:53					
沙田	Sha Tin	東北	NE	69	13/10	11:28	東北偏東	ENE	22	13/10	13:00
九龍天星碼頭	Star Ferry (Kowloon)	東	E	65	14/10	02:00	東	E	35	14/10	00:00
打鼓嶺	Ta Kwu Ling	東	E	48	13/10	19:59	東	E	17	13/10	20:00
大美督	Tai Mei Tuk	東北偏東	ENE	71	13/10	11:43	東北偏東	ENE	49	13/10	13:00
大帽山	Tai Mo Shan	東南偏東	ESE	113	13/10	19:41	東南偏東	ESE	73	14/10	00:00
大埔滘	Tai Po Kau	東	E	55	13/10	22:58	東	E	39	14/10	02:00
		東	E	55	13/10	22:59					
塔門東	Tap Mun East	東	E	68	14/10	00:07	東	E	48	14/10	01:00
大老山	Tate's Cairn	東	E	96	13/10	11:46	東	E	63	13/10	12:00
將軍澳	Tseung Kwan O	東南	SE	49	14/10	01:23	北	N	16	13/10	07:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南	SE	50	13/10	12:58	東南偏東	ESE	22	13/10	14:00
屯門政府合署	Tuen Mun Government Offices	東北偏北	NNE	47	13/10	06:47	北	N	14	13/10	08:00
橫瀾島	Waglan Island	東北偏東	ENE	97	13/10	11:33	東北偏東	ENE	82	13/10	12:00
		東北偏東	ENE	97	13/10	19:58					
濕地公園	Wetland Park	東	E	35	14/10	00:23	東	E	14	14/10	01:00
黃竹坑	Wong Chuk Hang	東北偏東	ENE	70	13/10	18:11	東北偏東	ENE	30	13/10	20:00

昂坪、石崗 - 沒有資料　Ngong Ping, Shek Kong - data not available

表 3.4.2　在浪卡影響下，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 3.4.2　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 Nangka were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		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	
		日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time
長洲	Cheung Chau	13/10	03:05	14/10	02:40
香港國際機場	Hong Kong International Airport	13/10	11:48	14/10	02:13
西貢	Sai Kung	13/10	11:11	14/10	02:40

所有參考測風站的持續風力未達到烈風#程度。

The sustained wind speed did not attain gale# force at all reference anemometers.

啟德、沙田、流浮山、打鼓嶺、青衣島蜆殼油庫的持續風力未達到強風程度。

The sustained wind speed did not attain strong force at Kai Tak, Sha Tin, Lau Fau Shan, Ta Kwu Ling and Tsing Yi Shell Oil Depot.

* 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 force winds. Winds might fluctuate above or below the specified wind speeds in between the times indicated.

表 3.4.3　浪卡影響香港期間，香港天文台總部及其他各站所錄得的日雨量
Table 3.4.3　Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Nangka

站 (參閱圖 3.4.2) Station (See Fig. 3.4.2)			十月十一日 11 Oct	十月十二日 12 Oct	十月十三日 13 Oct	十月十四日 14 Oct	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory (HKO)			0.0	0.6	26.0	1.2	27.8
香港國際機場 Hong Kong International Airport (HKA)			0.0	微量 Trace	13.5	微量 Trace	13.5
長洲Cheung Chau (CCH)			0.0	0.0	7.0	0.0	7.0
H23	香港仔	Aberdeen	0.0	0.5	17.5	1.0	19.0
N05	粉嶺	Fanling	0.0	0.0	14.5	0.0	14.5
N13	糧船灣	High Island	0.0	0.0	18.5	0.0	18.5
K04	佐敦谷	Jordan Valley	0.0	0.5	36.5	2.5	39.5
N06	葵涌	Kwai Chung	0.0	0.5	24.5	2.0	27.0
H12	半山區	Mid Levels	0.0	0.0	28.0	3.0	31.0
N09	沙田	Sha Tin	0.0	0.0	35.5	0.5	36.0
H19	筲箕灣	Shau Kei Wan	0.0	0.5	29.0	0.5	30.0
SEK	石崗	Shek Kong	0.0	0.0	31.0	1.0	32.0
K06	蘇屋邨	So Uk Estate	0.0	0.5	24.5	1.5	26.5
R31	大美督	Tai Mei Tuk	0.0	0.0	25.5	0.5	26.0
R21	踏石角	Tap Shek Kok	0.0	0.0	10.0	0.0	10.0
N17	東涌	Tung Chung	0.0	0.0	27.0	0.5	27.5
TMR	屯門水庫	Tuen Mun Reservoir	0.0	0.0	11.3	0.0	11.3

表 3.4.4　浪卡影響香港期間，香港各潮汐站所錄得的最高潮位及最大風暴潮
Table 3.4.4　Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Nangka

站 (參閱圖 1.1) Station (See Fig. 1.1)		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	2.65	13/10	06:25	0.61	13/10	12:59
石壁	Shek Pik	2.72	13/10	05:57	0.74	13/10	13:11
大廟灣	Tai Miu Wan	2.68	13/10	05:41	0.70	13/10	12:49
大埔滘	Tai Po Kau	2.79	13/10	06:05	0.72	13/10	13:50
尖鼻咀	Tsim Bei Tsui	2.78	13/10	06:05	0.72	13/10	15:26

橫瀾島 - 沒有資料　Waglan Island - data not available

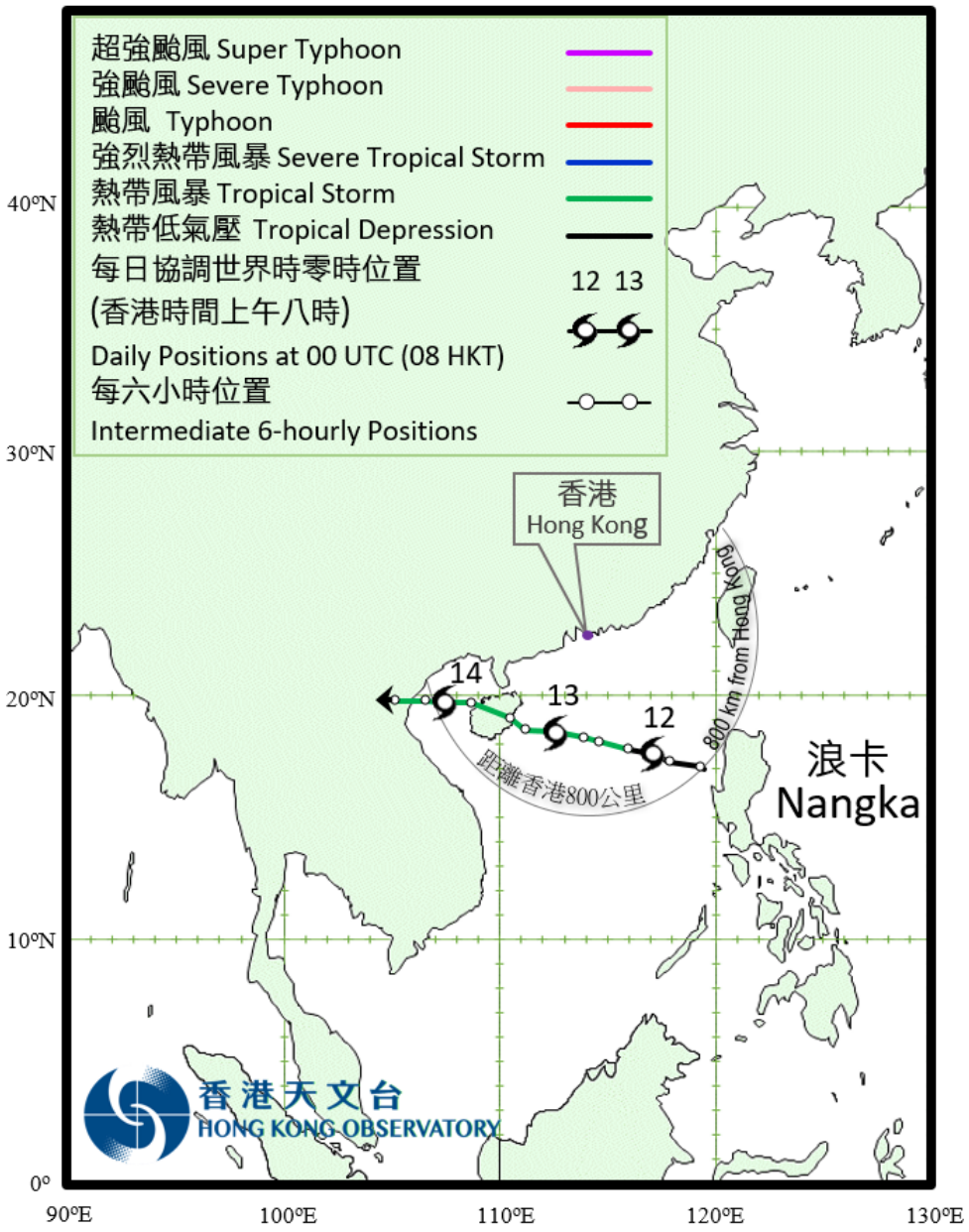


圖 3.4.1　　二零二零年十月十一日至十五日浪卡的路徑圖。

Figure 3.4.1　　Track of Nangka: 11 – 15 October 2020.

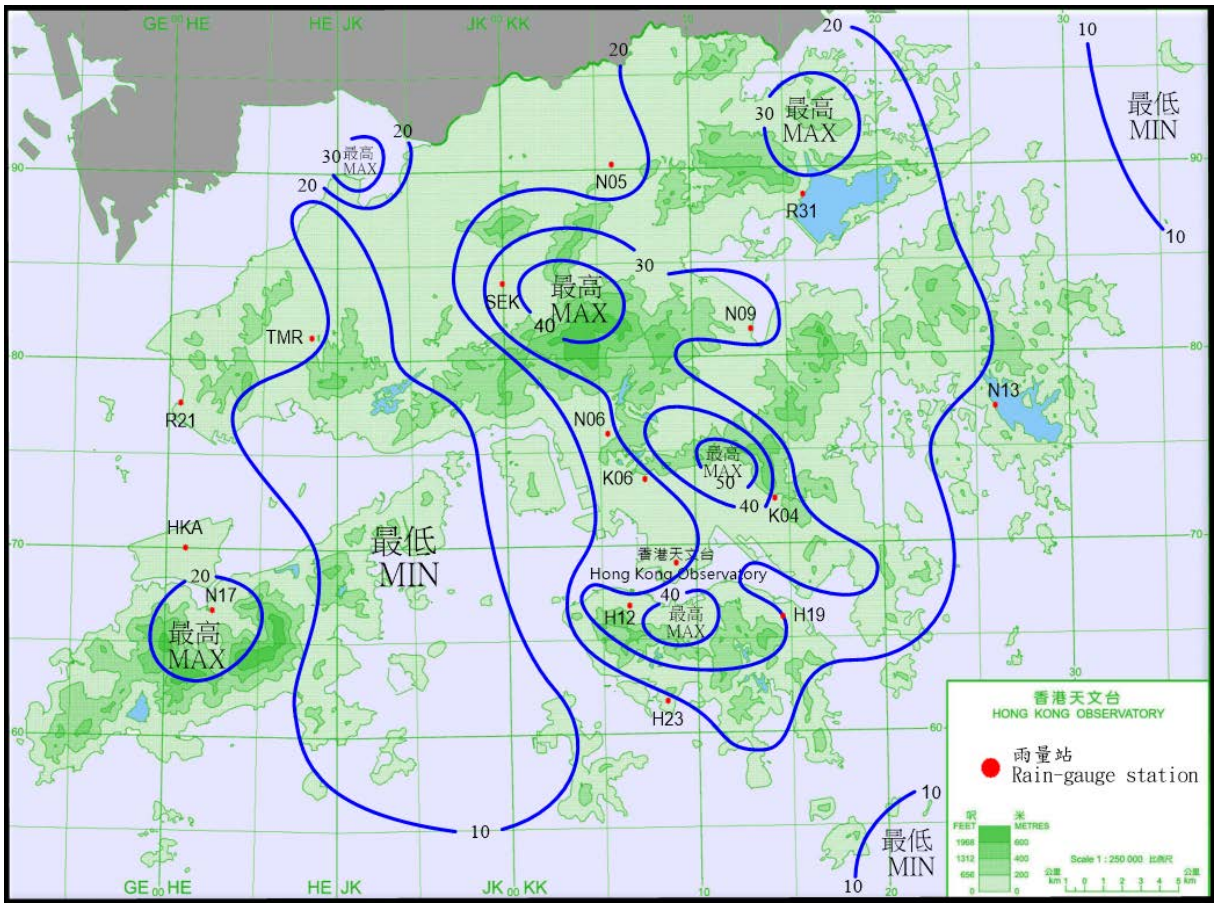


圖 3.4.2　　二零二零年十月十一日至十四日的雨量分佈(等雨量線單位為毫米)。

Figure 3.4.2　Rainfall distribution on 11 - 14 October 2020 (isohyets in millimetres).

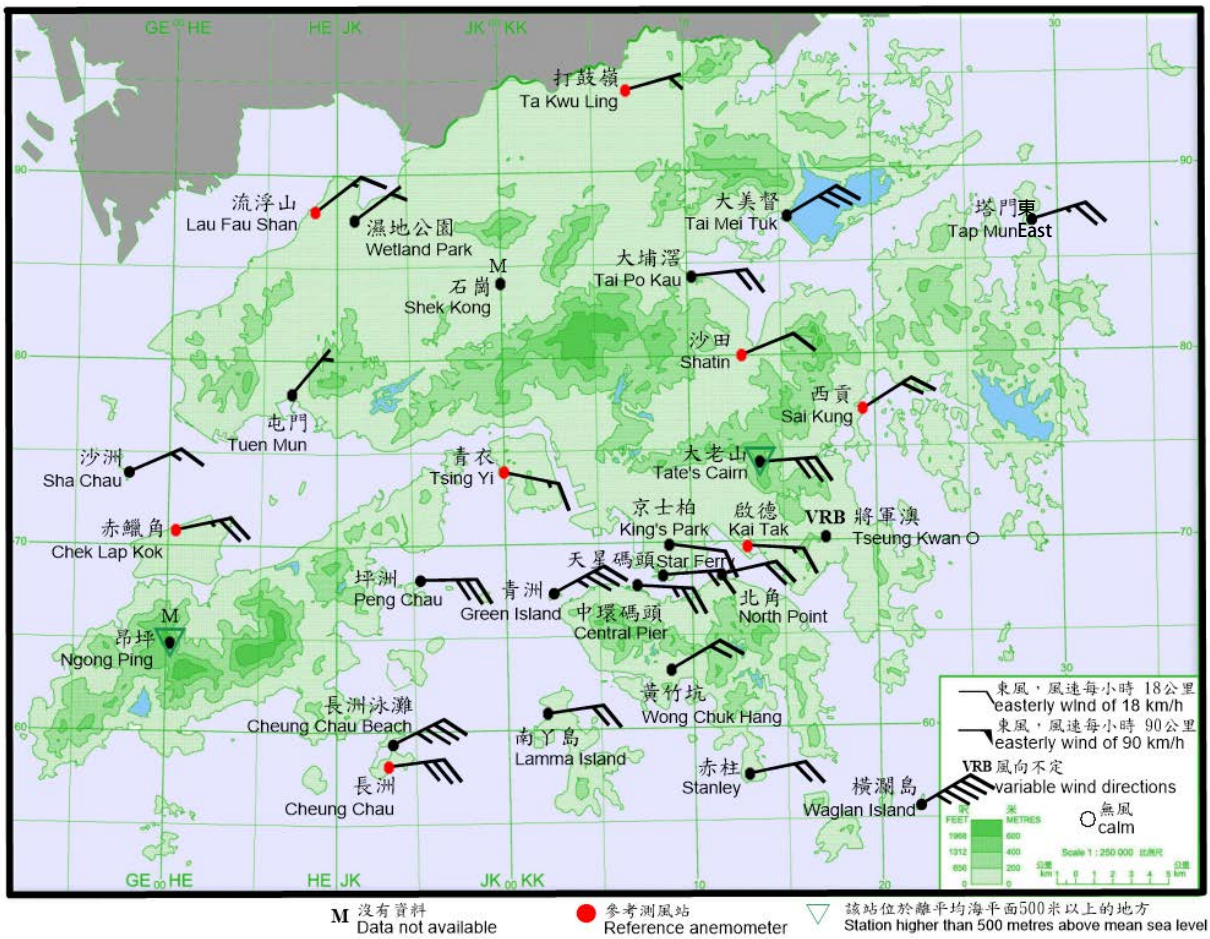


圖 3.4.3　二零二零年十月十三日下午3時20分香港各站錄得的十分鐘平均風向和風速。當時橫瀾島的風力達到烈風程度，而長洲、長洲泳灘、青州、中環碼頭、大老山及大美督的風力達到強風程度。

Figure 3.4.3　10-minute mean wind direction and speed recorded at various stations in Hong Kong at 3:20 p.m. on 13 October 2020. Winds at Waglan Island reached gale force, while winds at Cheung Chau, Cheung Chau Beach, Green Island, Central Pier, Tate's Cairn and Tai Mei Tuk reached strong force at the time.

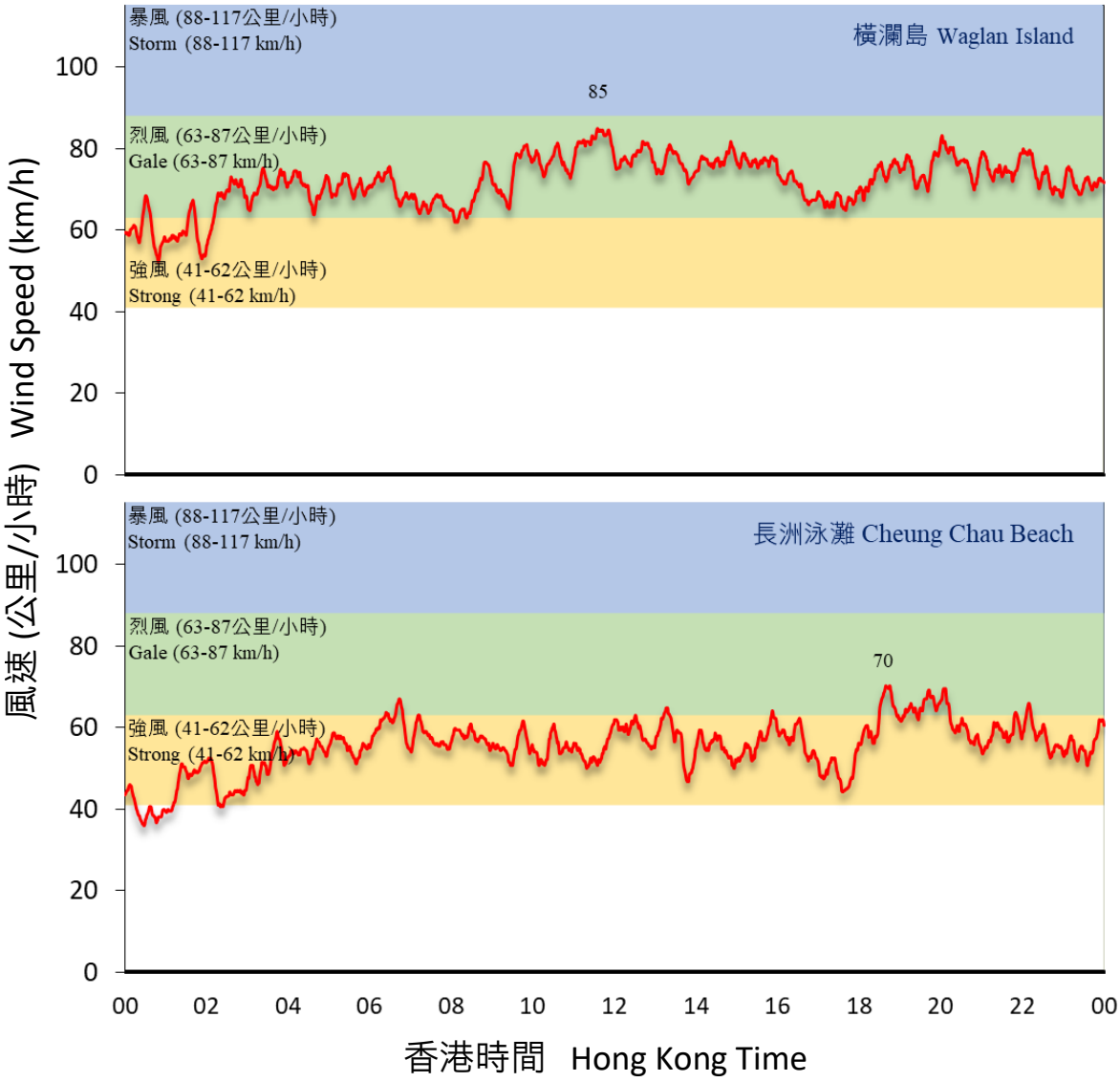


圖 3.4.4 二零二零年十月十三日長洲泳灘及橫瀾島錄得的十分鐘風速。

Figure 3.4.4 Traces of 10-minute wind speed recorded at Cheung Chau Beach and Waglan Island on 13 October 2020.

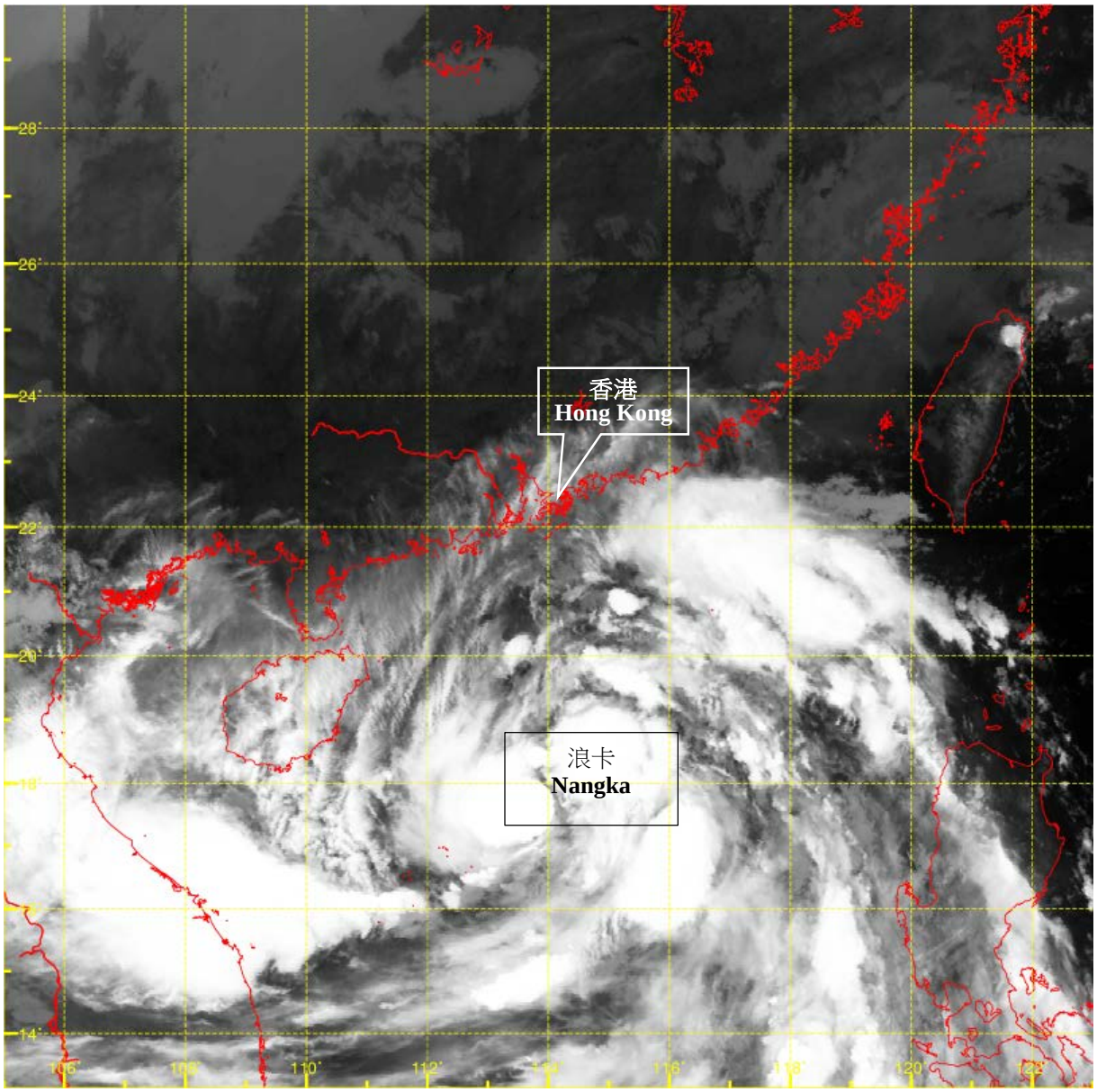


圖 3.4.5　二零二零年十月十二日下午11時左右的紅外線衛星圖片，當時浪卡達到其最高強度，中心附近最高持續風速估計為每小時85公里。

Figure 3.4.5　Infra-red satellite imagery around 11 p.m. on 12 October 2020, when Nangka was at its peak intensity with estimated maximum sustained winds of 85 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).]

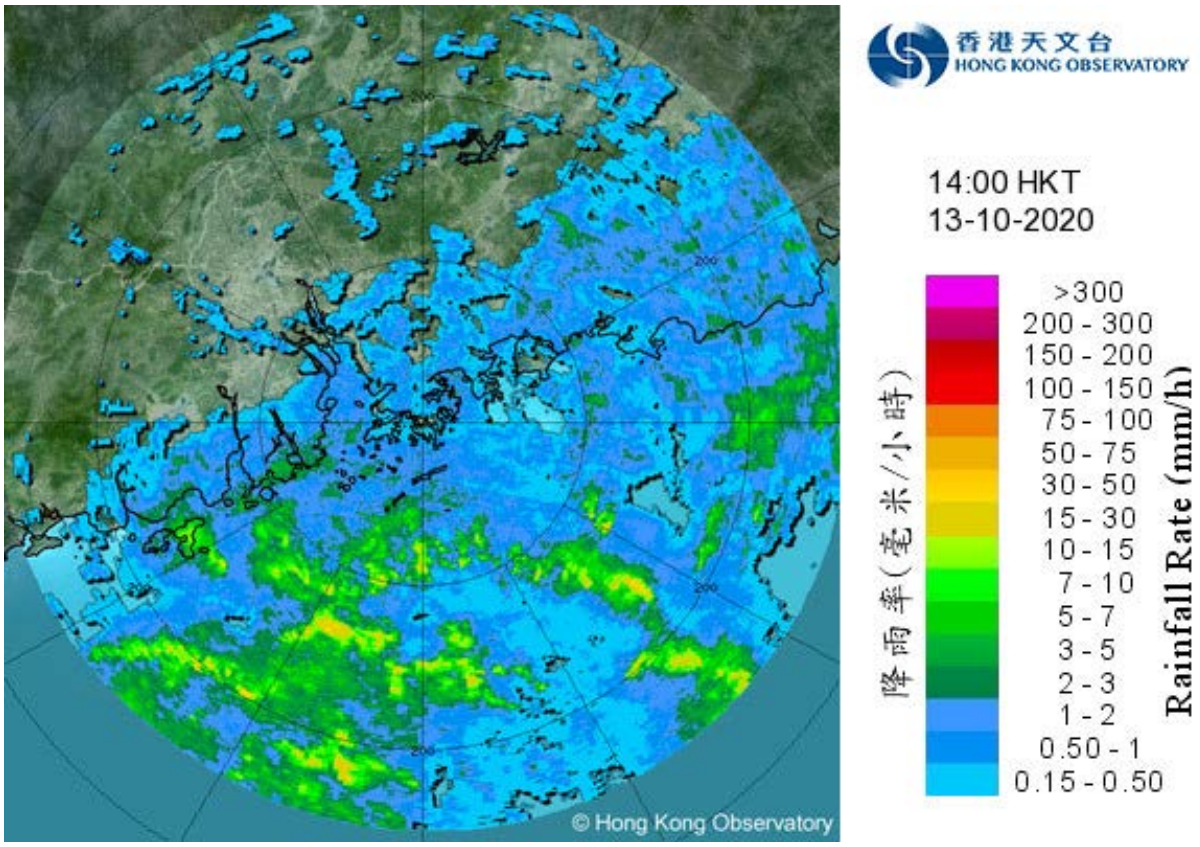


圖 3.4.6　二零二零年十月十三日下午 2 時正的雷達回波圖像，當時浪卡集結在香港之西南約 520 公里，與浪卡相關的雨帶正影響廣東沿岸及南海北部。

Figure 3.4.6　Image of radar echoes at 2:00 p.m. on 13 October 2020 when Nangka was about 520 km southwest of Hong Kong. The rainbands associated with Nangka were affecting the coast of Guangdong and the northern part of the South China Sea.

3.5 颱風沙德爾(2017)：二零二零年十月十九日至二十五日

沙德爾是二零二零年第五個影響香港的熱帶氣旋。

熱帶低氣壓沙德爾於十月十九日早上在馬尼拉以東約920公里的北太平洋西部上形成，大致向西北偏西移動，並逐漸增強。沙德爾於十月二十日晚上橫過呂宋，翌日早上進入南海中部。日間沙德爾轉向西北方向移動。沙德爾於十月二十二日增強為颱風，翌日達到其最高強度，中心附近最高持續風速估計為每小時140公里。受乾燥的東北季候風影響，沙德爾隨後轉向偏西方向移動，並逐漸減弱。最後於十月二十五日晚上在越南中部以東海域減弱為一個低壓區。

根據報章報導，沙德爾吹襲菲律賓期間，當地出現洪水及山泥傾瀉，超過6000人需要撤離。

香港天文台在十月二十二日下午5時40分發出一號戒備信號，當時沙德爾集結在香港之東南偏南約600公里，天文台總部亦錄得最低瞬時海平面氣壓1009.1百帕斯卡。隨著沙德爾移近華南沿岸，天文台在十月二十三日上午12時20分發出三號强風信號，當時沙德爾位於香港之東南偏南約570公里。在沙德爾及東北季候風的共同影響下，十月二十二日晚及十月二十三日本港普遍吹清勁北至東北風，離岸及高地間中吹強風。十月二十三日高地風力更間中達烈風程度。沙德爾於十月二十三日下午8時左右最接近香港，在本港以南約490公里掠過。隨著沙德爾遠離香港及減弱，它對香港的直接威脅減低，天文台在十月二十四日上午9時10分取消所有熱帶氣旋警告信號。但在東北季候風的影響下，本港離岸仍間中吹強風，高地間中吹烈風，天文台隨即發出強烈季候風信號，直至翌日下午1時正取消。

沙德爾影響香港期間，尖鼻咀錄得最高潮位(海圖基準面以上) 2.90米，大埔滘則錄得最大風暴潮(天文潮高度以上)0.67米。

沙德爾吹襲香港期間並沒有造成嚴重破壞。受沙德爾相關的雲帶及乾燥的東北季候風影響，十月二十三日及二十四日本港雲量較多，天氣稍涼及乾燥。

3.5 Typhoon Saudel (2017): 19 – 25 October 2020

Saudel was the fifth tropical cyclone affecting Hong Kong in 2020.

Saudel formed as a tropical depression over the western North Pacific about 920 km east of Manila on the morning of 19 October. Saudel moved generally west-northwestwards and intensified gradually. It moved across Luzon on the night of 20 October and entered the central part of the South China Sea in the next morning. Saudel turned to move northwestwards during the day. It intensified into a typhoon on 22 October and reached its peak intensity the next day with an estimated sustained wind of 140 km/h near its centre. Affected by the dry northeast monsoon, Saudel then turned to track westwards and weakened gradually. It finally degenerated into an area of low pressure over the seas east of central Vietnam on the night of 25 October.

According to press reports, over 6000 people were evacuated because of flooding and landslips in the Philippines during the passage of Saudel.

In Hong Kong, the Standby Signal No.1 was issued at 5:40 p.m. on 22 October when Saudel was about 600 km south-southeast of the territory. The lowest instantaneous mean sea-level pressure of 1009.1 hPa was recorded at the Observatory headquarters at that time. As Saudel edged closer towards the south China coast, the Strong Wind Signal No. 3 was issued at 12:20 a.m. on 23 October when Saudel was about 570 km south-southeast of Hong Kong. Under the combined effect of Saudel and the northeast monsoon, local winds were generally fresh north to northeasterlies and occasionally reached strong force offshore and on high ground at the night of 22 October and on 23 October. Gale force winds also affected high ground at times on 23 October. Saudel came closest to the territory at around 8 p.m. on 23 October as it skirted past about 490 km south of Hong Kong. As Saudel departed from Hong Kong and weakened, its direct threat to Hong Kong diminished and all tropical cyclone warning signals were cancelled at 9:10 a.m. on 24 October. Under the influence of the northeast monsoon, strong winds still affected offshore at times with occasional gale force winds on high ground. The Observatory issued the Strong Monsoon Signal immediately afterwards and the signal lasted till 1:00 p.m. the following day.

During the passage of Saudel, a maximum sea level (above chart datum) of 2.90 m was recorded at Tsim Bei Tsui and a maximum storm surge (above astronomical tide) of 0.67 m was recorded at Tai Po Kau.

Saudel did not cause significant damage in Hong Kong. Affected by the cloud bands associated with Saudel and a dry northeast monsoon, local weather turned cloudier, slightly cooler and remained dry on 23 – 24 October.

表 3.5.1　在沙德爾影響下，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 3.5.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when the tropical cyclone warning signals for Saudel were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		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)	東北偏北	NNE	47	22/10	23:15	東北偏東	ENE	17	24/10	03:00
中環碼頭	Central Pier	東北	NE	50	22/10	21:17	東北	NE	24	23/10	09:00
長洲	Cheung Chau	東北偏北	NNE	59	22/10	19:54	北	N	39	22/10	20:00
長洲泳灘	Cheung Chau Beach	東北	NE	55	23/10	06:55	東北偏北	NNE	30	22/10	20:00
青洲	Green Island	東北偏北	NNE	76	22/10	20:56	東北偏北	NNE	53	22/10	21:00
香港國際機場	Hong Kong International Airport	東北	NE	46	23/10	00:45	東北偏北	NNE	25	23/10	01:00
							東北偏北	NNE	25	23/10	08:00
							東北偏北	NNE	25	23/10	09:00
啟德	Kai Tak	北	N	45	22/10	18:40	北	N	15	22/10	19:00
京士柏	King's Park	東北偏北	NNE	55	22/10	20:34	北	N	21	23/10	07:00
							北	N	21	23/10	08:00
							北	N	21	23/10	10:00
南丫島	Lamma Island	北	N	46	22/10	20:26	北	N	20	23/10	00:00
流浮山	Lau Fau Shan	北	N	58	23/10	10:29	北	N	33	23/10	11:00
昂坪	Ngong Ping	東北偏東	ENE	77	22/10	20:43	東北偏東	ENE	53	22/10	21:00
北角	North Point	東北偏北	NNE	50	22/10	19:36	東北偏北	NNE	22	22/10	21:00
坪洲	Peng Chau	東北偏北	NNE	57	22/10	18:38	東北偏北	NNE	33	22/10	20:00
平洲	Ping Chau	東北偏北	NNE	35	22/10	19:20	北	N	8	22/10	20:00
西貢	Sai Kung	東北偏北	NNE	56	22/10	19:15	東北偏北	NNE	36	22/10	18:00
沙洲	Sha Chau	北	N	60	22/10	18:02	北	N	43	22/10	19:00
沙螺灣	Sha Lo Wan	東北偏東	ENE	41	22/10	23:12	東北偏東	ENE	18	23/10	00:00
沙田	Sha Tin	東北偏北	NNE	46	22/10	22:03	東北	NE	19	22/10	21:00
九龍天星碼頭	Star Ferry (Kowloon)	東南	SE	33	22/10	19:30	東	E	9	24/10	02:00
打鼓嶺	Ta Kwu Ling	東北偏北	NNE	49	23/10	08:17	東北偏北	NNE	21	23/10	07:00
							東北偏北	NNE	21	23/10	08:00
大美督	Tai Mei Tuk	東北	NE	66	22/10	20:05	東北	NE	37	22/10	21:00
大帽山	Tai Mo Shan	東北偏東	ENE	83	23/10	19:18	東北偏東	ENE	66	23/10	08:00
大埔滘	Tai Po Kau	東北偏北	NNE	40	22/10	19:22	東北偏北	NNE	14	23/10	09:00
塔門東	Tap Mun East	北	N	48	22/10	18:15	北	N	23	22/10	18:00
大老山	Tate's Cairn	東北	NE	88	22/10	19:35	東北偏北	NNE	66	22/10	21:00
將軍澳	Tseung Kwan O	東北偏北	NNE	46	22/10	21:12	東北偏北	NNE	14	22/10	21:00
青衣島蜆殼油	Tsing Yi Shell Oil Depot	西北偏北	NNW	43	22/10	19:11	西北偏北	NNW	16	22/10	23:00
屯門政府合署	Tuen Mun Government Offices	東北偏北	NNE	49	22/10	21:11	東北偏北	NNE	19	22/10	22:00
		東北偏北	NNE	49	22/10	21:42					
		東北偏北	NNE	49	23/10	00:24					
橫瀾島	Waglan Island	北	N	58	22/10	18:50	北	N	48	22/10	20:00
濕地公園	Wetland Park	東北	NE	38	23/10	08:19	東北偏北	NNE	14	23/10	09:00
黃竹坑	Wong Chuk Hang	北	N	51	22/10	20:27	西北偏北	NNW	14	22/10	21:00

石崗 - 沒有資料　Shek Kong - data not available

表 3.5.2　在沙德爾影響下，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程度的時段

Table 3.5.2　Periods during which sustained strong winds were attained at the eight reference anemometers in the tropical cyclone warning system when tropical cyclone warning signals for Saudel were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		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	
		日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time
長洲	Cheung Chau	22/10	18:25	22/10	20:00
流浮山	Lau Fau Shan	23/10	10:37	23/10	10:41

香港國際機場、啟德、西貢、沙田、打鼓嶺、青衣島蜆殼油庫的持續風力未達到強風程度。

The sustained wind speed did not attain strong force at Hong Kong International Airport, Kai Tak, Sai Kung, Sha Tin, Ta Kwu Ling and Tsing Yi Shell Oil Depot.

* 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

註:　本表列出持續風力達到強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 winds. Winds might fluctuate above or below the specified wind speeds in between the times indicated.

表 3.5.3　沙德爾影響香港期間，香港天文台總部及其他各站所錄得的日雨量

Table 3.5.3　Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Saudel

站 (參閱圖 1.1) Station (See Fig. 1.1)			十月二十二日 22 Oct	十月二十三日 23 Oct	十月二十四日 24 Oct	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory (HKO)			0.0	0.0	微量 Trace	微量 Trace
香港國際機場 Hong Kong International Airport (HKA)			0.0	0.0	微量 Trace	微量 Trace
長洲 Cheung Chau (CCH)			0.0	0.0	0.0	0.0
H23	香港仔	Aberdeen	0.0	0.0	0.0	0.0
N05	粉嶺	Fanling	0.0	0.0	0.0	0.0
N13	糧船灣	High Island	0.0	0.0	0.0	0.0
K04	佐敦谷	Jordan Valley	0.0	0.0	0.0	0.0
N06	葵涌	Kwai Chung	0.0	0.0	0.0	0.0
H12	半山區	Mid Levels	0.0	0.0	0.0	0.0
N09	沙田	Sha Tin	0.0	0.0	0.0	0.0
H19	筲箕灣	Shau Kei Wan	0.0	0.0	0.0	0.0
SEK	石崗	Shek Kong	0.0	0.0	0.0	0.0
K06	蘇屋邨	So Uk Estate	0.0	0.0	0.0	0.0
R31	大美督	Tai Mei Tuk	0.0	0.0	0.0	0.0
R21	踏石角	Tap Shek Kok	0.0	0.0	[0.0]	[0.0]
N17	東涌	Tung Chung	0.0	0.0	0.0	0.0
TMR	屯門水庫	Tuen Mun Reservoir	0.0	0.0	0.0	0.0

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

表 3.5.4　沙德爾影響香港期間，香港各潮汐站所錄得的最高潮位及最大風暴潮

Table 3.5.4　Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Saudel

站 (參閱圖 1.1) Station (See Fig. 1.1)		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	2.78	24/10	02:00	0.55	23/10	14:34
石壁	Shek Pik	2.83	24/10	01:55	0.60	23/10	14:40
大廟灣	Tai Miu Wan	2.78	24/10	02:08	0.60	24/10	08:15
大埔滘	Tai Po Kau	2.89	23/10	02:27	0.67	23/10	13:57
尖鼻咀	Tsim Bei Tsui	2.90	24/10	03:31	0.60	24/10	04:26

橫瀾島 - 沒有資料　Waglan Island - data not available

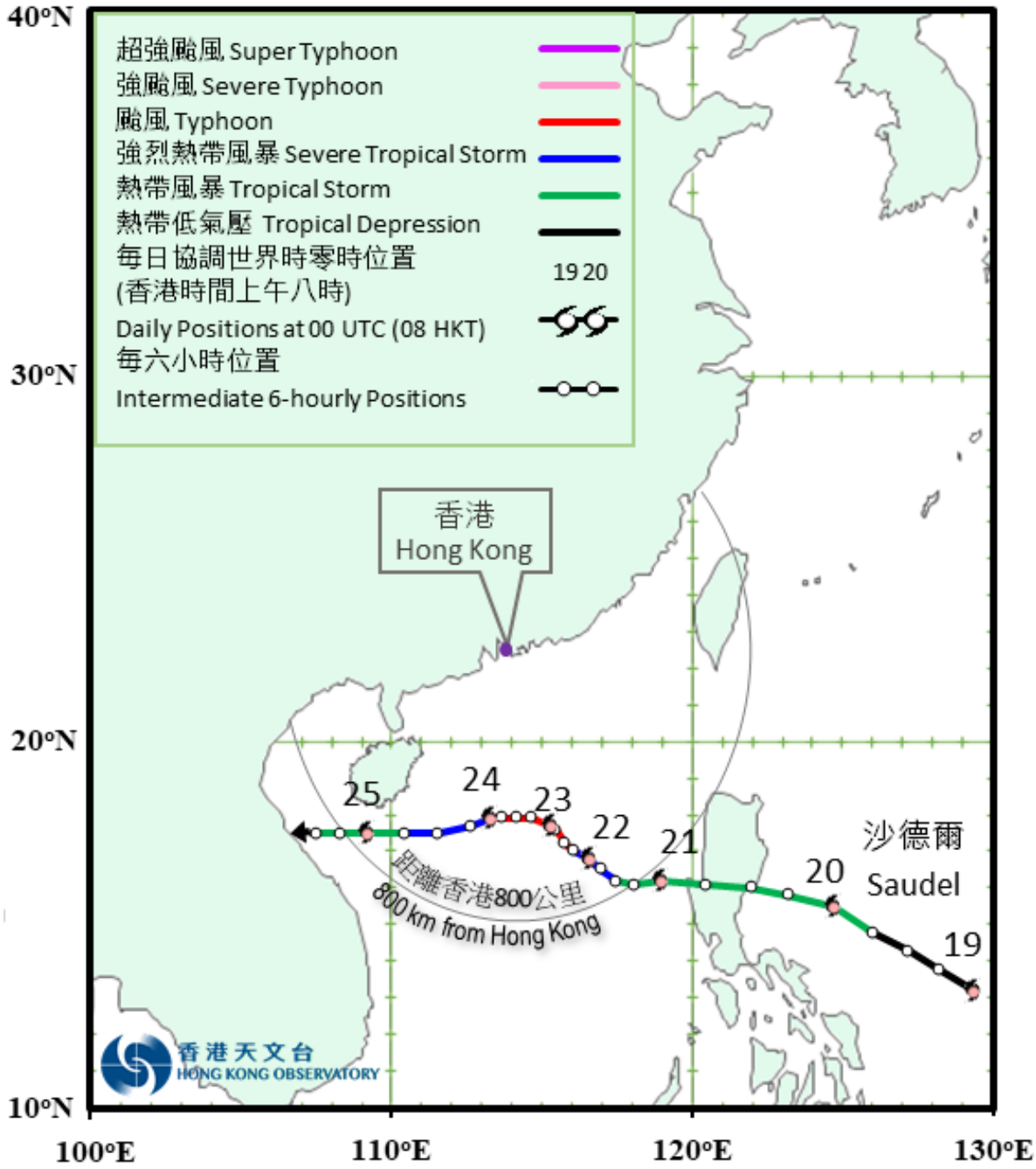


圖 3.5.1　　二零二零年十月十九日至二十五日沙德爾的路徑圖。

Figure 3.5.1　　Track of Saudel: 19 – 25 October 2020.

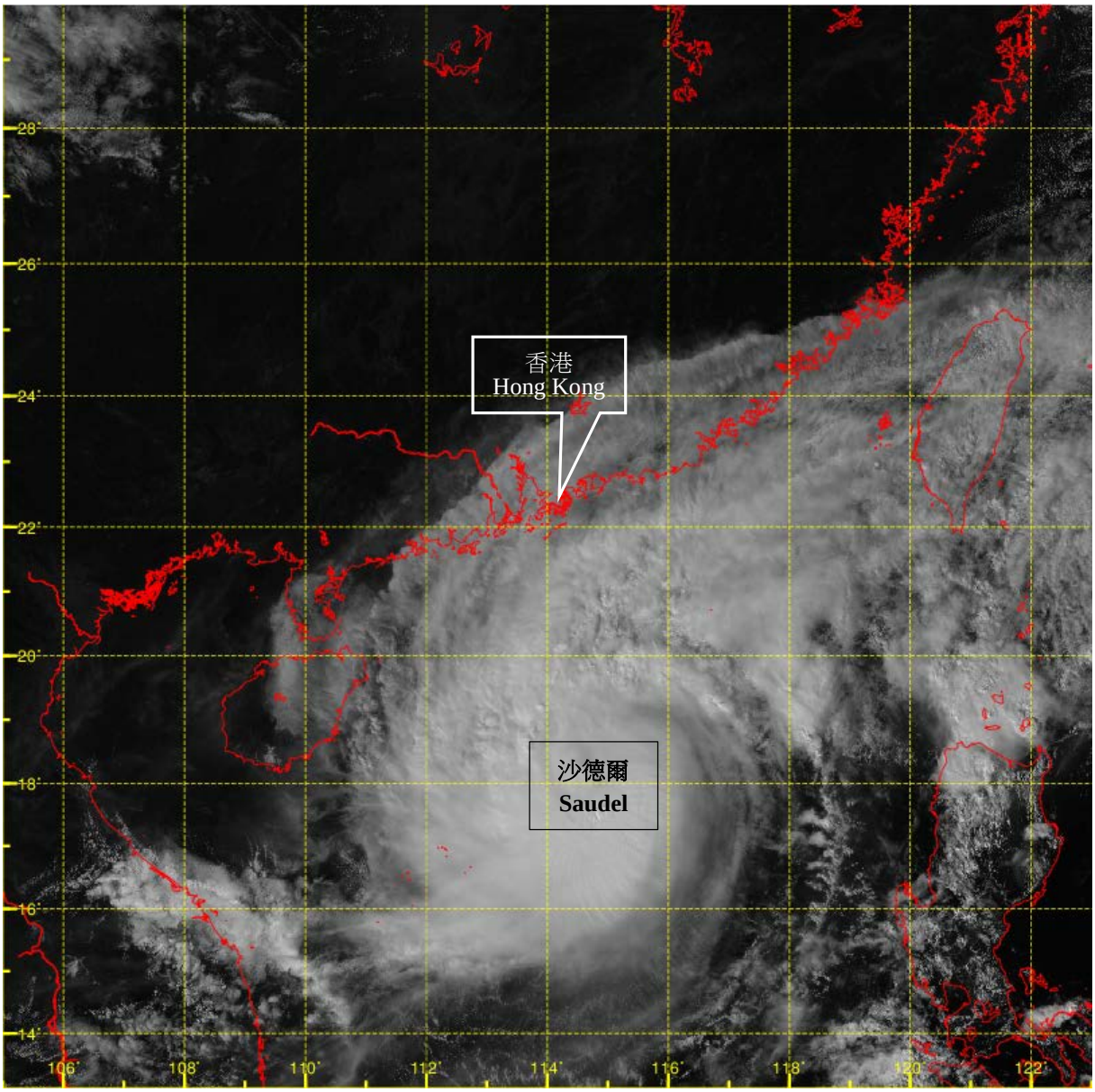


圖 3.5.2　二零二零年十月二十三日下午2時的可見光衛星圖片，當時沙德爾達到其最高強度，中心附近最高持續風速估計為每小時140公里。

Figure 3.5.2　Visible satellite imagery at around 2 p.m. on 23 October 2020, when Saudel was at its peak intensity with an estimated maximum sustained wind of 140 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).]

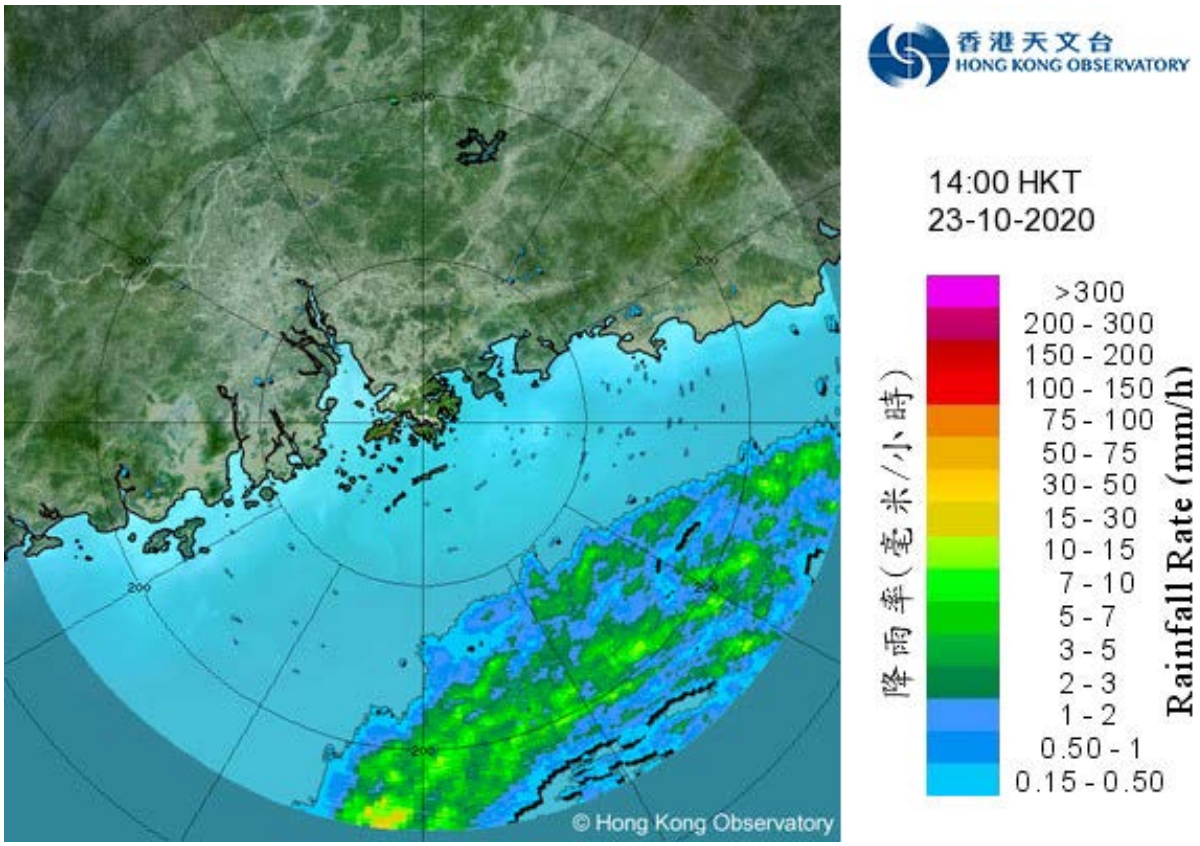


圖 3.5.3　二零二零年十月二十三日下午2時的雷達回波圖像，當時與沙德爾相關的雨帶正影響南海北部。

Figure 3.5.3　Radar echoes captured at 2 p.m. on 23 October 2020. The rainbands associated with Saudel were affecting the northern part of the South China Sea at the time.

第四節　　熱帶氣旋統計表

表4.1是二零二零年在北太平洋西部及南海區域（即由赤道至北緯45度、東經100度至180度所包括的範圍）的熱帶氣旋一覽。表內所列出的日期只說明某熱帶氣旋在上述範圍內出現的時間，因而不一定包括整個風暴過程。這個限制對表內其他元素亦同樣適用。

表4.2是天文台在二零二零年為船舶發出的熱帶氣旋警告的次數、時段、首個及末個警告發出的時間。當有熱帶氣旋位於香港責任範圍內時（即由北緯10至30度、東經105至125度所包括的範圍），天文台會發出這些警告。表內使用的時間為協調世界時。

表4.3是二零二零年熱帶氣旋警告信號發出的次數及其時段的摘要。表內亦提供每次熱帶氣旋警告信號生效的時間和發出警報的次數。表內使用的時間為香港時間。

表4.4是一九五六至二零二零年間熱帶氣旋警告信號發出的次數及其時段的摘要。

表4.5是一九五六至二零二零年間每年位於香港責任範圍內以及每年引致天文台需要發出熱帶氣旋警告信號的熱帶氣旋總數。

表4.6是一九五六至二零二零年間天文台發出各種熱帶氣旋警告信號的最長、最短及平均時段。

表4.7是二零二零年當熱帶氣旋影響香港時本港的氣象觀測摘要。資料包括熱帶氣旋最接近香港時的位置及時間和當時估計熱帶氣旋中心附近的最低氣壓、京士柏、香港國際機場及橫瀾島錄得的最高風速、香港天文台錄得的最低平均海平面氣壓以及香港各潮汐測量站錄得的最大風暴潮（即實際水位高出潮汐表中預計的部分，單位為米）。

表4.8.1是二零二零年位於香港600公里範圍內的熱帶氣旋及其為香港所帶來的雨量。

表4.8.2是一八八四至一九三九年以及一九四七至二零二零年十個為香港帶來最多雨量的熱帶氣旋和有關的雨量資料。

表4.9是自一九四六年至二零二零年間，天文台發出十號颶風信號時所錄得的氣象資料，包括熱帶氣旋吹襲香港時的最近距離及方位、天文台錄得的最低平均海平面氣壓、香港各站錄得的最高60分鐘平均風速和最高陣風。

表4.10是二零二零年熱帶氣旋在香港所造成的損失。資料參考了各政府部門和公共事業機構所提供的報告、本地報章的報導及香港保險業聯會提供的數據。

表4.11是一九六零至二零二零年間熱帶氣旋在香港所造成的人命傷亡及破壞。資料參考了各政府部門和公共事業機構所提供的報告及本地報章的報導。

表4.12是二零二零年天文台發出的熱帶氣旋路徑預測驗証。

Section 4 TROPICAL CYCLONE STATISTICS AND TABLES

TABLE 4.1 is a list of tropical cyclones in 2020 in the western North Pacific and the South China Sea (i.e. the area bounded by the Equator, 45°N, 100°E and 180°). The dates cited are the residence times of each tropical cyclone within the above-mentioned region and as such might not cover the full life-span. This limitation applies to all other elements in the table.

TABLE 4.2 gives the number of tropical cyclone warnings for shipping issued by the Hong Kong Observatory in 2020, the durations of these warnings and the times of issue of the first and last warnings for all tropical cyclones in Hong Kong's area of responsibility (i.e. the area bounded by 10°N, 30°N, 105°E and 125°E). Times are given in hours and minutes in UTC.

TABLE 4.3 presents a summary of the occasions/durations of the issuing of tropical cyclone warning signals in 2020. The sequence of the signals displayed and the number of tropical cyclone warning bulletins issued for each tropical cyclone are also given. Times are given in hours and minutes in Hong Kong Time.

TABLE 4.4 presents a summary of the occasions/durations of the issuing of tropical cyclone warning signals from 1956 to 2020 inclusive.

TABLE 4.5 gives the annual number of tropical cyclones in Hong Kong's area of responsibility between 1956 and 2020 and also the annual number of tropical cyclones necessitated the issuing of tropical cyclone warning signals in Hong Kong.

TABLE 4.6 shows the maximum, mean and minimum durations of the tropical cyclone warning signals issued during the period 1956-2020.

TABLE 4.7 is a summary of meteorological information for each tropical cyclone affecting Hong Kong in 2020, including the position, time and the estimated minimum central pressure of each tropical cyclone during its closest approach to Hong Kong, the maximum winds at King’s Park, Hong Kong International Airport and Waglan Island, the minimum mean sea-level pressure recorded at the Hong Kong Observatory and the maximum storm surge (the excess, in metres, of the actual water level over that predicted in the Tide Tables) recorded at various tide stations in Hong Kong.

TABLE 4.8.1 tabulates the amount of rainfall associated with each tropical cyclone that came within 600 km of Hong Kong in 2020.

TABLE 4.8.2 highlights the 10 wettest tropical cyclones in Hong Kong for the period 1884-1939 and 1947-2020.

TABLE 4.9 provides some meteorological information for those typhoons requiring the issuing of the Hurricane Signal No. 10 in Hong Kong from 1946 to 2020. The information presented includes the distances and bearings of nearest approach, the minimum mean sea-level pressures recorded at the Hong Kong Observatory and the maximum 60-minute mean winds and maximum gust peak speeds recorded at some stations in Hong Kong.

TABLE 4.10 contains damage caused by tropical cyclones in 2020. The information is based on reports from various government departments, public utility companies, local newspapers and data provided by the Hong Kong Federation of Insurers.

TABLE 4.11 presents casualties and damage caused by tropical cyclones in Hong Kong: 1960-2020. The information is based on reports from various government departments, public utility companies and local newspapers.

TABLE 4.12 shows verification of the tropical cyclone track forecasts issued by the Hong Kong Observatory in 2020.

表 4.1　　二零二零年在北太平洋西部及南海區域的熱帶氣旋一覽

TABLE 4.1　　LIST OF TROPICAL CYCLONES IN THE WESTERN NORTH PACIFIC AND THE SOUTH CHINA SEA IN 2020

熱帶氣旋名稱	Name of tropical cyclone	編號 Code	路徑起點 Beginning of track			最高強度 (估計) Peak intensity (estimated)		路徑終點 End of track			DISP: 消散 Dissipated XT: 變為溫帶氣旋 Became extratropical
			日期/月份 Date/Month	時間+ Time+	位置 Position 北緯 °N 東經 °E	風力 (公里每小時) Winds (km/h)	氣壓 (百帕斯卡) Pressure (hPa)	日期/月份 Date/Month	時間+ Time+	位置 Position 北緯 °N 東經 °E	
強颱風黃蜂	Severe Typhoon Vongfong	2001	10 / 5	1800	8.4 130.1	165	950	16 / 5	1200	19.5 120.1	DISP
熱帶風暴鸚鵡	Tropical Storm Nuri	2002	11 / 6	1800	15.5 120.6	75	994	14 / 6	0600	22.1 111.3	DISP
熱帶低氣壓	Tropical Depression	-	12 / 7	1800	17.2 125.4	45	1004	13 / 7	1800	19.5 122.1	DISP
熱帶風暴森拉克	Tropical Storm Sinlaku	2003	31 / 7	1200	17.6 112.5	65	990	2 / 8	0600	19.7 105.4	DISP
颱風黑格比	Typhoon Hagupit	2004	1 / 8	0000	20.3 128.7	140	965	5 / 8	0600	35.2 121.4	XT
熱帶風暴薔薇	Tropical Storm Jangmi	2005	8 / 8	1800	21.1 126.0	85	992	10 / 8	1800	39.9 132.1	XT
颱風米克拉	Typhoon Mekkhala	2006	9 / 8	1200	16.8 118.6	130	972	11 / 8	0600	25.1 117.2	DISP
熱帶低氣壓	Tropical Depression	-	10 / 8	1200	26.2 144.1	45	1010	12 / 8	0000	26.1 136.6	DISP
颱風海高斯	Typhoon Higos	2007	17 / 8	1200	19.6 119.7	130	980	19 / 8	0900	23.4 111.6	DISP
強颱風巴威	Severe Typhoon Bavi	2008	21 / 8	1200	22.0 122.4	165	945	27 / 8	0600	42.0 125.5	XT
超強颱風美莎克	Super Typhoon Maysak	2009	28 / 8	0000	17.2 130.9	195	925	3 / 9	0000	38.8 129.9	XT
超強颱風海神	Super Typhoon Haishen	2010	1 / 9	0000	21.6 144.9	220	915	7 / 9	1200	40.2 128.7	XT
熱帶風暴紅霞	Tropical Storm Noul	2011	15 / 9	1200	12.4 119.3	85	990	18 / 9	1200	16.3 104.0	DISP
強烈熱帶風暴白海豚	Severe Tropical Storm Dolphin	2012	20 / 9	1200	24.0 134.4	105	980	23 / 9	1800	33.0 141.6	XT
強烈熱帶風暴鯨魚	Severe Tropical Storm Kujira	2013	26 / 9	1200	18.8 160.0	110	980	30 / 9	0000	39.8 160.7	XT
颱風燦鴻	Typhoon Chan-hom	2014	4 / 10	1800	22.2 139.4	130	965	11 / 10	1200	31.5 142.1	DISP
熱帶風暴蓮花	Tropical Storm Linfa	2015	10 / 10	0000	13.8 114.0	75	995	11 / 10	1500	15.2 107.4	DISP
熱帶風暴浪卡	Tropical Storm Nangka	2016	11 / 10	0900	17.0 119.5	85	988	14 / 10	1200	19.8 105.2	DISP
颱風沙德爾	Typhoon Saudel	2017	19 / 10	0000	13.2 129.4	140	968	25 / 10	1200	17.5 107.5	DISP
強颱風莫拉菲	Severe Typhoon Molave	2018	24 / 10	0000	12.6 131.0	165	945	28 / 10	1800	15.4 106.1	DISP
超強颱風天鵝	Super Typhoon Goni	2019	28 / 10	0000	16.0 140.5	275	895	5 / 11	1200	14.0 111.0	DISP
強烈熱帶風暴艾莎尼	Severe Tropical Storm Atsani	2020	30 / 10	0600	10.8 143.3	105	985	7 / 11	0900	22.8 118.9	DISP
熱帶風暴艾濤	Tropical Storm Etau	2021	8 / 11	1200	12.5 117.4	75	996	10 / 11	1200	12.7 107.5	DISP
強颱風環高	Severe Typhoon Vamco	2022	9 / 11	0600	11.8 131.0	175	945	15 / 11	1200	18.1 105.6	DISP
熱帶低氣壓科羅旺	Tropical Depression Krovanh	2023	19 / 12	1800	10.4 117.6	55	1000	21 / 12	2100	8.6 111.0	DISP

+時間為協調世界時。

+Times are given in UTC.

表 4.2　　二零二零年為船舶發出的熱帶氣旋警告

TABLE 4.2　TROPICAL CYCLONE WARNINGS FOR SHIPPING ISSUED IN 2020

熱帶氣旋	Tropical cyclone	發出警告的次數 No. of warnings issued	發出的日期及時間 Date and time of issue of				時段 (小時) Duration (hours)
			首次警告 First warning		末次警告 Last warning		
			日期/月份 Date/Month	時間+ Time+	日期/月份 Date/Month	時間+ Time+	
強颱風黃蜂	Severe Typhoon Vongfong	22	14 / 5	0900	17 / 5	0000	63
* 熱帶風暴鸚鵡	* Tropical Storm Nuri	23	11 / 6	1800	14 / 6	0600	60
熱帶低氣壓	Tropical Depression	11	12 / 7	2100	14 / 7	0000	27
* 熱帶風暴森拉克	* Tropical Storm Sinlaku	18	31 / 7	1200	2 / 8	0600	42
颱風黑格比	Typhoon Hagupit	20	2 / 8	0300	4 / 8	1200	57
颱風米克拉	Typhoon Mekkhala	14	9 / 8	1500	11 / 8	0600	39
* 颱風海高斯	* Typhoon Higos	14	17 / 8	1800	19 / 8	0600	36
強颱風巴威	Severe Typhoon Bavi	18	21 / 8	1500	23 / 8	1500	48
熱帶風暴紅霞	Tropical Storm Noul	22	15 / 9	1500	18 / 9	0300	60
熱帶風暴蓮花	Tropical Storm Linfa	11	10 /10	0300	11 /10	0900	30
* 熱帶風暴浪卡	* Tropical Storm Nangka	27	11 /10	0900	14 /10	1200	75
* 颱風沙德爾	* Typhoon Saudel	47	20 /10	0000	25 /10	1800	138
強颱風莫拉菲	Severe Typhoon Molave	29	25 /10	0900	28 /10	1800	63
超強颱風天鵝	Super Typhoon Goni	44	31 /10	1800	6 /11	0300	129
強烈熱帶風暴艾莎尼	Severe Tropical Storm Atsani	22	5 /11	0900	7 /11	1800	57
熱帶風暴艾濤	Tropical Storm Etau	16	8 /11	1500	10 /11	1200	45
強颱風環高	Severe Typhoon Vamco	38	11 /11	0000	15 /11	1500	111
熱帶低氣壓科羅旺	Tropical Depression Krovanh	9	19 /12	1800	20 /12	1800	24
	共 Total	405					1074

* 這些熱帶氣旋引致天文台需要發出熱帶氣旋警告信號。

* Tropical cyclones for which tropical cyclone warning signals were issued in Hong Kong.

+ 時間為協調世界時。

+ Times are given in UTC.

表 4.3　　二零二零年天文台所發出的熱帶氣旋警告信號及警報發出的次數

TABLE 4.3　TROPICAL CYCLONE WARNING SIGNALS ISSUED IN HONG KONG AND NUMBER OF WARNING BULLETINS ISSUED IN 2020

摘要 SUMMARY

信號 Signal	次數 No. of occasions	總時段 Total duration	
		時 h	分 min
1	6	61	55
3	7	106	20
8 西北 NW	0	0	0
8 西南 SW	0	0	0
8 東北 NE	2	16	50
8 東南 SE	1	3	30
9	1	6	10
10	0	0	0
共 Total	17	194	45

詳情 DETAILS

熱帶氣旋 Tropical cyclone	警報發出的次數 No. of warning bulletins issued	信號 Signal	發出 Issued		取消 Cancelled	
			日期/月份 Date/Month	時間* Time*	日期/月份 Date/Month	時間* Time*
熱帶風暴鸚鵡 Tropical Storm Nuri	44	1	12/06	20:20	13/06	15:40
		3	13/06	15:40	14/06	10:40
		1	14/06	10:40	14/06	13:20
熱帶風暴森拉克 Tropical Storm Sinlaku	29	3	31/07	20:40	01/08	21:10
		1	01/08	21:10	01/08	23:15
颱風海高斯 Typhoon Higos	41	1	18/08	03:40	18/08	14:20
		3	18/08	14:20	18/08	22:40
		8 東北 NE	18/08	22:40	19/08	01:30
		9	19/08	01:30	19/08	07:40
		8 東南 SE	19/08	07:40	19/08	11:10
		3	19/08	11:10	19/08	13:20
熱帶風暴浪卡 Tropical Storm Nangka	59	1	11/10	20:40	12/10	17:10
		3	12/10	17:10	13/10	05:40
		8 東北 NE	13/10	05:40	13/10	19:40
		3	13/10	19:40	14/10	02:40
颱風沙德爾 Typhoon Saudel	42	1	22/10	17:40	23/10	00:20
		3	23/10	00:20	24/10	09:10

* 香港時間（協調世界時加八小時）　　* Hong Kong Time （UTC + 8 hours）

表 4.4　　一九五六至二零二零年間每年各熱帶氣旋警告信號的發出次數及總時段

TABLE 4.4　FREQUENCY AND TOTAL DURATION OF DISPLAY OF TROPICAL CYCLONE WARNING SIGNALS : 1956-2020

信號 Signals / 年份 Year	1	3	8 西北 NW	8 西南 SW	8 東北 NE	8 東南 SE	9	10	總時段 Total duration 時 h	分 min
1956	5	4	0	0	0	0	0	0	191	25
1957	4	9	1	1	2	2	0	1	295	45
1958	4	5	0	0	1	0	0	0	214	5
1959	1	1	0	0	0	0	0	0	36	35
1960	11	7	0	2	2	2	1	1	432	35
1961	6	7	1	2	1	0	1	1	192	55
1962	4	3	0	1	1	0	1	1	158	10
1963	4	5	0	0	1	0	0	0	175	50
1964	11	14	1	3	5	3	3	2	570	15
1965	7	6	0	0	1	1	0	0	239	40
1966	6	5	0	0	2	2	0	0	284	40
1967	8	6	0	0	2	1	0	0	339	10
1968	7	7	0	1	1	0	1	1	290	10
1969	4	2	0	0	0	0	0	0	110	15
1970	6	8	2	1	2	0	0	0	286	45
1971	9	10	1	3	2	2	1	1	323	25
1972	8	6	0	0	1	1	0	0	288	20
1973	8	6	1	1	1	0	1	0	416	50
1974	12	10	0	0	2	1	1	0	525	20
1975	8	6	1	0	0	1	1	1	292	20
1976	6	6	0	0	1	2	0	0	351	30
1977	8	6	0	0	1	0	0	0	395	10
1978	8	9	1	1	3	2	0	0	462	10
1979	5	5	1	0	2	2	1	1	281	15
1980	10	8	0	0	1	1	0	0	414	5
1981	5	4	0	0	1	1	0	0	202	20
1982	7	4	0	0	0	0	0	0	247	35
1983	8	7	0	1	2	2	1	1	289	42
1984	6	6	0	0	1	0	0	0	280	2
1985	5	4	1	0	0	1	0	0	193	35
1986	6	7	0	1	1	0	0	0	305	0
1987	6	1	0	0	0	0	0	0	165	45
1988	6	4	0	0	0	0	0	0	204	10
1989	7	8	0	0	2	2	0	0	306	10
1990	6	4	0	0	0	0	0	0	245	10
1991	8	6	0	0	1	1	0	0	349	55
1992	5	5	0	0	1	1	0	0	167	5
1993	8	9	0	0	2	4	0	0	325	40
1994	4	3	0	0	0	0	0	0	138	10
1995	8	6	2	2	1	1	0	0	348	50
1996	7	2	0	0	0	1	0	0	189	0
1997	2	3	0	1	1	0	1	0	97	30
1998	5	2	0	0	0	0	0	0	188	35
1999	10	13	4	3	2	0	2	1	520	0
2000	7	3	0	0	0	0	0	0	329	5
2001	6	6	1	1	2	1	0	0	253	35
2002	3	2	0	0	0	1	0	0	144	25
2003	4	5	1	1	1	1	1	0	158	0
2004	3	2	1	1	1	0	0	0	77	35
2005	3	1	0	0	0	0	0	0	142	45
2006	10	3	0	0	0	0	0	0	317	50
2007	4	3	0	1	0	0	0	0	86	50
2008	8	9	2	2	3	2	1	0	347	0
2009	13	9	1	1	1	2	1	0	255	30
2010	8	3	0	0	0	0	0	0	220	0
2011	8	5	0	0	0	1	0	0	213	0
2012	9	7	0	0	2	3	1	1	252	45
2013	10	7	1	1	0	1	0	0	292	50
2014	6	3	0	0	0	1	0	0	145	45
2015	4	3	1	0	0	0	0	0	136	50
2016	11	7	2	2	0	0	0	0	283	0
2017	12	11	2	1	3	2	1	1	259	40
2018	12	7	0	0	1	1	1	1	422	25
2019	7	3	0	0	1	0	0	0	177	25
2020	6	7	0	0	2	1	1	0	194	45
共 Total	443	365	29	35	67	54	23	15	17043	54
平均 Mean	6.8	5.6	0.4	0.5	1.0	0.8	0.4	0.2	262	13

表 4.5 一九五六至二零二零年間每年位於香港責任範圍內以及每年引致天文台需要發出熱帶氣旋警告信號的熱帶氣旋總數

TABLE 4.5 ANNUAL NUMBER OF TROPICAL CYCLONES IN HONG KONG'S AREA OF RESPONSIBILITY AND THE NUMBER THAT NECESSITATED THE DISPLAY OF TROPICAL CYCLONE WARNING SIGNALS IN HONG KONG : 1956-2020

年份 Year	每年位於香港責任範圍內的熱帶氣旋總數 Annual number of tropical cyclones in Hong Kong's area of responsibility	每年引致天文台需要發出熱帶氣旋警告信號的熱帶氣旋總數 Annual number of tropical cyclones necessitating the display of signals in Hong Kong
1956	23	5
1957	12	6
1958	15	5
1959	18	2
1960	18	9
1961	24	6
1962	20	4
1963	13	4
1964	26	10
1965	16	6
1966	17	6
1967	17	8
1968	12	6
1969	11	4
1970	20	6
1971	20	9
1972	15	5
1973	17	9
1974	21	11
1975	12	7
1976	10	5
1977	10	8
1978	20	8
1979	18	6
1980	17	10
1981	15	5
1982	16	5
1983	15	7
1984	14	5
1985	15	5
1986	16	4
1987	12	5
1988	17	6
1989	17	7
1990	18	6
1991	14	6
1992	11	5
1993	14	9
1994	20	4
1995	17	8
1996	15	7
1997	10	2
1998	15	5
1999	12	8
2000	20	7
2001	14	6
2002	10	3
2003	12	4
2004	15	3
2005	15	3
2006	16	7
2007	12	2
2008	17	6
2009	17	8
2010	11	5
2011	12	5
2012	14	5
2013	19	7
2014	10	4
2015	13	3
2016	15	9
2017	22	7
2018	17	6
2019	15	5
2020	18	5
平均 Mean	15.7	5.9

表 4.6　一九五六至二零二零年間天文台發出熱帶氣旋警告信號的時段

TABLE 4.6　DURATION OF TROPICAL CYCLONE WARNING SIGNALS ISSUED IN HONG KONG : 1956-2020

信號 Signal	次數 Number of occasions	每次時段 Duration of each occasion			每年總時段 Total duration per year		
		平均 Mean	最長 Maximum	最短 Minimum	平均 Mean	最長 Maximum	最短 Minimum
		時 分 h min	時 分 h min	時 分 h min	時 分 h min	時 分 h min	時 分 h min
一號或以上 1 or higher	399	42 43	161 0 (桃麗達 Tilda, 1964)	4 30 (熱帶低氣壓 T.D., 2000)	262 13	570 15 (1964)	36 35 (1959)
三號或以上 3 or higher	268	28 55	124 15 (瑪麗 Mary, 1960)	4 5 (熱帶低氣壓 T.D., 2006)	119 12	306 35 (1974)	15 5 (2004)
八號或以上 8 or higher	99	14 22	66 50 (瑪麗 Mary, 1960)	2 40 (雲茜 Wynne, 1984)	21 53	100 55 (1964)	0 0
8 西北 NW	29	5 48	15 45	1 30	2 35	18 0	0 0
8 西南 SW	35	4 58	10 45	2 0	2 40	16 10	0 0
8 東北 NE	67	7 37	35 35	1 35	7 51	40 20	0 0
8 東南 SE	54	7 26	21 45	0 20	6 10	31 15	0 0
九號或以上 9 or higher	24	7 2	12 25 (約克 York, 1999)	2 0 (杜鵑 Dujuan, 2003)	2 36	19 25 (1964)	0 0
十號 10	15	6 26	11 0 (約克 York, 1999)	2 30 (愛麗斯 Alice, 1961)	1 29	12 10 (1964)	0 0

註：( ) 內為創造該記錄的熱帶氣旋名稱及年份。

Note: ( ) are the years and the names of the tropical cyclones which created the record.

表 4.7　　二零二零年當熱帶氣旋影響香港時本港的氣象觀測摘要

TABLE 4.7　A SUMMARY OF METEOROLOGICAL OBSERVATIONS RECORDED IN HONG KONG DURING THE PASSAGES OF TROPICAL CYCLONES IN 2020

熱帶氣旋名稱 Name of tropical cyclone	當最接近香港時 Nearest approach to Hong Kong							香港天文台錄得的最低海平面氣壓(百帕斯卡) Minimum M.S.L. pressure (hPa) at the Hong Kong Observatory				最大風暴潮(米) Maximum storm surge (metres)					
	月份 Month	日期 Date	時間* Hour*	方位 Direction	距離(公里) Distance (km)	移動方向及速度(公里每小時) Movement (km/h)	估計最低中心氣壓(百帕斯卡) Estimated minimum central pressure (hPa)	月份 Month	日期 Date	時間* Hour*	瞬時 Inst. / 每小時 Hourly	鰂魚涌 Quarry Bay	石壁 Shek Pik	大廟灣 Tai Miu Wan	大埔滘 Tai Po Kau	尖鼻咀 Tsim Bei Tsui	橫瀾島 Waglan Island
熱帶風暴鸚鵡 Tropical Storm Nuri	6	14	02:00	西南偏南 SSW	190	22 西北偏西 WNW	998	6	13	16:48 - 17:16#	1002.5	0.26	0.28	0.30	0.40	0.45	-
										17:00	1002.6						
熱帶風暴森拉克 Tropical Storm Sinlaku	7	31	20:00	西南偏南 SSW	550	18 西北偏西 WNW	992	8	1	02:57 - 14:55	1003.0	0.35	0.36	0.47	0.54	0.40	-
										04:00	1003.1						
颱風海高斯 Typhoon Higos	8	19	05:00	西南偏西 WSW	80	20 西北 NW	980	8	19	02:51 - 03:45	1001.2	0.51	0.71	0.64	0.61	1.02	-
										04:00	1001.7						
熱帶風暴浪卡 Tropical Storm Nangka	10	13	02:00	南 S	440	18 西北偏西 WNW	988	10	12	15:53	1006.7	0.61	0.74	0.70	0.72	0.72	-
										17:00	1006.8						
颱風沙德爾 Typhoon Saudel	10	23	20:00	南 S	490	10 西 W	972	10	22	17:40-17:44	1009.1	0.55	0.60	0.60	0.67	0.60	-
										18:00	1009.3						

* 香港時間（協調世界時加八小時）

\# 最初及最後錄得的時間

\- 沒有資料

* Hong Kong Time （UTC + 8 hours）

\# First and last time recorded

\- data not available

表 4.7 (續) TABLE 4.7 (cont'd)

熱帶氣旋名稱 Name of tropical cyclone	月份 Month	最高60分鐘平均風向及風速 (公里每小時) Maximum 60-min mean wind in points and km/h						最高10分鐘平均風向及風速 (公里每小時) Maximum 10-min mean wind in points and km/h						最高陣風風向及風速 (公里每小時) Maximum gust peak speed in km/h with direction in points					
		京士柏 King's Park		香港國際機場 Hong Kong International Airport		橫瀾島 Waglan Island		京士柏 King's Park		香港國際機場 Hong Kong International Airport		橫瀾島 Waglan Island		京士柏 King's Park		香港國際機場 Hong Kong International Airport		橫瀾島 Waglan Island	
熱帶風暴鸚鵡 Tropical Storm Nuri	6	東南偏東 ESE	28	東 E	35	東南 SE	54	東, 東南偏東 E, ESE	31	東南偏南 SSE	46	東北偏東 ENE	60	東 E	57	東南 SE	65	東北偏東 ENE	75
熱帶風暴森拉克 Tropical Storm Sinlaku	7 - 8	東南偏東 ESE	32	東南偏東 ESE	38	東南 SE	61	東南偏東 ESE	38	東 E	57	東南 SE	73	東南偏東 ESE	89	東 E	78	東南 SE	85
颱風海高斯 Typhoon Higos	8	東, 東南偏東 E, ESE	39	東南偏東 ESE	64	東南偏東 ESE	84	東南偏東 ESE	43	東南偏東 ESE	68	東南偏東 ESE	89	東南偏東 ESE	87	東南偏東 ESE	104	東 E	112
熱帶風暴浪卡 Tropical Storm Nangka	10	東 E	28	東 E	43	東北偏東 ENE	82	東 E	32	東 E	48	東北偏東 ENE	85	東 E	69	東, 東北偏東 E, ENE	62	東北偏東 ENE	97
颱風沙德爾 Typhoon Saudel	10	北 N	22	東北偏北 NNE	26	北 N	49	東北偏北 NNE	26	東北 NE	32	北 N	51	東北偏北 NNE	55	東北 NE	46	北 N	58

表 4.8.1　二零二零年位於香港600公里範圍內的熱帶氣旋及其為本港帶來的雨量期間，天文台錄得的雨量

TABLE 4.8.1　RAINFALL ASSOCIATED WITH EACH TROPICAL CYCLONE THAT CAME WITHIN 600 KM OF HONG KONG IN 2020

熱帶氣旋 名稱 Name of tropical cyclone	熱帶氣旋位於 香港600公里 範圍內的時期 Period when tropical cyclone within 600 km of Hong Kong (T_1 → T_2) 日期/月份　時間* Date/Month　Time*	香港天文台錄得的雨量(毫米) Rainfall at the Hong Kong Observatory (mm)				
		(i) 在香港600公里內 within 600 km of Hong Kong (T_1 →T_2)	(ii) 在 T_2 之後 的24小時內 24-hour period after T_2	(iii) 在 T_2 之後 的48小時內 48-hour period after T_2	(iv) 在 T_2 之後 的72小時內 72-hour period after T_2	(i) + (iv) 共 Total T_1 → (T_2+72 小時 hours)
熱帶風暴鸚鵡 Tropical Storm Nuri	(T_1) 13 / 6 0200 - (T_2) 14 / 6 1400	23.4	17.8	24.4	27.2	50.6
熱帶風暴森拉克 Tropical Storm Sinlaku	(T_1) 31 / 7 2000 - (T_2) 1 / 8 0800	26.5	31.1	56.1	88.8	115.3
颱風米克拉# Typhoon Mekkhala#	(T_1) 10 / 8 0700 - (T_2) 11 / 8 1400	微量 Trace	29.8	42.1	55.8	55.8
颱風海高斯 Typhoon Higos	(T_1) 17 / 8 2300 - (T_2) 19 / 8 1700	172.2	微量 Trace	微量 Trace	微量 Trace	172.2
熱帶風暴浪卡 Tropical Storm Nangka	(T_1) 12 / 10 0900 - (T_2) 14 / 10 0000	26.6	1.2	1.2	1.2	27.8
颱風沙德爾 Typhoon Saudel	(T_1) 22 / 10 1500 - (T_2) 24 / 10 2000	微量 Trace	0.0	0.0	0.0	微量 Trace
強烈熱帶風暴艾莎尼 # Severe Tropical Storm Atsani #	(T_1) 6 / 11 2300 - (T_2) 7 / 11 1700	0.0	0.0	微量 Trace	微量 Trace	微量 Trace
					共 Total	421.7

* 香港時間（協調世界時加八小時）。

\# 該熱帶氣旋並未導致天文台需要發出熱帶氣旋警告信號。

T_1 熱帶氣旋首次出現於香港600公里範圍內的時間。

T_2 熱帶氣旋在香港600公里範圍內消散或離開該範圍的時間。

* Hong Kong Time （UTC + 8 hours）.

\# Tropical cyclone without issuing of tropical cyclone warning signal in Hong Kong.

T_1 The time when a tropical cyclone was first centred within 600 km of Hong Kong.

T_2 The time when a tropical cyclone was dissipated within or moved outside 600 km of Hong Kong.

表 4.8.2　一八八四至一九三九年及一九四七至二零二零年間十個為香港帶來最多雨量的熱帶氣旋

TABLE 4.8.2　TEN WETTEST TROPICAL CYCLONES IN HONG KONG (1884-1939, 1947-2020)

熱帶氣旋 Tropical Cyclone			香港天文台錄得的雨量(毫米) Rainfall at the Hong Kong Observatory (mm)				
年份 Year	月份 Month	名稱 Name	(i) 在香港600公里內 within 600 km of Hong Kong ($T_1 \rightarrow T_2$)	(ii) 在 T_2 之後的 24 小時內 24-hour period after T_2	(iii) 在 T_2 之後的 48 小時內 48-hour period after T_2	(iv) 在 T_2 之後的 72 小時內 72-hour period after T_2	(i) + (iv) 共 Total $T_1 \rightarrow$ (T_2+72 小時 hours)
1999	8	森姆 Sam	368.1	178.9	248.1	248.4	616.5
1926	7	熱帶氣旋 T.C.	34.8 #	534.0 #	561.1 #	562.2 #	597.0
1916	6	熱帶氣旋 T.C.	494.8 #	27.9 #	59.4 #	67.2 #	562.0
1965	9	愛娜斯 Agnes	404.6	8.9	64.3	126.1	530.7
1978	7	愛娜斯 Agnes	502.4	12.3	12.3	16.6	519.0
1976	8	愛倫 Ellen	90.7	394.2	421.0	425.4	516.1
1993	9	黛蒂 Dot	459.6	37.9	37.9	37.9	497.5
1982	8	黛蒂 Dot	41.2	322.5	403.1	450.5	491.7
2016	10	莎莉嘉 Sarika	195.6	223.2	223.2	295.7+	491.3
1995	8	海倫 Helen	241.4	146.2	235.2	239.5	480.9

T_1 - 熱帶氣旋首次出現於香港600公里範圍內的時間。

T_2 - 熱帶氣旋在香港600公里範圍內消散或離開該範圍的時間。

\# 對於一九六一年以前的熱帶氣旋，欄(i)顯示當它位於香港600公里範圍內的日子裡，天文台所錄得的總日雨量，欄(ii)至(iv)分別是指其後一至三天累積的日雨量。

\+ 當中的72.5毫米雨量與超強颱風海馬重疊出現。

T_1 - The time when a tropical cyclone was first centred within 600 km of Hong Kong.

T_2 - The time when a tropical cyclone was dissipated within or moved outside 600 km of Hong Kong.

\# For years prior to 1961, column (i) is the sum of daily rainfall on those days when a tropical cyclone was centred within 600 km of Hong Kong, columns (ii) to (iv) show respectively the accumulated daily rainfall on the following one to three days.

\+ 72.5 mm of rainfall overlapped with the rainfall of SuperT. Haima.

表 4.9　　一九四六至二零二零年間引致天文台需要發出十號颶風信號的颱風

TABLE 4.9　TYPHOONS REQUIRING THE ISSUING OF THE HURRICANE SIGNAL NO. 10 DURING THE PERIOD 1946-2020

颱風名稱 Name of typhoon	當最接近天文台時 Nearest approach to the Hong Kong Observatory			最低平均海平面氣壓 (百帕斯卡) Minimum M.S.L. pressure (hPa)		最高60分鐘平均風向及風速 (公里每小時) Maximum 60-min mean wind in points and km/h							最高陣風風向及風速 (公里每小時) Maximum gust peak speed in km/h with direction in points						
	日期/月份 Date/Month	年份 Year	方位 Direction	距離 (公里) Distance (km)	每小時 Hourly	瞬時 Inst.	香港天文台 Hong Kong Observatory	京士柏 King's Park	啟德機場 # Kai Tak Airport #	橫瀾島 Waglan Island	長洲 Cheung Chau	大老山 Tate's Cairn	青洲 Green Island	香港天文台 Hong Kong Observatory	京士柏 King's Park	啟德機場 # Kai Tak Airport #	橫瀾島 Waglan Island	長洲 Cheung Chau	大老山 Tate's Cairn	青洲 Green Island
-	18 / 7	1946	南 S	70	985.7	-	東北 NE	-	-	-	-	-	-	-	-	-	-	-	-	-
姬羅莉亞 Gloria	22 / 9	1957	西南 SW	55	986.2	984.3	東南偏東 ESE	115	-	東南偏東 ESE	72	東 E	113	-	-	-	東 E	187	-	東北偏東 ENE	158	東北偏東 ENE	185	-	-	-
瑪麗 Mary	9 / 6	1960	西北偏西 WNW	10	974.3	973.8	東南偏南 SSE	96	-	東南偏南 SSE	92	西南偏南 SSW	112	-	-	-	東南偏南 SSE	191	-	東南 SE	164	西南偏南 SSW	194	-	-	-
愛麗斯 Alice	19 / 5	1961		0	981.6	981.1	東北偏東 ENE	83	-	東 E	70	東南偏東 ESE	90	東北偏東 ENE	76	-	-	東 E	166	-	東北偏東 ENE	139	西南 SW	128	東北偏東 ENE	135	-	-
溫黛 Wanda	1 / 9	1962	西南偏南 SSW	20	955.1	953.2	北 N	133	-	北 N	108	西北 NW	148	西北 NW	118	東南 SE	189	-	北 N	259	-	北 N	229	西北偏北 NNW	216	西北 NW	232	東南偏東 ESE	284	-
露比 Ruby	5 / 9	1964	西南 SW	30	971.0	968.2	東 E	110	-	北 N	118	東北偏東 ENE	148	東北 NE	113	東南偏東 ESE	167	-	東北偏北 NNE	227	-	西北 NW	203	東 E	230	東北偏北 NNE	216	東 E	268	-
黛蒂 Dot	13 / 10	1964	東 E	35	978.9	977.3	西北偏北 NNW	88	-	北 N	67	北 N	117	西北偏北 NNW	96	東北偏北 NNE	157	-	北 N	175	-	北 N	198	北 N	184	西北偏西 WNW	205	東北 NE	220	-
雪麗 Shirley	21 / 8	1968		0	968.7	968.6	北 N	68	-	北 N	75	東北偏北 NNE	124	西南偏南 SSW	90	東北偏北 NNE	126	-	北 N	133	-	北 N	151	東北 NE	209	西南偏南 SSW	167	東北偏北 NNE	203	-
露絲 Rose	17 / 8	1971	西南偏西 WSW	20	984.5	982.8	東南 SE	103	-	東南 SE	122	東南偏東 ESE	140	東南 SE	131	南 S	148	-	東南偏東 ESE	224	-	東南偏東 ESE	211	東南偏東 ESE	189	東南 SE	194	南 S	221	-
愛茜 Elsie	14 /10	1975	南 S	50	996.4	996.2	東北偏東 ENE	58	北 N	75	西北偏北 NNW	67	東北偏北 NNE	118	北 N	106	東北 NE	130	西北偏北 NNW	118	東北 NE	140	北 N	137	北 N	140	東北偏東 ENE	176	東北 NE	158	東北偏北 NNE	180	東北 NE	167
荷貝 Hope	2 / 8	1979	西北偏北 NNW	10	961.8	961.6	西 W	75	西北偏西 WNW	79	西 W	115	西南 SW	144	西南偏南 SSW	117	西北 NW	115	西 W	108	西 W	175	西北偏西 WNW	166	西北偏西 WNW	182	西南 SW	198	西南偏西 WSW	185	西北偏西 WNW	229	西 W	167
愛倫 Ellen	9 / 9	1983	西南 SW	45	983.9	983.1	東 E	92	東 E	88	東 E	112	東南偏東 ESE	169	東南偏東 ESE	171	東 E	126	南 S	137	東 E	185	東 E	167	東 E	203	東 E	227	東南偏南 SSE	238	東北偏東 ENE	218	南 S	220*
約克 York	16 / 9	1999	西南偏南 SSW	20	976.8	976.1	東 E	63	北 N	68	東北偏北 NNE	59	東北偏北 NNE	153	東北偏北 NNE	113	-		-		東 E	137	東北偏北 NNE	149	東北偏東 ENE	142	東北偏北 NNE	234	東北 NE	182	-		-	
韋森特 Vicente	24 / 7	2012	西南 SW	100	986.3	986.0	東 E	56	東南偏東 ESE	56	東南偏東 ESE	70	東 E	108	東南偏東 ESE	128	東 E	117	東北 NE	92	東南偏東 ESE	117	東南偏東 ESE	110	東 E	135	東南偏東 ESE	149	東 E	184	東南偏東 ESE	166	東北 NE	155
天鴿 Hato	23 / 8	2017	西南偏南 SSW	60	986.7	986.3	東 E	62	東南偏東 ESE	54	東南偏東 ESE	67	東 E	137	東南偏東 ESE	128	東北偏東 ENE	118	-		東 E	122	東南偏東 ESE	113	東北 NE	130	東 E	193	東南 SE	171	東北 NE	187	-	
山竹 Mangkhut	16 / 9	2018	西南偏南 SSW	100	977.6	977.0	東 E	81	東 E	70	東南偏東 ESE	81	東北 NE	161	東 E	157	東北偏東 ENE	166	東北 NE	128	東 E	169	東北偏北 NNE	161	東北偏東 ENE	142	東北 NE	220	東 E	212	東北偏東 ENE	256	東北偏北 NNE	229

隨著香港國際機場遷移到赤鱲角，啟德的氣象所已於一九九八年七月六日關閉。啟德測風站於一九九八年九月四日開始運作。

With the moving of the Hong Kong International Airport to Chek Lap Kok, the meteorological office at Kai Tak was closed on 6 July 1998. Kai Tak anemometer station started operation on 4 September 1998.

* 估計，超出風速記錄圖的上限。

* estimated, exceeding upper limit of anemogram.

表 4.10　　二零二零年熱帶氣旋在香港所造成的損失

TABLE 4.10　DAMAGE CAUSED BY TROPICAL CYCLONES IN HONG KONG IN 2020

熱帶氣旋名稱 Name of tropical cyclone	月份 Month	物質損毀 Damage in physical terms							金錢損失（百萬港元）* Damage in monetary terms (million HK$)					保險索賠總額# (百萬港元) The total amount of insurance claims (million HK$) **(b)**	估計直接經濟損失@ (百萬港元) Estimated direct economic loss (million HK$) **(a) + (b)**
		農業 Agriculture	公用建設 (處) Public works facilities (site)	公用業務 (處) Public utilities (site)	物業單位 (個) Property (unit)	山泥傾瀉及斜坡倒塌 (宗) Landslip and collapse of slope (case)	受到損壞的船隻數目 (艘) Ships lost or damaged (number)	塌樹報告 (宗) Report(s) of fallen Trees (case)	農業 Agriculture	公用建設 Public works facilities	公用業務 Public utilities	私人物業 Private property	共 Total **(a)**		
熱帶風暴鸚鵡 Tropical Storm Nuri	6		通道 Access road: 6				6	3							
熱帶風暴森拉克 Tropical Storm Sinlaku	7		小徑 Footpath: 1 欄杆 Railing:: 3	路燈柱 Lamppost: 1		3	4	30							
颱風海高斯 Typhoon Higos	8		道路 Road: 2 通道 Access road: 1	路燈柱 Lamppost: 3 鐵路 Railway: 2 電信設施 Telecommunication: 9	13	3		794		0.6360	0.5128	0.0473	1.1961	386.6676	387.8637
熱帶風暴浪卡 Tropical Storm Nangka	10			路燈柱 Lamppost: 1 交通燈 Traffic light: 1	5		2	247		0.5000		0.2727	0.7727	3.1371	3.9098
颱風沙德爾 Typhoon Saudel	10						1	1				0.0240	0.0240		

#保險索償數據由香港保險業聯會提供，有關數據已經按參與調查的機構的所佔的市場份額作調整。請注意2020年的保險索償數據只涵蓋颱風海高斯及熱帶風暴浪卡。

The insurance claim figure is provided by the Hong Kong Federation of Insurers. The data have been adjusted by the market shares of the companies participating in the survey. Note that the insurance claim figure is only available for Typhoon Higos and Tropical Storm Nangka in 2020.

*資料由各有關政府部門及公共事業機構提供，並已扣除相關的保險索償 (截至2021年5月31日)。

* The data is provided by relevant government departments and public utility companies (up to 31 May 2021). Items with insurance claim made have been excluded.

@ 直接經濟損失估算僅供參考，可能受到調查數據和分析方法的各種不確定性的影響。估算詳情及免責聲明可參考附件一。

@ The estimates are for reference only and may be subject to various uncertainties in the survey responses and analysis method. Please refer to Annex 1 for details of estimation and disclaimer.

由於四捨五入關係，表內個別項目的數字加起來可能與總數略有出入。

The sum of figures may not add up to total due to rounding.

表 4.11　一九六零至二零二零年間熱帶氣旋在香港所造成的人命傷亡及破壞

TABLE 4.11　CASUALTIES AND DAMAGE CAUSED BY TROPICAL CYCLONES IN HONG KONG : 1960 - 2020

年份 Year	日期 / 月份 Date / Month	Name of tropical cyclone	熱帶氣旋名稱	死亡人數 Persons dead	失蹤人數 Persons missing	受傷人數 Persons injured	遇事越洋船舶 Ocean-going vessels in trouble	受到毀壞或翻沉的小艇數目 Small craft sunk or wrecked	受到損壞的小艇數目 Small craft damaged
1960	4 / 6 - 12 / 6	T. Mary	瑪麗	45	11	127	6	352	462
1961	17 / 5 - 21 / 5	T. Alice	愛麗斯	4	0	20	*	*	*
	7 / 9 - 10 / 9	S.T.S. Olga	奧嘉	7	0	0	0	1	0
1962	28 / 8 - 2 / 9	T. Wanda	溫黛	130	53	*	36	1 297	756
1963	1 / 9 - 9 / 9	T. Faye	菲爾	3	0	51	0	2	0
1964	26 / 5 - 28 / 5	T. Viola	維奧娜	0	0	41	5	18	18
	2 / 8 - 9 / 8	T. Ida	艾黛	5	4	56	3	7	60
	2 / 9 - 6 / 9	T. Ruby	露比	38	6	300	20	32	282
	4 / 9 - 10 / 9	T. Sally	莎莉	9	0	24	0	0	0
	7 /10 - 13 /10	T. Dot	黛蒂	26	10	85	2	31	59
1965	6 / 7 - 16 / 7	T. Freda	法妮黛	2	0	16	0	1	0
	25 / 9 - 28 / 9	T.S. Agnes	愛娜斯	5	0	3	0	0	0
1966	12 / 7 - 14 / 7	S.T.S. Lola	露娜	1	0	6	0	*	6
1967	19 / 8 - 22 / 8	S.T.S. Kate	姬蒂	0	0	3	3	1	0
1968	17 / 8 - 22 / 8	T. Shirley	雪麗	0	0	4	1	*	3
1969	22 / 7 - 29 / 7	T. Viola	維奧娜	0	0	0	0	3	0
1970	1 / 8 - 3 / 8	T.D. -	-	2[+]	0	0	0	0	0
	8 / 9 - 14 / 9	T. Georgia	喬治亞	0	0	0	2	0	*
1971	15 / 6 - 18 / 6	T. Freda	法妮黛	2	0	30	8	0	0
	16 / 7 - 22 / 7	T. Lucy	露茜	0	0	38	10	2	13
	10 / 8 - 17 / 8	T. Rose	露絲	110	5	286	33	303	*
1972	4 /11 - 9 /11	T. Pamela	柏美娜	1	0	8	3	0	0
1973	14 / 7 - 20 / 7	T. Dot	黛蒂	1	0	38	14	*	*
1974	7 / 6 - 14 / 6	T. Dinah	戴娜	0	0	0	1	*	*
	18 / 7 - 22 / 7	T. Ivy	艾菲	0	0	0	2	*	*
	15 /10 - 19 /10	T. Carmen	嘉曼	1	0	0	5	*	*
	21 /10 - 27 /10	T. Della	黛娜	0	0	0	2	*	*
1975	10 / 8 - 14 / 8	T.D. -	-	2	1	0	3	1	*
	9 /10 - 14 /10	T. Elsie	愛茜	0	0	46	7	2	1
	16 /10 - 23 /10	S.T.S. Flossie	霍蘿茜	0	0	0	1	*	*
1976	22 / 6 - 4 / 7	T. Ruby	露比	3	2	2	0	0	0
	21 / 7 - 26 / 7	S.T.S. Violet	維奧莉	2	1	1	0	0	0
	5 / 8 - 6 / 8	S.T.S. Clara	嘉麗	0	0	4	0	0	0
	21 / 8 - 24 / 8	T.S. Ellen	愛倫	27	3	65	0	4	7
	15 / 9 - 21 / 9	T. Iris	愛莉斯	0	0	27	6	0	1
1977	4 / 7 - 6 / 7	T.D. -	-	0	0	2	0	0	0
	3 / 9 - 5 / 9	T.S. Carla	嘉娜	0	0	1	1	0	0
	22 / 9 - 25 / 9	S.T.S. Freda	法妮黛	1	0	37	2	0	0
1978	24 / 7 - 30 / 7	S.T.S. Agnes	愛娜斯	3	0	134	0	25	42
	9 / 8 - 12 / 8	T.S. Bonnie	邦妮	0	0	0	2	0	0
	23 / 8 - 28 / 8	S.T.S. Elaine	伊蘭	1	0	51	8	5	8
	22 / 9 - 26 / 9	S.T.S. Kit	吉蒂	0	7	0	0	1	0
	7 /10 - 16 /10	S.T.S. Nina	蓮娜	0	0	2	0	0	0
	17 /10 - 29 /10	T. Rita	麗妲	0	0	3	1	5	0
1979	1 / 7 - 6 / 7	T. Ellis	艾利斯	0	0	0	0	2	0
	26 / 7 - 30 / 7	T.S. Gordon	戈登	0	0	0	0	2	0
	28 / 7 - 3 / 8	T. Hope	荷貝	12	0	260	29	167	207
	6 / 8 - 9 / 8	T.D. -	-	0	0	0	0	3	0
	16 / 9 - 24 / 9	S.T.S. Mac	麥克	1	0	67	2	12	0
1980	5 / 7 - 12 / 7	S.T.S. Ida	艾黛	0	0	0	1	0	0
	18 / 7 - 23 / 7	T. Joe	喬伊	2	1	59	4	0	1
	20 / 7 - 28 / 7	T. Kim	甘茵	0	0	0	0	2	1
	29 /10 - 2 /11	T.S. Cary	卡里	0	0	0	0	0	2
1981	3 / 7 - 7 / 7	S.T.S. Lynn	林茵	0	0	32	0	0	3
1982	27 / 6 - 2 / 7	T.S. Tess	戴絲	0	0	16	0	1	0
	22 / 7 - 30 / 7	T. Andy	安迪	0	0	0	0	0	1
	5 / 9 - 16 / 9	T. Irving	伊文	0	0	0	0	0	2
1983	12 / 7 - 19 / 7	T. Vera	維娜	0	0	0	0	1	0
	29 / 8 - 9 / 9	T. Ellen	愛倫	10	12	333	44	135	225
	10 /10 - 14 /10	T. Joe	喬伊	0	0	58	2	0	3
	20 /10 - 26 /10	S.T.S. Lex	力士	0	0	0	0	0	1
1984	27 / 8 - 7 / 9	T. Ike	艾克	0	0	1	0	0	0

表 4.11 (續)
TABLE 4.11 (cont'd)

年份 Year	日期 / 月份 Date / Month	Name of tropical cyclone	熱帶氣旋名稱	死亡人數 Persons dead	失蹤人數 Persons missing	受傷人數 Persons injured	遇事越洋船舶 Ocean-going vessels in trouble	受到毀壞或翻沉的小艇數目 Small craft sunk or wrecked	受到損壞的小艇數目 Small craft damaged
1985	19 / 6 - 25 / 6	T. Hal	哈爾	0	1	13	0	4	2
	1 / 9 - 7 / 9	T. Tess	戴絲	2	0	12	6	1	3
	13 /10 - 22 /10	T. Dot	黛蒂	0	0	1	0	0	0
1986	3 / 7 - 12 / 7	T. Peggy	蓓姬	1	0	26	3	0	3
	9 / 8 - 12 / 8	T.D. -	-	0	0	3	0	1	5
	18 / 8 - 6 / 9	T. Wayne	韋恩	3	1	15+	0	3	0
	11 /10 - 19 /10	T. Ellen	愛倫	0	0	4	1	2	1
1987	16 /10 - 27 /10	T. Lynn	林茵	0	0	1	0	0	0
1988	14 / 7 - 20 / 7	T. Warren	華倫	0	1	12	1	2	1
	19 / 9 - 22 / 9	T. Kit	吉蒂	0	0	0	0	0	1
	18 /10 - 23 /10	T. Pat	帕特	2	0	1	0	0	0
	21 /10 - 29 /10	T. Ruby	露比	0	0	4	0	0	0
1989	16 / 5 - 21 / 5	T. Brenda	布倫達	6	1	119	0	3	5
	11 / 7 - 19 / 7	T. Gordon	戈登	2	0	31	1	0	8
	8 /10 - 14 /10	T. Dan	丹尼	0	0	0	1	0	1
1990	15 / 5 - 19 / 5	T. Marian	瑪麗安	0	0	0	0	0	1
	15 / 6 - 19 / 6	S.T.S. Nathan	彌敦	5	1	1	1	0	2
	21 / 6 - 30 / 6	T. Percy	珀西	1	0	0	0	0	0
	27 / 7 - 31 / 7	S.T.S. Tasha	泰莎	0	0	1	0	1	0
	25 / 8 - 30 / 8	T. Becky	貝姬	0	1	0	0	0	0
	10 / 9 - 20 / 9	T. Ed	義德	0	0	1	0	0	0
1991	15 / 7 - 20 / 7	T. Amy	艾美	0	0	1	1	0	2
	20 / 7 - 24 / 7	S.T.S. Brendan	布倫登	0	0	17	1	1	13
	13 / 8 - 18 / 8	T. Fred	法雷德	0	0	0	0	1	0
1992	9 / 7 - 14 / 7	T. Eli	艾里	0	0	23	0	0	1
	17 / 7 - 18 / 7	T.S. Faye	菲爾	2	0	24	1	0	3
	19 / 7 - 23 / 7	S.T.S. Gary	加里	0	0	18	2	0	0
1993	21 / 6 - 28 / 6	T. Koryn	高蓮	0	0	183	0	0	2
	16 / 8 - 21 / 8	T. Tasha	泰莎	0	0	35	0	0	7
	9 / 9 - 14 / 9	T. Abe	艾貝	1	0	0	0	0	0
	15 / 9 - 17 / 9	S.T.S. Becky	貝姬	1	0	130	0	0	10
	23 / 9 - 27 / 9	T. Dot	黛蒂	0	1	48	0	1	0
	28 /10 - 5 /11	T. Ira	艾拉	2	0	30	0	1	0
1994	23 / 6 - 25 / 6	T.S. Sharon	莎朗	0	0	5	0	1	1
	25 / 8 - 29 / 8	S.T.S. Harry	夏里	1	0	2	0	0	2
1995	7 / 8 - 12 / 8	S.T.S. Helen	海倫	3	0	35	0	0	0
	25 / 8 - 1 / 9	T. Kent	肯特	0	0	5	0	0	0
	28 / 9 - 4 /10	T. Sibyl	斯寶	0	0	14	0	0	0
1996	5 / 9 - 10 / 9	T. Sally	莎莉	2	0	4	0	0	0
	18 / 9 - 23 / 9	S.T.S. Willie	威利	0	1	0	0	0	0
1997	31 / 7 - 3 / 8	T. Victor	維克托	1	0	58	0	0	0
	20 / 8 - 23 / 8	T. Zita	思蒂	0	0	3	0	0	0
1998	7 / 8 - 11 / 8	S.T.S. Penny	彭妮	1	0	1	0	0	0
	12 / 9 - 14 / 9	T.D. -	-	0	0	10	0	0	0
	15 /10 - 27 /10	T. Babs	寶絲	0	0	14	0	0	0
1999	28 / 4 - 2 / 5	T. Leo	利奧	0	0	14	0	0	0
	2 / 6 - 8 / 6	T. Maggie	瑪姬	0	0	5	0	2	0
	25 / 7 - 28 / 7	T.S. -	-	0	0	18	0	0	0
	19 / 8 - 23 / 8	T. Sam	森姆	4	0	328	0	0	0
	12 / 9 - 17 / 9	T. York	約克	2	0	500	3	*	*
	24 / 9 - 26 / 9	S.T.S. Cam	錦雯	1	0	23	0	0	0
2000	15 / 7 - 16 / 7	T.D. -	-	0	1	6	0	0	0
	27 / 8 - 1 / 9	S.T.S. Maria	瑪莉亞	2	0	0	0	0	0
	5 / 9 - 10 / 9	T. Wukong	悟空	0	0	1	0	0	1
2001	30 / 6 - 3 / 7	T. Durian	榴槤	0	0	1	0	0	0
	1 / 7 - 8 / 7	T. Utor	尤特	1	0	1	0	1	0
	23 / 7 - 26 / 7	T. Yutu	玉兔	0	0	10	0	0	0
	28 / 8 - 1 / 9	T.S. Fitow	菲特	2	0	0	0	0	0
2002	15 / 8 - 20 / 8	S.T.S. Vongfong	黃蜂	0	0	2	0	0	1
	10 / 9 - 13 / 9	S.T.S. Hagupit	黑格比	0	0	32	0	0	3
2003	16 / 7 - 23 / 7	S.T.S. Koni	天鵝	0	0	15	0	0	0
	17 / 7 - 25 / 7	T. Imbudo	伊布都	1	0	45	0	2	8
	17 / 8 - 26 / 8	T. Krovanh	科羅旺	0	0	11	0	0	2
	29 / 8 - 3 / 9	T. Dujuan	杜鵑	0	4	24	0	1	4

表 4.11 (續)
TABLE 4.11 (cont'd)

年份 Year	日期 / 月份 Date / Month	Name of tropical cyclone	熱帶氣旋名稱	死亡人數 Persons dead	失蹤人數 Persons missing	受傷人數 Persons injured	遇事越洋船舶 Ocean-going vessels in trouble	受到毀壞或翻沉的小艇數目 Small craft sunk or wrecked	受到損壞的小艇數目 Small craft damaged
2004	14 / 7 - 16 / 7	T.S. Kompasu	圓規	0	0	12	0	0	0
2005	10 / 8 - 14 / 8	S.T.S. Sanvu	珊瑚	0	0	0	0	0	1
	16 / 9 - 19 / 9	T.S. Vicente	韋森特	2	0	0	0	0	0
	21 / 9 - 28 / 9	T. Damrey	達維	0	0	5	0	0	1
2006	9 / 5 - 18 / 5	T. Chanchu	珍珠	0	0	6	0	1	0
	27 / 6 - 29 / 6	T.S. Jelawat	杰拉華	1	0	0	0	0	0
	31 / 7 - 4 / 8	T. Prapiroon	派比安	0	0	8	0	1	4
	6 / 8 - 10 / 8	S.T.S. Bopha	寶霞	0	0	0	0	0	1
	23 / 8 - 25 / 8	T.D. -	-	0	0	0	0	0	1
	12 / 9 - 13 / 9	T.D. -	-	0	0	1	0	0	0
	27 /10 - 6 / 11	T. Cimaron	西馬侖	0	0	4	0	0	0
2007	5 / 8 - 11 / 8	S.T.S. Pabuk	帕布	1	0	17	0	0	0
2008	15 / 4 - 20 / 4	T. Neoguri	浣熊	0	0	2	0	0	0
	18 / 6 - 26 / 6	T. Fengshen	風神	0	0	17	0	0	0
	4 / 8 - 8 / 8	S.T.S. Kammuri	北冕	0	0	37	0	0	0
	17 / 8 - 23 / 8	T. Nuri	鸚鵡	2	0	112	0	0	0
	19 / 9 - 25 / 9	T. Hagupit	黑格比	0	0	58	0	10	0
2009	15 / 7 - 19 / 7	T. Molave	莫拉菲	0	0	5	0	3	0
	1 / 8 - 9 / 8	S.T.S. Goni	天鵝	4	0	10	0	1	0
	9 / 9 - 12 / 9	T.S. Mujigae	彩虹	0	0	1	0	0	0
	12 / 9 - 16 / 9	T. Koppu	巨爵	0	0	74	0	0	0
2010	19 / 7 - 23 / 7	T. Chanthu	燦都	4	0	30	0	0	0
2011	18 / 6 - 25 / 6	T.S. Haima	海馬	0	0	3	0	1	0
	25 / 7 - 31 / 7	S.T.S. Nock-ten	洛坦	0	0	4	0	0	1
	23 / 9 - 1 /10	T. Nesat	納沙	0	0	26	0	1	1
	27 / 9 - 5 /10	S.T. Nalgae	尼格	0	0	1	0	0	0
2012	26 / 6 - 30 / 6	T.S. Doksuri	杜蘇芮	0	0	2	0	1	0
	20 / 7 - 25 / 7	S.T. Vicente	韋森特	0	0	138	0	1	0
	12 / 8 - 18 / 8	T. Kai-tak	啟德	0	0	1	0	0	0
	18 / 8 - 30 / 8	S.T. Tembin	天秤	1	0	1	0	0	0
2013	9 / 8 - 16 / 8	SuperT. Utor	尤特	0	1	9	0	0	0
	17 / 9 - 23 / 9	SuperT. Usagi	天兔	0	0	17	0	0	1
2014	14 / 6 - 15 / 6	T.S. Hagibis	海貝思	0	0	1	0	0	0
	14 / 9 - 17 / 9	T. Kalmaegi	海鷗	0	0	29	0	0	0
2016	31 / 7 - 2 / 8	T. Nida	妮妲	0	0	12	0	0	0
	16 /10 - 18 /10	SuperT. Sarika	莎莉嘉	0	1	2	0	0	0
	20 /10 - 21 /10	SuperT. Haima	海馬	0	0	13	0	0	3
2017	11 / 6 - 13 / 6	S.T.S. Merbok	苗柏	0	0	10	0	0	2
	22 / 7 - 23 / 7	T.S. Roke	洛克	0	0	0	0	0	2
	22 / 8 - 23 / 8	SuperT. Hato	天鴿	0	0	129	1	0	36
	26 / 8 - 27 / 8	S.T.S. Pakhar	帕卡	0	0	62	0	0	15
	2 / 9 - 4 / 9	S.T.S. Mawar	瑪娃	0	0	0	0	0	8
	14 /10 - 16 /10	S.T. Khanun	卡努	0	0	22	0	0	3
2018	5 / 6 - 8 / 6	T.S. Ewiniar	艾雲尼	0	0	1	0	0	6
	17 / 7 - 24 / 7	T.S. Son-Tinh	山神	0	0	2	0	0	1
	9 / 8 - 15 / 8	S.T.S. Bebinca	貝碧嘉	0	0	1	0	0	13
	11 / 9 - 13 / 9	T.S. Barijat	百里嘉	0	0	0	0	0	2
	14 / 9 - 17 / 9	SuperT. Mangkhut	山竹	0	0	458	0	0	708
	31 /10 - 2 /11	SuperT. Yutu	玉兔	1	0	0	0	0	2
2019	2 / 7 - 3 / 7	T.D. Mun	木恩	0	0	0	0	0	2
	30 / 7 - 3 / 8	T.S. Wipha	韋帕	0	0	20	0	0	8
	24 / 8 - 25 / 8	S.T.S. Bailu	白鹿	0	0	0	0	0	2
2020	12 / 6 - 14 / 6	T.S. Nuri	鸚鵡	1	0	1	0	1	5
	31 / 7 - 1 / 8	T.S. Sinlaku	森拉克	0	0	4	0	0	4
	18 / 8 19 / 8	T. Higos	海高斯	0	0	7	0	0	0
	11 /10 - 14 /10	T.S. Nangka	浪卡	0	0	3	0	0	2
	22 /10 - 24 /10	T. Saudel	沙德爾	0	0	0	0	0	1

備註: 資料由各有關政府部門及公共事業機構提供，同時亦參考了本地報章上的損毀報導。
* 缺乏數據
\+ 被雷電擊中

N.B.: Based on information supplied by relevant government departments and public utility companies. Damage reports in the local press were also examined and collated.
* Data unavailable.
\+ Struck by lightning.

表 4.12　二零二零年天文台發出的熱帶氣旋路徑預測驗証 (誤差單位為公里)

TABLE 4.12　VERIFICATION OF THE TROPICAL CYCLONE TRACK FORECASTS ISSUED BY THE HONG KONG OBSERVATORY IN 2020 (ERROR IN THE UNIT OF KM)

熱帶氣旋名稱	Name of tropical cyclone	編號 Code	最高強度 Maximum Intensity	24 小時預測位置 24-hour forecast position		48 小時預測位置 48-hour forecast position		72 小時預測位置 72-hour forecast position		96 小時預測位置 96-hour forecast position		120 小時預測位置 120-hour forecast position	
				平均誤差 Average error	預測數目 No. of forecasts	平均誤差 Average error	預測數目 No. of forecasts	平均誤差 Average error	預測數目 No. of forecasts	平均誤差 Average error	預測數目 No. of forecasts	平均誤差 Average error	預測數目 No. of forecasts
黃蜂	Vongfong	2001	S.T	94	23	99	19	138	15	181	11	242	7
鸚鵡	Nuri	2002	T.S.	31	7	55	3	-	-	-	-	-	-
森拉克	Sinlaku	2003	T.S.	56	4	-	-	-	-	-	-	-	-
黑格比	Hagupit	2004	T.	46	13	69	6	-	-	-	-	-	-
薔薇	Jangmi	2005	T.S.	61	5	-	-	-	-	-	-	-	-
米克拉	Mekkhala	2006	T.	105	3	-	-	-	-	-	-	-	-
海高斯	Higos	2007	T.	132	4	-	-	-	-	-	-	-	-
巴威	Bavi	2008	S.T.	49	19	44	15	101	11	183	7	372	3
美莎克	Maysak	2009	SuperT.	56	20	79	16	94	12	92	8	152	4
海神	Haishen	2010	SuperT.	54	16	115	12	175	8	230	4	-	-
紅霞	Noul	2011	T.S.	92	8	172	4	-	-	-	-	-	-
白海豚	Dolphin	2012	S.T.S.	224	9	445	5	612	1	-	-	-	-
燦鴻	Chan-Hom	2014	T.	84	24	184	20	347	16	414	12	411	8
蓮花	Linfa	2015	T.S.	82	2	-	-	-	-	-	-	-	-
浪卡	Nangka	2016	T.S.	54	9	108	5	195	1	-	-	-	-
沙德爾	Saudel	2017	T.	54	22	79	18	78	14	149	10	223	6
莫拉菲	Molave	2018	S.T.	68	15	103	11	121	7	191	3	-	-
天鵝	Goni	2019	SuperT.	62	31	124	26	175	21	207	16	261	15
艾莎尼	Atsani	2020	S.T.S.	94	27	159	23	212	19	267	15	366	11
艾濤	Etau	2021	T.S.	60	4	-	-	-	-	-	-	-	-
環高	Vamco	2022	S.T.	42	22	56	18	69	13	89	10	139	6
科羅旺	Krovanh	2023	T.D.	97	7	91	3	-	-	-	-	-	-
熱帶低氣壓 (7月13日至14日)	Tropical Depression (13 - 14 Jul)	-	T.D.	-	-	-	-	-	-	-	-	-	-
熱帶低氣壓 (8月10日至12日)	Tropical Depression (10 - 12 Aug)	-	T.D.	85	2	-	-	-	-	-	-	-	-
平均誤差 Average Error				72		116		164		210		280	
預測總數 Total number of forecasts				296		204		138		96		60	

註：

1. 驗証包括當熱帶氣旋中心位於北緯7至36度，東經100至140度內，香港天文台發出觀測時間為協調世界時00時、06時、12時及18時的熱帶氣旋路徑。
2. 誤差是指香港天文台最佳路徑位置(見第五節)及預測位置的距離，單位為公里。

Note:

1. Verification includes tropical cyclone forecast tracks issued by the Hong Kong Observatory at 00, 06, 12 and 18 UTC for tropical cyclones within the area bounded by 7°N and 36°N, 100°E to 140°E.
2. Error refers to the distance between the tropical cyclone best track position (see Section 5) and forecast position of the Hong Kong Observatory, in the unit of km.

第五節　　二零二零年熱帶氣旋的位置及強度數據

以下是二零二零年位於北太平洋西部及南海區域 (即由赤道至北緯45度、東經100度至180度所包括的範圍) 的熱帶氣旋。其每六小時之位置及強度刊於本節。

在本節，風速均取10分鐘內的平均值，單位為米每秒 (1米每秒約為1.94海里或3.6公里每小時) 。熱帶氣旋的強度分為：-

(a) T.D.: - 熱帶低氣壓
(b) T.S.: - 熱帶風暴
(c) S.T.S.: - 強烈熱帶風暴
(d) T.: - 颱風
(e) S.T.: - 強颱風
(f) Super T.: - 超強颱風

Section 5 TROPICAL CYCLONE POSITION AND INTENSITY DATA, 2020

Six-hourly position and intensity data are tabulated in this section for the following tropical cyclones in 2020 over the western North Pacific and the South China Sea (i.e. the area bounded by the Equator, 45°N, 100°E and 180°).

In this section, surface winds refer to wind speeds averaged over a period of 10 minutes given in the unit of m/s (1 m/s is about 1.94 knots or 3.6 km/h). Intensities of tropical cyclones are classified as follows:-

(a) T.D. : - tropical depression
(b) T.S. : - tropical storm
(c) S.T.S. : - severe tropical storm
(d) T. : - typhoon
(e) S.T. : - severe typhoon
(f) Super T. : - super typhoon

強颱風黃蜂(2001)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON VONGFONG (2001)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
五月 MAY	10	1800	T.D.	1004	13	8.4	130.1
	11	0000	T.D.	1004	13	8.4	130.0
		0600	T.D.	1004	13	8.6	129.6
		1200	T.D.	1004	13	8.8	129.2
		1800	T.D.	1004	13	9.3	129.0
	12	0000	T.D.	1000	16	10.0	129.0
		0600	T.D.	1000	16	10.6	129.1
		1200	T.S.	998	18	11.2	129.2
		1800	T.S.	994	21	11.9	129.1
	13	0000	S.T.S.	988	25	11.9	128.8
		0600	S.T.S.	978	31	12.0	128.5
		1200	T.	965	39	12.1	127.8
		1800	S.T.	955	43	12.2	127.0
	14	0000	S.T.	950	46	12.2	126.2
		0600	S.T.	950	46	12.2	125.3
		1200	T.	960	41	12.4	124.5
		1800	T.	970	36	12.6	123.6
	15	0000	T.	975	33	13.4	122.7
		0600	S.T.S.	984	28	14.1	121.8
		1200	S.T.S.	988	25	14.8	121.3
		1800	T.S.	994	21	15.9	120.7
	16	0000	T.S.	996	18	17.5	120.2
		0600	T.D.	998	16	18.8	120.2
		1200	T.D.	1000	13	19.5	120.1
			消散 Dissipated				

熱帶風暴鸚鵡(2002)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM NURI (2002)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
六月 JUN	11	1800	T.D.	1002	13	15.5	120.6
	12	0000	T.D.	1000	16	15.8	119.8
		0600	T.D.	1000	16	16.2	118.6
		1200	T.D.	1000	16	16.9	117.8
		1800	T.S.	998	18	17.8	116.9
	13	0000	T.S.	998	18	18.8	116.4
		0600	T.S.	994	21	19.5	115.4
		1200	T.S.	998	18	20.3	114.2
		1800	T.S.	998	18	20.8	113.3
	14	0000	T.S.	998	18	21.5	112.2
		0600	T.D. 消散 Dissipated	1002	13	22.1	111.3

熱帶低氣壓 (由七月十三日至十四日)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL DEPRESSION OF 13 - 14 JULY

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
七月 JUL	12	1800	T.D.	1004	13	17.2	125.4
	13	0000	T.D.	1004	13	17.7	124.4
		0600	T.D.	1004	13	18.1	123.2
		1200	T.D.	1004	13	18.7	122.5
		1800	T.D. 消散 Dissipated	1004	13	19.5	122.1

熱帶風暴森拉克(2003)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM SINLAKU (2003)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
七月 JUL	31	1200	T.D.	992	16	17.6	112.5
		1800	T.D.	992	16	17.8	111.5
八月 AUG	1	0000	T.D.	992	16	18.0	110.8
		0600	T.D.	992	16	18.3	109.2
		1200	T.D.	992	16	18.8	108.0
		1800	T.S.	990	18	19.1	107.2
	2	0000	T.S.	990	18	19.4	106.4
		0600	T.D.	992	16	19.7	105.4
			消散 Dissipated				

颱風黑格比(2004)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON HAGUPIT (2004)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
八月 AUG	1	0000	T.D.	1002	13	20.3	128.7
		0600	T.D.	1002	13	21.0	128.0
		1200	T.D.	1000	16	21.4	127.0
		1800	T.S.	998	18	22.0	125.9
	2	0000	T.S.	990	23	22.5	125.2
		0600	T.S.	990	23	23.1	124.7
		1200	S.T.S.	986	25	23.6	124.1
		1800	S.T.S.	982	28	24.2	123.7
	3	0000	S.T.S.	978	31	24.9	123.3
		0600	T.	970	36	26.2	122.5
		1200	T.	965	39	26.8	121.8
		1800	T.	965	39	27.7	121.2
	4	0000	T.	974	33	28.5	120.6
		0600	S.T.S.	986	25	29.5	120.4
		1200	T.S.	995	21	30.8	120.4
		1800	T.S.	998	18	32.4	120.5
	5	0000	T.S.	998	18	34.1	120.8
		0600	T.S.	998	18	35.2	121.4
			變為溫帶氣旋 Became Extratropical				

熱帶風暴薔薇(2005)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM JANGMI (2005)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
八月 AUG	8	1800	T.D.	1000	16	21.1	126.0
	9	0000	T.S.	998	18	23.0	126.2
		0600	T.S.	994	21	25.2	126.2
		1200	T.S.	994	21	27.8	126.2
		1800	T.S.	992	23	29.7	126.3
	10	0000	T.S.	994	21	32.2	127.4
		0600	T.S.	994	21	34.3	128.6
		1200	T.S.	998	18	37.0	129.8
		1800	T.S.	998	18	39.9	132.1
			變為溫帶氣旋 Became Extratropical				

颱風米克拉(2006)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON MEKKHALA (2006)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
八月 AUG	9	1200	T.D.	1000	13	16.8	118.6
		1800	T.D.	998	16	18.1	118.6
	10	0000	T.S.	996	18	19.1	118.6
		0600	T.S.	992	21	20.3	118.7
		1200	S.T.S.	985	25	21.6	118.5
		1800	S.T.S.	982	28	22.9	118.3
	11	0000	T.	972	36	24.1	117.8
		0600	T.D.	998	16	25.1	117.2
			消散 Dissipated				

熱帶低氣壓(由八月十日至十二日)的每六小時位置及強度

SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL DEPRESSION OF 10 - 12 AUGUST

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
八月 AUG	10	1200	T.D.	1010	13	26.2	144.1
		1800	T.D.	1010	13	26.3	142.6
	11	0000	T.D.	1010	13	26.6	141.6
		0600	T.D.	1010	13	26.7	140.6
		1200	T.D.	1010	13	26.5	139.3
		1800	T.D.	1010	13	26.4	137.8
	12	0000	T.D.	1010	13	26.1	136.6
			消散 Dissipated				

颱風海高斯(2007)的每六小時位置及強度

SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON HIGOS (2007)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
八月 AUG	17	1200	T.D.	1004	13	19.6	119.7
		1800	T.D.	1002	16	19.8	118.6
	18	0000	T.S.	1000	18	20.1	116.9
		0600	T.S.	996	21	20.8	116.0
		1200	S.T.S.	985	31	21.1	114.9
		1800	T.	980	36	21.6	113.8
	19	0000	S.T.S.	985	31	22.3	113.0
		0600	T.S.	996	18	23.0	112.2
		0900	T.D.	1000	13	23.4	111.6
			消散 Dissipated				

強颱風巴威(2008)的每六小時位置及強度

SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON BAVI (2008)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
八月 AUG	21	1200	T.D.	1002	13	22.0	122.4
		1800	T.D.	998	16	22.9	122.8
	22	0000	T.S.	995	18	23.4	122.8
		0600	T.S.	992	21	24.3	123.4
		1200	S.T.S.	980	28	25.3	123.8
		1800	S.T.S.	980	28	25.9	123.8
	23	0000	S.T.S.	975	31	26.4	124.0
		0600	S.T.S.	975	31	26.7	124.4
		1200	S.T.S.	975	31	27.0	124.9
		1800	T.	970	33	27.2	125.3
	24	0000	T.	970	33	27.4	126.1
		0600	T.	965	36	27.9	126.6
		1200	T.	965	36	28.4	126.1
		1800	T.	960	39	28.7	125.9
	25	0000	T.	955	41	29.2	125.6
		0600	S.T.	950	43	29.9	125.3
		1200	S.T.	945	46	30.5	125.2
		1800	S.T.	950	43	31.4	124.7
	26	0000	S.T.	950	43	32.3	124.5
		0600	S.T.	950	43	33.4	124.3
		1200	S.T.	950	43	35.0	124.4
		1800	T.	960	39	37.2	125.0
	27	0000	S.T.S.	975	31	39.4	124.7
		0600	T.S.	988	23	42.0	125.5
			變為溫帶氣旋 Became Extratropical				

超強颱風美莎克(2009)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON MAYSAK (2009)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
八月 AUG	28	0000	T.D.	1000	13	17.2	130.9
		0600	T.D.	998	16	17.2	130.2
		1200	T.S.	994	21	16.8	129.8
		1800	T.S.	990	23	16.5	129.6
	29	0000	S.T.S.	982	28	16.6	129.4
		0600	S.T.S.	982	28	16.7	129.2
		1200	S.T.S.	978	31	17.0	129.0
		1800	T.	975	33	17.1	129.0
	30	0000	T.	970	36	17.3	129.0
		0600	T.	965	39	18.4	129.0
		1200	T.	960	41	19.4	129.0
		1800	S.T.	955	43	20.7	128.9
	31	0000	S.T.	945	46	22.5	128.5
		0600	S.T.	945	46	24.2	127.6
		1200	SuperT.	930	52	25.0	127.1
		1800	SuperT.	930	52	26.0	126.5
九月 SEP	1	0000	SuperT.	925	54	26.9	125.9
		0600	SuperT.	925	54	27.6	126.1
		1200	SuperT.	925	54	28.4	126.3
		1800	SuperT.	930	52	29.4	126.5
	2	0000	S.T.	935	49	30.6	126.7
		0600	S.T.	940	46	31.7	127.1
		1200	S.T.	945	43	33.2	127.9
		1800	T.	965	39	35.6	129.0
	3	0000	T.	975	33	38.8	129.9
			變為溫帶氣旋 Became Extratropical				

超強颱風海神(2010)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON HAISHEN (2010)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
九月 SEP	1	0000	T.D.	1000	16	21.6	144.9
		0600	T.S.	998	18	21.0	144.4
		1200	T.S.	992	21	20.4	144.1
		1800	T.S.	988	23	20.0	143.6
	2	0000	S.T.S.	984	25	19.4	142.4
		0600	S.T.S.	980	28	19.3	141.3
		1200	S.T.S.	975	31	19.5	140.4
		1800	T.	970	33	20.0	139.4
	3	0000	T.	960	39	20.2	138.4
		0600	T.	955	41	20.6	137.5
		1200	S.T.	945	46	21.0	136.6
		1800	S.T.	940	49	21.2	135.8
	4	0000	SuperT.	935	52	21.8	135.1
		0600	SuperT.	925	57	22.2	134.2
		1200	SuperT.	915	61	22.7	133.5
		1800	SuperT.	915	61	23.2	132.6
	5	0000	SuperT.	920	59	24.0	132.0
		0600	SuperT.	925	57	24.7	131.5
		1200	SuperT.	930	54	25.4	131.0
		1800	SuperT.	935	52	26.3	130.8
	6	0000	S.T.	940	49	27.7	130.5
		0600	S.T.	945	46	29.4	130.1
		1200	S.T.	950	43	31.1	129.4
		1800	T.	955	41	33.1	129.1
	7	0000	T.	960	39	35.4	129.0
		0600	T.	970	33	38.4	128.9
		1200	S.T.S. 變為溫帶氣旋 Became Extratropical	984	25	40.2	128.7

熱帶風暴紅霞(2011)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM NOUL (2011)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
九月 SEP	15	1200	T.D.	1002	13	12.4	119.3
		1800	T.D.	998	16	12.8	118.7
	16	0000	T.S.	995	18	13.2	117.8
		0600	T.S.	992	21	13.4	116.9
		1200	T.S.	990	23	13.7	116.2
		1800	T.S.	990	23	14.3	115.4
	17	0000	T.S.	990	23	14.6	114.3
		0600	T.S.	990	23	15.4	113.1
		1200	T.S.	990	23	15.9	111.7
		1800	T.S.	990	23	16.1	110.5
	18	0000	T.S.	990	23	16.1	109.0
		0600	T.S.	995	18	16.3	106.0
		1200	T.D.	998	13	16.3	104.0
			消散 Dissipated				

強烈熱帶風暴白海豚(2012)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM DOLPHIN (2012)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
九月 SEP	20	1200	T.D.	1000	13	24.0	134.4
		1800	T.D.	1000	13	24.3	134.4
	21	0000	T.D.	998	16	24.8	134.2
		0600	T.S.	994	18	25.3	134.4
		1200	T.S.	990	21	25.6	134.6
		1800	T.S.	988	23	26.0	134.8
	22	0000	T.S.	988	23	26.8	135.1
		0600	S.T.S.	984	25	28.0	135.5
		1200	S.T.S.	980	28	29.1	135.8
		1800	S.T.S.	980	28	30.0	136.3
	23	0000	S.T.S.	980	28	31.2	137.3
		0600	S.T.S.	980	28	31.9	139.0
		1200	S.T.S.	984	25	32.7	140.1
		1800	S.T.S.	984	25	33.0	141.6
			變為溫帶氣旋 Became Extratropical				

強烈熱帶風暴鯨魚(2013)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM KUJIRA (2013)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
九月 SEP	26	1200	T.D.	1004	13	18.8	160.0
		1800	T.D.	1002	16	20.1	159.8
	27	0000	T.S.	998	18	20.5	159.3
		0600	T.S.	998	18	21.6	157.6
		1200	T.S.	998	18	23.2	157.2
		1800	T.S.	994	21	25.0	155.3
	28	0000	T.S.	994	21	26.6	153.9
		0600	T.S.	992	23	27.8	153.1
		1200	S.T.S.	988	25	29.0	152.8
		1800	S.T.S.	985	28	30.6	153.3
	29	0000	S.T.S.	980	31	32.5	154.1
		0600	S.T.S.	980	31	34.7	155.1
		1200	S.T.S.	980	31	36.6	156.3
		1800	S.T.S.	985	28	38.2	158.4
	30	0000	S.T.S. 變為溫帶氣旋 Became Extratropical	988	25	39.8	160.7

颱風燦鴻(2014)的每六小時位置及強度

SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON CHAN-HOM (2014)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十月 OCT	4	1800	T.D.	1000	13	22.2	139.4
	5	0000	T.D.	998	16	22.1	139.1
		0600	T.S.	995	18	22.6	139.2
		1200	T.S.	990	21	23.0	139.2
		1800	T.S.	990	21	23.5	139.2
	6	0000	T.S.	988	23	24.0	138.6
		0600	T.S.	988	23	24.0	138.0
		1200	S.T.S.	984	25	24.2	137.4
		1800	S.T.S.	980	28	24.6	136.7
	7	0000	S.T.S.	975	31	24.9	135.4
		0600	T.	970	33	25.7	134.8
		1200	T.	965	36	26.4	133.7
		1800	T.	965	36	27.2	132.9
	8	0000	T.	965	36	27.8	132.8
		0600	T.	965	36	28.6	132.9
		1200	T.	965	36	29.4	133.3
		1800	T.	965	36	30.1	133.5
	9	0000	T.	965	36	30.4	133.6
		0600	T.	965	33	30.6	133.6
		1200	S.T.S.	975	31	30.9	133.9
		1800	S.T.S.	980	28	31.3	134.7
	10	0000	S.T.S.	984	25	31.9	135.7
		0600	S.T.S.	984	25	32.3	136.9
		1200	S.T.S.	984	25	32.1	138.1
		1800	S.T.S.	984	25	32.1	139.7
	11	0000	T.S.	988	23	32.1	140.6
		0600	T.S.	995	18	31.8	141.3
		1200	T.D.	1000	13	31.5	142.1
			消散 Dissipated				

熱帶風暴蓮花(2015)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM LINFA (2015)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十月 OCT	10	0000	T.D.	1002	13	13.8	114.0
		0600	T.D.	1002	13	14.2	113.4
		1200	T.D.	1000	16	14.3	112.4
		1800	T.S.	998	18	14.6	110.8
	11	0000	T.S.	995	21	14.7	110.0
		0600	T.S.	998	18	15.0	108.5
		1200	T.D.	1002	13	15.2	107.7
		1500	T.D.	1002	13	15.2	107.4
			消散 Dissipated				

熱帶風暴浪卡(2016)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM NANGKA (2016)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十月 OCT	11	0900	T.D.	1000	13	17.0	119.5
		1200	T.D.	1000	13	17.1	119.3
		1800	T.D.	998	16	17.3	117.9
	12	0000	T.D.	998	16	17.6	117.1
		0600	T.S.	996	18	17.8	116.0
		1200	T.S.	992	21	18.1	114.6
		1800	T.S.	988	23	18.3	113.9
	13	0000	T.S.	988	23	18.5	112.6
		0600	T.S.	988	23	18.6	111.2
		1200	T.S.	988	23	19.1	110.5
		1800	T.S.	992	21	19.7	108.7
	14	0000	T.S.	992	21	19.7	107.5
		0600	T.S.	996	18	19.8	106.6
		1200	T.D.	1000	13	19.8	105.2
			消散 Dissipated				

颱風沙德爾(2017)的每六小時位置及強度

SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON SAUDEL (2017)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十月 OCT	19	0000	T.D.	1000	13	13.2	129.4
		0600	T.D.	1000	13	13.8	128.2
		1200	T.D.	998	16	14.3	127.2
		1800	T.S.	996	18	14.8	126.0
	20	0000	T.S.	995	21	15.5	124.7
		0600	T.S.	995	21	15.8	123.2
		1200	T.S.	995	21	16.0	122.0
		1800	T.S.	995	21	16.1	120.5
	21	0000	T.S.	995	21	16.2	119.0
		0600	T.S.	990	23	16.1	118.1
		1200	S.T.S.	985	25	16.2	117.5
		1800	S.T.S.	985	25	16.5	117.0
	22	0000	S.T.S.	978	31	16.8	116.6
		0600	T.	972	36	17.0	116.1
		1200	T.	972	36	17.2	115.8
		1800	T.	972	36	17.6	115.5
	23	0000	T.	968	39	17.7	115.3
		0600	T.	968	39	17.9	114.7
		1200	T.	972	36	17.9	114.2
		1800	T.	975	33	17.9	113.7
	24	0000	S.T.S.	982	28	17.9	113.3
		0600	S.T.S.	985	25	17.7	112.7
		1200	S.T.S.	985	25	17.5	111.6
		1800	T.S.	990	23	17.5	110.5
	25	0000	T.S.	995	21	17.5	109.2
		0600	T.S.	998	18	17.5	108.3
		1200	T.D.	1002	13	17.5	107.5
			消散 Dissipated				

強颱風莫拉菲(2018)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON MOLAVE (2018)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十月 OCT	24	0000	T.D.	1000	13	12.6	131.0
		0600	T.D.	1000	13	13.0	130.0
		1200	T.D.	998	16	13.4	128.9
		1800	T.S.	995	18	13.6	127.7
	25	0000	T.S.	988	23	13.7	126.4
		0600	S.T.S.	980	28	13.5	124.8
		1200	T.	970	33	13.4	123.3
		1800	T.	970	33	13.3	121.7
	26	0000	T.	965	36	13.1	120.3
		0600	T.	960	39	13.3	118.8
		1200	T.	955	41	13.5	117.6
		1800	S.T.	950	43	13.5	116.3
	27	0000	S.T.	950	43	13.4	114.8
		0600	S.T.	945	46	13.4	113.1
		1200	S.T.	945	46	13.7	112.1
		1800	S.T.	950	43	13.9	111.0
	28	0000	T.	955	41	14.4	109.7
		0600	T.	965	36	15.2	108.6
		1200	T.S.	988	23	15.4	107.4
		1800	T.D.	998	13	15.4	106.1
			消散 Dissipated				

超強颱風天鵝(2019)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON GONI (2019)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十月 OCT	28	0000	T.D.	1006	13	16.0	140.5
		0600	T.D.	1004	16	16.3	140.0
		1200	T.D.	1004	16	16.5	138.9
		1800	T.S.	1000	18	16.5	138.1
	29	0000	T.S.	994	23	16.6	136.9
		0600	S.T.S.	988	25	16.6	135.9
		1200	T.	975	33	16.7	134.6
		1800	S.T.	960	43	16.4	133.4
	30	0000	SuperT.	940	52	16.3	132.7
		0600	SuperT.	915	67	16.4	131.6
		1200	SuperT.	905	72	16.1	130.9
		1800	SuperT.	905	72	15.9	129.9
	31	0000	SuperT.	905	72	15.3	128.8
		0600	SuperT.	905	72	14.7	127.6
		1200	SuperT.	905	72	14.2	126.5
		1800	SuperT.	895	77	13.7	125.0
十一月 NOV	1	0000	SuperT.	925	61	13.5	123.5
		0600	T.	970	39	13.7	122.0
		1200	S.T.S.	988	28	13.7	120.5
		1800	T.S.	994	23	14.3	119.6
	2	0000	T.S.	996	21	14.7	118.6
		0600	T.S.	996	21	15.2	117.9
		1200	T.S.	996	21	15.2	116.7
		1800	T.S.	996	21	15.1	116.0
	3	0000	T.S.	996	21	14.9	115.4
		0600	T.S.	996	21	14.7	115.0
		1200	T.S.	996	21	14.8	114.9
		1800	T.S.	996	21	14.8	114.2
	4	0000	T.S.	996	21	14.4	113.5
		0600	T.S.	996	21	14.3	113.3
		1200	T.S.	1000	18	14.3	112.5
		1800	T.S.	1000	18	14.3	112.4
	5	0000	T.D.	1000	16	14.4	111.6
		0600	T.D.	1002	13	14.1	111.3
		1200	T.D. 消散 Dissipated	1002	13	14.0	111.0

強烈熱帶風暴艾莎尼(2020)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM ATSANI (2020)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十月 OCT	30	0600	T.D.	1002	13	10.8	143.3
		1200	T.D.	1002	13	11.6	141.7
		1800	T.D.	1002	13	12.2	140.6
	31	0000	T.D.	1002	13	13.0	139.9
		0600	T.D.	1002	13	13.9	138.7
		1200	T.D.	998	16	14.7	137.0
		1800	T.D.	998	16	15.1	136.2
十一月 NOV	1	0000	T.D.	998	16	15.9	134.2
		0600	T.D.	998	16	16.2	132.9
		1200	T.D.	998	16	16.6	131.7
		1800	T.S.	995	18	17.5	130.7
	2	0000	T.S.	995	18	18.1	129.5
		0600	T.S.	995	18	19.1	128.0
		1200	T.S.	995	18	19.5	127.7
		1800	T.S.	992	21	19.8	127.3
	3	0000	T.S.	992	21	20.1	127.5
		0600	T.S.	992	21	20.1	128.0
		1200	T.S.	992	21	19.9	128.6
		1800	T.S.	992	21	19.8	128.5
	4	0000	T.S.	990	23	20.0	129.0
		0600	S.T.S.	988	25	20.3	129.0
		1200	S.T.S.	988	25	20.1	128.6
		1800	S.T.S.	985	28	20.0	127.8
	5	0000	S.T.S.	985	28	20.0	126.6
		0600	S.T.S.	985	28	20.1	125.4
		1200	S.T.S.	985	28	20.5	124.1
		1800	S.T.S.	985	28	20.6	122.8
	6	0000	S.T.S.	985	28	21.1	121.9
		0600	S.T.S.	985	28	21.4	121.0
		1200	S.T.S.	985	28	21.8	120.3
		1800	S.T.S.	988	25	22.2	119.7
	7	0000	T.S.	990	23	22.6	119.4
		0600	T.D.	1000	16	22.8	119.2
		0900	T.D. 消散 Dissipated	1002	13	22.8	118.9

熱帶風暴艾濤(2021)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM ETAU (2021)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十一月 NOV	8	1200	T.D.	1002	13	12.5	117.4
		1800	T.S.	998	18	12.8	115.0
	9	0000	T.S.	998	18	12.8	113.5
		0600	T.S.	998	18	12.5	112.0
		1200	T.S.	996	21	12.4	111.0
		1800	T.S.	996	21	12.3	110.6
	10	0000	T.S.	996	21	12.3	109.8
		0600	T.S.	998	18	12.4	108.5
		1200	T.D.	1000	13	12.7	107.5
			消散 Dissipated				

強颱風環高(2022)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON VAMCO (2022)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十一月 NOV	9	0600	T.D.	998	16	11.8	131.0
		1200	T.D.	998	16	11.9	130.6
		1800	T.S.	995	18	12.5	129.5
	10	0000	T.S.	992	21	13.4	128.7
		0600	T.S.	988	23	14.0	128.1
		1200	S.T.S.	980	28	14.3	126.7
		1800	S.T.S.	975	31	14.5	125.9
	11	0000	T.	970	33	14.7	124.7
		0600	T.	960	41	14.5	123.4
		1200	T.	960	41	14.7	122.8
		1800	T.	960	41	15.2	121.3
	12	0000	T.	965	39	15.3	119.7
		0600	T.	965	39	15.2	118.4
		1200	T.	970	33	15.3	117.3
		1800	T.	970	33	15.2	116.4

強颱風環高(2022)的每六小時位置及強度 (續)
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON VAMCO (2022) (CON'T)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十一月 NOV	13	0000	T.	970	33	15.4	115.6
		0600	T.	968	36	15.5	114.3
		1200	T.	960	41	15.6	113.3
		1800	S.T.	950	46	15.6	112.4
	14	0000	S.T.	945	49	15.7	111.4
		0600	S.T.	950	46	15.9	110.3
		1200	T.	960	41	16.4	109.4
		1800	T.	968	36	16.7	108.4
	15	0000	S.T.S.	982	28	17.0	107.6
		0600	T.S.	990	23	17.7	106.5
		1200	T.D.	998	16	18.1	105.6
			消散 Dissipated				

熱帶低氣壓科羅旺(2023)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL DEPRESSION KROVANH (2023)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十二月 DEC	19	1800	T.D.	1004	13	10.4	117.6
	20	0000	T.D.	1004	13	10.4	115.3
		0600	T.D.	1004	13	10.6	114.8
		1200	T.D.	1000	16	10.2	114.1
		1800	T.D.	1000	16	9.6	113.6
	21	0000	T.D.	1000	16	9.3	113.2
		0600	T.D.	1000	16	9.1	112.9
		1200	T.D.	1004	13	8.9	112.4
		1800	T.D.	1004	13	8.7	111.4
		2100	T.D.	1004	13	8.6	111.0
			消散 Dissipated				

附件一
颱風海高斯(2007)及熱帶風暴浪卡(2016)引致香港直接經濟損失的估算

1. 數據收集

(A) 政府部門、公共事業機構及其他組織報告的損失

香港天文台在 2021 年 1 月至 5 月向以下的政府部門、公共事業機構及其他組織進行調查，收集颱風海高斯及熱帶風暴浪卡所造成的破壞及經濟損失的數據：

漁農自然護理署、建築署、屋宇署、民航處、土木工程拓展署、渠務署、機電工程署、環境保護署、消防處、食物環境衞生署、政府產業署、路政署、民政事務總署、房屋署、地政總署、康樂及文化事務署、海事處、社會福利署、水務署。

中華電力有限公司、中國移動香港有限公司、城巴有限公司、愉景灣航運服務有限公司、環球全域電訊有限公司、香港中華煤氣有限公司、香港機場管理局、香港寬頻網絡有限公司、香港電燈有限公司、香港紅十字會、香港鐵路有限公司、香港電訊有限公司、香港電車有限公司、國際環球通訊網絡(香港)有限公司、九龍巴士(一九三三)有限公司、珀麗灣客運有限公司、新渡輪服務有限公司、信德中旅船務管理有限公司及天星小輪有限公司。

截至 2021 年 5 月 31 日，政府部門、公共事業機構及其他組織報告的損失如下：

	政府部門、公共事業機構及其他組織報告的損失（港元)
颱風海高斯	1,196,067
熱帶風暴浪卡	772,658

為避免與(B)保險索償數據重複計算，相關的保險索償已在數據中扣除。

(B) 保險索償數據

因颱風海高斯及熱帶風暴浪卡而產生的香港保險索償統計數字由香港保險業聯會根據其成員調查提供。調查的資料如下：

	參與調查的保險公司的數目	根據保險業監管局發佈的 2019 年度一般保險業務的統計數字的市場份額
颱風海高斯	50	70%
熱帶風暴浪卡	48	72%

(B1) 颱風海高斯保險索償數據

截至 2020 年 10 月 18 日，根據調查所得的保險索償數字如下：

	索償總額 (港元)
(i) 財產損壞、業務中斷、工程保險 - 物料損壞	268,640,600
(ii) 僱員補償、汽車及旅遊	2,026,745

按參與調查的機構所佔的市場份額(70%)作調整，海高斯保險索償數字估計為(268,640,600 港元+ 2,026,745 港元) / 70% =386,667,636 港元

(B2) 熱帶風暴浪卡保險索償數據

截至 2020 年 12 月 13 日，根據調查所得的保險索償數字如下：

	索償總額 (港元)
(i) 財產損壞、業務中斷、工程保險 - 物料損壞	1,933,122
(ii) 僱員補償、汽車及旅遊	325,600

按參與調查的機構所佔的市場份額(72%)作調整，浪卡保險索償數字估計為(1,933,122 港元+ 325,600 港元) / 72% = 3,137,114 港元

2. 颱風海高斯及熱帶風暴浪卡引致直接經濟損失的估算

颱風海高斯引致直接經濟損失的估算是 (A)政府部門、公共事業機構及其他組織報告的損失 (扣除相關的保險索償)及 (B1)保險索償數字 (按參與調查的機構的所佔的市場份額作調整)的總和。

= 1,196,067 港元 + 386,667,636 港元

= 387,863,703 港元 (約 3.90 億港元)

熱帶風暴浪卡引致直接經濟損失的估算是 (A)政府部門、公共事業機構及其他組織報告的損失 (扣除相關的保險索償)及 (B2)保險索償數字 (按參與調查的機構的所佔的市場份額作調整)的總和。

= 772,658 港元 + 3,137,114 港元

= 3,909,772 港元 (約 4 百萬港元)

3. 免責聲明

直接經濟損失的估算是基於香港天文台向政府部門、公共事業機構及其他組織所收集的經濟損失數據、香港保險業聯會向成員收集的保險索償統計數字，以及相關政府報告所作出的。由於所收集的數據並非詳盡無遺，估算的損失亦有可能受到調查回應和分析方法的各種局限所影響，因此直接經濟損失估算僅供參考。

鳴謝

香港天文台感謝所有參與調查的政府部門、公共事業機構及其他組織、香港保險業聯會提供保險索償數字，以及政府統計處為經濟損失調查及估算方法提供的專業意見。

Annex 1
Estimated Direct Economic Losses in Hong Kong caused by Typhoon Higos (2007) and Tropical Storm Nangka (2016)

1. Data collection

(A) Losses reported by government departments, public utility companies and other organizations

The Hong Kong Observatory conducted a survey to collect data on damages and economic losses caused by Typhoon Higos and Tropical Storm Nangka from the following government departments, public utilities and other organizations between January and May 2021:

Agriculture, Fisheries and Conservation Department, Architectural Services Department, Buildings Department, Civil Aviation Department, Civil Engineering and Development Department, Drainage Services Department, Electrical and Mechanical Services Department, Environmental Protection Department, Fire Services Department, Food and Environmental Hygiene Department, Government Property Agency, Highways Department, Home Affairs Department, Housing Department, Lands Department, Leisure and Cultural Services Department, Marine Department, Social Welfare Department, Water Supplies Department.

China Light and Power Company Limited, China Mobile Hong Kong Company Limited, City Bus Limited, Discovery Bay Transportation Services Limited, HGC Global Communications Limited, Hong Kong and China Gas Company Limited, Hong Kong Airport Authority, Hong Kong Broadband Network Limited, Hong Kong Electric Company Limited, Hong Kong Red Cross, Mass Transit Railway Corporation Limited, Hong Kong Telecommunications Limited, Hong Kong Tramways Limited, Reach Networks Hong Kong Limited, Kowloon Motor Bus Company (1933) Limited, Park Island Transport Company Limited, Sun Ferry Services Company Limited, Shun Tak China Travel Shipping Management Limited and the “Star” Ferry Company, Limited.

As of 31 May 2021, the losses reported from government departments, public utilities and other organizations are as follow:

	The losses reported from government departments, public utilities and other organizations (HK$)
Typhoon Higos	1,196,067
Tropical Storm Nangka	772,658

To avoid double counting the insurance claims data in part (B), items with insurance claims covered have been excluded.

(B) Insurance claims data

The insurance claims statistics incurred by Typhoon Higos and Tropical Storm Nangka in Hong Kong are provided by the Hong Kong Federation of Insurers (HKFI) based on its member surveys. Details of the statistics are as follows :

	Number of insurance companies participated in the survey	Market share according to the Annual Statistics for General Business 2019 issued by the Insurance Authority
Typhoon Higos	50	70%
Tropical Storm Nangka	48	72%

(B1) Insurance claims data of Typhoon Higos

The insurance claims incurred as of 18 October 2020 are as follows :

	Total claims incurred (HK$)
(i) Property Damage, Business Interruption and Contractors' All Risks (CAR)	268,640,600
(ii) Employees' Compensation (EC), Motor and Travel	2,026,745

Adjusted by market share of the participating companies (70%), the insurance claims incurred by Higos is estimated to be (HK$ 268,640,600 + HK$ 2,026,745) / 70% = HK$ 386,667,636

(B2) Insurance claims data of Tropical Storm Nangka

The insurance claims incurred as of 13 December 2020 are as follows :

	Total claims incurred (HK$)
(i) Property Damage, Business Interruption and Contractors' All Risks (CAR)	1,933,122
(ii) Employees' Compensation (EC), Motor and Travel	325,600

Adjusted by market share of the participating companies (72%), the insurance claims incurred by Nangka is estimated to be (HK$ 1,933,122 + HK$ 325,600) / 72% = HK$ 3,137,114

2. Estimation of direct economic losses caused by Typhoon Higos and Tropical Storm Nangka

The estimated direct economic losses due to Typhoon Higos in Hong Kong are considered to be the sum of **(A)** total reported losses of government departments, public utilities and other organizations (net of related insurance claims) and **(B1)** insurance claims (adjusted by market share of companies participating in the survey):

= HK$ 1,196,067 + HK$ 386,667,636
= HK$ 387,863,703 (around HK$ 390 million)

The estimated direct economic losses due to Tropical Storm Nangka in Hong Kong are considered to be the sum of **(A)** total reported losses of government departments, public utilities and other organizations (net of related insurance claims) and **(B2)** insurance claims (adjusted by market share of companies participating in the survey):
= HK$ 772,658 + HK$ 3,137,114
= HK$ 3,909,772 (around HK$ 4 million)

3. Disclaimer

The estimated direct economic losses are based on the best available information from the responses of government departments, public utilities and other organizations to the survey conducted by the Hong Kong Observatory, statistics on insurance claims collected from the members of the Hong Kong Federation of Insurers and other relevant government reports at the time of assessment. The estimates are for reference only as the data collection are by no means exhaustive and may be subject to various limitations in the survey responses and analysis method.

Acknowledgement

The Hong Kong Observatory gratefully acknowledges the government departments, public utilities and other organizations involved in the survey, the Hong Kong Federation of Insurers for providing insurance claims, and the Census and Statistics Department for providing professional advice to the survey and analysis methods of economic losses.