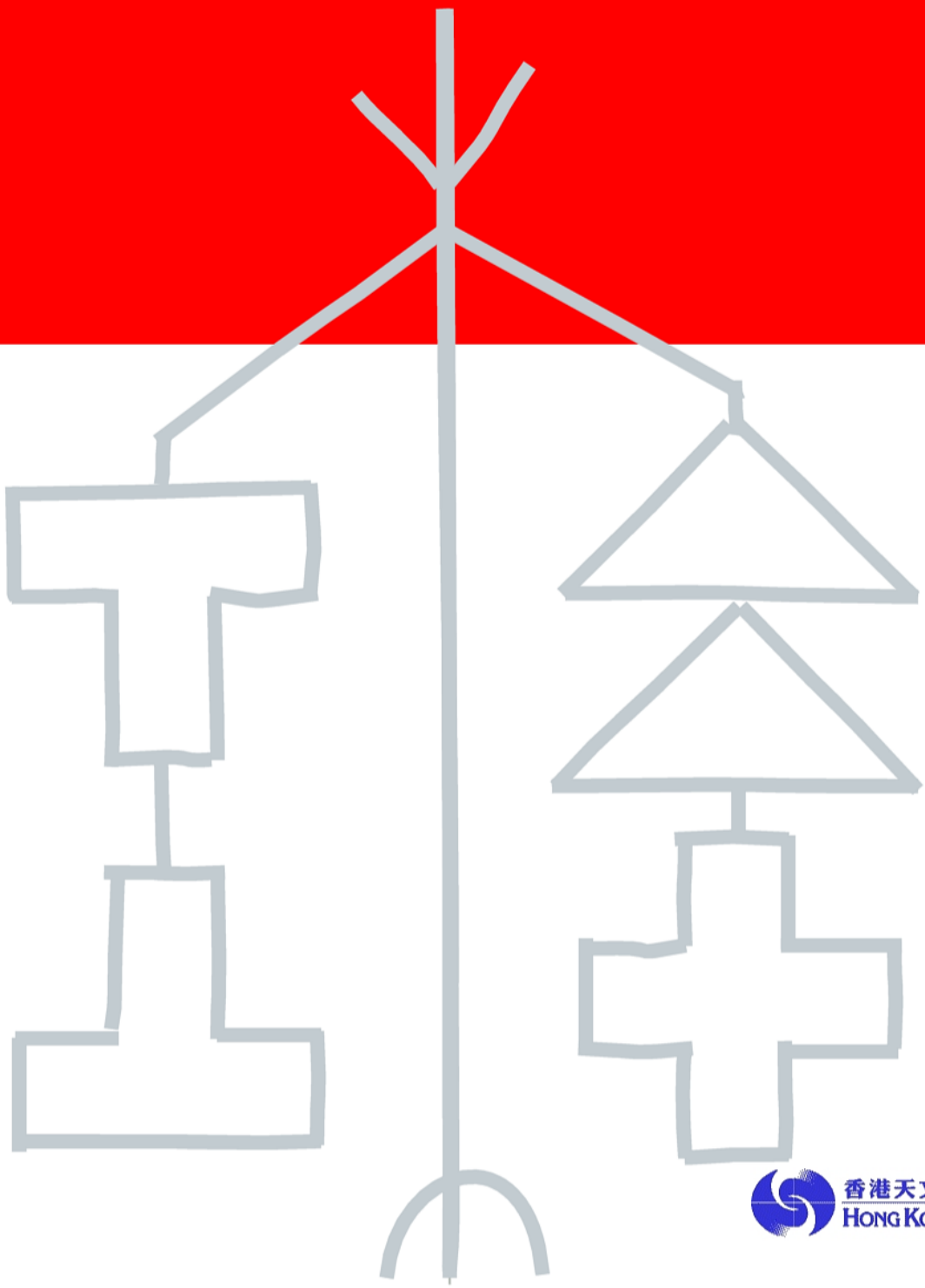
二零一六

熱帶氣旋

TROPICAL CYCLONES IN 2016



香港天文台
HONG KONG OBSERVATORY

二零一六年的熱帶氣旋路徑圖
TRACKS OF TROPICAL CYCLONES IN 2016

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
低壓區 Low Pressure Area

香港
Hong Kong

蒲公英
MINDULLE
八月AUG

圓規
KOMPASU
八月AUG

奧麥斯
OMAIS
八月AUG

獅子山
LIONROCK
八月AUG

燦都
CHANTHU
八月AUG

康森
CONSON
八月AUG

盧碧
LUPIT
七月JUL

桑達
SONGDA
十月OCT

暹芭
CHABA
十月OCT

南川
NAMTHEUN
九月SEP

馬勒卡
MALAKAS
九月SEP

瑪瑙
MALOU
九月SEP

獅子山
LIONROCK (1610)
八月AUG

圓規
KOMPASU (1611)
八月AUG

米雷
MEARI
十一月NOV

莫蘭蒂
MERANTI
九月SEP

尼伯特
NEPARTAK
七月JUL

海馬
HAIMA
十月OCT

瑪瑙
MALOU (1613)
九月SEP

盧碧
LUPIT (1602)
七月JUL

妮妲
NIDA
八月AUG

鮎魚
MEGI
九月SEP

莎莉嘉
SARIKA
十月OCT

熱帶低氣壓
T.D.
五月MAY

南川
NAMTHEUN (1612)
八月AUG

馬鞍
MA-ON
十一月NOV

銀河
MIRINAE
七月JUL

電母
DIANMU
八月AUG

電母
DIANMU (1608)
八月AUG

桑達
SONGDA (1620)
十月OCT

熱帶低氣壓
T.D.
五月MAY

燦都
CHANTHU (1607)
八月AUG

奧麥斯
OMAIS (1605)
八月AUG

艾利
AERE
十月OCT

艾利
AERE (1619)
十月OCT

蠍虎
TOKAGE
十一月NOV

蒲公英
MINDULLE (1609)
八月AUG

康森
CONSON (1606)
八月AUG

雷伊
RAI
九月SEP

銀河
MIRINAE (1603)
七月JUL

莫蘭蒂
MERANTI (1614)
九月SEP

暹芭
CHABA (1618)
九月SEP

雷伊
RAI (1615)
九月SEP

洛坦
NOCK-TEN
十二月DEC

莎莉嘉
SARIKA (1621)
十月OCT

馬勒卡
MALAKAS (1616)
九月SEP

馬鞍
MA-ON (1624)
十一月NOV

熱帶低氣壓
T.D.
十二月DEC

妮妲
NIDA (1604)
七月JUL

鮎魚
MEGI (1617)
九月SEP

米雷
MEARI (1623)
十一月NOV

蠍虎
TOKAGE (1625)
十一月NOV

尼伯特
NEPARTAK(1601)
七月JUL

熱帶低氣壓
T.D.
十二月DEC

海馬
HAIMA (1622)
十月OCT

洛坦
NOCK-TEN (1626)
十二月DEC

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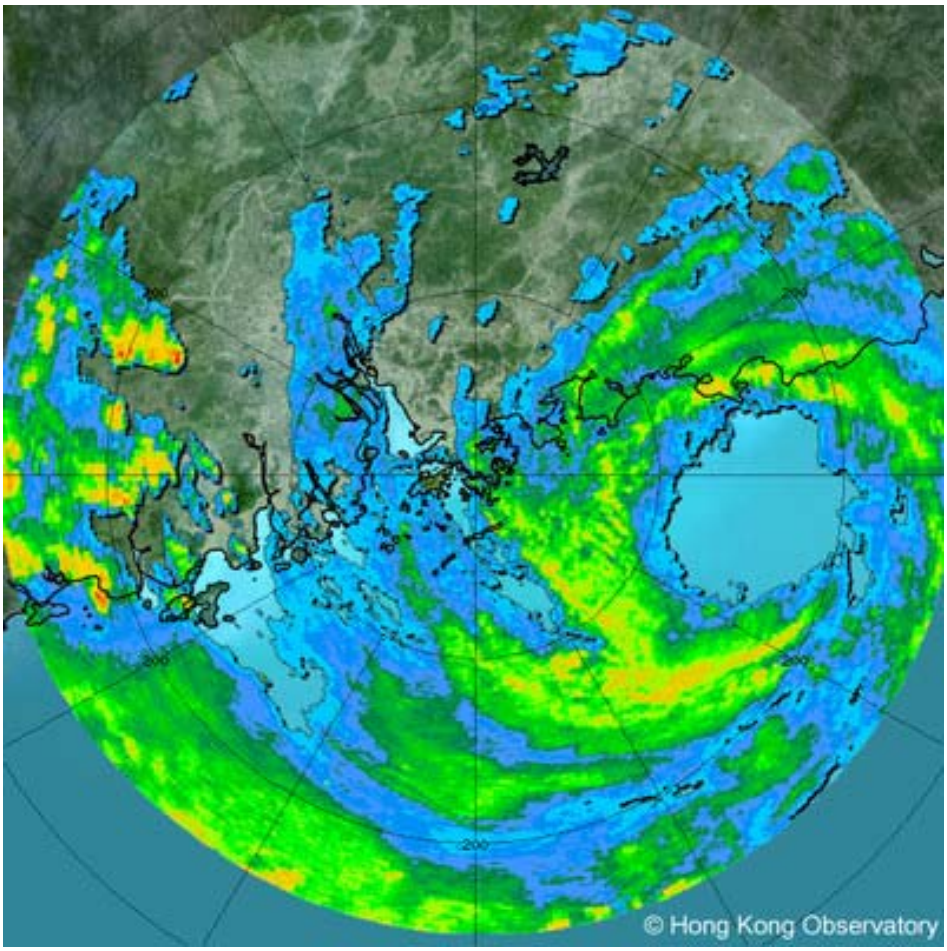
二零一六年熱帶氣旋

TROPICAL CYCLONES IN 2016



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封面
二零一六年八月一日晚上11時的雷達圖像，颱風妮妲直徑約100公里的風眼清晰可見。

Cover
Image of radar echoes at 11 p.m. on 1 August 2016 which clearly shows the eye of Nida with a diameter of about 100 km.

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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“1601”代表在二零一六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，例如超強颱風尼伯特（1601）。

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

年報第二節是二零一六年所有影響北太平洋西部及南海區域的熱帶氣旋的概述。

年報第三節是二零一六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；

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

（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。

二零一六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。至於在熱帶氣旋的敘述中，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 2016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 2016 was assigned the code "1601". In this report, the associated code immediately follows the name of the tropical cyclone in bracket, e.g. Super Typhoon Nepartak (1601).

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.

[#] Prior to 2009, the maximum sustained winds of typhoon was defined to be 118 km/h or more
* New categories adopted since 2009

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 2016 is presented.

The reports in Section 3 are individual accounts of the life history of tropical cyclones affecting Hong Kong in 2016. 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 2016 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 2016 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　　二零一六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 2016

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	莎莉嘉 Sarika
中國	China	海葵 Haikui	玉兔 Yutu	風神 Fengshen	杜鵑 Dujuan	海馬 Haima
朝鮮	DPR Korea	鴻雁 Kirogi	桃芝 Toraji	海鷗 Kalmaegi	彩虹 Mujigae	米雷 Meari
中國香港	Hong Kong, China	啟德 Kai-tak	萬宜 Man-yi	鳳凰 Fung-wong	彩雲 Choi-wan	馬鞍 Ma-on
日本	Japan	天秤 Tembin	天兔 Usagi	北冕 Kammuri	巨爵 Koppu	蝎虎 Tokage
老撾	Lao PDR	布拉萬 Bolaven	帕布 Pabuk	巴蓬 Phanfone	薔琵 Champi	洛坦 Nock-ten
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	茉莉 Melor	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	天鴿 Hato
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 名字 Name	II 名字 Name	III 名字 Name	IV 名字 Name	V 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	溫比亞 Rumbia	塔巴 Tapah	浪卡 Nangka	莫蘭蒂 Meranti	瑪娃 Mawar
米克羅尼西亞	Micronesia	蘇力 Soulik	米娜 Mitag	蘇迪羅 Soudelor	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	山竹 Mangkhut	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：在二零一六年，西北太平洋和南海的熱帶氣旋名單上，新增了一個新名字「博羅依」，取代舊有名字「威馬遜」。
Note: In 2016, one new names "Bualoi" has been adopted for tropical cyclones in the western North Pacific and the South China Sea, replacing "Rammasun".

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) Elevation of barometer above M.S.L. (m)
		北緯 Latitude N	東經 Longitude E	
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
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	Tap Mun	22°28’17”	114°21’38”	35
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

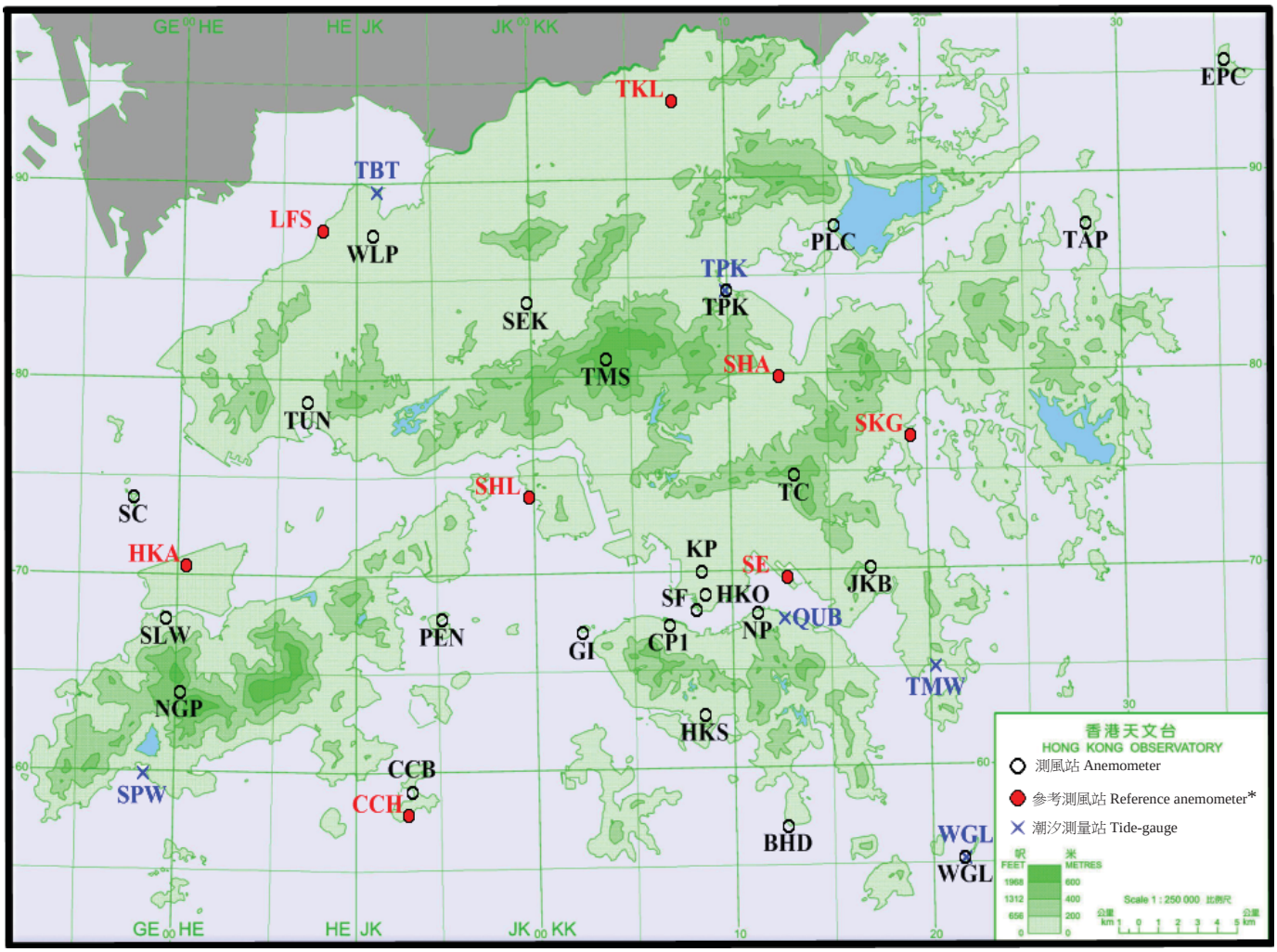
* 參考測風站

* Reference anemometer

表 1.4　　二零一六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 2016

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	
BHD	黃麻角(赤柱) Bluff Head (Stanley)
CCB	長洲泳灘 Cheung Chau Beach
CP1	中環碼頭 Central Pier
EPC	平洲 Ping Chau
GI	青洲 Green Island
HKO	天文台 Hong Kong Observatory
HKS	黃竹坑 Wong Chuk Hang
JKB	將軍澳 Tseung Kwan O
KP	京士柏 King's Park
NGP	昂坪 Ngong Ping
NP	北角 North Point
PEN	坪洲 Peng Chau
PLC	大美督 Tai Mei Tuk
SC	沙洲 Sha Chau
SEK	石崗 Shek Kong
SF	九龍天星碼頭 Star Ferry (Kowloon)
SLW	沙螺灣 Sha Lo Wan
TAP	塔門 Tap Mun
TC	大老山 Tate's Cairn
TPK	大埔滘 Tai Po Kau
TMS	大帽山 Tai Mo Shan

測風站 Anemometers	
TUN	屯門政府合署 Tuen Mun Government Offices
WLP	濕地公園 Wetland Park
WGL	橫瀾島 Waglan Island

參考測風站* Reference anemometers*	
CCH	長洲 Cheung Chau
LFS	流浮山 Lau Fau Shan
HKA	香港國際機場 Hong Kong International Airport
SE	啟德 Kai Tak
SHA	沙田 Sha Tin
SHL	青衣島蜆殼油庫 Tsing Yi Shell Oil Depot
SKG	西貢 Sai Kung
TKL	打鼓嶺 Ta Kwu Ling

潮汐測量站 Tide-gauge	
QUB	鰂魚涌 Quarry Bay
SPW	石壁 Shek Pik
TBT	尖鼻咀 Tsim Bei Tsui
TMW	大廟灣 Tai Miu Wan
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　二零一六年熱帶氣旋概述

2.1　二零一六年的熱帶氣旋回顧

2.1.1　北太平洋西部（包括南海區域）的熱帶氣旋

二零一六年有28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13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，其中有七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是二零一六年在北太平洋西部及南海區域熱帶氣旋數目之逐月分佈。

二零一六年內有九個熱帶氣旋在中國登陸，其中三個在香港300公里內的華南沿岸登陸。兩個熱帶氣旋橫過台灣，五個登陸日本，五個橫過菲律賓及五個登陸越南。九月的超強颱風莫蘭蒂(1614)（圖2.3）是二零一六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250公里，而最低海平面氣壓為890百帕斯卡（表4.1）。

2.1.2　香港責任範圍內的熱帶氣旋

在二零一六年的28個熱帶氣旋中，有15個出現在香港責任範圍（即北緯10至30度、東經105至125度），較1961-2010年約16個的長期年平均數目略少（表2.1），當中只有四個在香港責任範圍內形成。年內，香港天文台總共發出352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

二零一六年共有13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略多，當中只有四個在南海上形成。

2.1.4　影響香港的熱帶氣旋

二零一六年香港的颱風季節始於五月二十六日，當天一個熱帶低氣壓在南海北部形成並靠近廣東西部沿岸，天文台發出一號戒備信號。十月二十一日熱帶風暴海馬(1622)移入內陸及減弱，二零一六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。

年內共有九個熱帶氣旋影響香港（圖2.2），多於1961-2010年約六個的長期年平均數目(表2.2)，亦是一九九三年以來的最高紀錄。這九個熱帶氣旋分別為五月的熱帶低氣壓、七月的強烈熱帶風暴銀河(1603)及颱風妮妲(1604)、八月的熱帶風暴電母(1608)、九月的超強颱風莫蘭蒂(1614)及強颱風鮎魚(1617)、十月的熱帶風暴艾利(1619)、超強颱風莎莉嘉(1621)和海馬(1622)。天文台在妮妲及海馬影響香港期間曾發出八號烈風或暴風信號，是年內發出的最高熱帶氣旋警告信號。五月的熱帶低氣壓、電母及莎莉嘉吹襲期間天文台曾發出三號強風信號。銀河、莫蘭蒂、鮎魚及艾利則只需發出一號戒備信號。

二零一六年較多熱帶氣旋影響香港的主要原因為菲律賓附近和南海北部的海面溫度比正常高，加上北太平洋西部的大氣狀況提供有利熱帶氣旋進入南海的引導氣流。

2.1.5 熱帶氣旋的雨量

二零一六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1033.9毫米（表4.8.1），約佔年內總雨量3026.8毫米的百分之34.2，比1961-2010年長期年平均值的728.8毫米多約42%。

超強颱風莎莉嘉(1621)為天文台總部帶來491.3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

這一節逐月介紹二零一六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

二零一六年一月至四月期間並無熱帶氣旋在北太平洋西部及南海區域上形成。

五月

熱帶低氣壓於五月二十六日晚上在南海北部形成後大致向西北偏北方向移動，靠近廣東西部沿岸，翌日轉向偏北方向移動，並稍為增強，達到最高強度時其中心附近最高持續風速估計為每小時55公里。該熱帶低氣壓於五月二十七日傍晚在廣東西部陽江市附近登陸，並於當晚減弱為一個低壓區。

根據報章報導，熱帶低氣壓為廣東西部帶來暴雨，有小橋遭洪水沖毀，一輛大巴墮河，兩人受傷。澳門外港碼頭發生撞船事故，兩名乘客受傷。

六月

二零一六年六月並無熱帶氣旋在北太平洋西部及南海區域上形成。

七月至八月

熱帶低氣壓尼伯特(1601)於七月三日在關島以南約560公里的北太平洋西部形成，向西北至西北偏西方向移動並逐漸增強。尼伯特於七月六日清晨增強為超強颱風，當天下午達到其最高強度，中心附近最高持續風力估計為每小時230公里。尼伯特於七月八日橫過台灣南部後減弱為颱風，進入台灣海峽後繼續減弱，翌日下午在福建沿岸登陸，最後於七月十日上午在福建內陸減弱為一個低壓區。

根據報章報導，尼伯特吹襲台灣期間造成最少五人死亡，逾400人受傷。尼伯特及其殘餘亦在福建、江西及廣東等地造成嚴重破壞，最少有69人死亡，近80萬人受災，直接經濟損失超過80億人民幣。

熱帶低氣壓盧碧(1602)於七月二十三日晚上在硫黃島之東北偏東約1 430公里的北太平洋西部形成，大致向東北偏北方向移動。盧碧於翌日增強為熱帶風暴，並達到其最高強度，中心附近最高持續風速估計為每小時75公里。其後盧碧轉向北至西北偏北方向移動，最後於七月二十五日清晨在日本以東海域演變為一股溫帶氣旋。

熱帶低氣壓銀河(1603)於七月二十五日晚上在西沙以東約300公里的南海中部上形成，向西北偏西方向移動，翌日早上增強為熱帶風暴。銀河當晚在海南島東部沿岸登陸，橫過海南島期間略為減弱，於七月二十七日早上進入北部灣後重新組織及再度發展。傍晚時分銀河進一步增強為強烈熱帶風暴並達到其最高強度，中心附近最高持續風速估計為每小時90公里。銀河當晚在越南北部沿岸登陸，並逐漸減弱，最後於七月二十八日傍晚在越南北部消散。根據報章報導，銀河吹襲越南期間造成最少一人死亡，五人受傷，多間房屋倒塌。

熱帶低氣壓妮妲(1604)於七月二十九日晚上在馬尼拉之東南偏東約750公里的北太平洋西部形成，初時向西北偏北方向移動。妮妲於翌日下午開始採取西北路徑移向呂宋海峽，並逐漸增強，於七月三十一日上午發展為強烈熱帶風暴，當日下午掠過呂宋北岸，晚上進入南海東北部，並採取西北偏西路徑趨向廣東沿岸。妮妲進一步增強為颱風，於八月一日下午達到其最高強度，中心附近最高持續風速為每小時130公里。妮妲於八月二日上午三時左右在大鵬半島附近登陸，橫過深圳，在香港以北掠過。妮妲繼續移入內陸及減弱，最後於八月三日清晨在廣西減弱為一個低壓區。根據報章報導，在妮妲吹襲期間，廣東、廣西、湖南、貴州及雲南約有50萬人受災，300多間房屋倒塌，直接經濟損失最少五億元人民幣。廣東有七市要停工停課，海陸空交通癱瘓。而深圳有逾一萬六千戶的電力供應受到影響。

熱帶低氣壓奧麥斯(1605)於八月四日下午在硫黃島之東南約1 010公里的北太平洋西部形成，大致向偏北方向移動，並逐漸增強。奧麥斯於八月六日發展為強烈熱帶風暴，達到其最高強度，中心附近最高持續風速為每小時105公里。隨後兩天奧麥斯繼續採取西北偏北路徑移向日本以東海域，並逐漸減弱，最後於八月十日清晨演變為一股溫帶氣旋。

熱帶低氣壓康森(1606)於八月八日下午在威克島之西南偏西約580公里的北太平洋西部形成，向西至西北偏西方向移動，並逐漸增強。康森於八月九日凌晨發展為熱帶風暴，當晚達到其最高強度，中心附近最高持續風速為每小時85公里。康森於八月十一日開始轉向東北偏北方向移動，兩日後再轉向西北偏北，最後於八月十四日晚上在日本以東海域演變為一股溫帶氣旋。

熱帶低氣壓燦都(1607)於八月十三日晚上在硫黃島以南約620公里的北太平洋西部形成，向東北偏北方向移動，當天早上增強為熱帶風暴。燦都於八月十五日清晨達到其最高強度，中心附近最高持續風速為每小時85公里。其後燦都轉向西北偏北移動，八月十七日早上掠過日本本州北部東岸，下午在北海道以南海域演變為一股溫帶氣旋。根據報章報導，燦都為日本東北地區帶來豪雨，約1 800戶家庭停電，海陸空交通受到影響。

熱帶低氣壓電母(1608)於八月十七日在香港之西南約220公里的南海北部形成，當天其移動緩慢，強度漸增，翌日早上增強為熱帶風暴。電母採取偏西路徑移動，於八月十八日下午在雷州半島登陸，當晚進入北部灣。電母在橫過北部灣期間再度發展，於八月十九日上午達到其最高強度，中心附近最高持續風速估計為每小時85公里。電母於當日下午在越南北部登陸，移入內陸並逐漸減弱，最後於八月二十日早上在緬甸北部減弱為一個低壓區。根據報章報導，受電母相關的暴雨影響，海南島多處地方出現水浸，約四萬人需要緊急疏散，海陸空交通受影響。電母吹襲越南期間，造成最少16人死亡，兩人失蹤及15人受傷。

與此同時，三個熱帶低氣壓在八月十九至二十日期間在北太平洋西部接踵而生：先有蒲公英(1609)於八月十九日上午在硫黃島以南約810公里形成，繼而獅子山(1610)及圓規(1611)於當晚先後在東京之東南偏南約350公里及東京之東南偏東約960公里形成。

圓規向西北移動，於八月二十日早上增強為熱帶風暴，達到其最高強度，中心附近最高持續風速估計為每小時65公里。圓規於八月二十一日在日本本州北部以東離岸海域轉向偏北方向移動，當晚在北海道東岸演變為一股溫帶氣旋。根據報章報導，圓規吹襲北海道期間造成至少一死三傷，超過130間房屋水浸。

蒲公英形成後大致向偏北方向移動，並於八月二十日早上增強為熱帶風暴，翌日進一步發展為強烈熱帶風暴，在八月二十二日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110公里。蒲公英當天在東京以東登陸，並採取東北偏北路徑橫掃本州北部，最後於八月二十三日在北海道以北海域演變為一股溫帶氣旋。蒲公英是一星期內第三個吹襲日本東部的熱帶氣旋。根據報章報導，蒲公英為本州及北海道帶來狂風大雨，造成最少兩人死亡，超過60人受傷，海陸空交通受到影響。

八月份日本東部風暴連場，但最具破壞力的第六個風暴還要來臨。獅子山的生成位置相對於當時其他熱帶氣旋原是最接近日本，但受制於與圓規和蒲公英的互相影響，獅子山初時大致向西南移動遠離本州。八月二十一日早上獅子山的移動速度開始減慢，一度向東南漂移，於八月二十三日再回復向西南移動。在琉球群島以東海域徘徊的日子，獅子山繼續發展，在八月二十四日晚上增強為強颱風，翌日清晨達到其最高強度，中心附近最高持續風速為每小時175公里。八月二十六日獅子山移動路徑掉頭逆轉，開始朝東北方向走回頭路。八月二十九日下午獅子山減弱為颱風，並轉向西北偏北移動，直撲本州北部，翌日橫掃東北地區，最後於八月三十一日早上在日本海演變為一股溫帶氣旋。

根據報章報導，獅子山吹襲東北地區及北海道期間，造成最少12人死亡，五人失蹤，約180 000人需要疏散，多處地區出現水浸及山泥傾瀉，多間房屋損毀，海陸空交通癱瘓。

九月至十月

熱帶低氣壓南川(1612)於九月一日凌晨在沖繩島以南約370公里的北太平洋西部上形成，向東北方向移動並迅速增強。翌日南川轉向偏北路徑移動，並發展為強颱風，達到其最高強度，中心附近最高持續風速估計為每小時165公里。隨後南川開始減弱，掠過日本九州西岸後，於九月五日在日本海減弱為一個低壓區。根據報章報導，南川為九州帶來狂風暴雨，造成最少一人受傷，超過1 700人需要緊急疏散。

熱帶低氣壓瑪瑙(1613)於九月六日下午在沖繩島之西北偏西約100公里的北太平洋西部上形成，向東北移動，其中心附近最高持續風速估計為每小時55公里。瑪瑙於九月八日凌晨在日本以南海域演變為一股溫帶氣旋。

熱帶低氣壓莫蘭蒂(1614)於九月十日清晨在關島以西約390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。莫蘭蒂於九月十二日發展為超強颱風，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250公里。莫蘭蒂於九月十三日晚上橫過呂宋海峽後，採取西北路徑經過台灣西南沿岸海域，移向福建並逐漸減弱。莫蘭蒂於九月十五日凌晨在廈門附近登陸並移入內陸，最後於九月十六日凌晨在江西減弱為一個低壓區。

根據報章報導，莫蘭蒂吹襲台灣期間，造成至少兩人死亡，63人受傷，超過100萬戶停水停電，海陸空交通癱瘓。莫蘭蒂亦在福建及江西等地造成嚴重破壞，最少有29人死亡、15人失蹤，約250萬人受災，約18 000間房屋倒塌，直接經濟損失超過117億元人民幣。

熱帶低氣壓雷伊(1615)於九月十二日早上在峴港之東南偏東約500公里的南海中部上形成，採取西北偏西路徑移向越南海岸，最高強度時其中心附近持續風速估計為每小時55公里。九月十三日凌晨雷伊登陸越南中部，下午於泰國消散。根據報章報導，雷伊為越南帶來暴雨，造成至少兩人死亡及33人受傷，多間房屋損毀。

熱帶低氣壓馬勒卡(1616)於九月十二日下午於關島以西約340公里的北太平洋西部上形成，採取西北偏西至西北路徑移向呂宋以東海域並逐漸增強。馬勒卡於九月十六日清晨發展為強颱風，轉向西北偏北方向橫過台灣以東海域。翌日馬勒卡達到其最高強度，中心附近最高持續風速估計為每小時175公里。馬勒卡於九月十八日轉向東北方向移動，九月十九日晚及翌日橫掃日本，其後在晚間於本州南部演變為一股溫帶氣旋。

根據報章報導，馬勒卡吹襲台灣期間，當地交通大受影響。馬勒卡亦為日本南部廣泛地區帶來狂風暴雨，造成最少兩人死亡，一人失蹤及42人受傷，近30萬人需要緊急疏散。九州有超過14萬戶停電。

熱帶低氣壓鮎魚(1617)於九月二十二日早上在關島之西南偏南約300公里的北太平洋西部上形成，初時大致向西北移動，翌日轉向西北偏西，並逐漸增強。鮎魚於九月二十六日凌晨在台灣以東海域發展為強颱風，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175公里。鮎魚在九月二十七日下午在花蓮附近登陸台灣及減弱，進入台灣海峽後繼續採取西北偏西路徑靠近福建一帶。鮎魚於九月二十八日早上在泉州附近再登陸進入福建內陸，最後於九月二十九日早上清晨在江西減弱為一個低壓區。

根據報章報導，鮎魚在台灣造成嚴重破壞，至少四人死亡，超過500人受傷。所有城市停工停課，海陸空交通癱瘓，農作物損失超過10億元新台幣。鮎魚亦為福建、浙江及江西帶來狂風暴雨，至少六人死亡，33人失蹤，超過600 000人需要緊急疏散，直接經濟損失超過25.8億元人民幣。

熱帶低氣壓暹芭(1618)於九月二十八日凌晨在關島之東北偏東約570公里的北太平洋西部上形成，初時以偏西路徑移動，九月三十日轉向西北偏北，移向琉球群島一帶並逐漸增強。暹芭於十月三日上午發展為超強颱風，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220公里。暹芭掠過琉球群島後採取偏北路徑橫過東海，趨向朝鮮半島南部，十月五日晚上在日本本州以北的海域演變為一股溫帶氣旋。

根據報章報導，暹芭吹襲沖繩島期間，海陸空交通大受影響。暹芭亦在韓國南部地區造成嚴重破壞，多處地區水浸，最少七人死亡，三人失蹤。濟州市約有25 000戶停電。

熱帶低氣壓艾利(1619)於十月五日下午在東沙以東約900公里的北太平洋西部上形成，向西至西北偏西移動，橫過呂宋海峽，翌日進入南海東北部，並增強為熱帶風暴。艾利在十月七日清晨掠過東沙以南海域後，移動轉為緩慢，並向偏北方向漂移，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85公里。十月八日艾利向東北緩慢移動，翌日幾乎停留不動，並逐漸減弱。十月十日艾利開始加速轉向西南方移動，當晚在東沙附近減弱為一個低壓區。但與艾利相關的殘餘低壓區在隨後兩天繼續採取西南路徑移向西沙附近海域，於十月十三日早上在海南島以南再度增強為熱帶低氣壓，並轉向偏西方向移動，翌

日凌晨登陸越南中部後減弱為一個低壓區，進入內陸消散。根據報章報導，艾利的外圍環流為台灣南部帶來大雨，部分地區出現水浸，海陸交通受到影響。

熱帶低氣壓桑達(1620)於十月八日下午於硫黃島之東南偏東約1 600公里的北太平洋西部上形成，大致向西北移動，並逐漸增強。桑達於十月十日於硫黃島以東的海域發展為颱風，並轉向偏北方向移動。隨後兩天桑達加速轉向東北移動及增強為超強颱風，達到其最高強度，中心附近最高持續風速估計為每小時185公里，於十月十三日演變為一股溫帶氣旋。

熱帶低氣壓莎莉嘉(1621)於十月十三日早上在馬尼拉以東約1 060公里的北太平洋西部上形成，並採取西北偏西路徑移向菲律賓。莎莉嘉當晚已增強為熱帶風暴，翌日更迅速增強，於十月十五日晚上發展為超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185公里。莎莉嘉於十月十六日清晨橫過呂宋時減弱為颱風，進入南海後重新組織。十月十八日早上莎莉嘉在海南島登陸，其後轉向西北移動。十月十九日莎莉嘉橫過北部灣，當天稍後在廣西內陸消散。

根據報章報導，莎莉嘉吹襲菲律賓期間造成最少三人死亡，三人失蹤，多處出現山泥傾瀉，多間房屋倒塌。莎莉嘉吹襲廣東、廣西及海南期間，最少370萬人受災，直接經濟損失接近55億元人民幣。

熱帶低氣壓海馬(1622)於十月十四日下午在關島以南約710公里的北太平洋西部上形成，大致向西北移動，並逐漸增強。海馬於十月十七日晚上發展為超強颱風，並向西北偏西移動，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230公里。海馬於十月二十日凌晨橫過呂宋北部及減弱為颱風，日間採取西北路徑進入南海東北部。翌日海馬轉向偏北方向移動，下午在廣東東部汕尾附近登陸，晚間在江西減弱為一個低壓區。

根據報章報導，海馬在呂宋北部造成嚴重破壞，廣泛地區出現水浸及山泥傾瀉，多間房屋倒塌，最少八人死亡，逾9萬人需要緊急疏散。海馬亦為廣東及福建帶來狂風大雨，最少180萬人受災，約600間房屋倒塌，海陸空交通大受影響，直接經濟損失超過50億元人民幣。

十一月

熱帶低氣壓米雷(1623)於十一月二日凌晨在雅蒲島之東北偏北約230公里的北太平洋西部上形成，向西北偏北及偏北方向緩慢移動。米雷於十一月四日開始加速向東北移動，並逐漸增強。翌日米雷發展為颱風，達到其最高強度，中心附近最高持續風速估計為每小時140公里。米雷最後於十一月七日晚上在日本東南的西北太平洋海面演變為一股溫帶氣旋。

熱帶低氣壓馬鞍(1624)於十一月九日下午在關島以東約1 610公里的北太平洋西部上形成，大致向西北偏西移動。馬鞍於十一月十日下午增強為熱帶風暴，達到其最高強度，中心附近最高持續風速估計為每小時65公里。馬鞍隨後開始逐漸減弱，十一月十二日在硫黃島東南的海域上減弱為一個低壓區。

熱帶低氣壓蝎虎(1625)於十一月二十四日下午在馬尼拉之東南約830公里的海域上形成，以西北偏西或西北路徑橫過菲律賓。蝎虎於十一月二十六日進入南海及增強為強烈熱帶風暴，達到其最高強度，中心附近最高持續風速估計為每小時90公里。十一月二十七日蝎虎轉向東北緩慢移動，在呂宋以西海域徘徊，受到東北季候風影響，翌日迅速減弱及消散。

十二月

一個熱帶低氣壓於十二月十二日下午在越南南部沿岸海域胡志明市之東南偏東約370公里形成，向西北緩慢移動，其中心附近最高持續風力為每小時45公里。該熱帶低氣壓於翌日早上在越南南部登陸，日間在內陸消散。

熱帶低氣壓洛坦(1626)於十二月二十一日下午在雅蒲島之東南約490公里的的北太平洋西部上形成，向西北移動，並迅速增強。洛坦於十二月二十四日發展為超強颱風及達到其最高強度，中心附近最高持續風速估計為每小時210公里。洛坦採取偏西路徑橫過菲律賓中部，於十二月二十六日下午進入南海。受到一股強烈東北季候風影響，洛坦翌日轉向西南移動並在南海中部消散。根據報章報導，洛坦吹襲菲律賓期間，造成最少六人死亡、八人失蹤，超過38萬人被迫撤離家園。

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 2016

2.1 Review of tropical cyclones in 2016

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

In 2016, a total of 28 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, 13 of the tropical cyclones attained typhoon intensity or above, less than the long-term average (1961–2010) of about 15, with seven 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 2016.

During the year, nine tropical cyclones made landfall over China, with three of them crossing the south China coast within 300 km of Hong Kong. Two tropical cyclones crossed Taiwan, five made landfall over Japan, five traversed the Philippines and five made landfall over Vietnam. With an estimated maximum sustained wind speed of 250 km/h and a minimum sea-level pressure of 890 hPa near its centre (Table 4.1), Super Typhoon Meranti (1614) in September (Figure 2.3) was the most intense tropical cyclone over the western North Pacific and the South China Sea in 2016.

2.1.2 Tropical cyclones in Hong Kong's area of responsibility

Amongst the 28 tropical cyclones in 2016, 15 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), slightly less than the long-term annual average figure of around 16 (Table 2.1). Only four of them developed within Hong Kong's area of responsibility. Altogether, 352 tropical cyclone warnings to ships and vessels were issued by the Hong Kong Observatory in 2016 (Table 4.2).

2.1.3 Tropical cyclones over the South China Sea

13 tropical cyclones affected SCS bounded by 10°N, 25°N, 105°E and 120°E in 2016, slightly more than the long-term annual average of around 12. Only four of them formed within SCS.

2.1.4 Tropical cyclones affecting Hong Kong

In 2016, the typhoon season in Hong Kong started on 26 May when a tropical depression formed in the northern part of the South China Sea and edged closer to the coast of western Guangdong, necessitating the issuance of the Standby Signal No. 1. The typhoon season ended with the cancellation of all tropical cyclone warning signals on 21 October as Tropical Storm Haima (1622) moved inland and weakened that day.

Nine tropical cyclones affected Hong Kong during 2016 (Figure 2.2), the highest since 1993 and more than the long-term (1961-2010) average of about six in a year (Table 2.2). They were Tropical Depression in May, Severe Tropical Storm Mirinae (1603) and Typhoon Nida (1604) in July, Tropical Storm Dianmu (1608) in August, Super Typhoon Meranti (1614) and Severe Typhoon Megi (1617) in September, Tropical Storm Aere (1619) and Super Typhoon Sarika (1621) and Haima (1622) in October. The No. 8 Gale or Storm Signal was issued during the passage of Nida and Haima, the highest tropical cyclone warning signal issued in 2016. The Strong Wind Signal No. 3 was issued during the passage of the Tropical Depression in May, Dianmu and Sarika.

Mirinae, Meranti, Megi and Aere only necessitated the issuance of Standby Signal No. 1 in Hong Kong.

Relatively more tropical cyclones affecting Hong Kong in 2016 was mainly due to warmer-than-normal sea surface temperature near the Philippines and over the northern part of the South China Sea, as well as favourable atmospheric patterns over the western North Pacific that provided favourable steering flow for tropical cyclones to move towards the South China Sea.

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 2016 was 1033.9 mm (Table 4.8.1). This accounted for approximately 34.2 % of the year's total rainfall of 3026.8 mm and was about 42 % above the 1961-2010 long-term average of 728.8 mm.

Super Typhoon Sarika (1621) brought 491.3 mm of rainfall to the Hong Kong Observatory Headquarters (Table 4.8.1) and was the wettest tropical cyclone in 2016.

2.2 Monthly overview

A monthly overview of tropical cyclones 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.

MAY

A Tropical Depression formed over the northern part of the South China Sea on the night of 26 May, it moved north-northwestwards and edged closer to the coast of western Guangdong. It took on a more northerly track the next day and slightly intensified, reaching peak intensity with an estimated sustained wind of 55 km/h near its centre. It made landfall near Yangjiang in western Guangdong on the evening of 27 May and soon degenerated into an area of low pressure that night.

According to press reports, the tropical depression brought rainstorms to western Guangdong. A bridge was destroyed by flood, causing a bus to plunge into the river and injuring two persons. At the Macao Maritime Ferry Terminal, two passengers were injured during an incident of vessel collision.

JUNE

No tropical cyclone formed over the western North Pacific and the South China Sea in June.

JULY TO AUGUST

Nepartak (1601) formed as a tropical depression over the western North Pacific about 560 km south of Guam on 3 July. It moved northwest to west-northwestwards and intensified gradually. Nepartak developed into a super typhoon in the small hours of 6 July and reached its peak intensity with an estimated sustained wind of 230 km/h near its centre in the afternoon. After

crossing the southern part of Taiwan on 8 July, Nepartak weakened into a typhoon. It continued to weaken as it entered the Taiwan Strait. Nepartak made landfall over the coast of Fujian on the afternoon of 9 July, and finally dissipated over inland Fujian on the morning of 10 July.

According to press reports, at least five people were killed and more than 400 injured in Taiwan during the passage of Nepartak. Nepartak and its remnant also brought severe damage to Fujian, Jiangxi and Guangdong. At least 69 people were killed and around 800 000 people affected, with direct economic loss exceeding 8 billion RMB.

Lupit (1602) formed as a tropical depression over the western North Pacific about 1 430 km east-northeast of Iwo Jima on the night of 23 July and tracked generally north-northeastwards. It intensified into a tropical storm the next day, reaching its peak intensity with an estimated sustained wind of 75 km/h near its centre. Lupit then turned north to north-northwestwards and finally transformed into an extratropical cyclone over the sea areas east of Japan in the small hours of 25 July.

Mirinae (1603) formed as a tropical depression over the central part of the South China Sea about 300 km east of Xisha on the night of 25 July. Moving west-northwestwards, it intensified into a tropical storm the next morning. Mirinae made landfall over the east coast of Hainan Island on the night of 26 July and weakened slightly while crossing Hainan Island. After entering Beibu Wan, Mirinae re-organized and re-intensified the next morning, becoming a severe tropical storm on the evening of 27 July and reaching peak intensity with an estimated sustained wind of 90 km/h near its centre. Mirinae made landfall over the coast of northern Vietnam that night and weakened gradually. It finally dissipated over northern Vietnam on the evening of 28 July. According to press reports, at least one person was killed, five were injured and many houses collapsed during the passage of Mirinae in Vietnam.

Nida (1604) formed as a tropical depression over the western North Pacific about 750 km east-southeast of Manila on the night of 29 July and moved north-northwestwards at first. Nida then took on a northwesterly track towards the Luzon Strait on the afternoon of 30 July and intensified gradually. After developing into a severe tropical storm on the morning of 31 July, it swept across the north coast of Luzon in the afternoon and entered the northeastern part of the South China Sea that night. Taking on a west-northwesterly track towards the coast of Guangdong, it further intensified into a typhoon and reached its peak intensity on the afternoon of 1 August with an estimated sustained wind of 130 km/h near its centre. Nida made landfall near Dapeng Peninsula around 3 a.m. on 2 August and moved across Shenzhen, passing just to the north of Hong Kong. It continued to weaken as it moved further inland, before finally degenerating into an area of low pressure over Guangxi early in the morning on 3 August.

According to press reports, about 500 000 people were affected and more than 300 houses collapsed in Guangdong, Guangxi, Hunan, Guizhou and Yunnan during the passage of Nida, with direct economic loss exceeding 500 million RMB. Business and schools were suspended in seven cities of Guangdong. Transportation services were paralyzed. Electricity supply to more than 16 000 households was affected in Shenzhen.

Omais (1605) formed as a tropical depression over the western North Pacific about 1 010 km southeast of Iwo Jima on the afternoon of 4 August. Tracking generally northwards, Omais intensified gradually and developed into a severe tropical storm on 6 August, reaching its peak intensity with an estimated sustained wind of 105 km/h near its centre. It continued to take a north-northwesterly track towards the sea areas east of Japan over the next two days and weakened gradually, before finally evolving into an extratropical cyclone early in the morning on 10 August.

Conson (1606) formed as a tropical depression over the western North Pacific about 580 km west-southwest of Wake Island on the afternoon of 8 August. Tracking west to west-

northwestwards, Conson intensified gradually and developed into a tropical storm in the small hours on 9 August, reaching its peak intensity that night with an estimated sustained wind of 85 km/h near its centre. It started to move north-northeastwards on 11 August and turned north-northwestwards two days later, before finally evolving into an extratropical cyclone over the sea areas east of Japan on the night of 14 August.

Chanthu (1607) formed as a tropical depression over the western North Pacific about 620 km south of Iwo Jima on the night of 13 August. Moving north-northeastwards, it intensified into a tropical storm that morning. Chanthu reached its peak intensity with an estimated sustained wind of 85 km/h near its centre early in the morning on 15 August and turned north-northwestwards. It skirted past the east coast of northern Honshu, Japan on the morning of 17 August, before evolving into an extratropical cyclone over the sea areas south of Hokkaido that afternoon. According to press reports, Chanthu brought torrential rain to the Tohoku region of Japan during its passage. Power supply to about 1 800 households was suspended, and transportation services were affected.

Tropical Depression Dianmu (1608) formed over the northern part of the South China Sea about 220 km southwest of Hong Kong on 17 August. It moved slowly that day and intensified gradually. Dianmu intensified into a tropical storm the next morning. Moving generally westwards, Dianmu made landfall over Leizhou Peninsula on the afternoon of 18 August and entered Beibu Wan that night. It re-intensified as it moved across Beibu Wan, reaching its peak intensity with an estimated sustained wind of 85 km/h on the morning of 19 August. After making landfall over the northern part of Vietnam in the afternoon, Dianmu moved inland and weakened gradually. It finally degenerated into an area of low pressure over the northern part of Myanmar on the morning of 20 August. According to press reports, there was flooding in many places in Hainan Island due to rainstorms brought by Dianmu. Around 40 000 people were evacuated and transportation services were affected. In Vietnam, a least 16 persons were killed, two were reported missing and another 15 were injured during the passage of Dianmu.

Meanwhile, three tropical depressions formed in quick succession over the western North Pacific on 19 – 20 August: Mindulle (1609) about 810 km south of Iwo Jima on the morning of 19 August, followed by Lionrock (1610) about 350 km south-southeast of Tokyo and Kompasu (1611) about 960 km east-southeast of Tokyo that night.

Kompasu tracked northwestwards and intensified into a tropical storm on the morning of 20 August, reaching its peak intensity with an estimated sustained wind of 65 km/h near its centre. Kompasu turned northwards on 21 August off the east coast of northern Honshu, Japan and evolved into an extratropical cyclone that night over the east coast of Hokkaido. According to press reports, at least one person was killed and three were injured in Hokkaido during the passage of Kompasu. Over 130 houses were flooded.

Tracking generally northwards after formation, Mindulle intensified into a tropical storm on the morning of 20 August and developed further into a severe tropical storm the next day, reaching its peak intensity on the morning of 22 August with an estimated sustained wind of 110 km/h near its centre. Mindulle made landfall east of Tokyo that day and swept across northern Honshu along a north-northeastward track. It finally evolved into an extratropical cyclone over the sea areas north of Hokkaido on 23 August.

Mindulle was the third tropical cyclone to strike eastern Japan in less than a week. According to press reports, Mindulle brought squalls and heavy rain to Honshu and Hokkaido during its passage. At least two persons were killed and over 60 were injured. Transportation services were affected.

But the sixth and most destructive cyclone to hit eastern Japan in a stormy August was yet to come. Though forming closest to Japan among its contemporaries, Lionrock initially tracked generally southwestwards away from Honshu due to its interaction with Kompasu and Mindulle. It started to slow down on the morning of 21 August and after drifting southeastwards for a while, it resumed a southwestward track on 23 August. Lingering for days over the sea areas east of the Ryukyu Islands, Lionrock continued to intensify and became a severe typhoon on the night of 24 August, reaching its peak intensity with an estimated sustained wind of 175 km/h near its centre early next day. Making a sharp U-turn, it started to track northeastwards on 26 August and headed back towards where it came from. After weakening into a typhoon on the afternoon of 29 August, Lionrock turned to the north-northwest heading straight towards northern Honshu. It swept across the Tohoku region the next day before evolving into an extratropical cyclone over the Sea of Japan on the morning of 31 August.

According to press reports, at least 12 people were killed, another five were reported missing and around 180 000 people had to be evacuated in the Tohoku region and Hokkaido during the passage of Lionrock. There were extensive flooding and landslides, and many houses were damaged. Transportation services were paralyzed.

SEPTEMBER TO OCTOBER

Namtheun (1612) formed as a tropical depression over the western North Pacific about 370 km south of Okinawa on the early morning of 1 September. It moved northeastwards and intensified rapidly that day. Namtheun turned northward the next day and developed into a severe typhoon, reaching its peak intensity with an estimated sustained wind of 165 km/h. Namtheun subsequently started to weaken and after skirting the west coast of Kyushu, Japan, degenerated into an area of low pressure over the Sea of Japan on 5 September. According to press reports, Namtheun brought torrential rain and high winds to Kyushu. At least one person was injured and over 1 700 people were evacuated.

Malou (1613) formed as a tropical depression over the western North Pacific about 100 km west-northwest of Okinawa on the afternoon of 6 September, it moved northeastwards with an estimated sustained wind of 55 km/h. Malou evolved into an extratropical cyclone over the seas south of Japan early in the morning on 8 September.

Meranti (1614) formed as a tropical depression over the western North Pacific about 390 km west of Guam on the early morning of 10 September. It moved west-northwestward and intensified rapidly. Meranti developed into a super typhoon on 12 September and reached its peak intensity the next day with an estimated sustained wind of 250 km/h. After crossing the Luzon Strait on the night of 13 September, Meranti tracked northwestward and moved over the coastal waters of southwestern Taiwan the next day, heading towards Fujian and weakening gradually. Meranti made landfall near Xiamen on the early morning of 15 September and moved inland, before degenerating into an area of low pressure over Jiangxi early in the morning on 16 September.

According to press reports, at least two persons were killed and 63 were injured in Taiwan during the passage of Meranti. Electricity and water supply for over one million households were disrupted. Transportation services were paralyzed. Meranti also wreaked havoc in Fujian and Jiangxi, resulting in at least 29 deaths, 15 missing, and about 2.5 million people affected with the collapse of around 18 000 houses. Direct economic losses exceeded 11.7 billion RMB.

Rai (1615) formed as a tropical depression over the central part of the South China Sea about 500 km east-southeast of Da Nang on the morning of 12 September. It took on a west-northwesterly track towards the coast of Vietnam with an estimated sustained wind of 55 km/h near its centre at peak intensity. Rai made landfall over the central part of Vietnam on the early morning

of 13 September and dissipated over Thailand that afternoon. According to press reports, Rai brought torrential rain to Vietnam. At least two persons were killed and 33 people were injured. Many houses were damaged.

Malakas (1616) formed as a tropical depression over the western North Pacific about 340 km west of Guam on the afternoon of 12 September. Taking a west-northwesterly to northwesterly track across the sea areas east of Luzon, it intensified gradually. Malakas developed into a severe typhoon on the early morning of 16 September and turned north-northwestwards across the seas east of Taiwan during the day. Malakas reached its peak intensity the next day with an estimated sustained wind of 175 km/h near its centre. It turned northeastwards on 18 September and swept across Japan on the night of 19 September and the next day, before evolving into an extratropical cyclone over southern Honshu during the night.

According to press reports, transportation services were affected in Taiwan during the passage of Malakas. Malakas also brought torrential rain and high winds to extensive areas in southern Japan, resulting in at least two deaths, one missing, 42 injuries and evacuation of about 300 000 people. Electricity supply for over 140 000 households in Kyushu was disrupted.

Megi (1617) formed as a tropical depression over the western North Pacific about 300 km south-southwest of Guam on the morning of 22 September. Moving generally northwestwards at first, it turned to the west-northwest the next day and intensified gradually. Megi developed into a severe typhoon over the sea areas east of Taiwan on the small hours of 26 September, reaching its peak intensity the next day with an estimated sustained wind of 175 km/h near its centre. Megi made landfall near Hualien in Taiwan and weakened on the afternoon of 27 September. After entering the Taiwan Strait, it continued to track west-northwestward in the general direction of Fujian. It made landfall again near Quanzhou on the morning of 28 September and moved inland across Fujian, before finally degenerating into an area of low pressure over Jiangxi early in the morning on 29 September.

According to press reports, Megi wreaked havoc in Taiwan, resulting in at least four deaths and over 500 injuries. Business and schools were suspended in all cities and transportation services were paralyzed. Agricultural damage was estimated to exceed NT$ 1 billion. Megi also brought torrential rain and ferocious winds to Fujian, Zhejiang and Jiangxi. At least six people were killed, 33 missing and over 600 000 people were evacuated. Direct economic losses exceeded 2.58 billion RMB.

Chaba (1618) formed as a tropical depression over the western North Pacific about 570 km east-northeast of Guam on the early morning of 28 September. Moving generally westward at first, it turned north-northwestwards on 30 September in the general direction of the Ryukyu Islands and intensified gradually. Chaba developed into a super typhoon on the early morning of 3 October, reaching its peak intensity at night with an estimated sustained wind of 220 km/h. After sweeping past the Ryukyu Islands, it moved across the East China Sea on a northerly track towards the southern part of the Korean Peninsula and finally evolved into an extratropical cyclone over the sea areas north of Honshu, Japan on the night of 5 October.

According to press reports, transportation services in Okinawa were seriously affected during the passage of Chaba. Chaba also wreaked havoc and caused extensive flooding in the southern part of the Republic of Korea, resulting in at least seven deaths with three others missing. Electricity supply to about 25 000 households in Jeju was interrupted.

Aere (1619) formed as a tropical depression over the western North Pacific about 900 km east of Dongsha on the afternoon of 5 October. Moving west to west-northwestwards, it moved across the Luzon Strait and entered the northeastern part of the South China Sea the next day while intensifying into a tropical storm. After crossing the sea areas south of Dongsha in the early

morning on 7 October, Aere slowed down and drifted northwards during the day, reaching its peak intensity in the afternoon with an estimated sustained wind of 85 km/h near its centre. Aere moved northeastwards slowly on 8 October and became almost stationary the next day as it weakened gradually. Aere picked up speed and turned to move southwestwards on 10 October, degenerating into an area of low pressure near Dongsha that night. However, its remnant low pressure area continued to track to the southwest towards the sea areas around Xisha over the next couple of days. It re-intensified into a tropical depression south of Hainan Island on the morning of 13 October and turned westwards. After making landfall over the central part of Vietnam early next morning, Aere weakened into an area of low pressure before dissipating further inland.

According to press reports, the outer circulation of Aere brought heavy rain to southern Taiwan and caused flooding in some areas. Land and sea transportation services were affected.

Songda (1620) formed as a tropical depression over the western North Pacific about 1 600 km east-southeast of Iwo Jima on the afternoon of 8 October. It moved generally northwestwards and intensified gradually. Songda developed into a typhoon over the sea areas east of Iwo Jima on the morning of 10 October and turned northwards. It picked up speed towards the northeast and intensified into a super typhoon over the next couple of days, reaching its peak intensity with an estimated sustained wind of 185 km/h near its centre before finally evolving into an extratropical cyclone on 13 October.

Sarika (1621) formed as a tropical depression over the western North Pacific about 1 060 km east of Manila on the morning of 13 October. Taking a west-northwesterly track towards the Philippines, it intensified into a tropical storm that night. Sarika further intensified rapidly the next day and developed into a super typhoon on the night of 15 October, reaching its peak intensity with an estimated sustained wind of 185 km/h near its centre. Sarika weakened into a typhoon while moving across Luzon in the early morning on 16 October. It re-organized after entering the South China Sea. Sarika made landfall over Hainan Island on the morning of 18 October and turned northwestwards. It moved across Beibu Wan on 19 October and dissipated over inland Guangxi later that day.

According to press reports, at least three persons were killed and three others were missing in the Philippines during the passage of Sarika. There were extensive landslides and many houses collapsed. In Guangdong, Guangxi and Hainan, at least 3.7 million people were affected with direct economic loss of around 5.5 billion RMB.

Haima (1622) formed as a tropical depression over the western North Pacific about 710 km south of Guam on the afternoon of 14 October. Moving generally northwestwards, Haima intensified gradually and developed into a super typhoon on the night of 17 October. Tracking to the west-northwest, it reached its peak intensity the next day with an estimated sustained wind of 230 km/h near its centre. Haima moved across northern Luzon on the early morning of 20 October and weakened into a typhoon. It then moved northwestwards and entered the northeastern part of the South China Sea during the day. Haima turned northwards on 21 October and made landfall near Shanwei in eastern Guangdong that afternoon, before finally degenerating into an area of low pressure over Jiangxi during the night.

According to press reports, Haima wreaked havoc in northern Luzon with extensive flooding and landslides as well as the collapse of many houses. At least eight people were killed and more than 90 000 people had to be evacuated. Haima also brought heavy rain and squalls to Guangdong and Fujian. At least 1.8 million people were affected and around 600 houses collapsed. Transportation services were seriously affected and the direct economic loss exceeded 5 billion RMB.

NOVEMBER

Meari (1623) formed as a tropical depression over the western North Pacific about 230 km north-northeast of Yap early in the morning on 2 November, and moved north-northwestwards and northwards slowly. Meari started to accelerate northeastwards and intensified gradually on 4 November. It developed into a typhoon the next day, reaching its peak intensity with an estimated wind of 140 km/h near its centre. Meari finally evolved into an extratropical cyclone over the western North Pacific southeast of Japan on the night of 7 November.

Ma-on (1624) formed as a tropical depression over the western North Pacific about 1 610 km east of Guam on the afternoon of 9 November and moved generally west-northwestwards. Ma-on intensified into a tropical storm on the afternoon of 10 November, reaching its peak intensity with an estimated wind of 65 km/h near its centre. It then started to weaken gradually and degenerated into an area of low pressure over the sea areas southeast of Iwo Jima on 12 November.

Tokage (1625) formed as a tropical depression about 830 km southeast of Manila on the afternoon of 24 November and moved across the Philippines on a west-northwestward to northwestward track. It entered the South China Sea on 26 November and intensified into a severe tropical storm, reaching its peak intensity with an estimated wind of 90 km/h near its centre. Tokage turned slowly to the northeast on 27 November and lingered over the sea areas west of Luzon. Affected by the northeast monsoon, Tokage weakened rapidly and dissipated the next day.

DECEMBER

A tropical depression formed off the coast of southern Vietnam about 370 km east-southeast of Ho Chi Minh City on the afternoon of 12 December. It moved northwest slowly with an estimated sustained wind of 45 km/h near its centre. The tropical depression made landfall over southern Vietnam the next morning and dissipated inland during the day.

Nock-ten (1626) formed as a tropical depression over the western North Pacific about 490 km southeast of Yap on the afternoon of 21 December. It moved northwestwards and intensified rapidly. Nock-ten developed into a super typhoon on 24 December, reaching its peak intensity with an estimated wind of 210 km/h near its centre. It took a westerly track across the central part of the Philippines and entered the South China Sea on the afternoon of 26 December. Affected by an intense northeast monsoon, Nock-ten turned southwestwards and dissipated over the central part of the South China Sea the next day. According to press reports, at least six people were killed and eight were missing in the Philippines during the passage of Nock-ten. Over 380 000 people were forced to leave their homes.

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

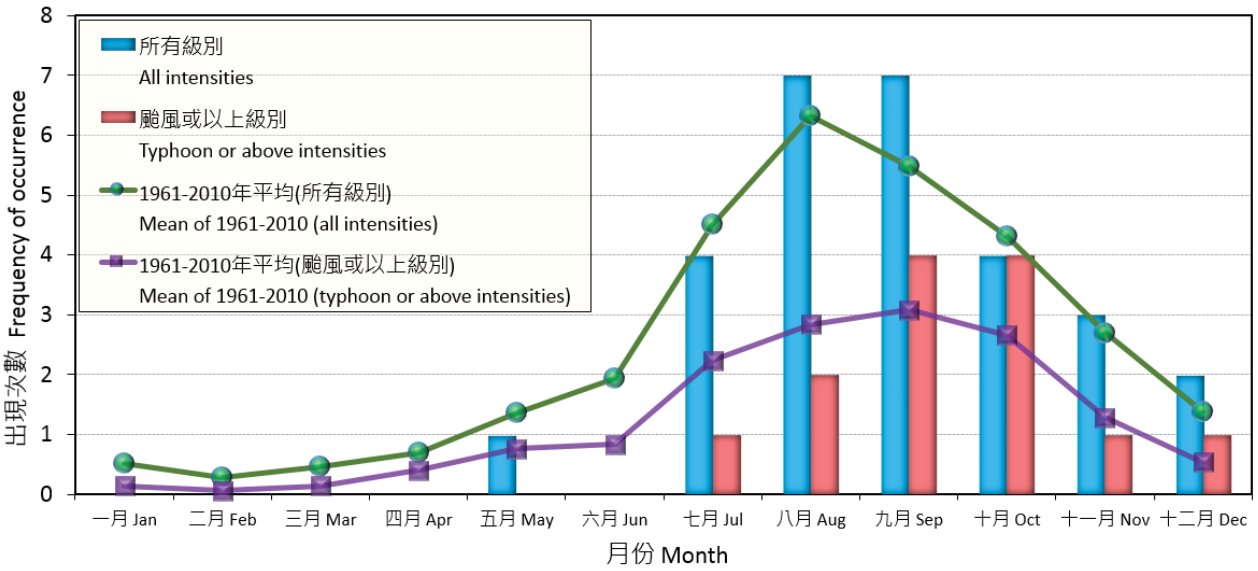


圖 2.1　二零一六年在北太平洋西部及南海區域的熱帶氣旋出現次數之每月分佈 (以熱帶氣旋在該月初次出現為準，假如一熱帶氣旋在九月形成並在十月首次增強為颱風或以上級別，它在「所有級別」及「颱風或以上級別」的統計數字將分別計算在九月及十月份內)。

Figure 2.1　Monthly frequencies of the occurrence of tropical cyclones in the western North Pacific and the South China Sea in 2016 (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).

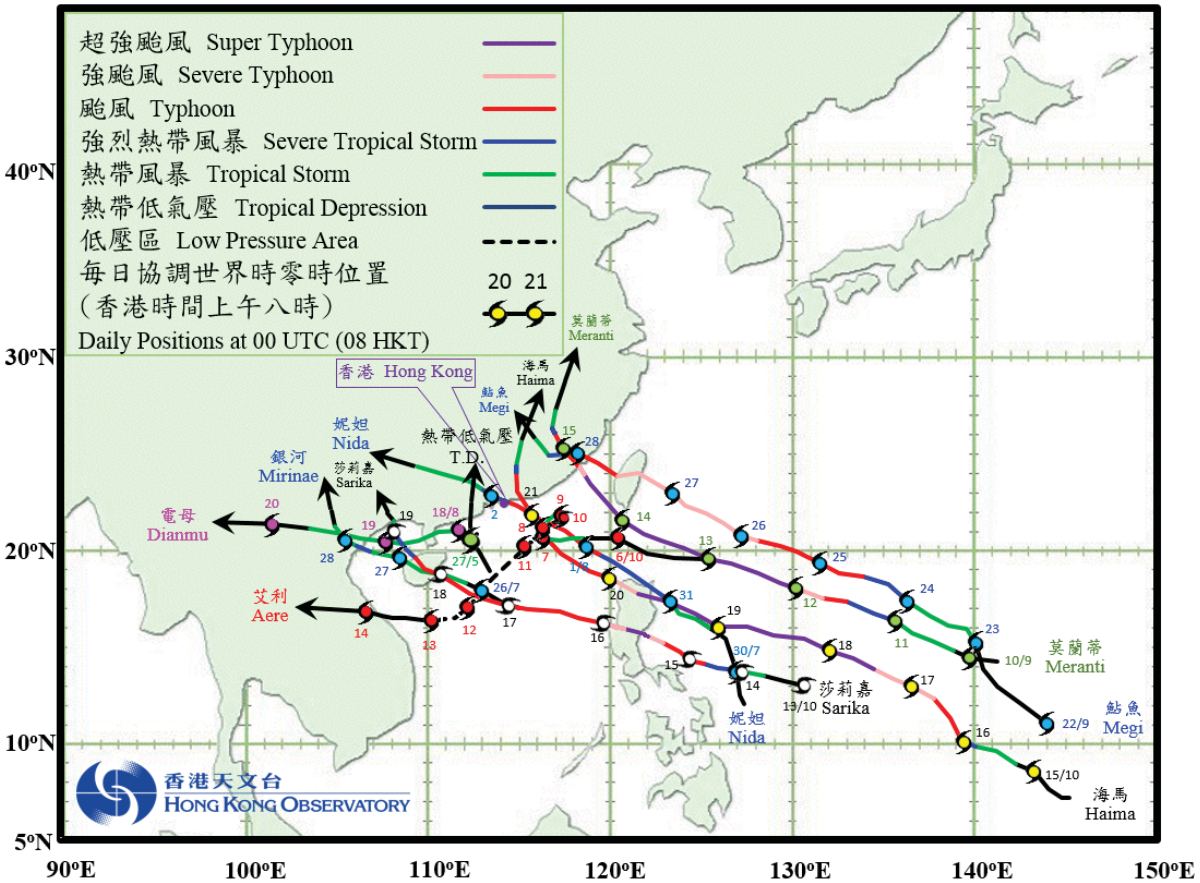


圖 2.2　二零一六年九個影響香港的熱帶氣旋的路徑圖。

Figure 2.2　Tracks of the nine tropical cyclones affecting Hong Kong in 2016.

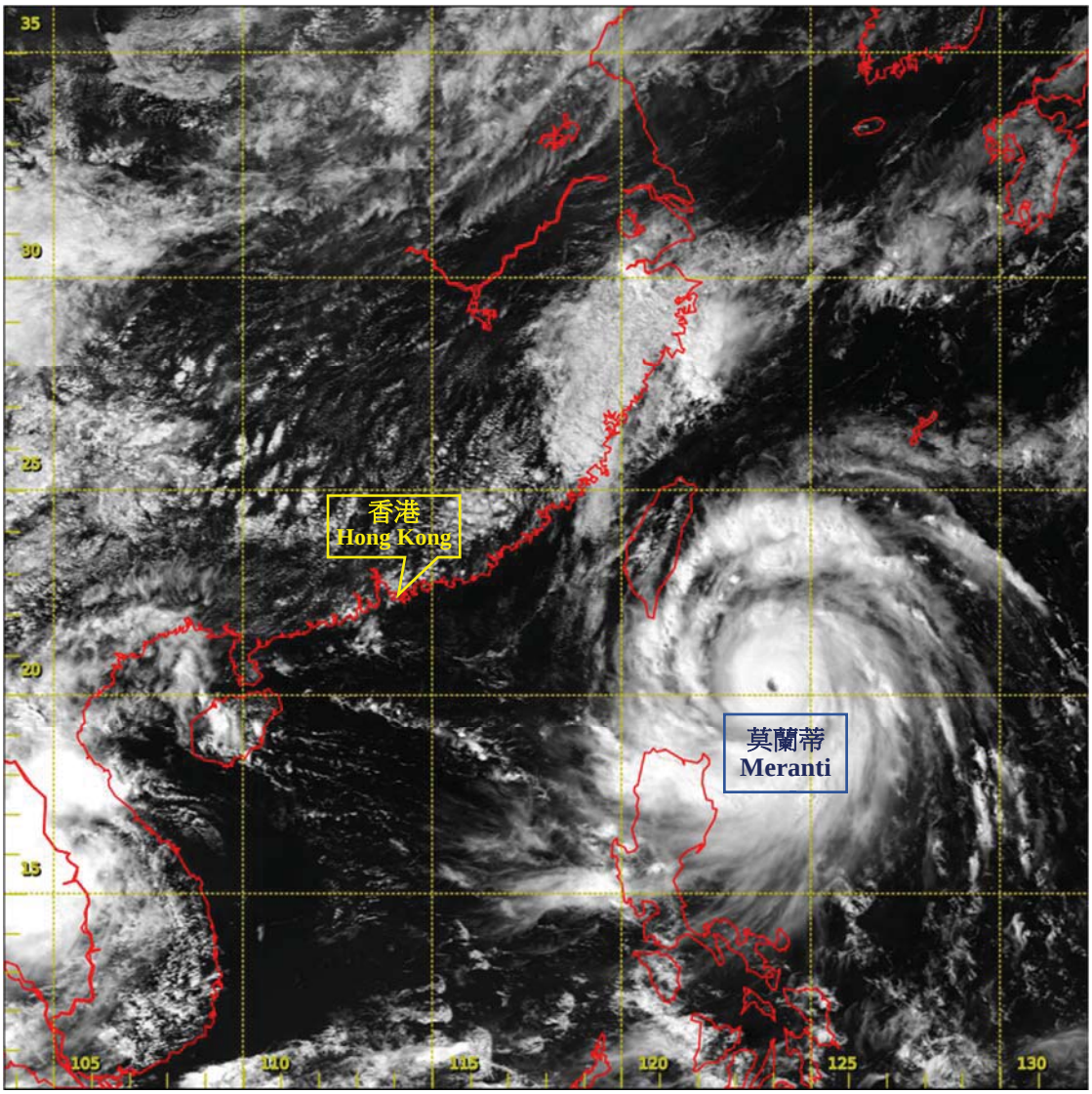


圖 2.3　二零一六年九月十三日下午2時超強颱風莫蘭蒂 (1614)的可見光衛星圖片。當時莫蘭蒂的最高風速估計為每小時250公里，而最低中心氣壓為890百帕斯卡。

Figure 2.3　Visible satellite imagery of Super Typhoon Meranti (1614) at peak intensity at 2 p.m. on 13 September 2016. The estimated maximum sustained wind and minimum sea-level pressure of Meranti were 250 km/h and 890 hPa respectively at that time.

〔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 the Himawari-8 Satellite (H-8) of Japan Meteorological Agency (JMA).]

表 2.1 在香港責任範圍內(10º-30ºN, 105º-125ºE)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 (10º - 30ºN, 105º - 125ºE), 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
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
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　二零一六年影響香港的熱帶氣旋

3.1　熱帶低氣壓：二零一六年五月二十六至二十七日

一個在南海北部形成的熱帶低氣壓導致香港天文台在二零一六年首度發出熱帶氣旋警告信號。

五月二十六日晚上熱帶低氣壓在南海北部形成後大致向西北偏北方向移動，靠近廣東西部沿岸，翌日轉向偏北方向移動，並稍為增強，達到最高強度時其中心附近最高持續風速估計為每小時55公里。該熱帶低氣壓於五月二十七日傍晚在廣東西部陽江市附近登陸，並於當晚減弱為一個低壓區。根據報章報導，熱帶低氣壓為廣東西部帶來暴雨，有小橋遭洪水沖毀，一輛大巴墮河，兩人受傷。澳門外港碼頭發生撞船事故，兩名乘客受傷。

五月二十六日熱帶低氣壓在香港之西南偏南約370公里形成後，天文台於下午9時40分發出一號戒備信號，晚間本港普遍吹和緩至清勁偏東風。隨著該熱帶低氣壓北移及逐漸靠近廣東西部沿岸，天文台在五月二十七日上午5時40分發出三號強風信號，在熱帶低氣壓的外圍雨帶影響下，正午前後本港多處地區的風力達到強風程度。隨著香港普遍吹強風的機會減退，天文台在下午1時40分以一號戒備信號取代三號強風信號。下午本港普遍吹清勁南至東南風，西部地區的風力間中達強風程度。天文台總部於下午5時40分錄得最低瞬時海平面氣壓1004.7百帕斯卡，當時熱帶低氣壓在香港以西約190公里的廣東西部海岸登陸，並於下午8時左右最接近香港，在本港以西約170公里附近掠過。熱帶低氣壓在廣東西部很快減弱為一個低壓區，天文台於當晚10時50分取消所有熱帶氣旋警告信號。

熱帶低氣壓影響香港期間，本港並沒有遭受嚴重破壞。熱帶低氣壓的外圍雨帶在五月二十七日間中為本港帶來狂風驟雨，普遍地區錄得超過10毫米雨量。最高潮位為在尖鼻咀錄得的2.67米(海圖基準面以上)，而大埔滘錄得的最大風暴潮為0.47米(天文潮高度以上)。

表3.1.1 - 3.1.4 分別是熱帶低氣壓影響香港期間各站錄得的最高風速、持續風力達到強風程度的時段、香港的日雨量及最高潮位資料。圖3.1.1 - 3.1.4 分別為熱帶低氣壓的路徑圖、本港的雨量分佈圖、熱帶低氣壓的衛星及雷達圖像。

Section 3 TROPICAL CYCLONES AFFECTING HONG KONG IN 2016

3.1 Tropical Depression: 26 – 27 May 2016

The formation of a tropical depression over the northern part of the South China Sea led to the issuance of tropical cyclone warning signals by the Hong Kong Observatory for the first time in 2016.

After formation over the northern part of the South China Sea on the night of 26 May, the tropical depression moved north-northwestwards and edged closer to the coast of western Guangdong. It took on a more northerly track the next day and slightly intensified, reaching peak intensity with an estimated sustained wind of 55 km/h near its centre. It made landfall near Yangjiang in western Guangdong on the evening of 27 May and soon degenerated into an area of low pressure that night. According to press reports, the tropical depression brought rainstorms to western Guangdong. A bridge was destroyed by flood, causing a bus to plunge into the river and injuring two persons. At the Macao Maritime Ferry Terminal, two passengers were injured during an incident of vessel collision.

After the formation of the tropical depression about 370 km south-southwest of Hong Kong on 26 May, the Hong Kong Observatory issued the Standby Signal No. 1 at 9:40 p.m. that evening. Winds were moderate to fresh easterly winds in Hong Kong overnight. As the tropical depression moved northwards and edged closer to the coast of western Guangdong, the Strong Wind Signal No. 3 was issued at 5:40 a.m. on 27 May. Under the influence of the outer rainbands of the tropical depression, winds reached strong force over many places in the territory around noon time. As the chance of having generally strong winds in Hong Kong subsequently receded, the Strong Wind Signal No. 3 was replaced by the Standby Signal No. 1 at 1:40 p.m. Fresh south to southeasterlies generally affected Hong Kong in the afternoon, occasionally reaching strong force over the western part or the territory. At the Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 1004.7 hPa was recorded at 5:40 p.m. when the tropical depression was making landfall over coast of western Guangdong about 190 km west of Hong Kong. The tropical depression was closest to the territory at around 8 p.m., passing about 170 km to the west. As it soon degenerated into an area of low pressure over western Guangdong, all tropical cyclone warning signals were cancelled at 10:50 p.m. that night.

The tropical depression did not cause any significant damage in Hong Kong during its passage. Its outer rainbands brought occasional squally showers on 27 May and more than 10 mm of rainfall were generally recorded over the territory. A maximum sea level of 2.67 m (above chart datum) was recorded at Tsim Bei Tsui, while a maximum storm surge of 0.47 m (above astronomical tide) was recorded at Tai Po Kau.

Information on the maximum wind, period of strong winds, daily rainfall and maximum sea level reached in Hong Kong during the passage of the tropical depression is given in Tables 3.1.1 - 3.1.4 respectively. Figures 3.1.1 - 3.1.4 show respectively the track of the tropical depression, the rainfall distribution for Hong Kong, a satellite imagery and a related radar imagery of the tropical depression.

表 3.1.1　在熱帶低氣壓影響下，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 tropical cyclone warning signal for the tropical depression was 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	54	26/5	22:53	南	S	31	27/5	20:00
		東南偏南	SSE	54	27/5	12:09					
中環碼頭	Central Pier	東	E	43	27/5	17:51	東	E	31	27/5	00:00
長洲	Cheung Chau	東南	SE	70	27/5	03:19	東南偏東	ESE	40	27/5	12:00
長洲泳灘	Cheung Chau Beach	東北偏東	ENE	59	26/5	23:18	東北偏東	ENE	41	27/5	03:00
青洲	Green Island	南	S	75	27/5	19:02	南	S	51	27/5	19:00
香港國際機場	Hong Kong International Airport	南	S	72	27/5	19:34	南	S	45	27/5	20:00
啟德	Kai Tak	東南偏東	ESE	70	27/5	12:23	東	E	27	26/5	23:00
京士柏	King's Park	南	S	45	27/5	18:51	東南偏東	ESE	19	27/5	12:00
流浮山	Lau Fau Shan	東南	SE	58	27/5	15:37	東南	SE	31	27/5	15:00
昂坪	Ngong Ping	西南偏南	SSW	106	27/5	16:29	東	E	72	27/5	02:00
北角	North Point	東北偏東	ENE	49	27/5	00:43	東	E	30	27/5	00:00
坪洲	Peng Chau	東南偏南	SSE	51	27/5	18:08	東	E	31	27/5	00:00
平洲	Ping Chau	東南	SE	34	27/5	12:52	東南	SE	9	27/5	20:00
西貢	Sai Kung	東南偏南	SSE	58	27/5	12:34	東北偏東	ENE	31	26/5	23:00
沙洲	Sha Chau	南	S	79	27/5	17:54	南	S	47	27/5	19:00
沙螺灣	Sha Lo Wan	東南	SE	65	27/5	15:27	東南偏南	SSE	25	27/5	18:00
沙田	Sha Tin	東南	SE	34	27/5	11:09	東南	SE	16	27/5	13:00
石崗	Shek Kong	東北偏東	ENE	52	26/5	22:33	東	E	22	26/5	23:00
九龍天星碼頭	Star Ferry (Kowloon)	東南偏東	ESE	56	27/5	14:12	東	E	27	27/5	03:00
打鼓嶺	Ta Kwu Ling	東	E	41	27/5	02:51	東北偏東	ENE	13	27/5	05:00
大美督	Tai Mei Tuk	東南	SE	59	27/5	12:45	東	E	36	27/5	00:00
大帽山	Tai Mo Shan	西南偏南	SSW	92	27/5	19:47	東	E	59	26/5	22:00
大埔滘	Tai Po Kau	東	E	58	27/5	06:18	東	E	30	27/5	00:00
塔門	Tap Mun	東南	SE	68	27/5	12:37	東南偏東	ESE	23	27/5	13:00
大老山	Tate's Cairn	東南	SE	79	27/5	04:17	東	E	52	26/5	23:00
將軍澳	Tseung Kwan O	東南偏東	ESE	41	27/5	12:23	東南	SE	12	27/5	12:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南	SE	49	27/5	18:20	東南	SE	34	27/5	19:00
屯門政府合署	Tuen Mun Government Offices	東南偏南	SSE	63	27/5	19:22	東南偏南	SSE	25	27/5	18:00
							東南偏南	SSE	25	27/5	20:00
橫瀾島	Waglan Island	東南偏南	SSE	72	27/5	12:10	東	E	45	26/5	23:00
濕地公園	Wetland Park	東南	SE	43	27/5	14:56	東南偏南	SSE	20	27/5	15:00
黃竹坑	Wong Chuk Hang	東	E	62	27/5	02:26	東	E	25	27/5	03:00

表 3.1.2　在熱帶低氣壓影響下，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 the tropical cyclone warning signals for the tropical depression were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		最初達到強風*時間 Start time strong wind speed* was reached		最後達到強風*時間 End time strong wind speed* was reached	
		日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time
長洲	Cheung Chau	26/5	23:19	27/5	12:14
香港國際機場	Hong Kong International Airport	27/5	17:10	27/5	20:38
啟德	Kai Tak	27/5	12:29	27/5	12:31
西貢	Sai Kung	27/5	12:37	27/5	12:45

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

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:　本表列出持續風力最初及最後達到強風程度的時間。其間，風力可能高於或低於指定的風力。

Note:　The table gives the first and last time when strong winds were recorded. Note that the winds might fluctuate above or below the specified wind speeds in between the times indicated.

表 3.1.3　熱帶低氣壓影響香港期間，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 the tropical depression.

站 (參閱圖 3.1.2) Station (See Fig. 3.1.2)			五月二十六日 26 May	五月二十七日 27 May	總雨量 (毫米) Total (mm)
香港天文台 Hong Kong Observatory			0.1	14.4	14.5
香港國際機場 Hong Kong International Airport (HKA)			0.0	16.5	16.5
長洲 Cheung Chau (CCH)			0.0	17.5	17.5
H23	香港仔	Aberdeen	0.0	29.0	29.0
N05	粉 嶺	Fanling	0.0	8.5	8.5
N13	糧 船 灣	High Island	0.5	21.0	21.5
K04	佐 敦 谷	Jordan Valley	2.0	10.5	12.5
N06	葵 涌	Kwai Chung	1.5	16.0	17.5
H12	半 山 區	Mid Levels	0.0	19.0	19.0
N09	沙 田	Sha Tin	0.5	9.5	10.0
H19	筲 箕 灣	Shau Kei Wan	0.0	10.5	10.5
SEK	石 崗	Shek Kong	0.0	8.0	8.0
K06	蘇 屋 邨	So Uk Estate	0.0	16.5	16.5
R31	大 美 督	Tai Mei Tuk	1.0	6.5	7.5
R21	踏 石 角	Tap Shek Kok	0.0	9.0	9.0
TMR	屯門水庫	Tuen Mun Reservoir	0.0	11.1	11.1
N17	東涌	Tung Chung	0.0	18.5	18.5

表 3.1.4　熱帶低氣壓影響香港期間，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 the tropical depression

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	2.35	27/5	12:22	0.27	27/5	12:25
石壁	Shek Pik	2.53	27/5	12:10	0.36	27/5	12:10
大廟灣	Tai Miu Wan	2.29	27/5	12:10	0.32	27/5	03:56
大埔滘	Tai Po Kau	2.38	27/5	13:46	0.47	27/5	16:18
尖鼻咀	Tsim Bei Tsui	2.67	27/5	12:19	0.27	27/5	12:08
橫瀾島	Waglan Island	2.50	27/5	09:55	0.41	27/5	09:55

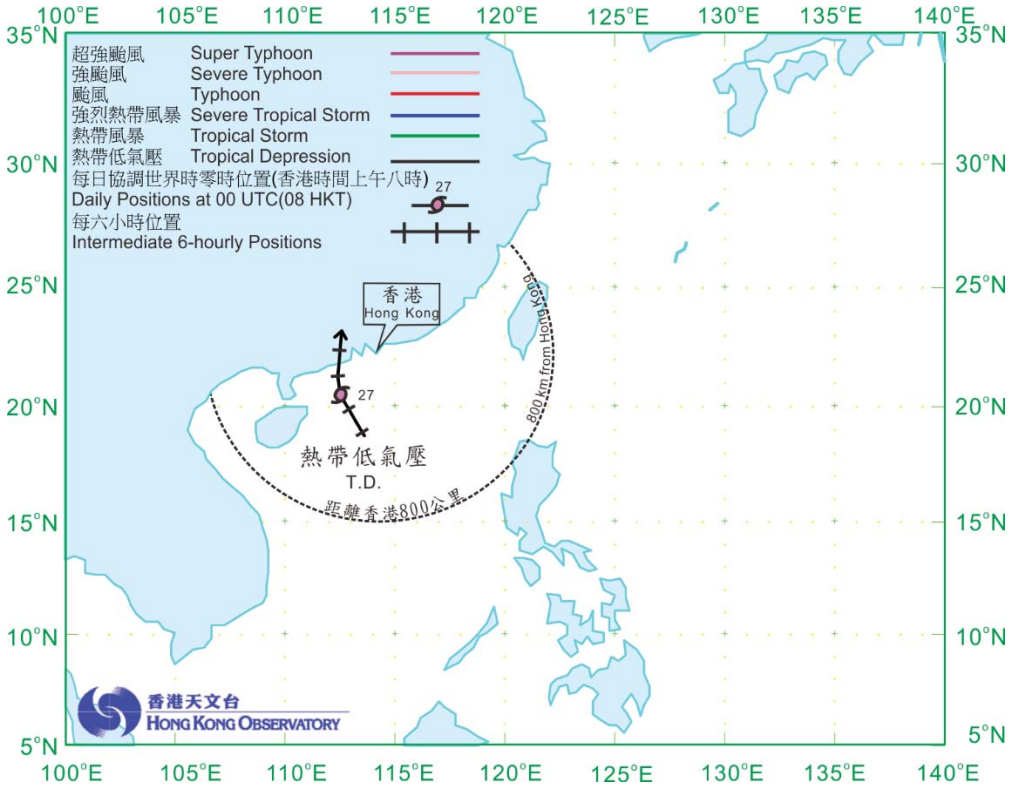


圖 3.1.1a　　二零一六年五月二十六日至二十七日熱帶低氣壓的路徑圖。
Figure 3.1.1a　　Track of the tropical depression on 26 – 27 May 2016.

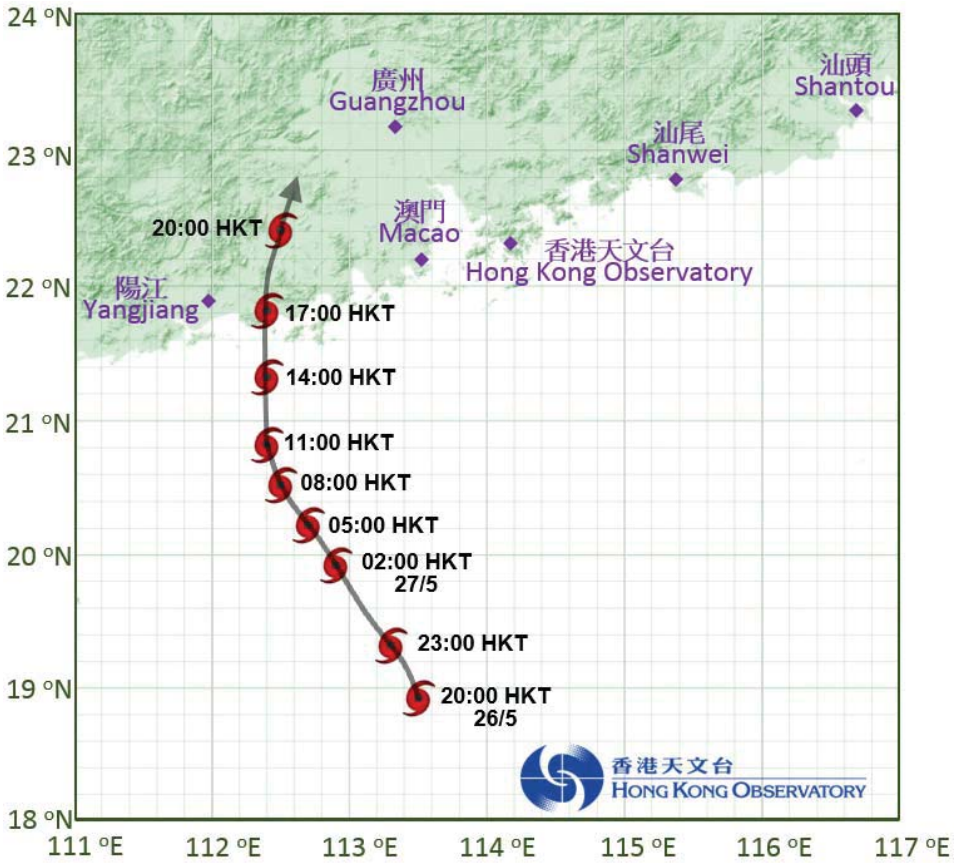


圖 3.1.1b　　熱帶低氣壓接近香港時的路徑圖。
Figure 3.1.1b　　Track of the tropical depression in the vicinity of Hong Kong.

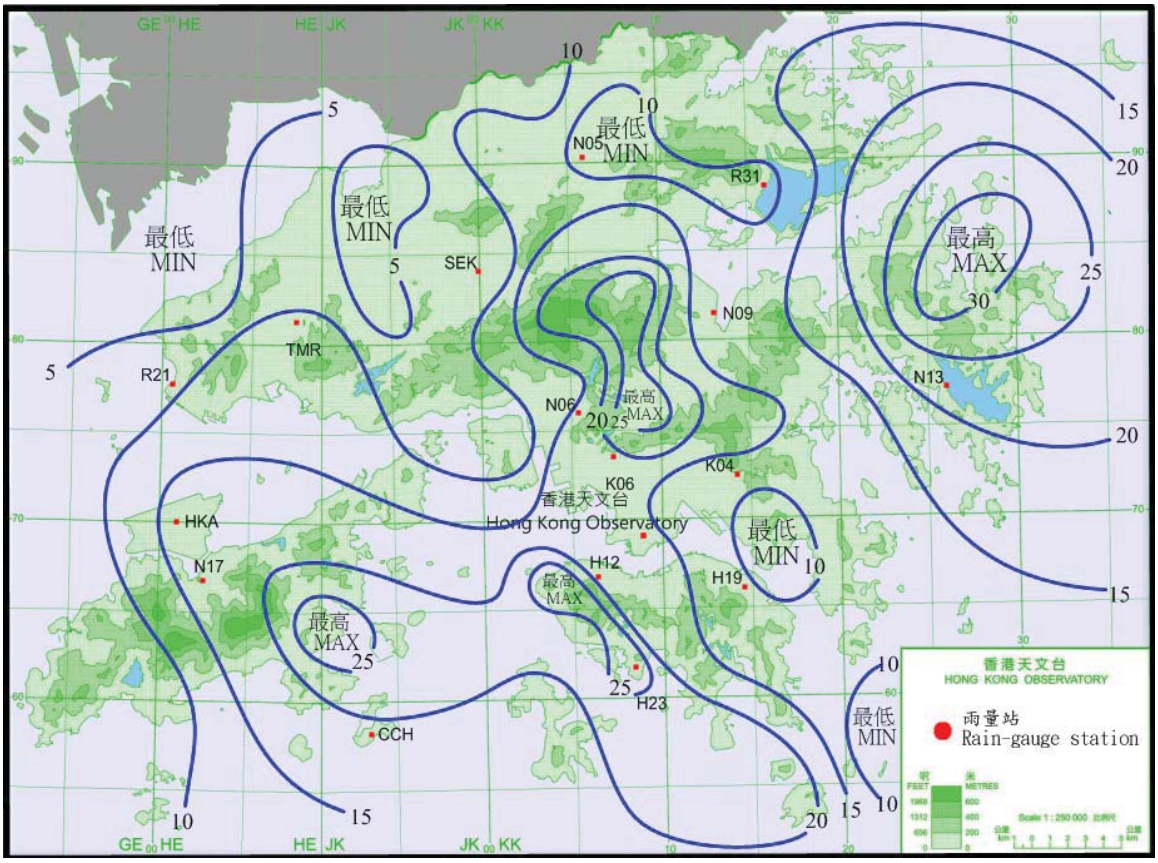


圖 3.1.2　二零一六年五月二十六日至二十七日的雨量分佈(等雨量線單位為毫米)。

Figure 3.1.2　Rainfall distribution on 26 – 27 May 2016 (isohyets are in millimetres).

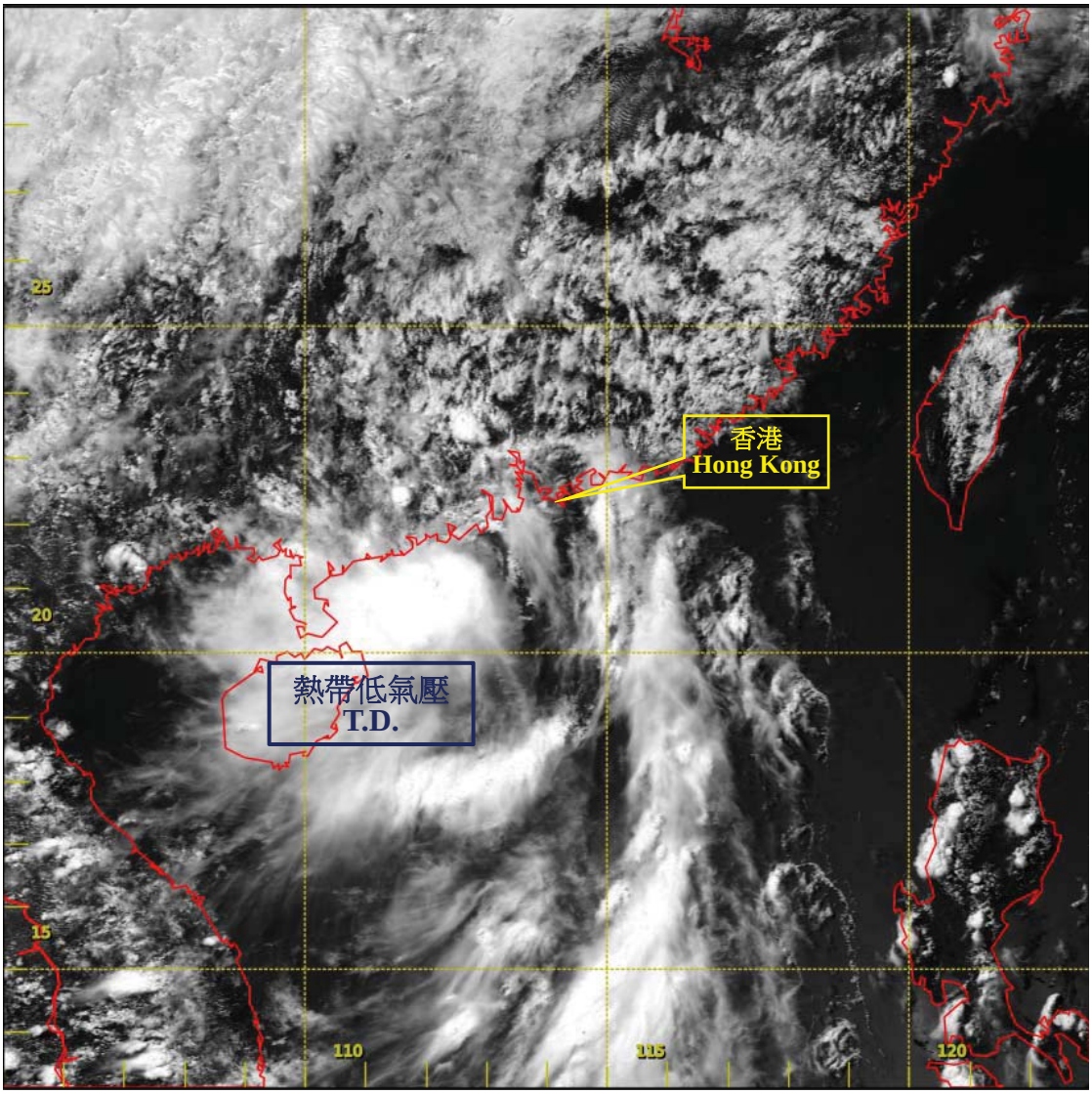


圖 3.1.3　二零一六年五月二十七日下午二時正的可見光衛星圖片，當時熱帶低氣壓達到其最高強度，中心附近最高持續風速估計為每小時 55 公里。

Figure 3.1.3 Visible satellite imagery at 2:00 p.m. on 27 May 2016 as the tropical depression reached its peak intensity with estimated maximum sustained winds of 55 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 the Himawari-8 (H-8) of Japan Meteorological Agency (JMA).]

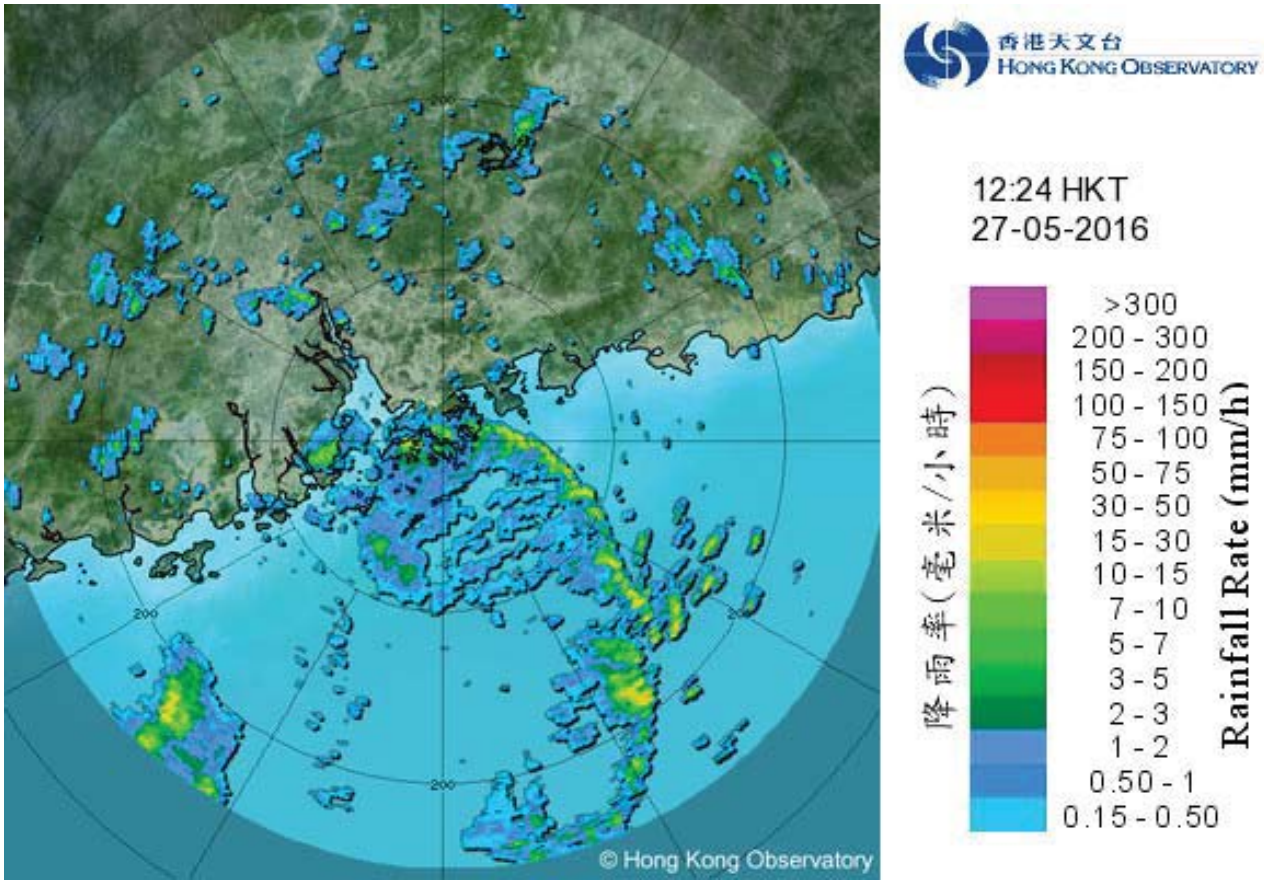


圖 3.1.4　　二零一六年五月二十七日下午十二時廿四分的雷達圖像顯示熱帶低氣壓的外圍雨帶正影響本港。

Figure 3.1.4　Radar image showing the outer rainbands of the tropical depression affecting Hong Kong at around 12:24 p.m. on 27 May 2016

3.2 強烈熱帶風暴銀河(1603)：二零一六年七月二十五日至二十八日

銀河是香港天文台在二零一六年第二個需要發出熱帶氣旋警告信號的熱帶氣旋。

熱帶低氣壓銀河於七月二十五日晚上在西沙以東約300公里的南海中部上形成，向西北偏西方向移動，翌日早上增強為熱帶風暴。銀河當晚在海南島東部沿岸登陸，橫過海南島期間略為減弱，於七月二十七日早上進入北部灣後重新組織及再度發展。傍晚時分銀河進一步增強為強烈熱帶風暴並達到其最高強度，中心附近最高持續風速估計為每小時90公里。銀河當晚在越南北部沿岸登陸，並逐漸減弱，最後於七月二十八日傍晚在越南北部消散。

香港天文台於七月二十六日上午8時40分發出一號戒備信號，當時銀河位於香港之西南偏南約500公里。當日本港吹和緩東至東南風，離岸風勢間中清勁。銀河於七月二十六日下午2時左右最接近香港，在本港西南偏南約490公里附近掠過。天文台總部於當日下午4時12分錄得最低瞬時海平面氣壓1006.6百帕斯卡。隨著銀河當天晚上逐漸遠離和於海南島東部萬寧市附近登陸，對香港不再構成威脅，天文台於七月二十六日晚上11時20分取消所有熱帶氣旋警告信號。

銀河影響香港期間，尖鼻咀錄得最高潮位(海圖基準面以上) 2.17米，而大廟灣則錄得最大風暴潮(天文潮高度以上) 0.14米。

銀河的外圍雨帶在七月二十六日為本港帶來幾陣狂風驟雨及雷暴。當日本港大部分地區錄得數毫米雨量，港島東部的雨量超過10毫米。

銀河並沒有在香港造成嚴重破壞。根據報章報導，銀河吹襲越南期間造成最少一人死亡，五人受傷，多間房屋倒塌。

表3.2.1 - 3.2.3 分別是銀河影響香港期間各站錄得的最高風速、香港的日雨量及最高潮位資料。圖3.2.1 - 3.2.4 分別為銀河的路徑圖、本港的雨量分佈圖、銀河的衛星及雷達圖像。

3.2 Severe Tropical Storm Mirinae (1603): 25 – 28 July 2016

Mirinae was the second tropical cyclone necessitating the issuance of tropical cyclone warning signal by the Hong Kong Observatory in 2016.

Mirinae formed as a tropical depression over the central part of the South China Sea about 300 km east of Xisha on the night of 25 July. Moving west-northwestwards, it intensified into a tropical storm the next morning. Mirinae made landfall over the east coast of Hainan Island on the night of 26 July and weakened slightly while crossing Hainan Island. After entering Beibu Wan, Mirinae re-organized and re-intensified the next morning, becoming a severe tropical storm on the evening of 27 July and reaching peak intensity with an estimated sustained wind of 90 km/h near its centre. Mirinae made landfall over the coast of northern Vietnam that night and weakened gradually. It finally dissipated over northern Vietnam on the evening of 28 July.

The Standby Signal No. 1 was issued at 8:40 a.m. on 26 July when Mirinae was about 500 km south-southwest of the territory. Local winds were generally moderate east to southeasterlies and occasionally fresh offshore on 26 July. Mirinae came closest to the territory around 2 p.m. that day, passing about 490 km to the south-southwest. At the Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 1006.6 hPa was recorded at 4:12 p.m. on 26 July. As the departing Mirinae made landfall in the vicinity of Wanning over the eastern part of Hainan Island that night and no longer posed a threat to Hong Kong, all tropical cyclone warning signals were cancelled at 11:20 p.m. on 26 July.

Under the influence of Mirinae, a maximum sea level (above chart datum) of 2.17 m was recorded at Tsim Bei Tsui, while a maximum storm surge of 0.14 m (above astronomical tide) was recorded at Tai Miu Wan.

The outer rainbands of Mirinae brought some squally showers and thunderstorms to Hong Kong on 26 July. A few millimetres of rainfall were generally recorded over the territory that day, with rainfall amount exceeding 10 millimetres over the eastern part of Hong Kong Island.

Mirinae did not cause any significant damage in Hong Kong. According to press reports, at least one person was killed, five were injured and many houses collapsed during the passage of Mirinae in Vietnam.

Information on the maximum wind, daily rainfall and maximum sea level reached in Hong Kong during the passage of Mirinae is given in Tables 3.2.1 - 3.2.3 respectively. Figures 3.2.1 - 3.2.4 show respectively the track of Mirinae, the rainfall distribution for Hong Kong, satellite imageries and radar imageries of Mirinae.

表 3.2.1　在銀河影響下，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 the tropical cyclone warning signals for Mirinae 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)	東北偏東	ENE	31	26/7	12:18	東北偏東	ENE	16	26/7	22:00
中環碼頭	Central Pier	東	E	40	26/7	14:35	東	E	20	26/7	17:00
長洲	Cheung Chau	東南	SE	45	26/7	14:17	東南偏東	ESE	23	26/7	15:00
長洲泳灘	Cheung Chau Beach	東	E	41	26/7	14:19	東	E	23	26/7	14:00
青洲	Green Island	東北	NE	45	26/7	14:41	東北	NE	30	26/7	15:00
香港國際機場	Hong Kong International Airport	東南	SE	41	26/7	15:07	東南偏東	ESE	25	26/7	15:00
							東南偏東	ESE	25	26/7	16:00
啟德	Kai Tak	東	E	41	26/7	12:19	東南偏東	ESE	16	26/7	13:00
京士柏	King's Park	東南偏南	SSE	30	26/7	15:37	東南	SE	12	26/7	11:00
							東南偏南	SSE	12	26/7	17:00
							東南	SE	12	26/7	19:00
流浮山	Lau Fau Shan	東南偏南	SSE	65	26/7	13:25	東南	SE	19	26/7	16:00
昂坪	Ngong Ping	東	E	62	26/7	10:03	東	E	38	26/7	10:00
							東	E	38	26/7	12:00
北角	North Point	東	E	43	26/7	12:22	東	E	20	26/7	17:00
坪洲	Peng Chau	東	E	38	26/7	12:53	東	E	22	26/7	11:00
平洲	Ping Chau	東南	SE	20	26/7	15:03	東	E	4	26/7	11:00
西貢	Sai Kung	東南	SE	31	26/7	12:28	東	E	14	26/7	16:00
沙洲	Sha Chau	東南偏南	SSE	36	26/7	17:02	東南偏南	SSE	23	26/7	18:00
沙螺灣	Sha Lo Wan	東南偏東	ESE	41	26/7	15:06	東南偏東	ESE	16	26/7	16:00
沙田	Sha Tin	東南偏東	ESE	27	26/7	14:53	東南	SE	9	26/7	15:00
							東南偏南	SSE	9	26/7	17:00
石崗	Shek Kong	東北偏東	ENE	31	26/7	11:59	東	E	14	26/7	16:00
九龍天星碼頭	Star Ferry (Kowloon)	東	E	41	26/7	12:26	東	E	16	26/7	14:00
							東	E	16	26/7	15:00
打鼓嶺	Ta Kwu Ling	東北	NE	31	26/7	12:23	東北偏東	ENE	13	26/7	13:00
							東	E	13	26/7	16:00
大美督	Tai Mei Tuk	東	E	34	26/7	12:11	東	E	25	26/7	13:00
大帽山	Tai Mo Shan	東南偏東	ESE	49	26/7	08:42	東南偏東	ESE	45	26/7	09:00
大埔滘	Tai Po Kau	東南偏南	SSE	36	26/7	10:59	東南偏東	ESE	19	26/7	16:00
塔門	Tap Mun	東南	SE	25	26/7	14:27	東南	SE	16	26/7	15:00
		東南	SE	25	26/7	14:38					
大老山	Tate's Cairn	東南偏東	ESE	43	26/7	11:08	南	S	25	26/7	23:00
將軍澳	Tseung Kwan O	東南偏東	ESE	31	26/7	12:14	北	N	9	26/7	12:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南	SE	34	26/7	14:55	東南	SE	19	26/7	16:00
		東南	SE	34	26/7	14:57					
屯門政府合署	Tuen Mun Government Offices	東南偏東	ESE	43	26/7	13:09	東南偏南	SSE	19	26/7	18:00
		東南偏東	ESE	43	26/7	13:12					
		東南	SE	43	26/7	13:13					
橫瀾島	Waglan Island	東	E	41	26/7	10:17	東	E	30	26/7	10:00
濕地公園	Wetland Park	東南偏東	ESE	31	26/7	13:22	東南偏東	ESE	13	26/7	16:00
黃竹坑	Wong Chuk Hang	東	E	31	26/7	10:07	東	E	14	26/7	13:00

表 3.2.2　銀河影響香港期間，香港天文台總部及其他各站所錄得的日雨量
Table 3.2.2　Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Mirinae

站 (參閱圖 3.2.2) Station (See Fig. 3.2.2)			七月二十六日 26 Jul	總雨量 (毫米) Total (mm)
香港天文台 Hong Kong Observatory			8.0	8.0
香港國際機場 Hong Kong International Airport (HKA)			微量 Trace	微量 Trace
長洲 Cheung Chau (CCH)			0.5	0.5
H23	香港仔	Aberdeen	1.0	1.0
N05	粉嶺	Fanling	0.0	0.0
N13	糧船灣	High Island	6.0	6.0
K04	佐敦谷	Jordan Valley	5.0	5.0
N06	葵涌	Kwai Chung	1.0	1.0
H12	半山區	Mid Levels	8.5	8.5
N09	沙田	Sha Tin	7.0	7.0
H19	筲箕灣	Shau Kei Wan	13.5	13.5
SEK	石崗	Shek Kong	2.0	2.0
K06	蘇屋邨	So Uk Estate	2.0	2.0
R31	大美督	Tai Mei Tuk	0.0	0.0
R21	踏石角	Tap Shek Kok	0.5	0.5
TMR	屯門水庫	Tuen Mun Reservoir	3.7	3.7
N17	東涌	Tung Chung	0.0	0.0

表 3.2.3　銀河影響香港期間，香港各潮汐站所錄得的最高潮位及最大風暴潮
Table 3.2.3　Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Mirinae

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	1.80	26/7	13:46	0.04	26/7	13:40
大廟灣	Tai Miu Wan	1.81	26/7	13:37	0.14	26/7	13:25
大埔滘	Tai Po Kau	1.76	26/7	14:59	0.12	26/7	18:05
尖鼻咀	Tsim Bei Tsui	2.17	26/7	14:11	0.07	26/7	14:11
石壁	Shek Pik	1.94	26/7	12:54	0.12	26/7	12:54

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

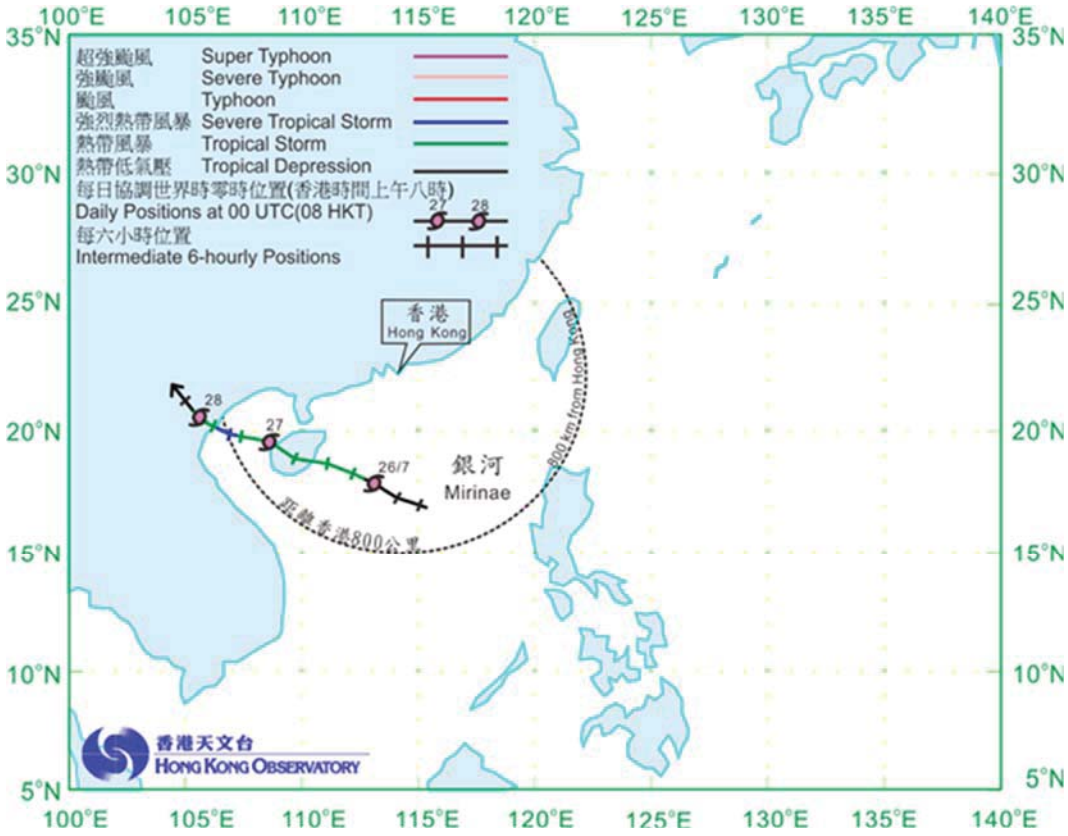


圖 3.2.1 二零一六年七月二十五日至二十八日銀河(1603)的路徑圖。

Figure 3.2.1 Track of Mirinae (1603) on 25 – 28 July 2016.

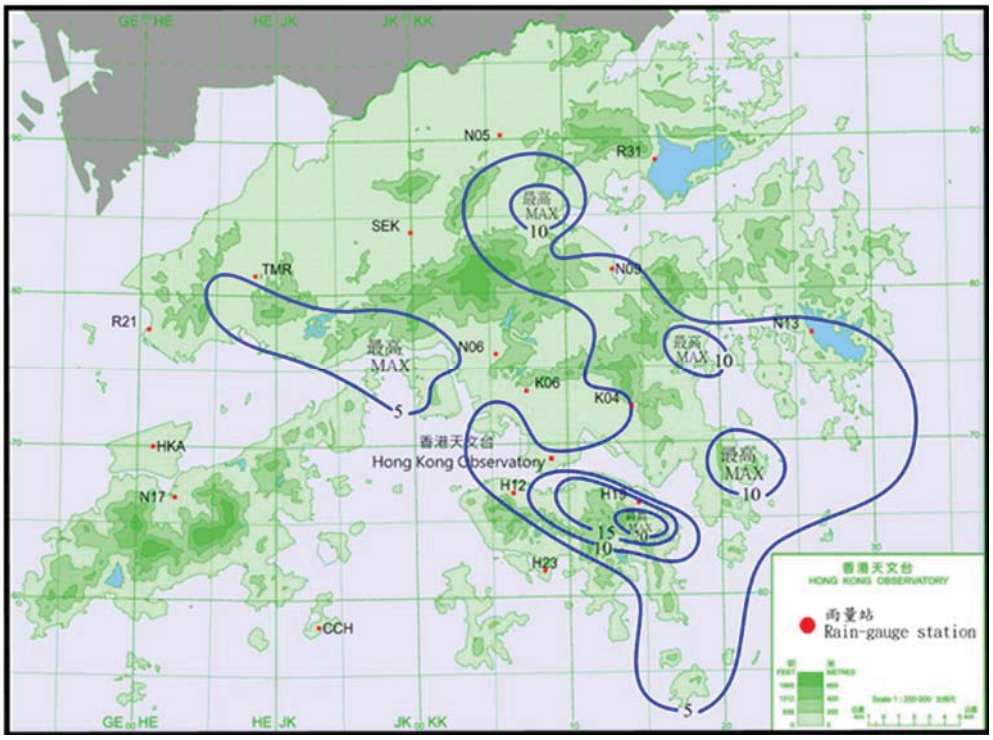


圖 3.2.2 二零一六年七月二十六日的雨量分佈(等雨量線單位為毫米)。

Figure 3.2.2 Rainfall distribution on 26 July 2016 (isohyets are in millimetres).

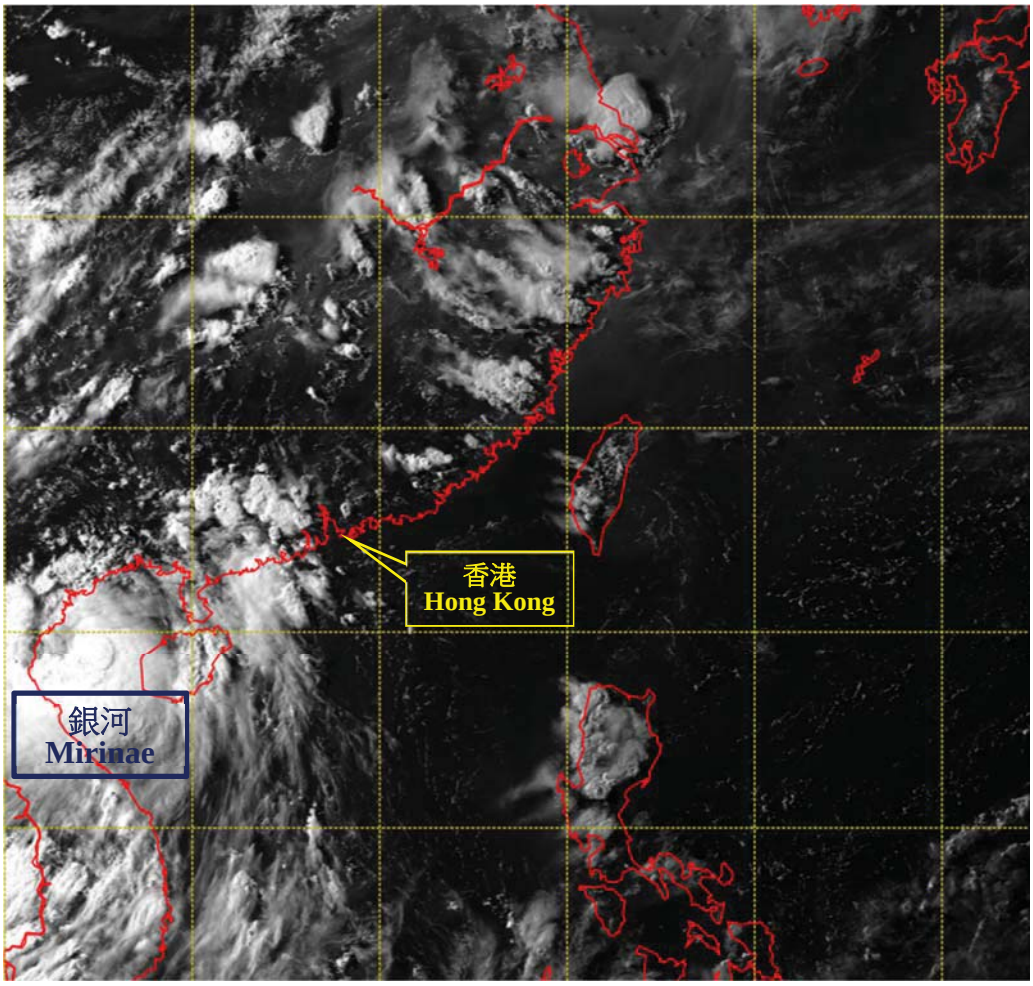


圖 3.2.3　二零一六年七月二十七日下午 5 時左右的可見光衛星圖片，當時銀河達到其最高強度，中心附近最高持續風速估計為每小時 90 公里。

Figure 3.2.3 Visible satellite imagery around 5 p.m. on 27 July 2016 when Mirinae was at its peak intensity with estimated maximum sustained winds of 90 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 the Himawari-8 (H-8) of Japan Meteorological Agency (JMA).]

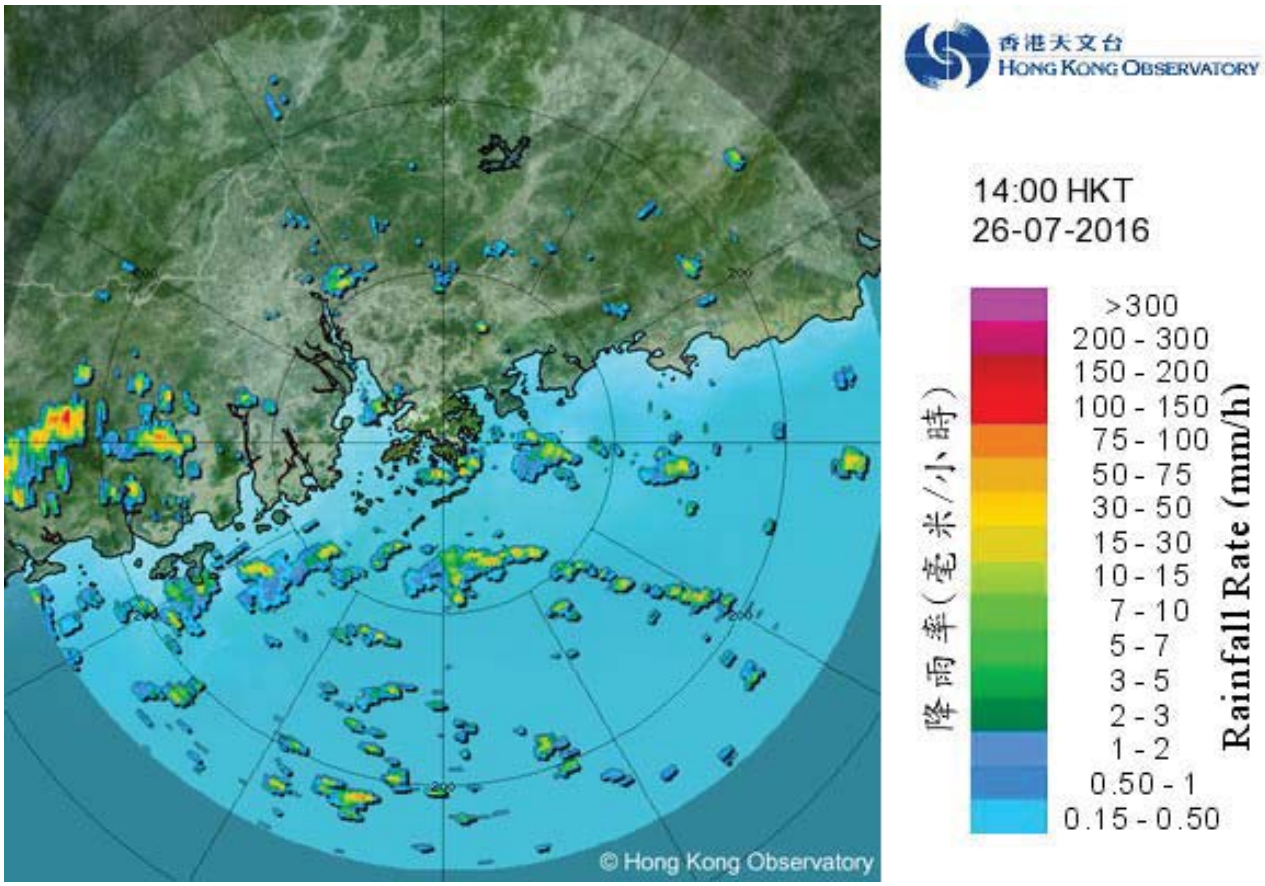


圖 3.2.4　二零一六年七月二十六日下午 2 時的雷達回波圖像。當時與銀河相關的驟雨正影響廣東沿岸及南海北部。

Figure 3.2.4　Radar echoes captured at 2 p.m. on 26 July 2016. Showers associated with Mirinae were affecting the coast of Guangdong and the northern part of the South China Sea.

3.3 颱風妮妲(1604)：二零一六年七月二十九日至八月三日

妮妲是香港天文台在二零一六年第三個需要發出熱帶氣旋警告信號的熱帶氣旋，也是今年首個需要發出八號烈風或暴風信號的熱帶氣旋。

熱帶低氣壓妮妲於七月二十九日晚上在馬尼拉之東南偏東約 750 公里的北太平洋西部形成，初時向西北偏北方向移動。妮妲於翌日下午開始採取西北路徑移向呂宋海峽，並逐漸增強，於七月三十一日上午發展為強烈熱帶風暴，當日下午掠過呂宋北岸，晚上進入南海東北部，並採取西北偏西路徑趨向廣東沿岸。妮妲進一步增強為颱風，於八月一日下午達到其最高強度，中心附近最高持續風速為每小時 130 公里。妮妲於八月二日上午三時左右在大鵬半島附近登陸，橫過深圳，在香港以北掠過。妮妲繼續移入內陸及減弱，最後於八月三日清晨在廣西減弱為一個低壓區。

根據報章報導，在妮妲吹襲期間，廣東、廣西、湖南、貴州及雲南約有 50 萬人受災，300 多間房屋倒塌，直接經濟損失最少五億元人民幣。廣東有七市要停工停課，海陸空交通癱瘓。而深圳有逾 1.6 萬戶的電力供應受到影響。

香港天文台於七月三十一日晚上 10 時 10 分發出一號戒備信號，當時妮妲集結在香港之東南偏東約 790 公里。八月一日早上本港吹輕微至和緩西北風，隨著妮妲迅速地靠近廣東沿岸，天文台於上午 11 時 40 分發出三號強風信號，當時妮妲位於香港之東南偏東約 440 公里。黃昏時分本港風勢開始增強，吹清勁北至西北風，高地吹強風。妮妲繼續逼近珠江三角洲地區，晚上 8 時 40 分天文台發出八號西北烈風或暴風信號，當時妮妲集結在香港之東南偏東約 200 公里。晚間本港風力顯著增強，吹強風至烈風程度西至西北風。

隨著妮妲登陸並在香港以北掠過，本港開始轉吹西南風，天文台在八月二日上午 4 時 40 分改發八號西南烈風或暴風信號。妮妲於上午 5 時左右最接近香港，在天文台總部之西北偏北約 40 公里掠過。黎明前後本港普遍吹達烈風程度西南風，離岸及高地間中吹暴風。妮妲早上移入內陸並減弱，日間本港風力逐漸減弱，天文台於下午 12 時 40 分改發三號強風信號以取代八號西南烈風或暴風信號，並於當天稍後下午 5 時 10 分取消所有熱帶氣旋警告信號。

在妮妲的影響下，九龍天星碼頭、香港國際機場及昂坪錄得的最高每小時平均風速分別為每小時 47、72 及 121 公里，而最高陣風則分別為每小時 112、117 及 158 公里。尖鼻咀錄得最高潮位 3.6 米(海圖基準面以上)及最大風暴潮(天文潮高度以上) 0.9 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	984.5	2/8	上午 3 時 42 分
香港國際機場	985.7	2/8	上午 3 時 32 分
打鼓嶺	983.3	2/8	上午 3 時 56 分
大埔	982.7	2/8	上午 3 時 36 分
沙田	983.5	2/8	上午 3 時 25 分
上水	983.3	2/8	上午 3 時 58 分
流浮山	983.3	2/8	上午 3 時 46 分
長洲	984.6	2/8	上午 2 時 46 分
橫瀾島	983.5	2/8	上午 2 時 30 分

八月一日日間本港部分時間有陽光及有煙霞。晚上至翌日妮妲的雨帶為本港帶來狂風大驟雨，八月二日早上天文台曾發出黃色暴雨警告信號、山泥傾瀉警告及新界北部水浸特別報告。當日各區錄得超過 100 毫米雨量，而大嶼山的雨量更超過 200 毫米。

妮妲吹襲香港期間最少有 12 人受傷，另有超過 400 宗塌樹報告、兩宗水浸報告、一宗山泥傾瀉報告及多宗高空墜物意外。上環有一個直徑約六呎的衛星接收器遭強風吹至飛墜行人路。灣仔菲林明道一幢商業大廈外牆一幅棚架倒塌。北角孔雀道一株大樹塌下，導致兩輛私家車損毀。輕鐵天悅站及三聖站附近也有樹木塌下，列車服務一度受阻。觀塘繞道的一支燈柱在強風吹襲下折斷。大角咀有躉船受巨浪影響撞向石堃，西貢亦有遊艇擱淺岸邊。妮妲引致的風暴潮令鯉魚門、大澳、屯門、西環等低窪地區出現輕微水浸及海水倒灌。新界超過 320 公頃的農地受到影響。香港國際機場約有 500 班航班需要重新編配。

表 3.3.1 - 3.3.4 分別是妮妲影響香港期間各站錄得的最高風速、持續風力達到強風及烈風程度的時段、香港的日雨量及最高潮位資料。圖 3.3.1 - 3.3.2 分別為妮妲的路徑圖和本港的雨量分佈圖。圖 3.3.3 顯示香港各站錄得的風向和風速。圖 3.3.4 - 3.3.5 分別顯示天文台總部及打鼓嶺錄得的海平面氣壓、及鰂魚涌錄得的潮位圖。圖 3.3.6 - 3.3.7 分別為妮妲的衛星及雷達圖像。妮妲在香港造成的破壞可參見圖 3.4.8 - 3.4.11。

3.3 Typhoon Nida (1604): 29 July – 3 August 2016

Nida was the third tropical cyclone necessitating the issuance of tropical cyclone warning signals by the Hong Kong Observatory in 2016. It was also the first tropical cyclone requiring the issuance of Gale or Storm Wind Signal No. 8 in the year.

Nida formed as a tropical depression over the western North Pacific about 750 km east-southeast of Manila on the night of 29 July and moved north-northwestwards at first. Nida then took on a northwesterly track towards the Luzon Strait on the afternoon of 30 July and intensified gradually. After developing into a severe tropical storm on the morning of 31 July, it swept across the north coast of Luzon in the afternoon and entered the northeastern part of the South China Sea that night, taking on a west-northwesterly track towards the coast of Guangdong. It further intensified into a typhoon and reached its peak intensity on the afternoon of 1 August with an estimated sustained wind of 130 km/h near its centre. Nida made landfall near Dapeng Peninsula around 3 a.m. on 2 August and moved across Shenzhen, passing just to the north of Hong Kong. It continued to weaken as it moved further inland, before finally degenerating into an area of low pressure over Guangxi early in the morning of 3 August.

According to press reports, about 500 000 people were affected and more than 300 houses collapsed in Guangdong, Guangxi, Hunan, Guizhou and Yunnan during the passage of Nida, with direct economic loss exceeding 500 million RMB. Business and schools were suspended in seven cities of Guangdong. Transportation services were paralyzed. Electricity supply to more than 16 000 households was affected in Shenzhen.

The Standby Signal No. 1 was issued by the Hong Kong Observatory at 10:10 p.m. on 31 July when Nida was about 790 km east-southeast of the territory. Local winds were light to moderate from the northwest on the morning of 1 August. As Nida moved rapidly towards the coast of Guangdong, the Strong Wind Signal No. 3 was issued at 11:40 a.m. when it was about 440 km east-southeast of Hong Kong. Local winds started to strengthen significantly at dusk, becoming fresh north to northwesterly and strong on high ground. With Nida approaching the Pearl River delta region, the No. 8 Northwest Gale or Storm Signal was issued at 8:40 p.m. when it was about 200 km east-southeast of Hong Kong. Local winds strengthened further overnight and became strong to gale force from the west to northwest.

As Nida made landfall and skirted past just north of Hong Kong, local winds started to turn southwesterly and the No. 8 Southwest Gale or Storm Signal was issued at 4:40 a.m. on 2 August. Nida was closest to the territory around 5 a.m. when it was about 40 km north-northwest of the Hong Kong Observatory Headquarters. Southwesterly gales generally affected the territory near dawn with winds occasionally reaching storm force offshore and on high ground. With Nida moving inland and weakening in the morning, local winds subsided gradually during the day. The No. 8 Southwest Gale or Storm Signal was replaced by the Strong Wind Signal No. 3 at 12:40 p.m., and all tropical cyclone warning signals were cancelled at 5:10 p.m. later in the day.

Under the influence of Nida, maximum hourly mean winds of 47, 72 and 121 km/h and gusts of 112, 117 and 158 km/h were recorded at Star Ferry (Kowloon), the Hong Kong International Airport and Ngong Ping respectively. A maximum sea level (above chart datum) of 3.6 m and a maximum storm surge (above astronomical tide) of 0.9 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	984.5	2/8	3:42 a.m.
Hong Kong International Airport	985.7	2/8	3:32 a.m.
Ta Kwu Ling	983.3	2/8	3:56 a.m.
Tai Po	982.7	2/8	3:36 a.m.
Shatin	983.5	2/8	3:25 a.m.
Sheung Shui	983.3	2/8	3:58 a.m.
Lau Fau Shan	983.3	2/8	3:46 a.m.
Cheung Chau	984.6	2/8	2:46 a.m.
Waglan Island	983.5	2/8	2:30 a.m.

Locally, there were sunny periods and haze during the day on 1 August. The rainbands of Nida brought heavy squally showers to Hong Kong that night and the next day. Amber Rainstorm Warning, Landslip Warning and Special Announcement on Flooding in the Northern New Territories were issued by the Observatory on the morning of 2 August. More than 100 millimetres of rainfall were generally recorded over the territory, and rainfall over Lantau Island even exceeded 200 millimetres.

In Hong Kong, at least 12 people were injured during the passage of Nida. There were more than 400 reports of fallen trees, two reports of flooding, one report of landslide and many incidents of falling objects. A satellite dish of around six feet was blown down to the pavement under strong winds in Sheung Wan. The scaffolding of a commercial building at Fleming Road in Wan Chai collapsed. A tree at Peacock Road in North Point fell down, damaging two private cars. Some trees also collapsed near Tin Yuet and Sam Shing Light Rail stations, resulting in a disruption of train services. A lamp post in Kwun Tong Bypass fell down under high winds. A barge rammed against the seafront under high waves in Tai Kok Tsui and a yacht ran aground in Sai Kung. Storm surge triggered by Nida caused minor flooding and backflow of sea water in some low lying areas in Lei Yue Mun, Tai O, Tuen Mun and Sai Wan. More than 320 hectares of farmland in the New Territories were affected. Around 500 flights were re-scheduled at the Hong Kong International Airport.

Information on the maximum wind, period of strong and gale force winds, daily rainfall and maximum sea level reached in Hong Kong during the passage of Nida is given in Tables 3.3.1 - 3.3.4 respectively. Figures 3.3.1 - 3.4.2 show respectively the track of Nida and the rainfall distribution for Hong Kong. Figure 3.3.3 shows the winds recorded at various stations in Hong Kong. Figures 3.3.4 – 3.3.5 show repectively trace of mean sea-level pressure recorded at the Hong Kong Observatory's Headquarters and Ta Kwu Ling, and tide and storm surge recorded at Quarry Bay. Figures 3.3.6 – 3.4.7 show respectively a satellite imagery and a radar imagery of Nida. Some damages caused by Nida in Hong Kong are illustrated in Figures 3.3.8 – 3.3.11

表 3.3.1　在妮妲影響下，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 winds with associated wind directions recorded at various stations when tropical cyclone warning signals for Nida 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)	西南	SW	83	2/8	05:46	西南偏南	SSW	43	2/8	08:00
中環碼頭	Central Pier	西南偏西	WSW	96	2/8	05:30	西	W	51	2/8	03:00
長洲	Cheung Chau	西北偏西	WNW	104	2/8	03:01	西南偏南	SSW	68	2/8	06:00
長洲泳灘	Cheung Chau Beach	西北偏西	WNW	99	2/8	01:28	西南	SW	59	2/8	06:00
青洲	Green Island	西南偏南	SSW	128	2/8	06:18	西南偏南	SSW	99	2/8	07:00
香港國際機場	Hong Kong International Airport	西南	SW	117	2/8	06:45	西南	SW	72	2/8	07:00
啟德	Kai Tak	西北	NW	96	2/8	00:29	西北偏西	WNW	47	2/8	01:00
京士柏	King's Park	西南偏西	WSW	92	2/8	05:52	西南偏西	WSW	36	2/8	06:00
流浮山	Lau Fau Shan	南	S	108	2/8	07:09	西北偏西	WNW	63	2/8	03:00
昂坪	Ngong Ping	西南	SW	158	2/8	07:31	西南偏南	SSW	121	2/8	09:00
北角	North Point	西南偏西	WSW	75	2/8	05:03	西	W	41	2/8	04:00
坪洲	Peng Chau	西北偏西	WNW	99	2/8	01:57	西北偏西	WNW	59	2/8	02:00
平洲	Ping Chau	西北偏北	NNW	59	2/8	00:28	西北	NW	20	2/8	01:00
西貢	Sai Kung	西北偏北	NNW	87	1/8	23:06	南	S	49	2/8	07:00
沙洲	Sha Chau	西南偏南	SSW	110	2/8	06:49	西南偏南	SSW	77	2/8	08:00
沙螺灣	Sha Lo Wan	西南偏南	SSW	104	2/8	06:56	西南偏南	SSW	52	2/8	08:00
沙田	Sha Tin	西南偏南	SSW	87	2/8	05:52	西南偏南	SSW	36	2/8	07:00
石崗	Shek Kong	南	S	67	2/8	10:04	西北	NW	25	2/8	01:00
							南	S	25	2/8	08:00
九龍天星碼頭	Star Ferry (Kowloon)	西南偏西	WSW	112	2/8	05:18	西	W	47	2/8	04:00
打鼓嶺	Ta Kwu Ling	東南偏南	SSE	63	2/8	10:31	東南偏南	SSE	27	2/8	10:00
							東南偏南	SSE	27	2/8	11:00
大美督	Tai Mei Tuk	西南	SW	104	2/8	06:04	西南偏西	WSW	58	2/8	07:00
大帽山	Tai Mo Shan	西南	SW	158	2/8	06:45	西南偏南	SSW	101	2/8	08:00
大埔滘	Tai Po Kau	南	S	70	2/8	06:09	西北偏西	WNW	34	2/8	01:00
塔門	Tap Mun	西北	NW	81	2/8	01:22	西北偏西	WNW	41	2/8	03:00
大老山	Tate's Cairn	西北	NW	128	2/8	01:45	西北偏北	NNW	75	1/8	23:00
將軍澳	Tseung Kwan O	南	S	70	2/8	06:11	西北偏北	NNW	25	1/8	23:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南偏南	SSE	79	2/8	06:27	南	S	47	2/8	07:00
屯門政府合署	Tuen Mun Government Offices	西北偏西	WNW	92	2/8	04:02	南	S	31	2/8	08:00
橫瀾島	Waglan Island	西南偏南	SSW	121	2/8	05:23	西南偏南	SSW	94	2/8	06:00
濕地公園	Wetland Park	西南	SW	68	2/8	07:05	西北	NW	31	2/8	03:00
黃竹坑	Wong Chuk Hang	西北偏西	WNW	75	2/8	00:01	西北偏西	WNW	30	2/8	01:00

表 3.3.2　在妮妲影響下，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 Nida 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	1/8	2321	2/8	1320	2/8	0316	2/8	0840
香港國際機場	Hong Kong International Airport	1/8	2257	2/8	1444	2/8	0203	2/8	0931
啟德	Kai Tak	1/8	2318	2/8	0144	-			
流浮山	Lau Fau Shan	1/8	2204	2/8	1146	2/8	0133	2/8	0927
西貢	Sai Kung	1/8	2252	2/8	0935	-			
沙田	Sha Tin	2/8	0537	2/8	0803	-			
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	2/8	0159	2/8	1003	-			

打鼓嶺的持續風力未達到強風程度。

The sustained wind speed did not attain strong force at Ta Kwu Ling.

- 未達到指定的風速

- not attaining the specified wind speed

* 十分鐘平均風速達每小時 41-62 公里

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

十分鐘平均風速達每小時 63-87 公里

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

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

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

表 3.3.3　　妮妲影響香港期間，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 Nida

站 (參閱圖 3.3.2) Station (See Fig. 3.3.2)			七月三十一日 31 Jul	八月一日 1 Aug	八月二日 2 Aug	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory			1.2	4.6	121.0	126.8
香港國際機場 Hong Kong International Airport (HKA)			0.0	1.4	177.6	179.0
長洲 Cheung Chau (CCH)			0.0	0.5	100.5	101.0
H23	香 港 仔	Aberdeen	0.0	1.5	87.0	88.5
N05	粉 嶺	Fanling	0.0	1.0	134.5	135.5
N13	糧 船 灣	High Island	0.5	1.5	107.5	109.5
K04	佐 敦 谷	Jordan Valley	0.0	4.5	102.5	107.0
N06	葵 涌	Kwai Chung	0.0	4.0	153.5	157.5
H12	半 山 區	Mid Levels	0.0	3.5	132.5	136.0
N09	沙 田	Sha Tin	2.5	0.0	117.0	119.5
H19	筲 箕 灣	Shau Kei Wan	0.0	1.0	126.0	127.0
SEK	石 崗	Shek Kong	0.0	0.5	144.5	145.0
K06	蘇 屋 邨	So Uk Estate	0.0	4.5	117.5	122.0
R31	大 美 督	Tai Mei Tuk	0.0	0.0	76.0	76.0
R21	踏 石 角	Tap Shek Kok	15.5	0.0	138.5	154.0
TMR	屯門水庫	Tuen Mun Reservoir	4.5	0.0	146.1	150.6
N17	東 涌	Tung Chung	0.0	0.5	298.5	299.0

表 3.3.4　　妮妲影響香港期間，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 Nida

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	2.93	2/8	08:22	0.58	2/8	08:22
石壁	Shek Pik	3.08	2/8	08:06	0.63	2/8	08:06
大埔滘	Tai Po Kau	2.76	2/8	08:12	0.63	2/8	13:20
大廟灣	Tai Miu Wan	2.83	2/8	08:09	0.64	2/8	04:21
尖鼻咀	Tsim Bei Tsui	3.60	2/8	09:49	0.90	2/8	09:49
橫瀾島	Waglan Island	2.92	2/8	08:01	0.63	2/8	04:21

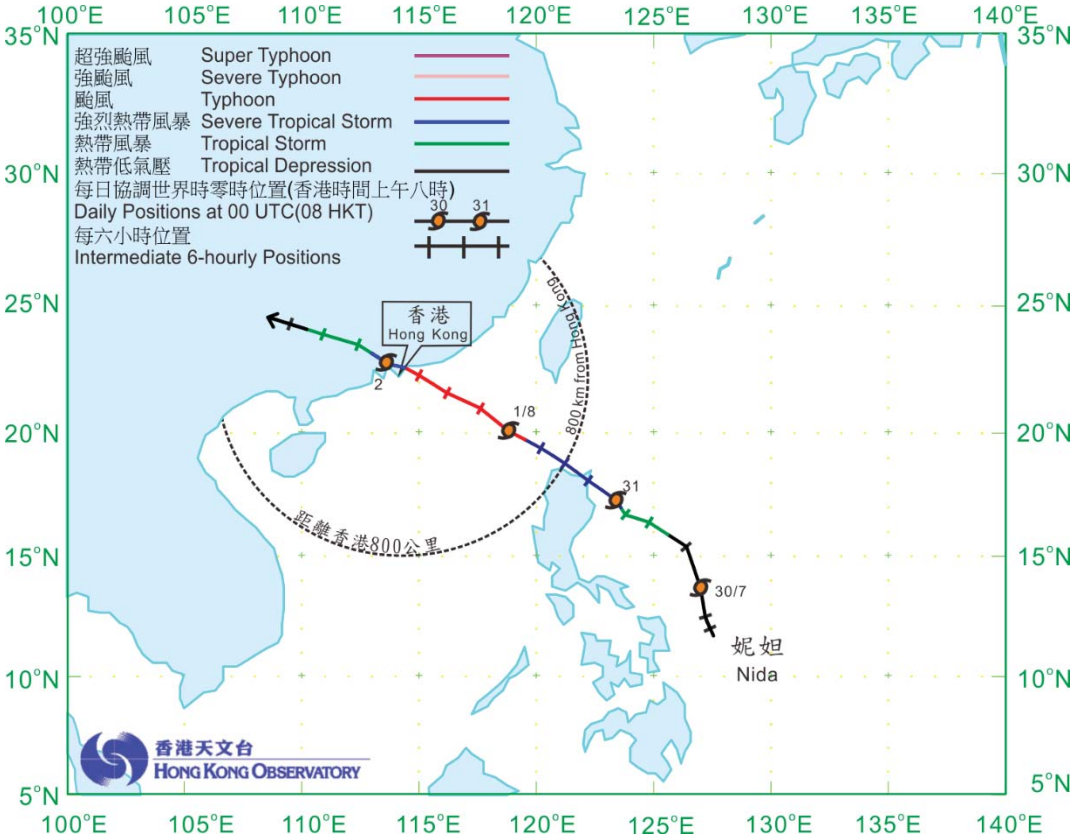


圖 3.3.1a 二零一六年七月二十九日至八月三日妮妲(1604)的路徑圖。

Figure 3.3.1a Track of Nida (1604) on 29 July – 3 August 2016.

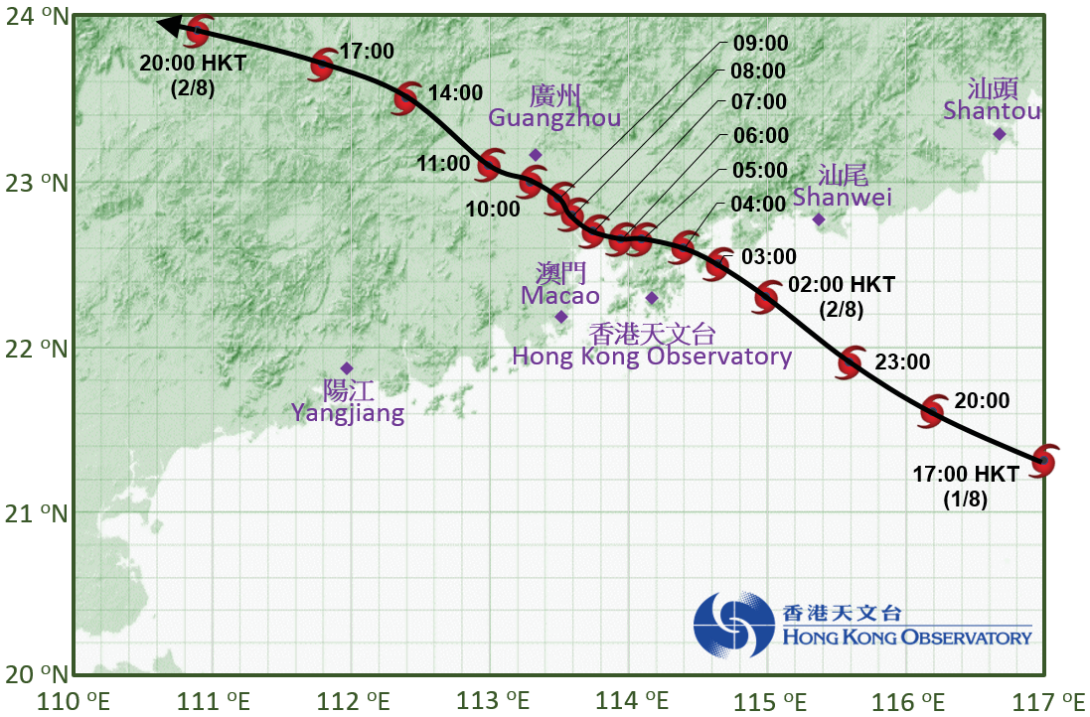


圖 3.3.1b 妮妲接近香港時的路徑圖。

Figure 3.3.1b Track of Nida near Hong Kong.

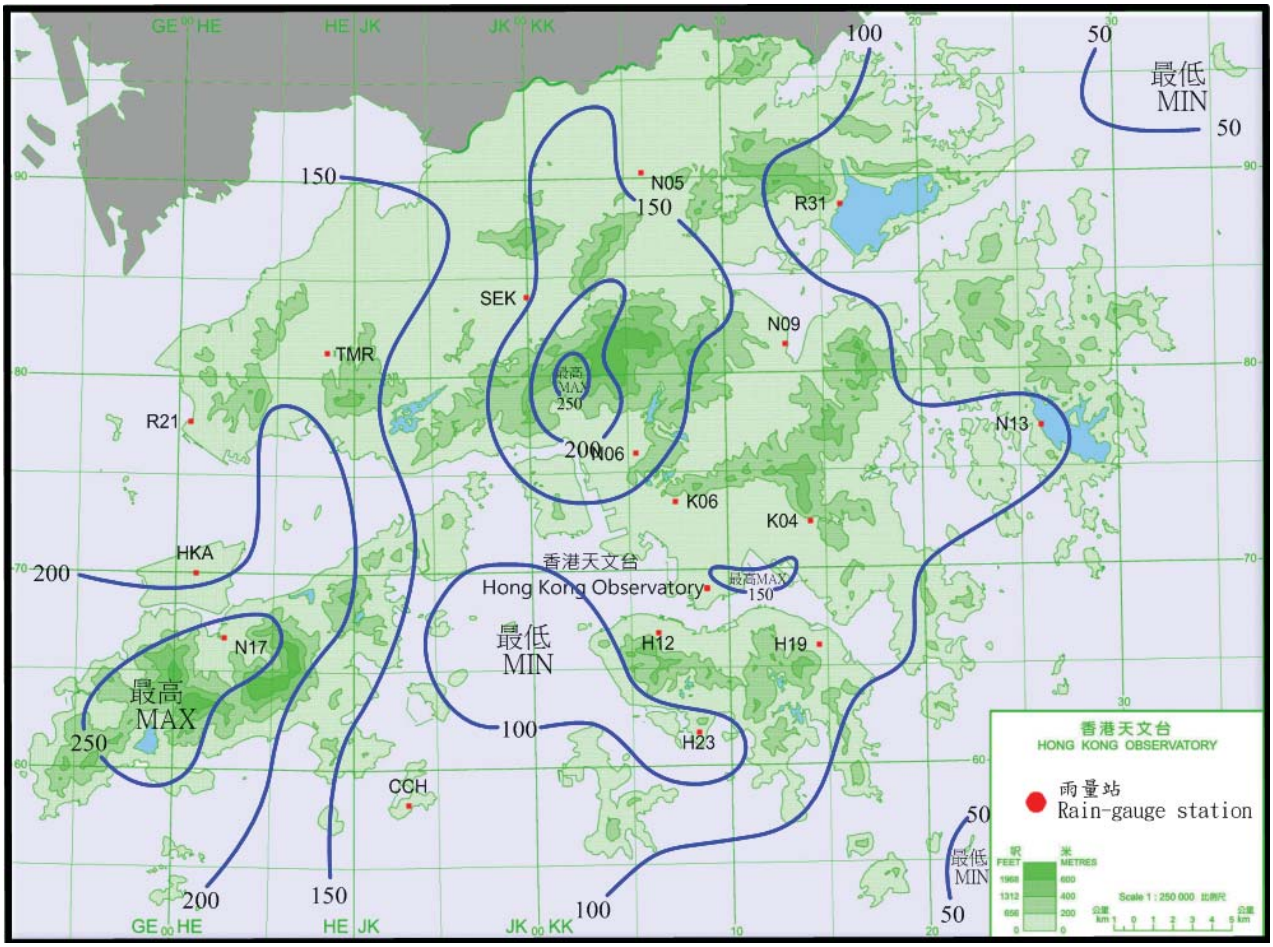


圖 3.3.2　　二零一六年七月三十一日至八月二日的雨量分佈(等雨量線單位為毫米)。

Figure 3.3.2　Rainfall distribution on 31 July - 2 August 2016 (isohyets in millimetres).

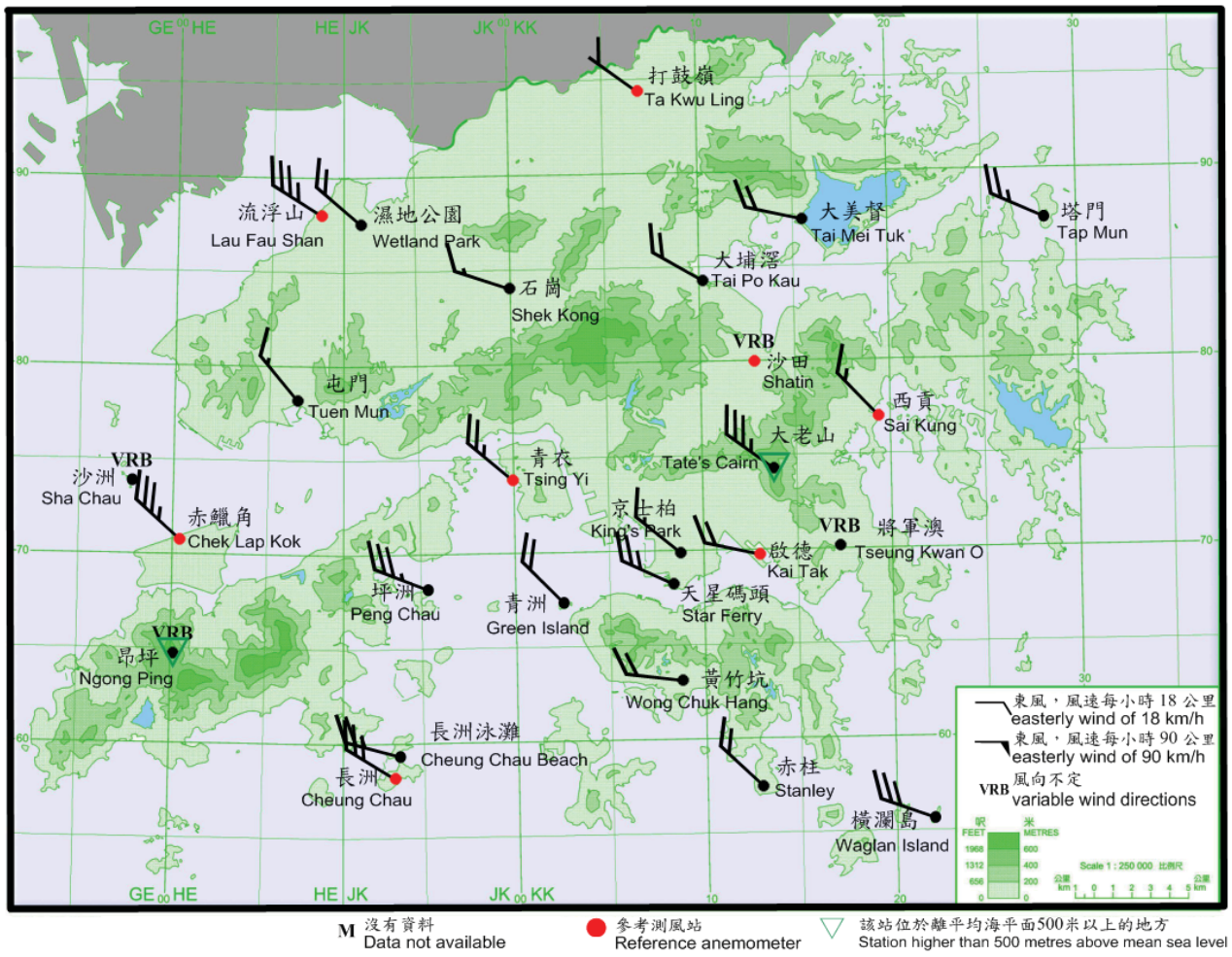


圖 3.3.3a　二零一六年八月二日上午 2 時 30 分香港各站錄得的十分鐘平均風向和風速。當時颱風妮妲集結在天文台總部以東約 80 公里。

Figure 3.3.3a　10-minute mean wind direction and speed recorded at various stations in Hong Kong at 2:30 a.m. on 2 August 2016. Typhoon Nida was about 80 km east of the Observatory Headquarters.

註：　昂坪、沙洲、沙田及將軍澳當時錄得的十分鐘平均風速分別為每小時 33、27、14 及 16 公里。

Note:　The 10-minute mean wind speeds recorded at that time at Ngong Ping, Sha Chau, Shatin and Tseung Kwan O were 33, 27, 14 and 16 km/h respectively.

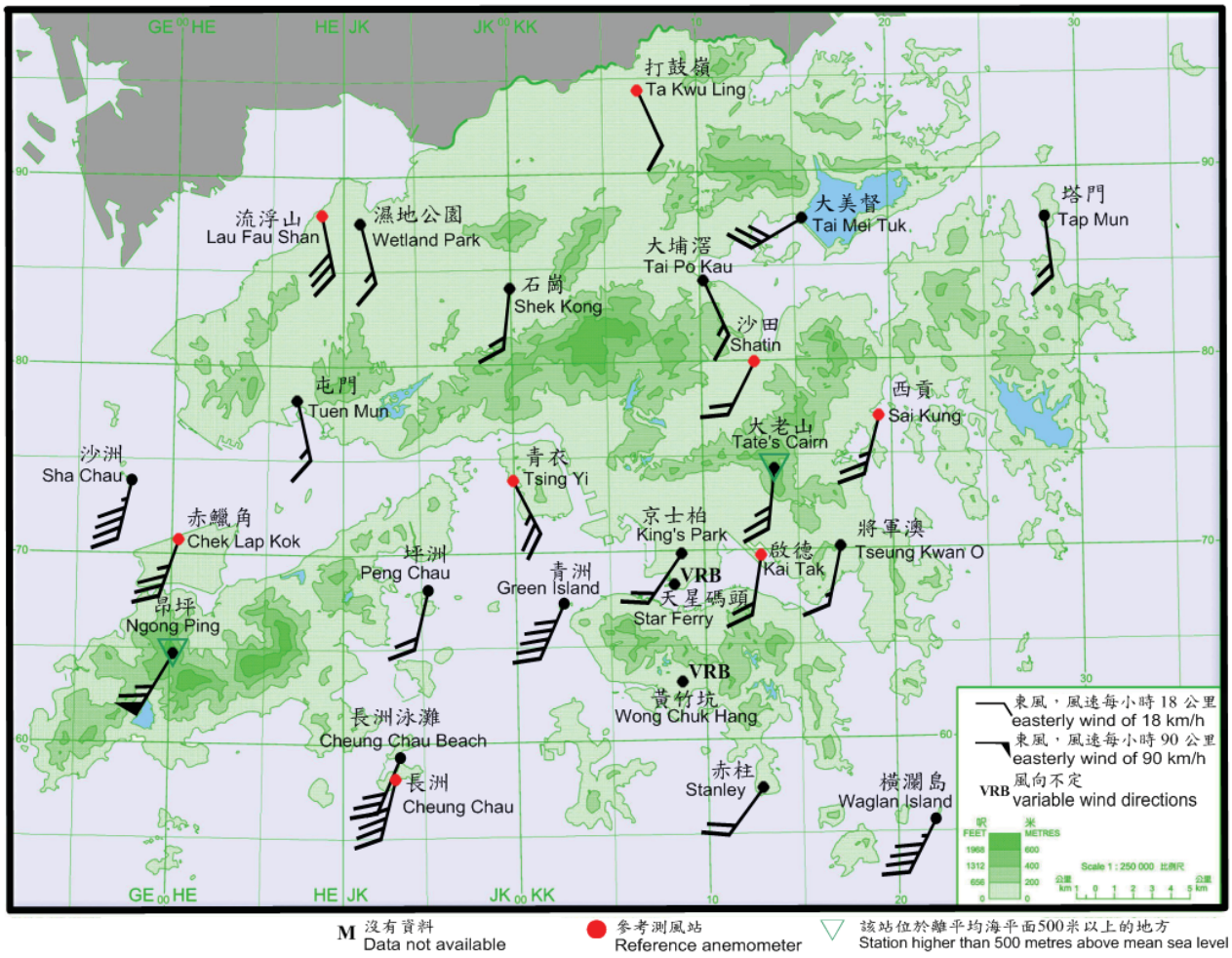


圖 3.3.3b　二零一六年八月二日上午 8 時 20 分香港各站錄得的十分鐘平均風向和風速。當時妮妲已減弱為強烈熱帶風暴並集結在天文台總部之西北約 80 公里。

Figure 3.3.3b　10-minute mean wind direction and speed recorded at various stations in Hong Kong at 8:20 a.m. on 2 August 2016. Nida had already weakened into a severe tropical storm and was about 80 km northwest of the Observatory Headquarters.

註:　天星碼頭及黃竹坑當時錄得的十分鐘平均風速分別為每小時 23 及 12 公里。

Note:　The 10-minute mean wind speeds recorded at that time at Star Ferry and Wong Chuk Hang were 23 and 12 km/h respectively.

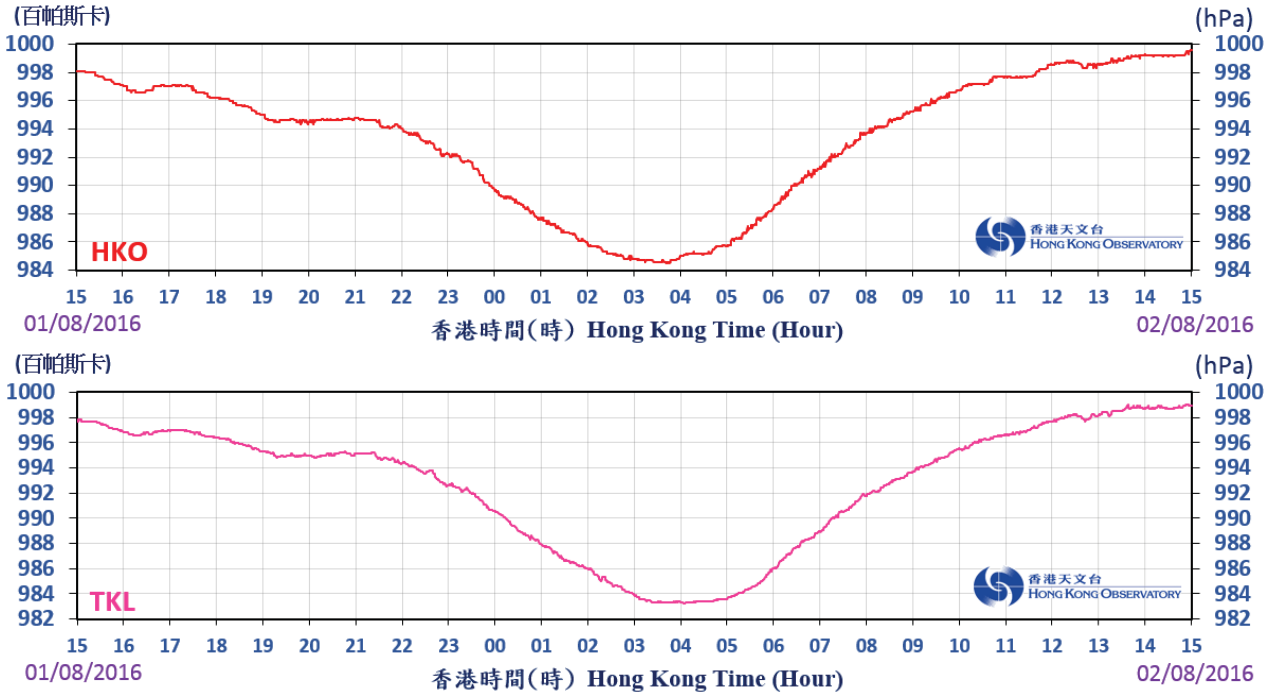


圖 3.3.4　二零一六年八月一日至二日天文台總部(上圖)及打鼓嶺(下圖)錄得的海平面氣壓。

Figure 3.3.4　Traces of mean sea-level pressure recorded at the Observatory Headquarters (top panel) and Ta Kwu Ling (bottom panel) on 1 – 2 August 2016.

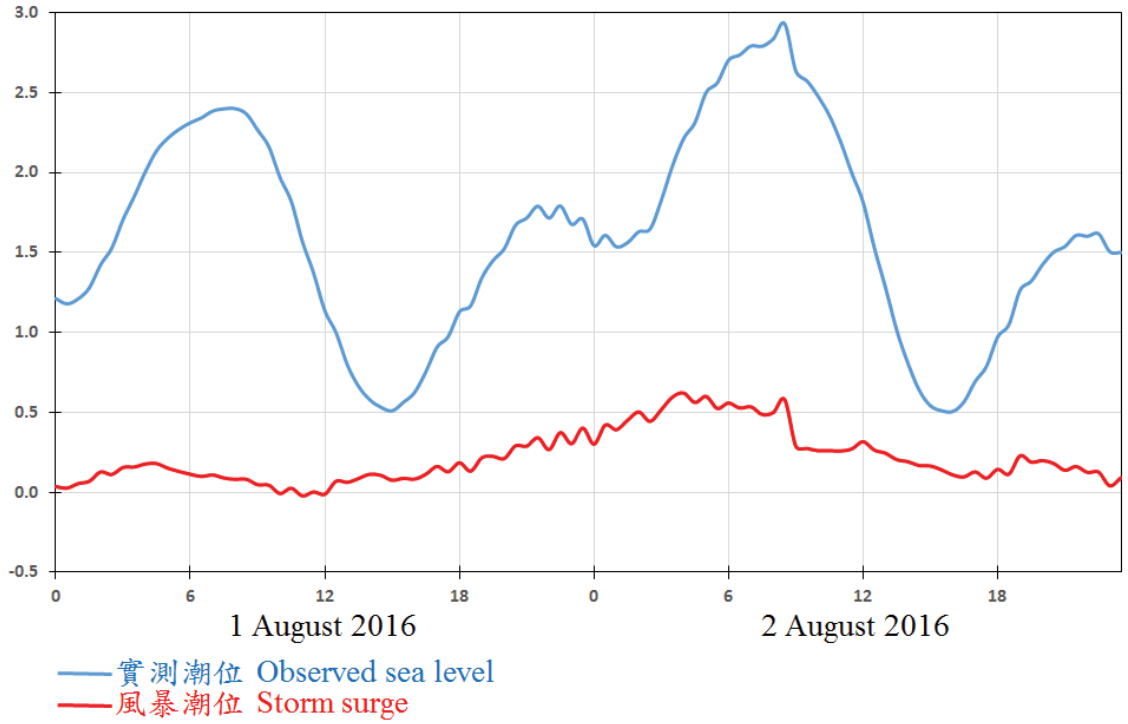


圖 3.3.5　二零一六年八月一日至二日鰂魚涌錄得的潮位圖(海平面為海圖基準面以上，單位為米) 。

Figure 3.3.5　Tide and storm surge recorded at Quarry Bay on 1 – 2 August 2016 (sea level in metres above chart datum).

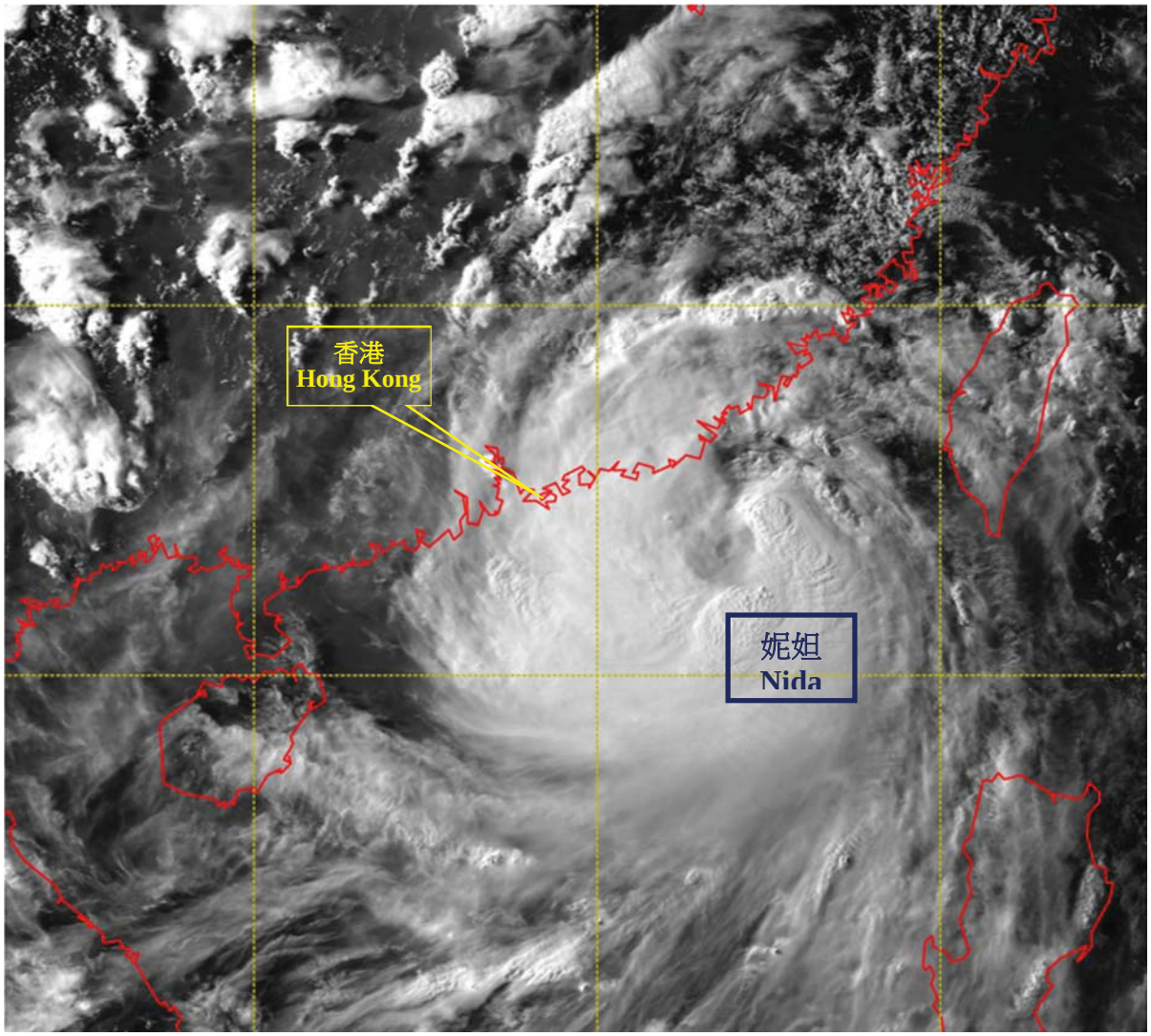


圖 3.3.6　二零一六年八月一日下午 5 時左右的可見光衛星圖片，當時妮妲達到其最高強度，中心附近最高持續風速估計為每小時 130 公里。

Figure 3.3.6　Visible satellite imagery around 5 p.m. on 1 August 2016, when Nida was at peak intensity with estimated maximum sustained winds of 130 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).]

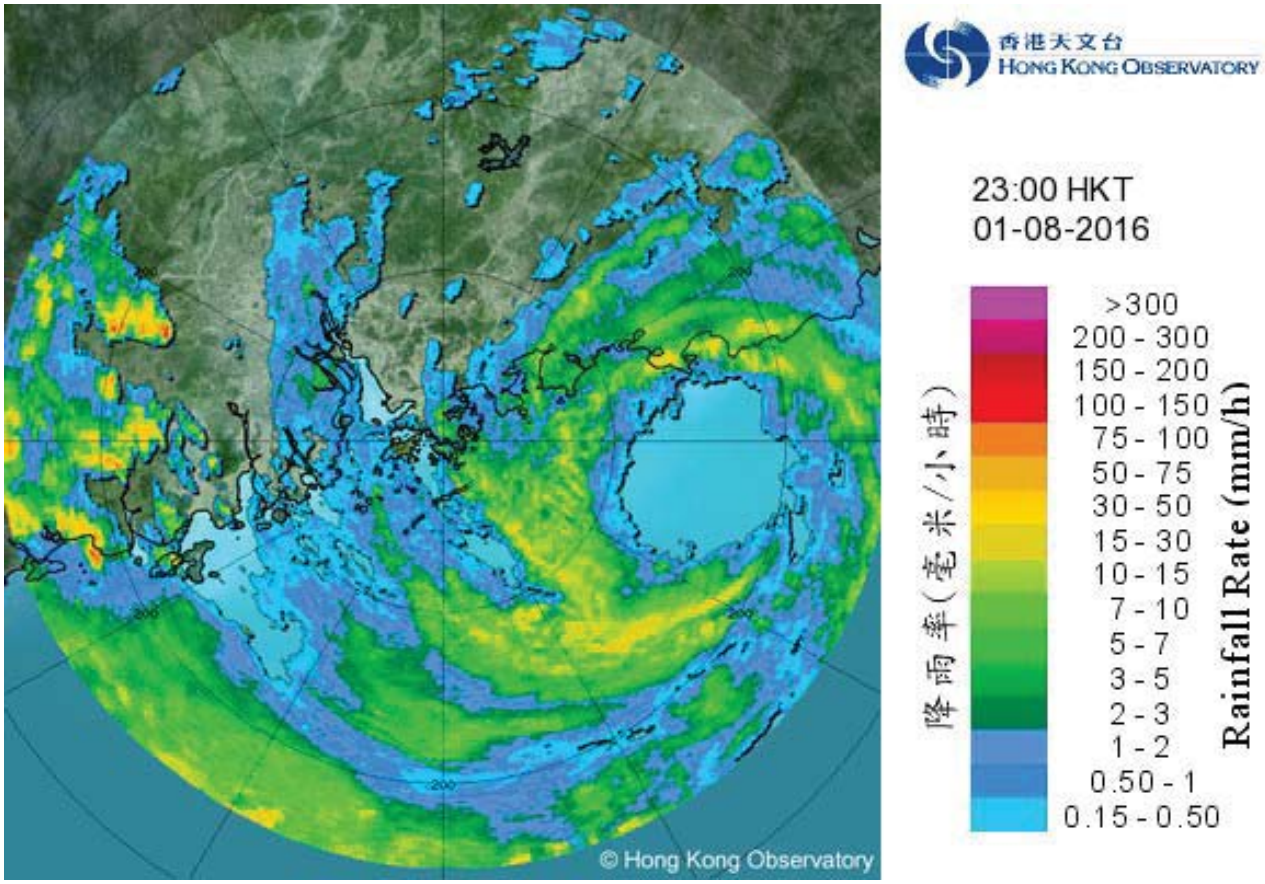


圖 3.3.7a　二零一六年八月一日晚上 11 時正的雷達回波圖像。颱風妮妲直徑約 100 公里的風眼清晰可見。

Figure 3.3.7a　Image of radar echoes at 11 p.m. on 1 August 2016 which clearly shows the eye of Nida with a diameter of about 100 km.

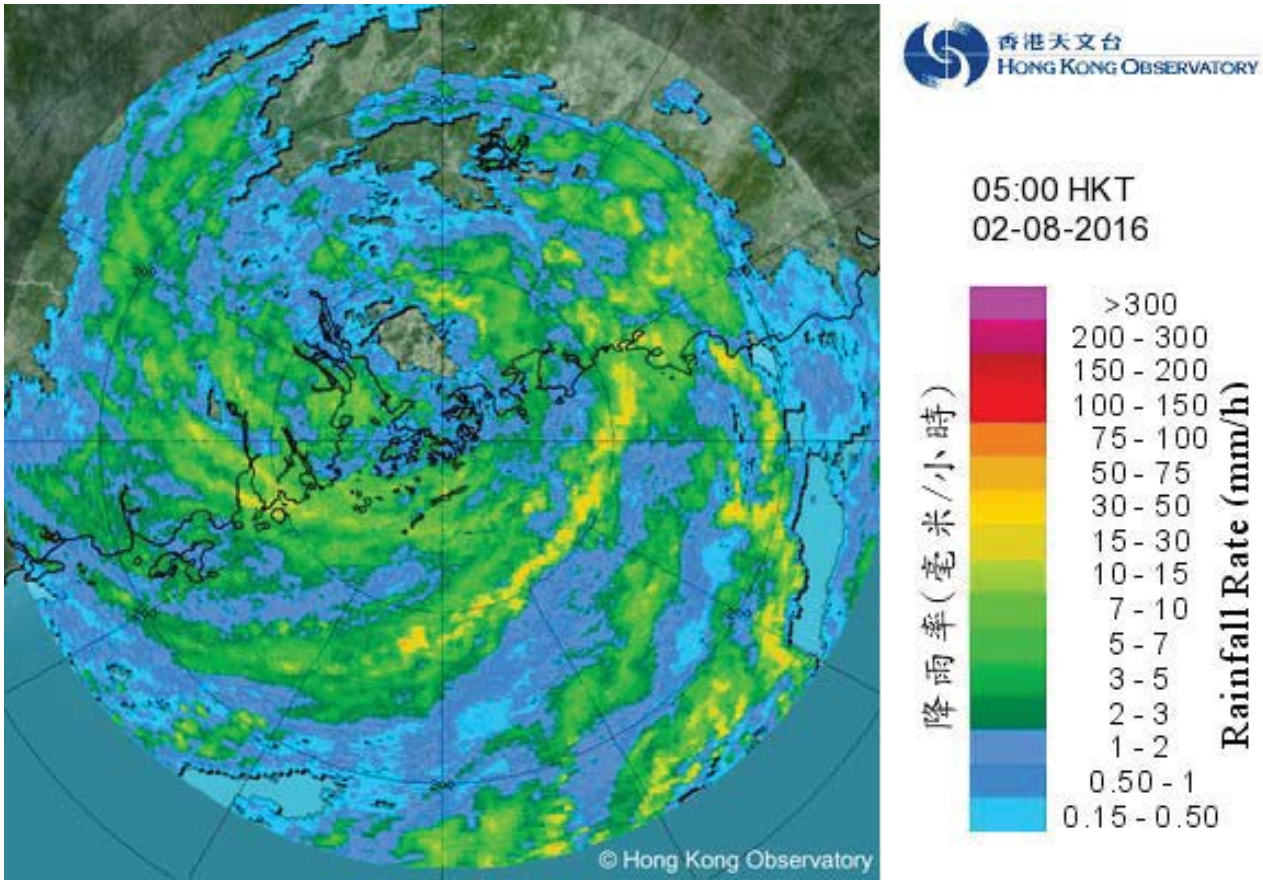


圖 3.3.7b　二零一六年八月二日上午 5 時正的雷達回波圖像。當時妮妲已減弱為強烈熱帶風暴，並最接近香港，其中心在天文台總部之西北偏北約 40 公里。

Figure 3.3.7b　Image of radar echoes at 5 a.m. on 2 August 2016 when Nida was closest to Hong Kong. Nida had weakened into a severe tropical storm by then and its centre was about 40 km north-northwest of the Observatory Headquarters.

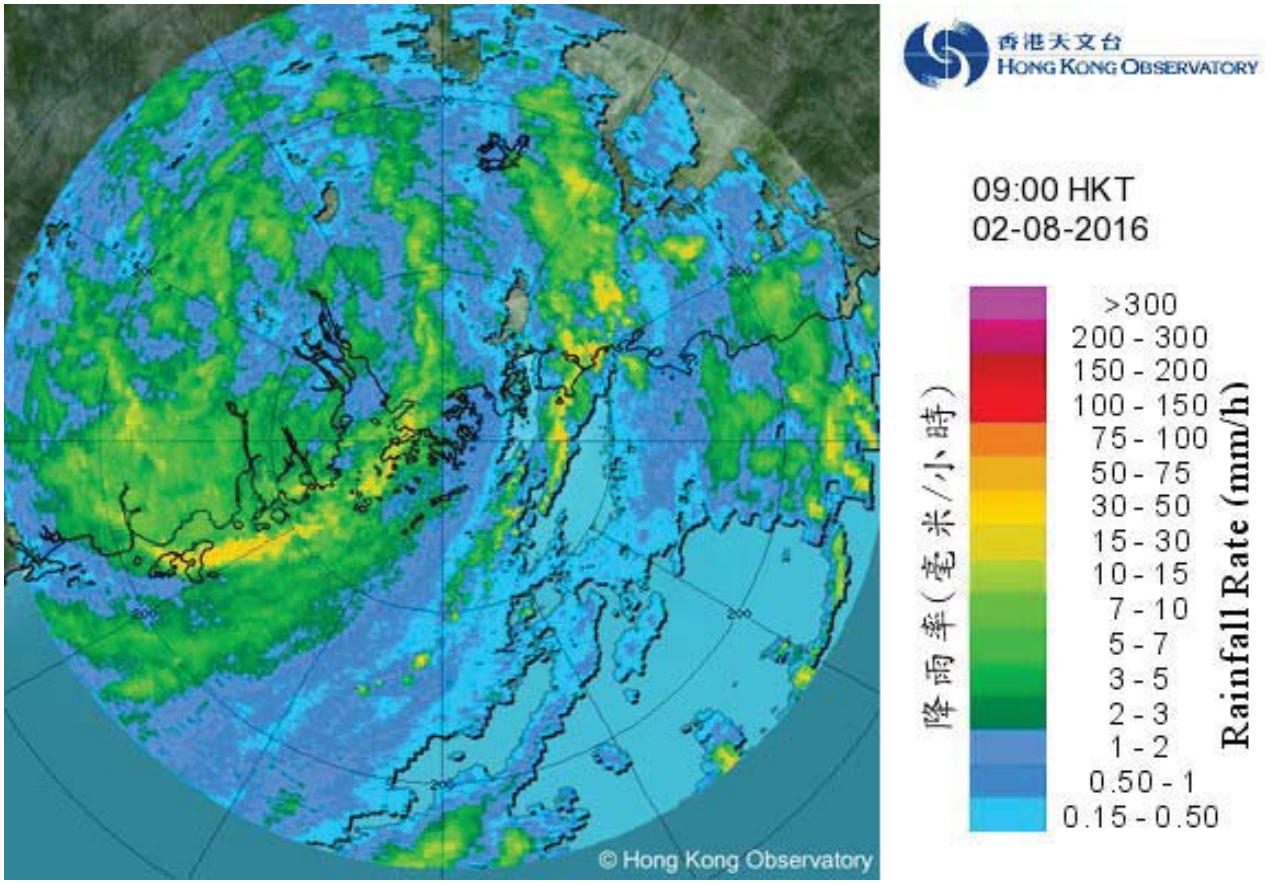


圖 3.3.7c　二零一六年八月二日上午 9 時正的雷達回波圖像。妮妲的強烈雨帶影響香港。當時黃色暴雨警告信號、山泥傾瀉警告及新界北部水浸特別報告正在生效。

Figure 3.3.7c　Image of radar echoes at 9 a.m. on 2 August 2016. Hong Kong was under the influence of the intense rainbands of Nida. Amber Rainstorm Warning, Landslip Warning and Special Announcement on Flooding in Northern New Territories were in force at the time.

圖 3.3.8 灣仔菲林明道一幢商業大廈外牆一幅棚架倒塌。(相片由中國日報提供)

Figure 3.3.8 The scaffolding of a commercial building at Fleming Road in Wan Chai collapsed. (Photo courtesy of China Daily)

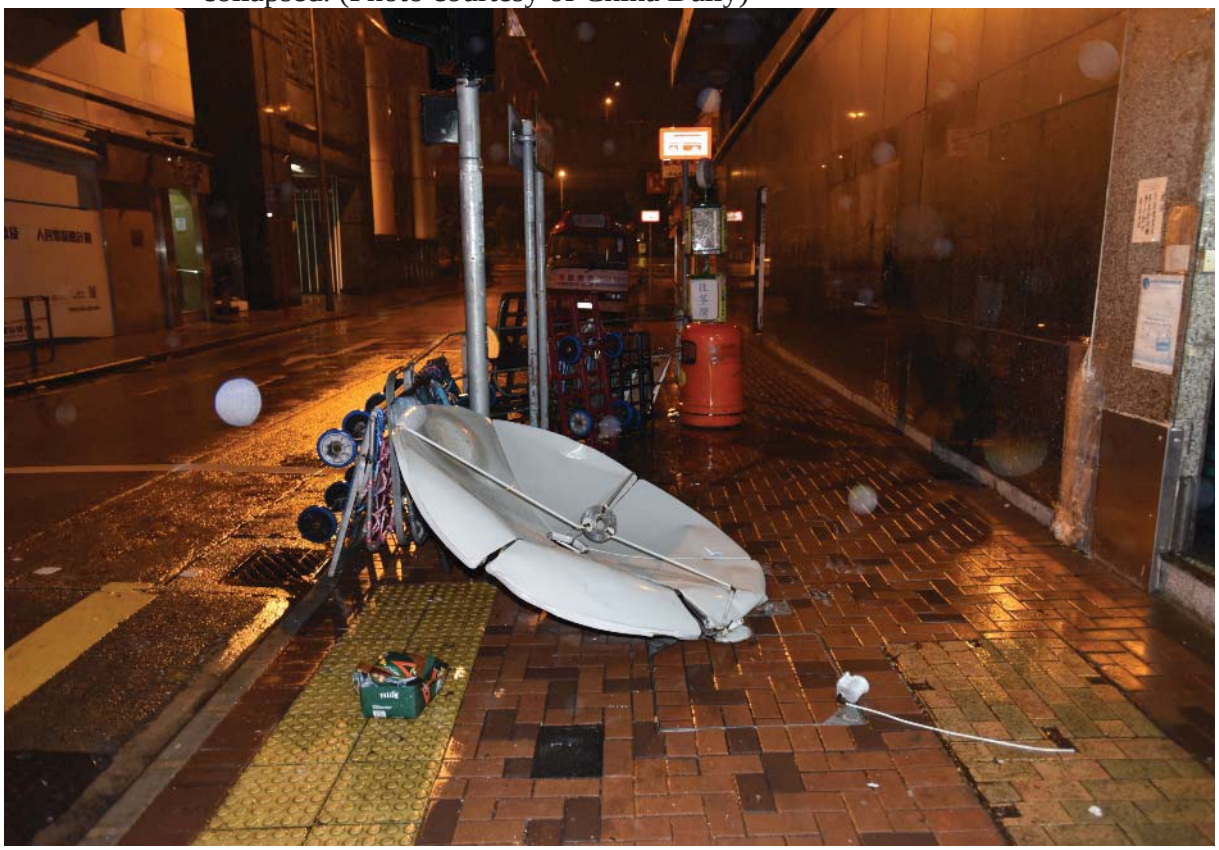


圖 3.3.9 上環有一個直徑約六呎的衛星接收器遭強風吹至飛墜行人路。(相片由星島日報提供)

Figure 3.3.9 A satellite dish of around six feet was blown down to the pavement under strong winds in Sheung Wan. (Photo courtesy of Sing Tao Daily)

圖 3.3.10　在妮妲的影響下，白加道發生山泥傾瀉。(相片由土力工程處及土木工程拓展署提供)

Figure 3.3.10　Landslide at Barker Road under the influence of Nida. (Photo courtesy of the Geotechnical Engineering Office and the Civil Engineering and Development Department)

圖 3.3.11　妮妲吹襲香港期間，西灣河鯉景灣附近有樹木被吹倒。(相片由彭栩怡提供)

Figure 3.3.11　Tree blown down near Lei King Wan in Sai Wan Ho during the passage of Nida. (Photo courtesy of Huey Pang)

3.4 熱帶風暴電母(1608)：二零一六年八月十七日至二十日

電母是香港天文台在二零一六年第四個需要發出熱帶氣旋警告信號的熱帶氣旋。

一個熱帶低氣壓於八月十七日上午在香港之西南約220公里的南海北部上形成，當天其移動緩慢，強度卻漸增。該熱帶低氣壓翌日早上增強為熱帶風暴及被命名為電母。電母採取偏西路徑移動，於八月十八日下午在雷州半島登陸，當晚進入北部灣。電母在橫過北部灣期間再度發展，於八月十九日上午達到其最高強度，中心附近最高持續風速估計為每小時85公里。電母於當日下午在越南北部登陸，移入內陸並逐漸減弱，最後於八月二十日早上在緬甸北部減弱為一個低壓區。

香港天文台於八月十七日上午11時30分發出一號戒備信號，當時電母集結在香港之西南約220公里，也是電母最接近香港的時候。本港吹和緩至清勁偏東風，天文台總部於當日下午4時59分錄得最低瞬時海平面氣壓991.5百帕斯卡。由於電母移動緩慢及逐漸發展，晚間本地風力逐步增強，天文台於晚上10時15分發出三號強風信號，當時電母位於本港之西南約240公里。晚間本港普遍吹清勁至強風程度東南風，高地間中吹烈風。翌日早上電母逐步移離本港，本港風力逐漸減弱，天文台在上午11時15分改發一號戒備信號，取代三號強風信號，最後於當日下午1時15分取消所有熱帶氣旋警告信號。

電母影響香港期間，尖鼻咀錄得最高潮位(海圖基準面以上) 3.15米，而大埔滘則錄得最大風暴潮(天文潮高度以上) 0.37米。

在電母的外圍雨帶影響下，八月十七日及十八日本港多雲及有狂風驟雨。這兩天期間本港普遍錄得超過50毫米雨量，九龍東部、港島東部及沙田的雨量更超過100毫米。

電母並沒有在香港造成嚴重破壞。根據報章報導，受電母相關的暴雨影響，海南島多處地方出現水浸，約四萬人需要緊急疏散，海陸空交通受影響。電母吹襲越南期間，造成最少16人死亡，兩人失蹤及15人受傷。

表3.4.1 - 3.4.4 分別是電母影響香港期間各站錄得的最高風速、持續風力達到強風程度的時段、香港的日雨量及最高潮位資料。圖3.4.1 - 3.4.4 分別為電母的路徑圖、本港的雨量分佈圖、電母的衛星及雷達圖像。

3.4 Tropical Storm Dianmu (1608): 17 – 20 August 2016

Dianmu was the fourth tropical cyclone necessitating the issuance of tropical cyclone warning signal by the Hong Kong Observatory in 2016.

A tropical depression formed over the northern part of the South China Sea about 220 km southwest of Hong Kong on the morning of 17 August. It moved slowly and intensified gradually that day. The tropical depression intensified into a tropical storm and was named Dianmu the next morning. Moving generally westwards, Dianmu made landfall over Leizhou Peninsula on the afternoon of 18 August and entered Beibu Wan that night. It re-intensified as it moved across Beibu Wan, reaching its peak intensity with an estimated sustained wind of 85 km/h on the morning of 19 August. After making landfall over the northern part of Vietnam in the afternoon, Dianmu moved inland and weakened gradually. It finally degenerated into an area of low pressure over the northern part of Myanmar on the morning of 20 August.

The Standby Signal No. 1 was issued at 11:30 a.m. on 17 August when Dianmu was about 220 km southwest of Hong Kong. It was also closest to the territory at the time. Local winds were generally moderate to fresh from the east. At the Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 991.5 hPa was recorded at 4:59 p.m. that day. With Dianmu moving slowly and developing gradually, local winds strengthened during the night, and the Strong Wind Signal No. 3 was issued at 10:15 p.m. when Dianmu was about 240 km southwest of Hong Kong. Local winds were generally fresh to strong from the southeast overnight, occasionally reaching gale force on high ground. As Dianmu moved further away from Hong Kong the next morning, local winds moderated gradually. The Strong Wind Signal No. 3 was replaced by the Standby Signal No. 1 at 11:15 a.m., before all tropical cyclone warning signals were cancelled at 1:15 p.m. that afternoon.

Under the influence of Dianmu, a maximum sea level (above chart datum) of 3.15 m was recorded at Tsim Bei Tsui, while a maximum storm surge of 0.37 m (above astronomical tide) was recorded at Tai Po Kau.

Under the influence of the outer rainbands of Dianmu, local weather was cloudy with squally showers on 17 and 18 August. More than 50 millimetres of rainfall were generally recorded over the territory during these two days, with rainfall amount exceeding 100 millimetres over the eastern part of Kowloon, the eastern part of Hong Kong Island and Shatin.

Dianmu did not cause any significant damage in Hong Kong. According to press reports, there were flooding in many places in Hainan Island due to rainstorms brought by Dianmu. Around 40 000 people were evacuated and transportation services were affected. In Vietnam, a least 16 persons were killed, two were missing and another 15 were injured during the passage of Dianmu.

Information on the maximum wind, period of strong winds, daily rainfall and maximum sea level reached in Hong Kong during the passage of Dianmu is given in Tables 3.4.1 - 3.4.4 respectively. Figures 3.4.1 - 3.4.4 show respectively the track of Dianmu, the rainfall distribution for Hong Kong, a satellite imagery and a related radar imagery of Dianmu.

表 3.4.1　在電母影響下，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 tropical cyclone warning signals for Dianmu 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)	東南偏南	SSE	62	18/8	02:26	東南偏南	SSE	38	18/8	04:00
中環碼頭	Central Pier	東南	SE	52	18/8	02:45	東	E	30	17/8	12:00
長洲	Cheung Chau	東南	SE	79	18/8	03:56	東南	SE	49	18/8	04:00
長洲泳灘	Cheung Chau Beach	東	E	56	17/8	23:35	東	E	38	17/8	23:00
青洲	Green Island	東南偏南	SSE	70	18/8	02:54	東北	NE	40	17/8	12:00
香港國際機場	Hong Kong International Airport	東南	SE	54	18/8	04:01	東南偏南	SSE	27	18/8	05:00
啟德	Kai Tak	東南偏東	ESE	62	18/8	07:03	東南偏東	ESE	30	18/8	04:00
京士柏	King's Park	東南	SE	49	18/8	06:58	東南偏東	ESE	19	18/8	07:00
流浮山	Lau Fau Shan	東北偏東	ENE	47	17/8	12:41	東北偏東	ENE	27	17/8	13:00
		東北偏東	ENE	47	17/8	12:58					
昂坪	Ngong Ping	西南	SW	96	18/8	09:25	東	E	63	17/8	23:00
北角	North Point	東北偏東	ENE	41	17/8	12:16	東	E	30	17/8	12:00
		東南偏東	ESE	41	18/8	02:55					
坪洲	Peng Chau	東	E	51	18/8	02:47	東	E	27	17/8	12:00
		東南	SE	51	18/8	04:09					
		東南偏東	ESE	51	18/8	07:07					
平洲	Ping Chau	東南	SE	31	18/8	02:59	東	E	6	17/8	12:00
							東南	SE	6	18/8	11:00
西貢	Sai Kung	東南偏南	SSE	62	18/8	02:31	東南偏南	SSE	30	18/8	08:00
沙洲	Sha Chau	東南	SE	51	18/8	03:33	東南	SE	34	18/8	04:00
沙螺灣	Sha Lo Wan	東	E	75	18/8	04:16	東	E	25	18/8	07:00
沙田	Sha Tin	東南偏南	SSE	54	18/8	02:56	東南	SE	16	18/8	05:00
石崗	Shek Kong	東北偏東	ENE	49	17/8	18:51	東	E	22	17/8	19:00
九龍天星碼頭	Star Ferry (Kowloon)	東	E	54	18/8	01:59	東	E	31	18/8	07:00
打鼓嶺	Ta Kwu Ling	東	E	43	18/8	02:49	東北偏東	ENE	14	18/8	03:00
大美督	Tai Mei Tuk	東南	SE	62	18/8	02:44	東	E	36	17/8	13:00
大帽山	Tai Mo Shan	東南	SE	104	18/8	03:45	東南	SE	68	18/8	04:00
大埔滘	Tai Po Kau	東南偏東	ESE	52	18/8	02:41	東南偏東	ESE	30	18/8	03:00
塔門	Tap Mun	東南	SE	65	18/8	02:52	東南	SE	30	18/8	06:00
大老山	Tate's Cairn	南	S	76	18/8	03:03	南	S	38	18/8	04:00
		南	S	76	18/8	08:19					
將軍澳	Tseung Kwan O	東	E	63	18/8	02:31	東	E	13	18/8	02:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南偏東	ESE	43	18/8	02:57	東	E	20	18/8	08:00
屯門政府合署	Tuen Mun Government Offices	東南	SE	51	18/8	03:51	東南	SE	23	18/8	04:00
橫瀾島	Waglan Island	東南	SE	81	18/8	02:27	東南	SE	56	18/8	03:00
濕地公園	Wetland Park	東北偏東	ENE	38	17/8	12:34	東北偏東	ENE	16	17/8	13:00
黃竹坑	Wong Chuk Hang	東南	SE	52	18/8	06:42	東	E	22	18/8	04:00

表 3.4.2　在電母影響下，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 3.4.2 Periods during which sustained strong winds were attained at the eight reference anemometers in the tropical cyclone warning system when the tropical cyclone warning signals for Dianmu 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	17/8	23:34	18/8	08:53
西貢	Sai Kung	18/8	02:39	18/8	02:40

香港國際機場、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 Hong Kong International Airport, 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 3.4.3　電母影響香港期間，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 Dianmu

站 (參閱圖 3.4.2) Station (See Fig. 3.4.2)			八月十七日 17 Aug	八月十八日 18 Aug	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory			40.9	50.9	91.8
香港國際機場 Hong Kong International Airport (HKA)			26.8	34.0	60.8
長洲 Cheung Chau (CCH)			35.5	20.0	55.5
H23	香港仔	Aberdeen	37.5	30.5	68.0
N05	粉嶺	Fanling	15.0	46.5	61.5
N13	糧船灣	High Island	31.5	27.5	59.0
K04	佐敦谷	Jordan Valley	50.0	64.5	114.5
N06	葵涌	Kwai Chung	32.5	58.5	91.0
H12	半山區	Mid Levels	40.5	49.0	89.5
N09	沙田	Sha Tin	44.0	65.0	109.0
H19	筲箕灣	Shau Kei Wan	33.0	64.0	97.0
SEK	石崗	Shek Kong	[28.0]	[39.0]	[67.0]
K06	蘇屋邨	So Uk Estate	27.0	69.0	96.0
R31	大美督	Tai Mei Tuk	12.0	43.0	55.0
R21	踏石角	Tap Shek Kok	18.0	29.0	47.0
TMR	屯門水庫	Tuen Mun Reservoir	25.2	23.4	48.6
N17	東涌	Tung Chung	47.0	50.5	97.5

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

表 3.4.4　電母影響香港期間，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 Dianmu

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	2.54	18/8	08:05	0.25	18/8	07:09
石壁	Shek Pik	2.72	18/8	08:01	0.28	18/8	08:01
大廟灣	Tai Miu Wan	2.44	18/8	07:56	0.23	17/8	22:35
大埔滘	Tai Po Kau	2.43	18/8	08:19	0.37	17/8	12:07
尖鼻咀	Tsim Bei Tsui	3.15	18/8	09:36	0.31	18/8	09:36
橫瀾島	Waglan Island	2.52	18/8	07:31	0.14	18/8	07:31

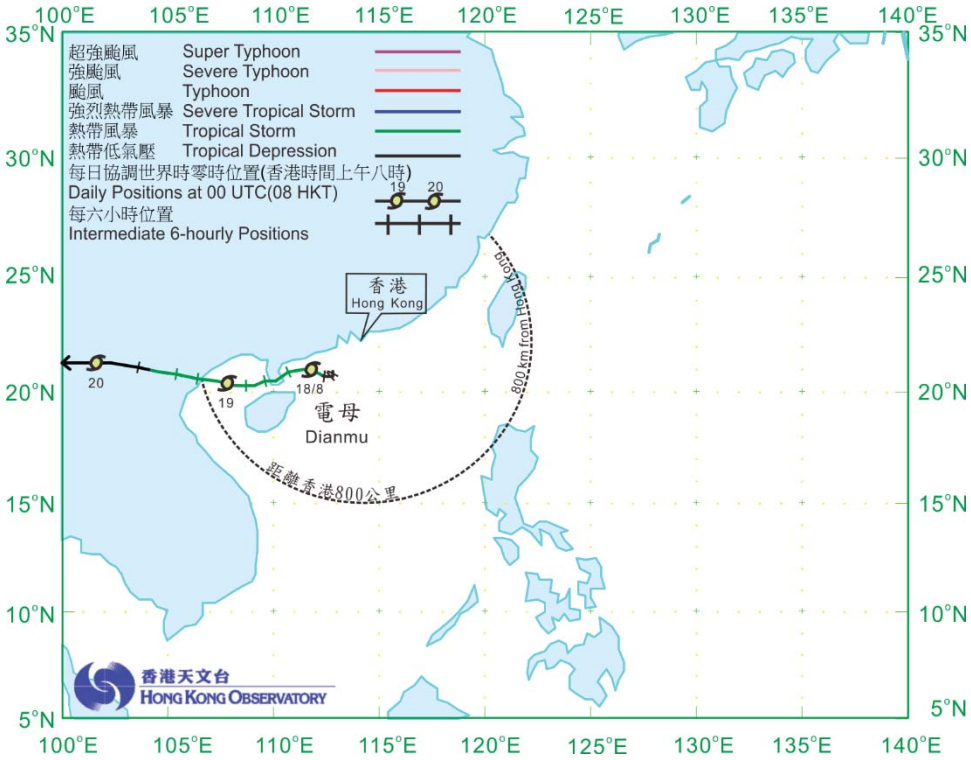


圖 3.4.1 二零一六年八月十七日至二十日電母(1608)的路徑圖。

Figure 3.4.1 Track of Dianmu (1608) on 17 - 20 August 2016.

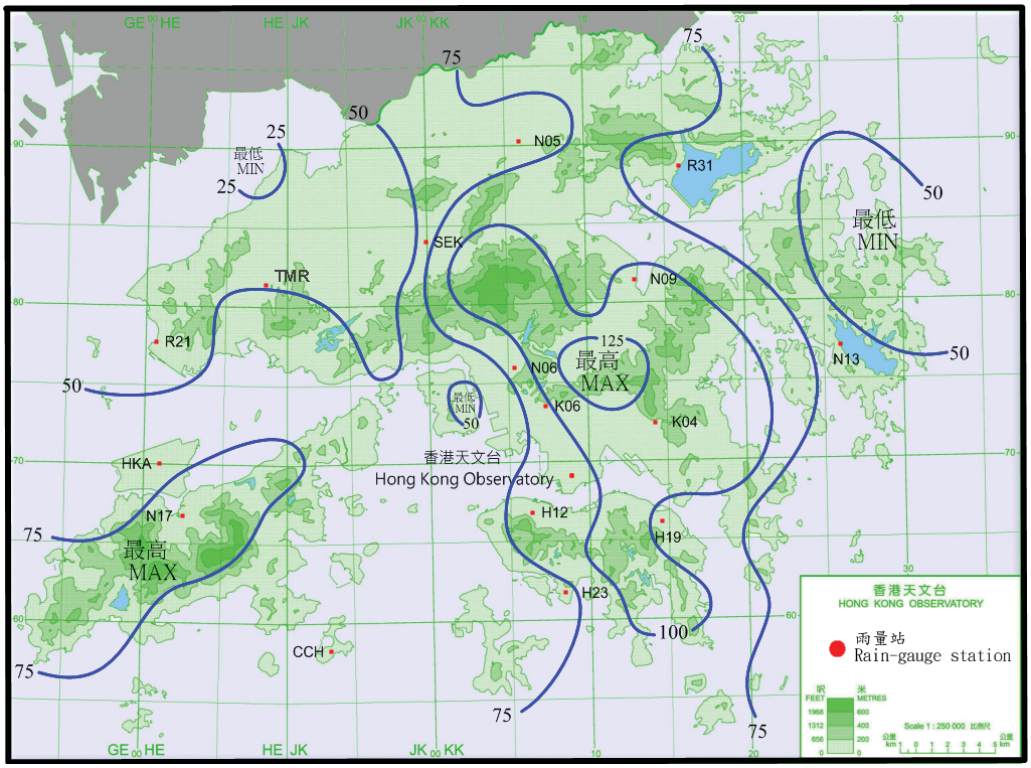


圖 3.4.2 二零一六年八月十七日至十八日的雨量分佈(等雨量線單位為毫米)。

Figure 3.4.2 Rainfall distribution on 17 – 18 August 2016 (isohyets are in millimetres).

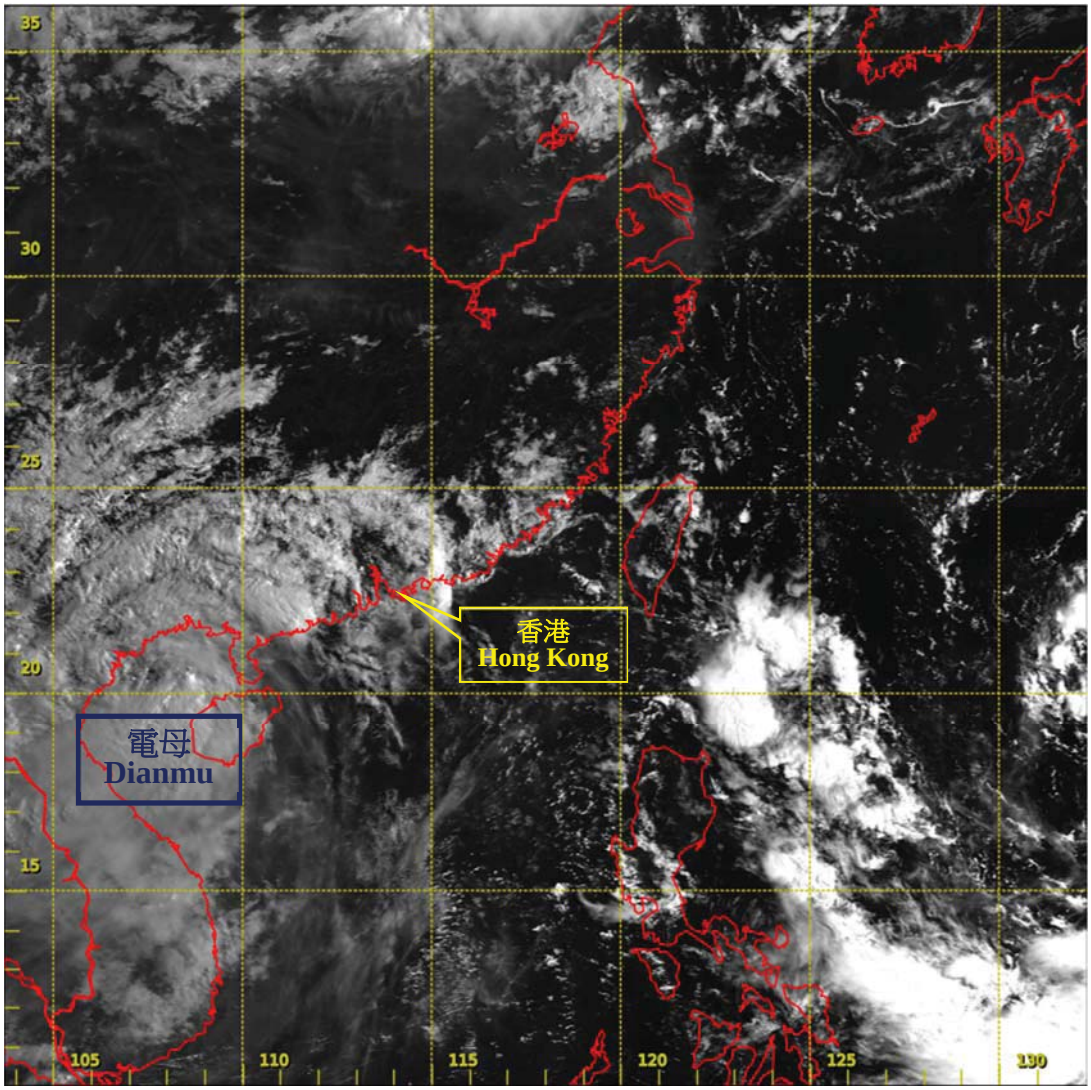


圖 3.4.3　二零一六年八月十九日上午 8 時左右的可見光衛星圖片，當時電母達到其最高強度，中心附近最高持續風速估計為每小時 85 公里。

Figure 3.4.3　Visible satellite imagery around 8 a.m. on 19 August 2016 when Dianmu 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).]

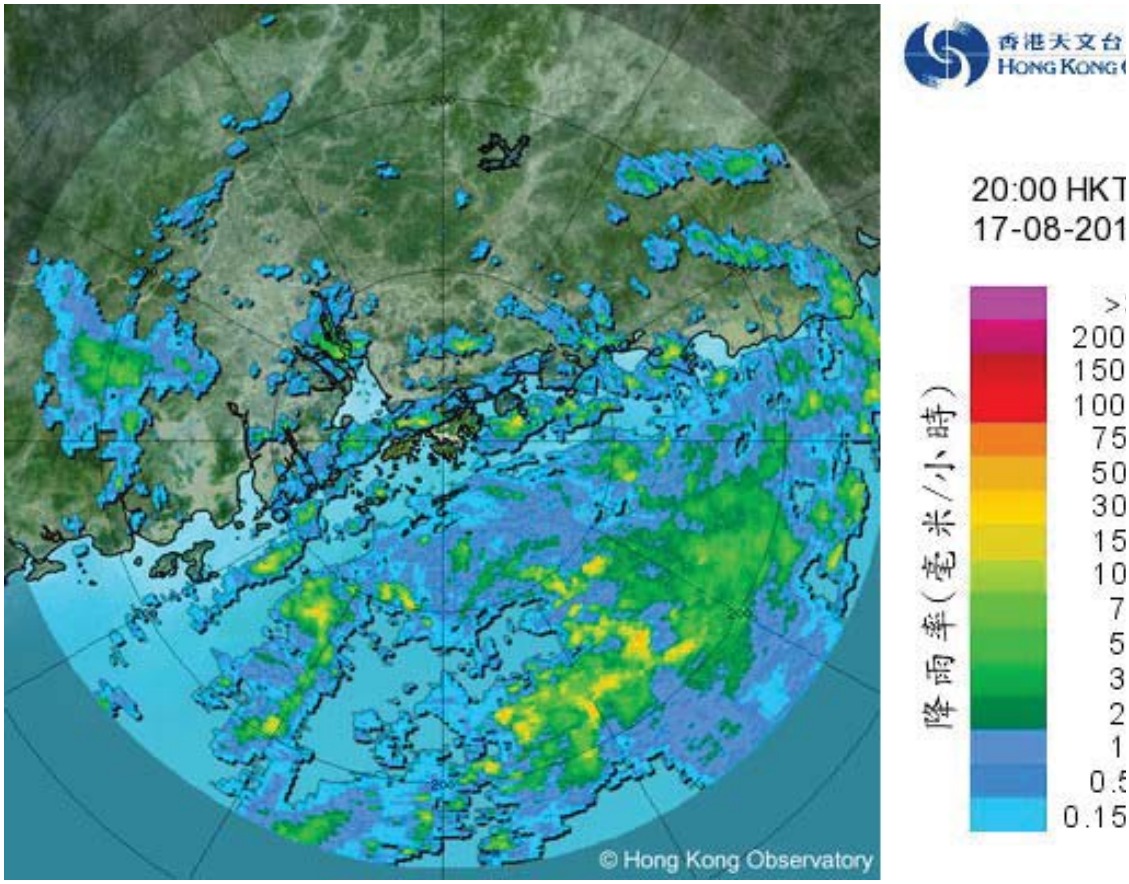


圖 3.4.4　二零一六年八月十七日晚上 8 時的雷達回波圖像，當時電母位於本港之西南約 230 公里。與電母相關的驟雨正影響廣東沿岸及南海北部。

Figure 3.4.4　Radar echoes captured at 8 p.m. on 17 August 2016, when the centre of Dianmu was located about 230 km southwest of Hong Kong. Showers associated with Dianmu were affecting the coast of Guangdong and the northern part of the South China Sea.

3.5 超強颱風莫蘭蒂(1614)：二零一六年九月十日至十五日

莫蘭蒂是二零一六年第五個導致香港天文台需要發出熱帶氣旋警告信號的熱帶氣旋。

熱帶低氣壓莫蘭蒂於九月十日清晨在關島以西約390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。莫蘭蒂於九月十二日發展為超強颱風，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250公里。莫蘭蒂於九月十三日晚上橫過呂宋海峽後，翌日採取西北路徑橫掃台灣西南沿岸海域，移向福建並逐漸減弱。莫蘭蒂於九月十五日凌晨在廈門附近登陸，當日移入內陸並進一步減弱，最後於九月十六日凌晨在江西減弱為一個低壓區。

根據報章報導，莫蘭蒂吹襲台灣期間，造成至少兩人死亡，63人受傷，超過100萬戶停水停電，海陸空交通癱瘓。莫蘭蒂亦在福建及江西等地造成嚴重破壞，最少有29人死亡、15人失蹤，約250萬人受災，18 000間房屋倒塌，直接經濟損失超過117億元人民幣。

香港天文台於九月十四日上午10時10分發出一號戒備信號，當時莫蘭蒂集結在香港以東約650公里。當日本港普遍吹和緩至清勁西北風，高地間中吹強風。天文台總部於九月十四日下午3時31分錄得最低瞬時海平面氣壓1001.3百帕斯卡。隨著莫蘭蒂於九月十五日凌晨在廈門附近登陸並減弱，對香港的威脅解除，天文台於上午4時20分取消所有熱帶氣旋警告信號。莫蘭蒂於當日上午稍後11時左右最接近本港，位置在香港之東北約460公里。

莫蘭蒂掠過期間，橫瀾島錄得最高潮位 (海圖基準面以上) 2.16米，而鯽魚涌則錄得最大風暴潮 (天文潮高度以上) 0.41米。

莫蘭蒂對香港的影響不大，期間並沒有嚴重破壞報告。在莫蘭蒂的外圍下沉氣流影響下，九月十四日本港日間大致天晴，天氣酷熱，晚間轉為多雲。

表3.5.1 - 3.5.3 分別是莫蘭蒂影響香港期間各站錄得的最高風速、香港的日雨量及最高潮位資料。圖3.5.1 - 3.5.2 分別為莫蘭蒂的路徑圖及雷達圖像。

3.5 Super Typhoon Meranti (1614): 10 – 15 September 2016

Meranti was the fifth tropical cyclone necessitating the issuance of tropical cyclone warning signal by the Hong Kong Observatory in 2016.

Meranti formed as a tropical depression over the western North Pacific about 390 km west of Guam on the early morning of 10 September. It moved west-northwestward and intensified rapidly. Meranti developed into a super typhoon on 12 September and reached its peak intensity the next day with an estimated sustained wind of 250 km/h. After moving across the Luzon Strait on the night of 13 September, Meranti moved northwestward and swept across the coastal waters of southwestern Taiwan the next day. It continued to move towards Fujian and weakened gradually. Meranti made landfall near Xiamen in the early morning of 15 September. It moved inland and weakened further on that day, before finally degenerating into an area of low pressure over Jiangxi early in the morning on 16 September.

According to press reports, at least two persons were killed and 63 were injured in Taiwan during the passage of Meranti. Electricity and water supply of over 1 million households were interrupted. Transportation services were paralyzed. Meranti also wreaked havoc in Fujian and Jiangxi, resulting in at least 29 deaths, 15 missing, about 2.5 million people affected and 18 000 houses collapsed. Direct economic losses exceeded 11.7 billion RMB.

In Hong Kong, the Standby Signal No. 1 was issued at 10:10 a.m. on 14 September when Meranti was about 650 km east of Hong Kong. Local winds were generally moderate to fresh from the northwest and occasionally strong on high ground that day. At the Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 1001.3 hPa was recorded at 3:31 p.m. on 14 September. As Meranti made landfall near Xiamen on the early morning of 15 September and weakened, it no longer posed a threat to Hong Kong and all tropical cyclone warning signals were cancelled at 4:20 a.m. Meranti came closest to the territory around 11 a.m. later that morning when it was about 460 km northeast of Hong Kong.

During the passage of Meranti, a maximum sea level (above chart datum) of 2.16 m was recorded at Waglan Island, while a maximum storm surge of 0.41 m (above astronomical tide) was recorded at Quarry Bay.

Meranti had no major impact on Hong Kong and no significant damage was reported. Under the influence of the outer subsiding air associated with Meranti, local weather was mainly fine and very hot during the day on 14 September before turning cloudy that night.

Information on the maximum wind, daily rainfall and maximum sea level reached in Hong Kong during the passage of Meranti is given in Tables 3.5.1 - 3.5.3 respectively. Figures 3.5.1 - 3.5.2 show respectively the track and satellite imageries of Meranti.

表 3.5.1　在莫蘭蒂影響下，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 tropical cyclone warning signals for Meranti 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 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)	西北	NW	27	14/9	14:05	西北	NW	14	14/9	16:00
中環碼頭	Central Pier	西	W	41	14/9	16:25	西北偏西	WNW	22	14/9	20:00
長洲	Cheung Chau	西北偏北	NNW	43	14/9	16:17	西北	NW	25	14/9	18:00
		西北	NW	43	14/9	17:30					
長洲泳灘	Cheung Chau Beach	西北偏西	WNW	43	14/9	16:27	西北偏西	WNW	19	14/9	16:00
青洲	Green Island	西北偏北	NNW	49	14/9	19:15	西北偏北	NNW	31	14/9	21:00
香港國際機場	Hong Kong International Airport	西北偏北	NNW	40	14/9	17:25	西北偏北	NNW	31	14/9	23:00
啟德	Kai Tak	西	W	38 88	14/9	15:44	西北	NW	22	14/9	17:00
京士柏	King's Park	西北偏北	NNW	34	14/9	22:36	北	N	13	14/9	21:00
流浮山	Lau Fau Shan	西北偏西	WNW	40	14/9	15:56	西北偏北	NNW	30	14/9	19:00
		西北偏西	WNW	40	14/9	15:59					
		西北偏西	WNW	40	14/9	16:00					
昂坪	Ngong Ping	西北偏西	WNW	41	14/9	14:34	西北偏西	WNW	25	14/9	15:00
北角	North Point	西南偏西	WSW	40	14/9	15:09	西南偏西	WSW	27	14/9	16:00
坪洲	Peng Chau	西北偏西	WNW	45	14/9	15:43	西北偏西	WNW	30	14/9	17:00
平洲	Ping Chau	西北偏西	WNW	23	14/9	13:24	西北	NW	9	14/9	21:00
西貢	Sai Kung	西北偏北	NNW	41	14/9	23:15	東北偏北	NNE	23	14/9	11:00
沙洲	Sha Chau	西北偏北	NNW	49	14/9	17:23	西北偏北	NNW	30	15/9	00:00
沙螺灣	Sha Lo Wan	西	W	27	14/9	14:12	西	W	12	14/9	14:00
沙田	Sha Tin	北	N	30	15/9	01:40	北	N	12	15/9	02:00
							北	N	12	15/9	03:00
石崗	Shek Kong	西北偏西	WNW	31	14/9	13:21	西北偏西	WNW	12	14/9	14:00
九龍天星碼頭	Star Ferry (Kowloon)	西北偏西	WNW	36	14/9	17:40	西	W	25	14/9	16:00
打鼓嶺	Ta Kwu Ling	西北偏西	WNW	30	14/9	16:57	西北偏北	NNW	12	14/9	15:00
大美督	Tai Mei Tuk	東北	NE	36	14/9	15:42	東北偏東	ENE	14	14/9	11:00
大帽山	Tai Mo Shan	西北偏北	NNW	58	14/9	21:35	西北偏北	NNW	40	14/9	22:00
大埔滘	Tai Po Kau	西北偏西	WNW	38	14/9	15:28	西北	NW	19	14/9	15:00
塔門	Tap Mun	西	W	36	14/9	21:25	西北偏西	WNW	14	14/9	14:00
大老山	Tate's Cairn	西北偏北	NNW	58	14/9	22:53	西北偏北	NNW	45	15/9	00:00
將軍澳	Tseung Kwan O	北	N	31	14/9	21:32	北	N	12	14/9	22:00
							北	N	12	14/9	23:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	西北	NW	36	14/9	20:06	西北偏西	WNW	19	14/9	17:00
屯門政府合署	Tuen Mun Government Offices	西	W	41	14/9	17:19	西北偏西	WNW	14	14/9	15:00
							西北偏西	WNW	14	14/9	16:00
橫瀾島	Waglan Island	西北偏西	WNW	41	14/9	15:28	西北偏西	WNW	30	14/9	16:00
濕地公園	Wetland Park	西北偏北	NNW	30	14/9	17:11	西北偏北	NNW	13	14/9	18:00

黃竹坑– 沒有資料　Wong Chuk Hang - data not available.

表 3.5.2　　莫蘭蒂掠過期間，香港天文台總部及其他各站所錄得的日雨量

Table 3.5.2　Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Meranti

站 Station			九月十四日 14 Sep	九月十五日 15 Sep	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory			0.0	0.7	0.7
香港國際機場 Hong Kong International Airport (HKA)			0.0	0.0	0.0
長洲 Cheung Chau (CCH)			0.0	0.0	0.0
H23	香港仔	Aberdeen	0.0	0.0	0.0
N05	粉嶺	Fanling	0.0	0.0	0.0
N13	糧船灣	High Island	0.0	1.0	1.0
K04	佐敦谷	Jordan Valley	0.0	0.0	0.0
N06	葵涌	Kwai Chung	0.0	0.0	0.0
H12	半山區	Mid Levels	0.0	0.0	0.0
N09	沙田	Sha Tin	0.0	0.0	0.0
H19	筲箕灣	Shau Kei Wan	0.0	0.0	0.0
SEK	石崗	Shek Kong	0.0	0.0	0.0
K06	蘇屋邨	So Uk Estate	0.0	0.5	0.5
R31	大美督	Tai Mei Tuk	0.0	0.0	0.0
R21	踏石角	Tap Shek Kok	0.0	0.0	0.0
TMR	屯門水庫	Tuen Mun Reservoir	0.1	0.0	0.1
N17	東涌	Tung Chung	0.0	0.0	0.0

表 3.5.3　　莫蘭蒂掠過期間，香港各潮汐站所錄得的最高潮位及最大風暴潮

Table 3.5.3　Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Meranti

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	2.07	15/9	04:20	0.41	15/9	02:12
石壁	Shek Pik	1.91	14/9	21:15	0.21	15/9	02:56
大廟灣	Tai Miu Wan	1.94	15/9	04:20	0.31	15/9	02:22
大埔滘	Tai Po Kau	1.92	15/9	04:20	0.30	15/9	02:43
尖鼻咀	Tsim Bei Tsui	2.14	14/9	10:10	0.20	15/9	04:20
橫瀾島	Waglan Island	2.16	15/9	04:20	0.40	15/9	02:22

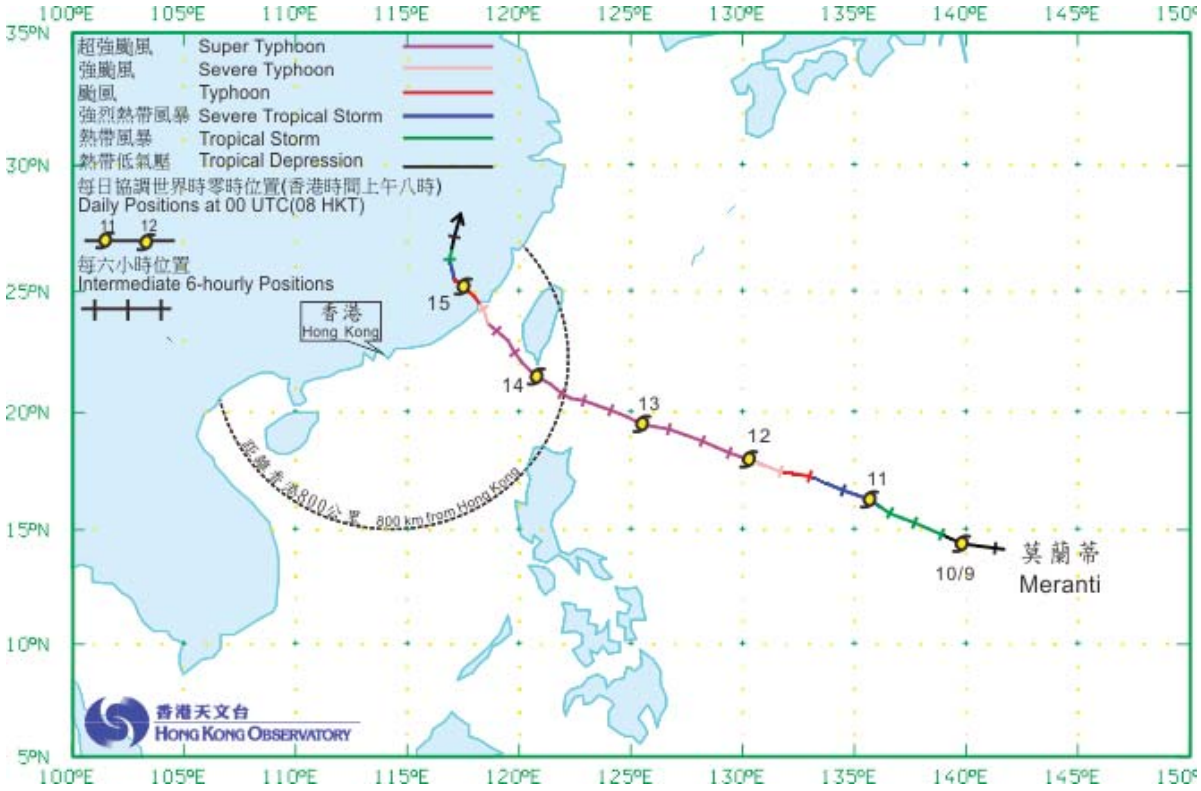


圖 3.5.1　　二零一六年九月十日至十五日莫蘭蒂(1614)的路徑圖。

Figure 3.5.1　Track of Meranti (1614) on 10 - 15 September 2016.

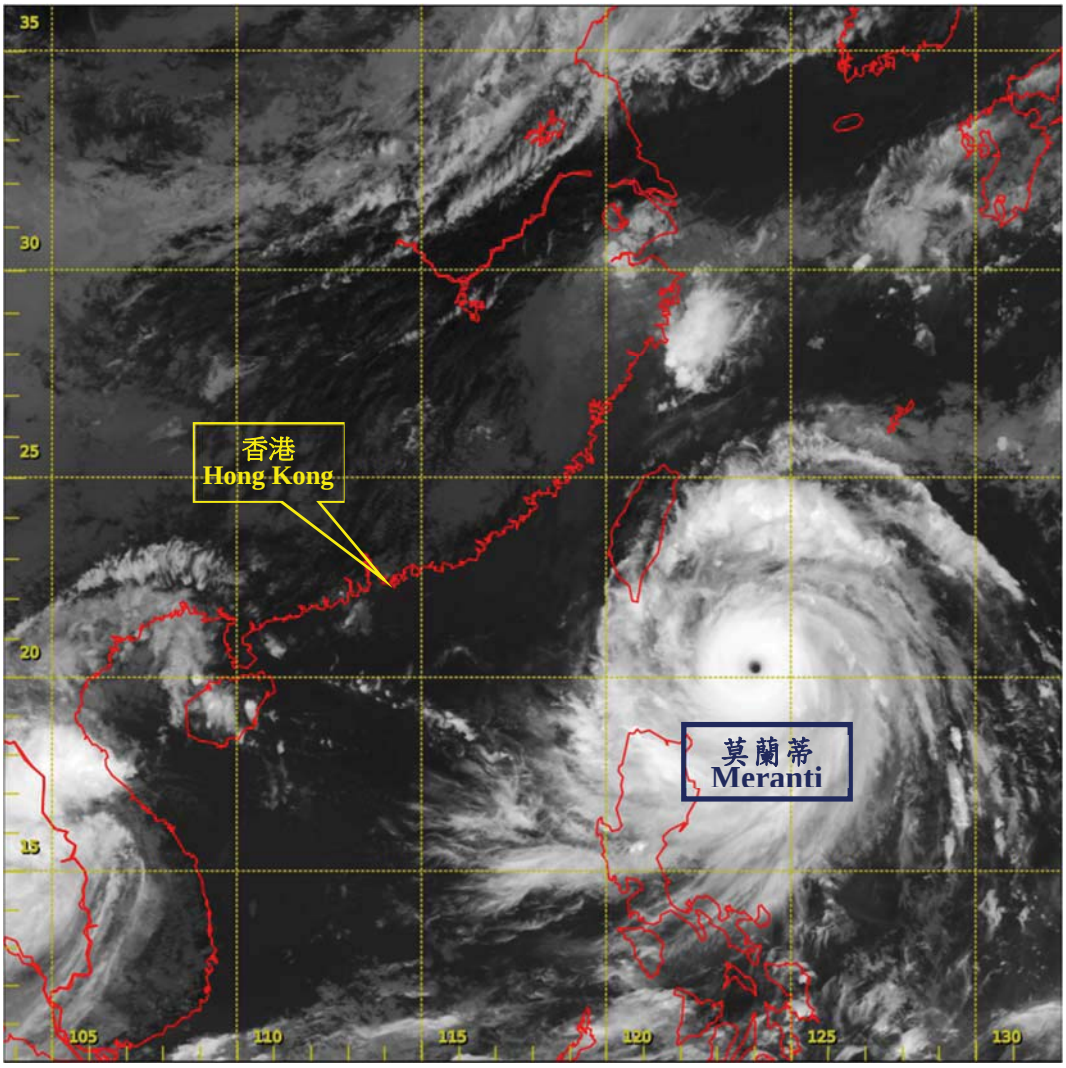


圖 3.5.2a　二零一六年九月十三日下午 2 時左右的紅外線衛星圖片，當時莫蘭蒂達到其最高強度，中心附近最高持續風速估計為每小時 250 公里。

Figure 3.5.2a　Infra-red satellite imagery around 2 p.m. on 13 September 2016 when Meranti was at its peak intensity with estimated maximum sustained winds of 250 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).]

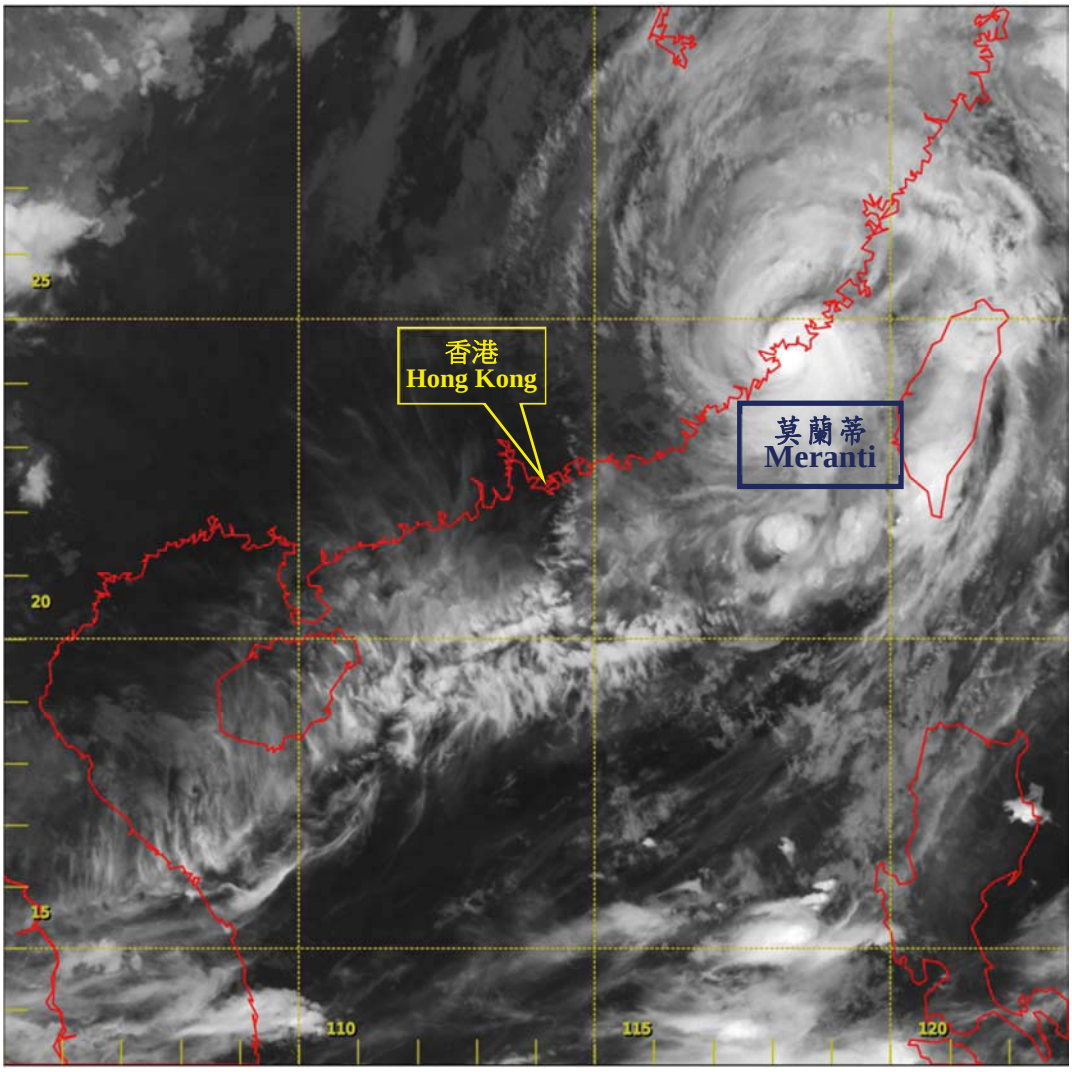


圖 3.5.2b　二零一六年九月十五日上午 2 時左右的紅外線衛星圖片，當時莫蘭蒂已減弱為強颱風，並即將在廈門附近登陸。

Figure 3.5.2b　Infra-red satellite imagery around 2 a.m. on 15 September 2016. Meranti had weakened into a severe typhoon and was about to make landfall near Xiamen.

〔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).]

3.6　強颱風鮎魚(1617)：二零一六年九月二十二日至二十九日

鮎魚是二零一六年第六個導致香港天文台需要發出熱帶氣旋警告信號的熱帶氣旋。

熱帶低氣壓鮎魚於九月二十二日早上在關島之西南偏南約 300 公里的北太平洋西部上形成，初時大致向西北移動，翌日轉向西北偏西，並逐漸增強。鮎魚於九月二十六日凌晨在台灣以東海域發展為強颱風，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 175 公里。鮎魚在九月二十七日下午在花蓮附近登陸台灣及減弱，進入台灣海峽後繼續採取西北偏西路徑靠近福建一帶。鮎魚於九月二十八日早上在泉州附近再登陸進入福建內陸，最後於九月二十九日早上清晨在江西減弱為一個低壓區。

根據報章報導，鮎魚在台灣造成嚴重破壞，至少四人死亡，超過 500 人受傷。所有城市停工停課，海陸空交通癱瘓，農作物損失超過 10 億元新台幣。鮎魚亦為福建、浙江及江西帶來狂風暴雨，至少六人死亡，33 人失蹤，超過 600 000 人需要緊急疏散，直接經濟損失超過 25.8 億元人民幣。

香港天文台於九月二十八日上午 8 時 40 分發出一號戒備信號，當時鮎魚集結在香港之東北約 490 公里。鮎魚於下午 2 時左右最接近本港，在香港之東北約 390 公里掠過。天文台總部於下午 3 時 35 分錄得最低瞬時海平面氣壓 997.2 百帕斯卡。當日本港普遍吹和緩至清勁西北風，離岸、高地及西部地區的風力間中達強風程度。由於鮎魚開始遠離香港及繼續減弱，晚間本港風勢逐漸緩和。隨著鮎魚對香港的威脅解除，天文台於晚上 11 時 10 分取消所有熱帶氣旋警告信號。

鮎魚掠過期間，尖鼻咀錄得最高潮位 (海圖基準面以上) 2.65 米，而大埔滘則錄得最大風暴潮 (天文潮高度以上) 0.33 米。

鮎魚對香港的影響不大，沒有任何嚴重破壞報告。受鮎魚前沿的下沉氣流影響，九月二十七日本港天氣酷熱及有煙霞，天文台的最高氣溫上升至 34.9 度，為有記錄以來九月份的第二最高紀錄。九月二十八日本港初時大致天晴，但受鮎魚的雲帶影響，日間漸轉多雲。

表 3.6.1 - 3.6.3 分別是鮎魚影響香港期間各站錄得的最高風速、香港的日雨量及最高潮位資料。圖 3.6.1 - 3.6.2 分別為鮎魚的路徑圖及雷達圖像。

3.6 Severe Typhoon Megi (1617): 22 – 29 September 2016

Megi was the sixth tropical cyclone necessitating the issuance of tropical cyclone warning signal by the Hong Kong Observatory in 2016.

Megi formed as a tropical depression over the western North Pacific about 300 km south-southwest of Guam on the morning of 22 September. Moving generally northwestwards at first, it turned to the west-northwest the next day and intensified gradually. Megi developed into a severe typhoon over the sea areas east of Taiwan on the small hours of 26 September, reaching its peak intensity the next day with an estimated sustained wind of 175 km/h near its centre. Megi made landfall near Hualien in Taiwan and weakened on the afternoon of 27 September. After entering the Taiwan Strait, it continued to track west-northwestward in the general direction of Fujian. It made landfall again near Quanzhou on the morning of 28 September and moved inland across Fujian, before finally degenerating into an area of low pressure over Jiangxi early in the morning on 29 September.

According to press reports, Megi wreaked havoc in Taiwan, resulting in at least four deaths and over 500 injuries. Business and schools were suspended in all cities and transportation services were paralyzed. Agricultural damage was estimated to exceed NT$ 1 billion. Megi also brought torrential rain and ferocious winds to Fujian, Zhejiang and Jiangxi. At least six people were killed, 33 missing and over 600 000 people were evacuated. Direct economic losses exceeded 2.58 billion RMB.

In Hong Kong, the Standby Signal No. 1 was issued at 8:40 a.m. on 28 September when Megi was about 490 km northeast of Hong Kong. Megi came closest to the territory around 2 p.m., passing at a distance of about 390 km to the northeast of Hong Kong. At the Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 997.2 hPa was recorded at 3:35 p.m. Local winds were generally moderate to fresh northwesterlies that day, occasionally reaching strong force offshore, on high ground and over the western part of the territory. As Megi started to move away from Hong Kong and continued to weaken, local winds gradually subsided during the night. With Megi no longer posing a threat to Hong Kong, all tropical cyclone warning signals were cancelled at 11:10 p.m.

During the passage of Megi, a maximum sea level (above chart datum) of 2.65 m was recorded at Tsim Bei Tsui, while a maximum storm surge of 0.33 m (above astronomical tide) was recorded at Tai Po Kau.

Without any report of significant damage, Megi had no major impact on Hong Kong. Under the subsidence effect ahead of Megi, local weather was very hot and hazy on 27 September with temperatures at the Observatory reaching a maximum of 34.9 degrees, the second highest on record for September. While it was generally fine at first on 28 September, the weather became cloudy during the day under the influence of the cloud bands of Megi.

Information on the maximum wind, daily rainfall and maximum sea level reached in Hong Kong during the passage of Megi is given in Tables 3.6.1 - 3.6.3 respectively. Figures 3.6.1 - 3.6.2 show respectively the track and satellite imageries of Megi.

表 3.6.1　在鮎魚影響下，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 3.6.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when tropical cyclone warning signals for Megi 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)	西北	NW	36	28/9	12:41	西北	NW	16	28/9	11:00
中環碼頭	Central Pier	西	W	51	28/9	12:51	西	W	31	28/9	13:00
		西	W	51	28/9	12:52					
長洲	Cheung Chau	西北偏西	WNW	62	28/9	16:58	西北偏西	WNW	34	28/9	10:00
長洲泳灘	Cheung Chau Beach	西	W	54	28/9	17:00	西北偏西	WNW	25	28/9	12:00
							西北偏西	WNW	25	28/9	13:00
青洲	Green Island	西北	NW	58	28/9	11:37	西北偏北	NNW	23	28/9	21:00
香港國際機場	Hong Kong International Airport	西北	NW	47	28/9	21:23	西北偏北	NNW	36	28/9	22:00
啟德	Kai Tak	西	W	54	28/9	12:51	西北偏西	WNW	30	28/9	13:00
京士柏	King's Park	西	W	47	28/9	12:49	西北偏西	WNW	16	28/9	16:00
流浮山	Lau Fau Shan	西北偏西	WNW	56	28/9	11:20	西北偏西	WNW	40	28/9	12:00
		西北偏西	WNW	56	28/9	18:05					
昂坪	Ngong Ping	西北	NW	63	28/9	19:57	西北	NW	31	28/9	21:00
		西北偏北	NNW	63	28/9	19:58					
北角	North Point	西北偏西	WNW	49	28/9	12:59	西	W	31	28/9	13:00
坪洲	Peng Chau	西北	NW	63	28/9	08:52	西北偏西	WNW	45	28/9	09:00
平洲	Ping Chau	西北偏西	WNW	36	28/9	18:38	西北偏西	WNW	14	28/9	09:00
西貢	Sai Kung	西	W	40	28/9	10:56	西北偏西	WNW	19	28/9	12:00
		西北偏西	WNW	40	28/9	11:04					
沙洲	Sha Chau	西北偏北	NNW	49	28/9	21:28	西北偏北	NNW	25	28/9	22:00
沙螺灣	Sha Lo Wan	西北偏西	WNW	38	28/9	20:32	西	W	13	28/9	11:00
							西	W	13	28/9	21:00
沙田	Sha Tin	西	W	31	28/9	13:39	北	N	9	28/9	09:00
石崗	Shek Kong	西	W	34	28/9	13:44	西	W	14	28/9	14:00
九龍天星碼頭	Star Ferry (Kowloon)	西北偏西	WNW	49	28/9	18:41	西北偏西	WNW	31	28/9	13:00
打鼓嶺	Ta Kwu Ling	西北偏西	WNW	31	28/9	16:24	西	W	13	28/9	17:00
大美督	Tai Mei Tuk	西北偏西	WNW	56	28/9	15:19	西北偏西	WNW	27	28/9	09:00
大帽山	Tai Mo Shan	西北偏西	WNW	83	28/9	13:57	西北偏西	WNW	59	28/9	14:00
大埔滘	Tai Po Kau	西	W	45	28/9	13:02	西北偏西	WNW	23	28/9	12:00
塔門	Tap Mun	西	W	56	28/9	10:56	西北偏西	WNW	38	28/9	09:00
大老山	Tate's Cairn	西北偏西	WNW	68	28/9	20:34	西北偏西	WNW	38	28/9	15:00
將軍澳	Tseung Kwan O	西	W	27	28/9	10:55	西北偏北	NNW	9	28/9	13:00
		西北	NW	27	28/9	14:36					
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	西北偏西	WNW	41	28/9	10:29	西北偏西	WNW	27	28/9	11:00
屯門政府合署	Tuen Mun Government Offices	西北偏西	WNW	54	28/9	12:00	西北偏西	WNW	16	28/9	13:00
橫瀾島	Waglan Island	西北偏西	WNW	51	28/9	17:34	西北偏西	WNW	34	28/9	18:00
濕地公園	Wetland Park	西北	NW	41	28/9	14:11	西北	NW	16	28/9	10:00
							西北	NW	16	28/9	19:00
黃竹坑	Wong Chuk Hang	西	W	43	28/9	19:22	西	W	16	28/9	20:00

表 3.6.2　　鮎魚掠過期間，香港天文台總部及其他各站所錄得的日雨量
Table 3.6.2　Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Megi

站 Station			九月二十八日 28 Sep	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory			0.0	0.0
香港國際機場 Hong Kong International Airport (HKA)			0.0	0.0
長洲 Cheung Chau (CCH)			[0.0]	[0.0]
H23	香港仔	Aberdeen	0.0	0.0
N05	粉嶺	Fanling	0.0	0.0
N13	糧船灣	High Island	0.0	0.0
K04	佐敦谷	Jordan Valley	0.0	0.0
N06	葵涌	Kwai Chung	0.0	0.0
H12	半山區	Mid Levels	0.0	0.0
N09	沙田	Sha Tin	0.0	0.0
H19	筲箕灣	Shau Kei Wan	0.0	0.0
SEK	石崗	Shek Kong	[0.0]	[0.0]
K06	蘇屋邨	So Uk Estate	0.0	0.0
R31	大美督	Tai Mei Tuk	0.0	0.0
R21	踏石角	Tap Shek Kok	0.0	0.0
TMR	屯門水庫	Tuen Mun Reservoir	0.0	0.0
N17	東涌	Tung Chung	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 3.6.3　　鮎魚掠過期間，香港各潮汐站所錄得的最高潮位及最大風暴潮
Table 3.6.3　Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Megi

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	2.07	28/9	20:48	0.27	28/9	14:00
石壁	Shek Pik	2.36	28/9	08:42	0.17	28/9	08:42
大廟灣	Tai Miu Wan	2.19	28/9	08:41	0.14	28/9	08:41
大埔滘	Tai Po Kau	1.90	28/9	20:58	0.33	28/9	14:03
尖鼻咀	Tsim Bei Tsui	2.65	28/9	08:42	0.29	28/9	08:42
橫瀾島	Waglan Island	2.06	28/9	20:49	0.17	28/9	13:59

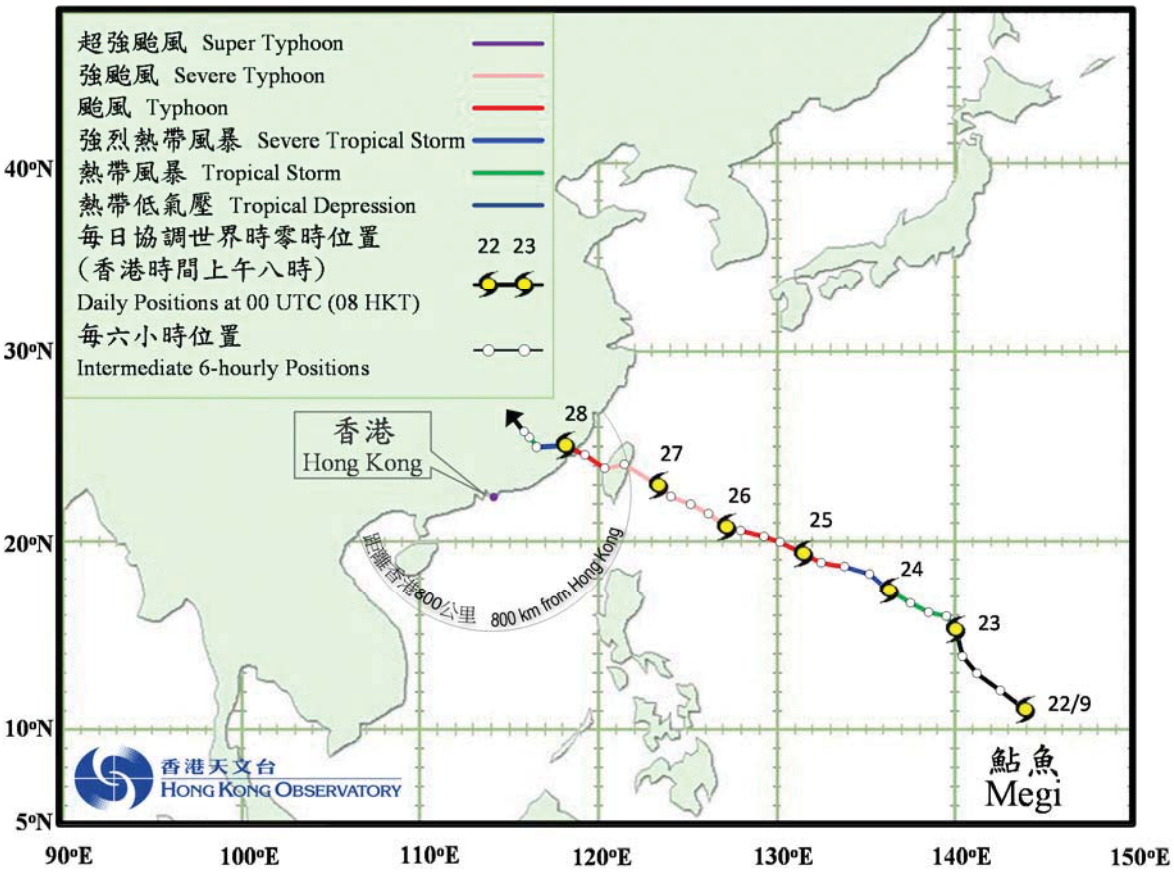


圖 3.6.1　　二零一六年九月二十二日至二十九日鮎魚(1617)的路徑圖。
Figure 3.6.1　　Track of Megi (1617) on 22 - 29 September 2016.

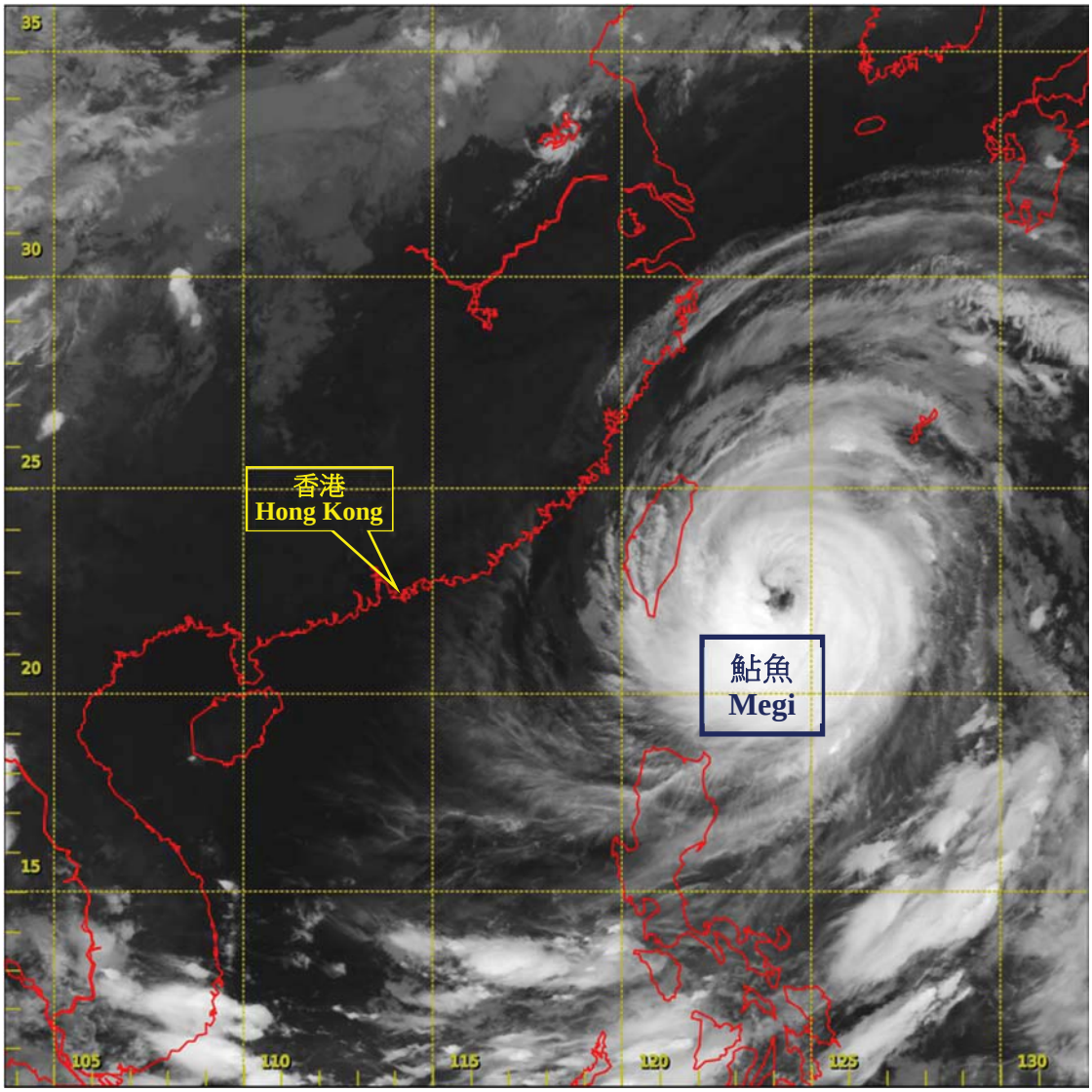


圖 3.6.2a　二零一六年九月二十七日上午 2 時左右的紅外線衛星圖片，當時鮎魚達到其最高強度，中心附近最高持續風速估計為每小時 175 公里。

Figure 3.6.2a　Infra-red satellite imagery around 2 a.m. on 27 September 2016 when Megi was at its peak intensity with estimated maximum sustained winds of 175 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).]

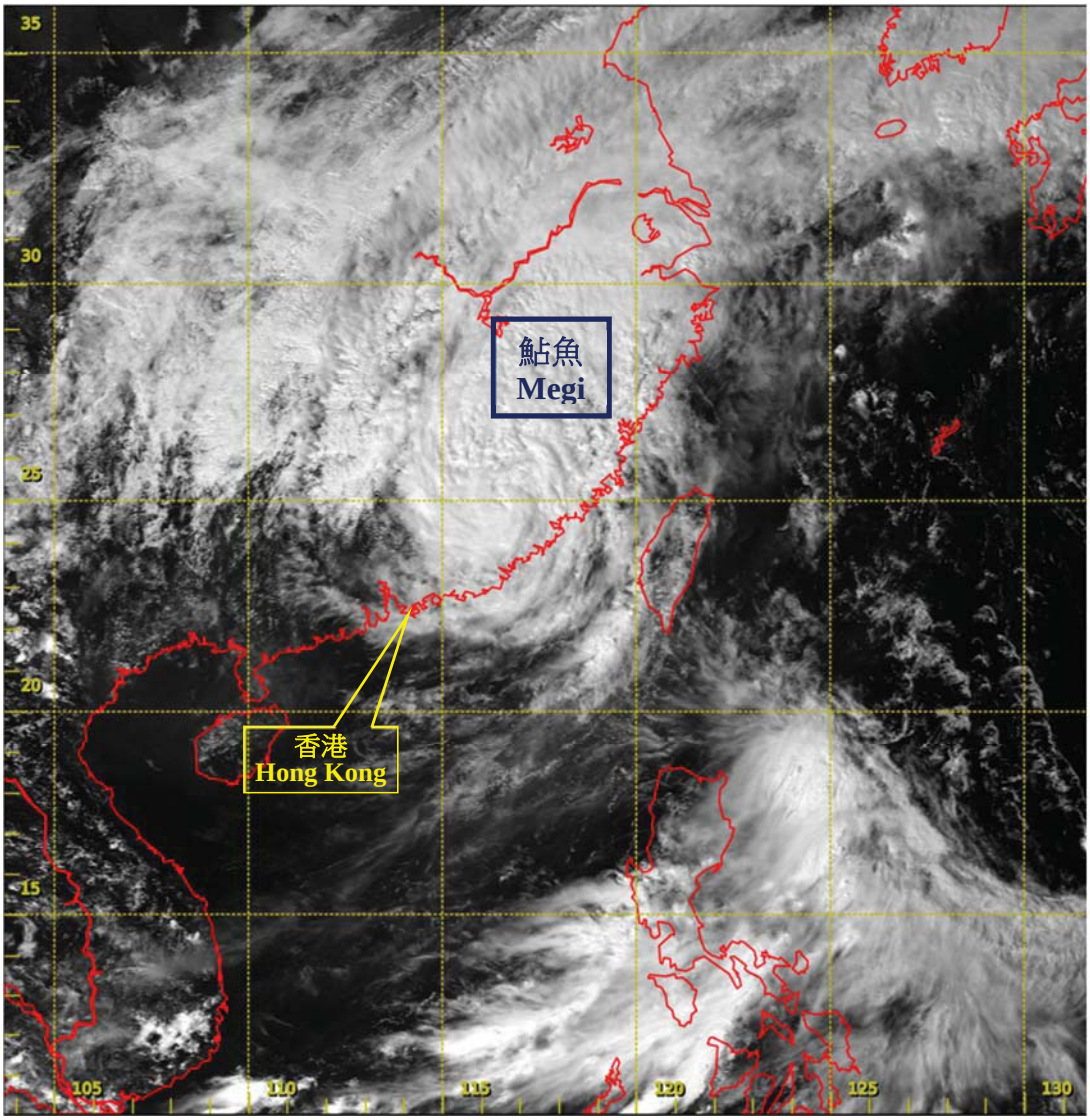


圖 3.6.2b　二零一六年九月二十八日下午 2 時左右的可見光衛星圖片，當時鮎魚最接近本港，但已登陸並減弱為熱帶風暴，在香港之東北約 390 公里掠過。

Figure 3.6.2b　Visible satellite imagery around 2 p.m. on 28 September 2016. Megi was closest to the territory at the time but had already made landfall and weakened into a tropical storm. It skirted past around 390 km northeast of Hong Kong.

〔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).]

3.7 熱帶風暴艾利(1619)：二零一六年十月五日至十四日

艾利是二零一六年第七個導致香港天文台需要發出熱帶氣旋警告信號的熱帶氣旋。

熱帶低氣壓艾利於十月五日下午在東沙以東約900公里的北太平洋西部上形成，向西至西北偏西移動，橫過呂宋海峽，翌日進入南海東北部，並增強為熱帶風暴。艾利在十月七日清晨掠過東沙以南海域後，移動轉為緩慢，並向偏北方向漂移，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85公里。十月八日艾利向東北緩慢移動，翌日幾乎停留不動，並逐漸減弱。

十月十日艾利開始加速轉向西南方移動，當晚在東沙附近減弱為一個低壓區。但與艾利相關的殘餘低壓區在隨後兩天繼續採取西南路徑移向西沙附近海域，於十月十三日早上在海南島以南再度增強為熱帶低氣壓，並轉向偏西方向移動，翌日凌晨登陸越南中部後減弱為一個低壓區，進入內陸消散。

根據報章報導，艾利的外圍環流為台灣南部帶來大雨，部分地區出現水浸，海陸交通受到影響。

香港天文台於十月六日下午8時40分發出一號戒備信號，當時艾利集結在香港之東南偏東約420公里。隨後兩天本港普遍吹和緩至清勁偏北風，高地間中吹強風。天文台總部於十月七日下午3時24分錄得最低瞬時海平面氣壓1005.2百帕斯卡。艾利於當日傍晚8時左右最接近本港，位置在香港之東南偏東約260公里。由於一股東北季候風於十月九日凌晨抵達廣東沿岸，艾利開始減弱，翌日轉向西南移動遠離香港。隨著艾利對香港的威脅減低，天文台於十月九日上午3時45分取消所有熱帶氣旋警告信號。

艾利掠過期間，尖鼻咀錄得最高潮位 (海圖基準面以上) 2.54米，而大埔滘則錄得最大風暴潮 (天文潮高度以上) 0.29米。

由於艾利的環流相當細小，它對香港的影響不大，沒有造成任何嚴重破壞。十月七日及八日本港只有幾陣狂風驟雨。在東北季候風的影響下，十月九日本港天氣較涼及乾燥。

表3.7.1 - 3.7.3 分別是艾利影響香港期間各站錄得的最高風速、香港的日雨量及最高潮位資料。圖3.7.1 - 3.7.4 分別為艾利的路徑圖、本港的雨量分佈圖、艾利的衛星及雷達圖像。

3.7 Tropical Storm Aere (1619): 5 – 14 October 2016

Aere was the seventh tropical cyclone necessitating the issuance of tropical cyclone warning signals by the Hong Kong Observatory in 2016.

Aere formed as a tropical depression over the western North Pacific about 900 km east of Dongsha on the afternoon of 5 October. Moving west to west-northwestwards, it moved across the Luzon Strait and entered the northeastern part of the South China Sea the next day while intensifying into a tropical storm. After crossing the sea areas south of Dongsha in the early morning on 7 October, Aere slowed down and drifted northwards during the day, reaching its peak intensity in the afternoon with an estimated sustained wind of 85 km/h near its centre. Aere moved northeastwards slowly on 8 October and became almost stationary the next day as it weakened gradually.

Aere picked up speed and turned to move southwestwards on 10 October, degenerating into an area of low pressure near Dongsha that night. However, its remnant low pressure area continued to track to the southwest towards the sea areas around Xisha over the next couple of days. It re-intensified into a tropical depression south of Hainan Island on the morning of 13 October and turned westwards. After making landfall over the central part of Vietnam early next morning, Aere weakened into an area of low pressure before dissipating further inland.

According to press reports, the outer circulation of Aere brought heavy rain to southern Taiwan and caused flooding in some areas. Land and sea transportation services were affected.

In Hong Kong, the Standby Signal No. 1 was issued at 8:40 p.m. on 6 October when Aere was about 420 km east-southeast of Hong Kong. Local winds were generally moderate to fresh northerly on 7 and 8 October, occasionally reaching strong force on high ground. At the Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 1005.2 hPa was recorded at 3:24 p.m on 7 October. Aere came closest to the territory around 8 p.m. that evening, passing at a distance of about 260 km to the east-southeast of Hong Kong. As the northeast monsoon reached the coastal area of Guangdong early in the early morning on 9 October, Aere started to weaken and turn southwestwards away from Hong Kong the next day. With the threat of Aere to Hong Kong diminishing, all tropical cyclone warning signals were cancelled at 3:45 a.m. on 9 October.

During the passage of Aere, a maximum sea level (above chart datum) of 2.54 m was recorded at Tsim Bei Tsui, while a maximum storm surge of 0.29 m (above astronomical tide) was recorded at Tai Po Kau.

With its rather small circulation, Aere had no major impact on Hong Kong and brought no significant damage. Locally, there were only a few squally showers on 7 and 8 October. Under the influence of the northeast monsoon, the weather was relatively cool and dry on 9 October.

Information on the maximum wind, daily rainfall and maximum sea level reached in Hong Kong during the passage of Aere is given in Tables 3.7.1 - 3.7.3 respectively. Figures 3.7.1 - 3.7.4 show respectively the track of Aere, the rainfall distribution for Hong Kong, satellite imageries and a related radar imagery of Aere.

表 3.7.1　在艾利影響下，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 3.7.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when tropical cyclone warning signals for Aere 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)	東北偏東	ENE	38	7/10	00:52	東南偏東	ESE	22	7/10	01:00
中環碼頭	Central Pier	東	E	40	6/10	22:09	西北偏西	WNW	22	8/10	10:00
長洲	Cheung Chau	東北偏北	NNE	52	8/10	21:46	北	N	31	8/10	22:00
長洲泳灘	Cheung Chau Beach	東北偏東	ENE	56	6/10	22:39	東北	NE	30	8/10	22:00
青洲	Green Island	東北	NE	56	6/10	21:24	北	N	38	8/10	22:00
香港國際機場	Hong Kong International Airport	西北偏北	NNW	49	7/10	13:30	北	N	30	8/10	12:00
		西北偏北	NNW	49	7/10	13:31					
啟德	Kai Tak	東北偏北	NNE	43	9/10	00:21	北	N	16	8/10	08:00
							西北	NW	16	8/10	12:00
京士柏	King's Park	東北偏東	ENE	45	8/10	07:24	東北偏北	NNE	14	8/10	09:00
流浮山	Lau Fau Shan	北	N	49	8/10	22:57	北	N	31	8/10	23:00
北角	North Point	西北偏北	NNW	38	8/10	11:25	北	N	19	8/10	09:00
坪洲	Peng Chau	北	N	38	8/10	18:29	西北偏北	NNW	25	8/10	20:00
平洲	Ping Chau	北	N	31	8/10	22:59	西北偏北	NNW	7	8/10	08:00
							西北偏北	NNW	7	8/10	09:00
西貢	Sai Kung	東北偏北	NNE	59	8/10	20:23	北	N	30	8/10	19:00
沙洲	Sha Chau	北	N	72	7/10	13:24	北	N	41	8/10	23:00
沙螺灣	Sha Lo Wan	東北偏北	NNE	30	8/10	16:24	東北偏北	NNE	14	8/10	17:00
沙田	Sha Tin	東北偏北	NNE	41	8/10	22:02	北	N	14	8/10	21:00
							北	N	14	8/10	22:00
							東北偏北	NNE	14	8/10	23:00
石崗	Shek Kong	東	E	30	7/10	00:55	東北	NE	13	7/10	13:00
		東北	NE	30	7/10	13:38					
九龍天星碼頭	Star Ferry (Kowloon)	東	E	40	6/10	22:05	西北偏西	WNW	16	8/10	10:00
打鼓嶺	Ta Kwu Ling	西北偏北	NNW	30	7/10	08:57	北	N	13	7/10	10:00
大美督	Tai Mei Tuk	東北	NE	59	8/10	08:12	東北	NE	30	8/10	10:00
大埔滘	Tai Po Kau	北	N	31	8/10	08:35	西北偏西	WNW	14	8/10	09:00
塔門	Tap Mun	北	N	49	9/10	03:34	西北偏北	NNW	19	8/10	07:00
大老山	Tate's Cairn	北	N	76	8/10	19:22	北	N	54	9/10	00:00
							北	N	54	9/10	01:00
將軍澳	Tseung Kwan O	西北偏北	NNW	34	8/10	03:34	西北偏北	NNW	13	8/10	18:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	西北	NW	38	8/10	08:53	西北	NW	16	8/10	10:00
屯門政府合署	Tuen Mun Government Offices	東北偏北	NNE	36	7/10	13:20	東北偏北	NNE	14	7/10	14:00
橫瀾島	Waglan Island	東	E	65	7/10	00:23	東	E	47	7/10	01:00
濕地公園	Wetland Park	北	N	31	9/10	01:10	東北偏東	ENE	13	7/10	14:00

昂坪及大帽山 – 資料不齊全

Ngong Ping and Tai Mo Shan – data incomplete

表 3.7.2　　艾利掠過期間，香港天文台總部及其他各站所錄得的日雨量
Table 3.7.2　Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Aere

站 (參閱圖 3.7.2) Station (See Fig. 3.7.2)			十月六日 6 Oct	十月七日 7 Oct	十月八日 8 Oct	十月九日 9 Oct	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory			16.7	17.3	微量 Trace	0.0	34.0
香港國際機場 Hong Kong International Airport (HKA)			微量 Trace	0.6	0.0	0.0	0.6
長洲 Cheung Chau (CCH)			18.0	[7.5]	0.0	0.0	[25.5]
H23	香港仔	Aberdeen	14.0	3.5	0.0	0.0	17.5
N05	粉嶺	Fanling	0.0	3.5	0.0	0.0	3.5
N13	糧船灣	High Island	24.0	1.5	0.0	0.0	25.5
K04	佐敦谷	Jordan Valley	14.0	12.0	0.0	0.0	26.0
N06	葵涌	Kwai Chung	0.0	10.0	0.0	0.0	10.0
H12	半山區	Mid Levels	27.0	18.0	0.0	0.0	45.0
N09	沙田	Sha Tin	2.5	3.5	0.5	1.0	7.5
H19	筲箕灣	Shau Kei Wan	23.0	5.5	0.0	0.0	28.5
SEK	石崗	Shek Kong	[0.0]	[5.5]	[0.0]	[0.0]	[5.5]
K06	蘇屋邨	So Uk Estate	1.5	16.5	0.0	0.0	18.0
R31	大美督	Tai Mei Tuk	[2.5]	[10.5]	0.0	0.0	[13.0]
R21	踏石角	Tap Shek Kok	[0.0]	[2.5]	0.0	0.0	[2.5]
TMR	屯門水庫	Tuen Mun Reservoir	0.3	2.8	0.0	0.0	3.1
N17	東涌	Tung Chung	1.0	1.0	0.0	0.0	2.0

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

表 3.7.3　　艾利掠過期間，香港各潮汐站所錄得的最高潮位及最大風暴潮
Table 3.7.3　Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Aere

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	2.34	7/10	00:04	0.23	7/10	13:12
石壁	Shek Pik	2.42	7/10	00:16	0.24	7/10	13:26
大廟灣	Tai Miu Wan	2.30	6/10	23:59	0.26	7/10	20:08
大埔滘	Tai Po Kau	2.41	7/10	01:05	0.29	7/10	06:26
尖鼻咀	Tsim Bei Tsui	2.54	7/10	01:24	0.28	7/10	15:05
橫瀾島	Waglan Island	2.45	6/10	23:53	0.26	7/10	20:12

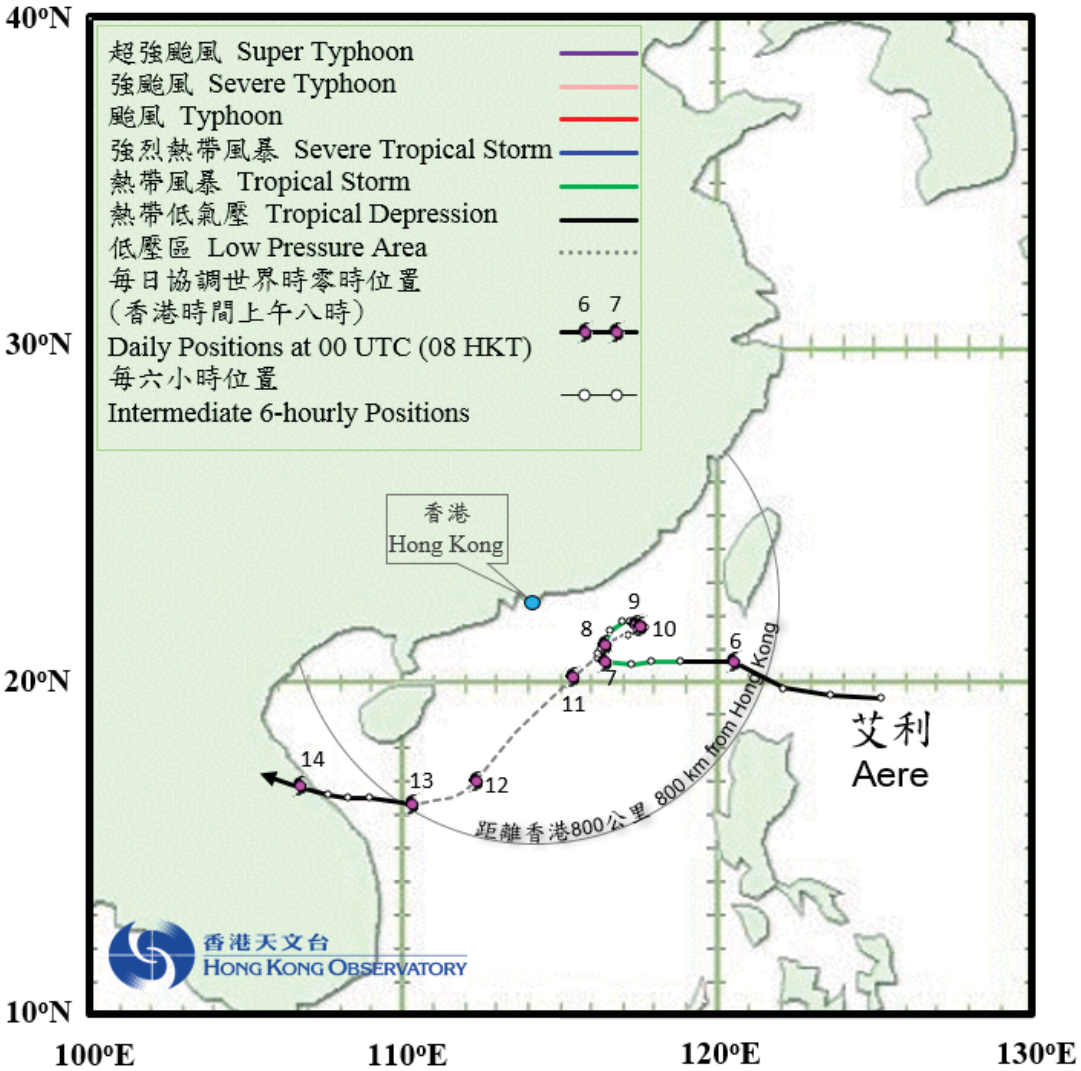


圖 3.7.1　　二零一六年十月五日至十四日艾利(1619)的路徑圖。

Figure 3.7.1　　Track of Aere (1619) on 5 - 14 October 2016.

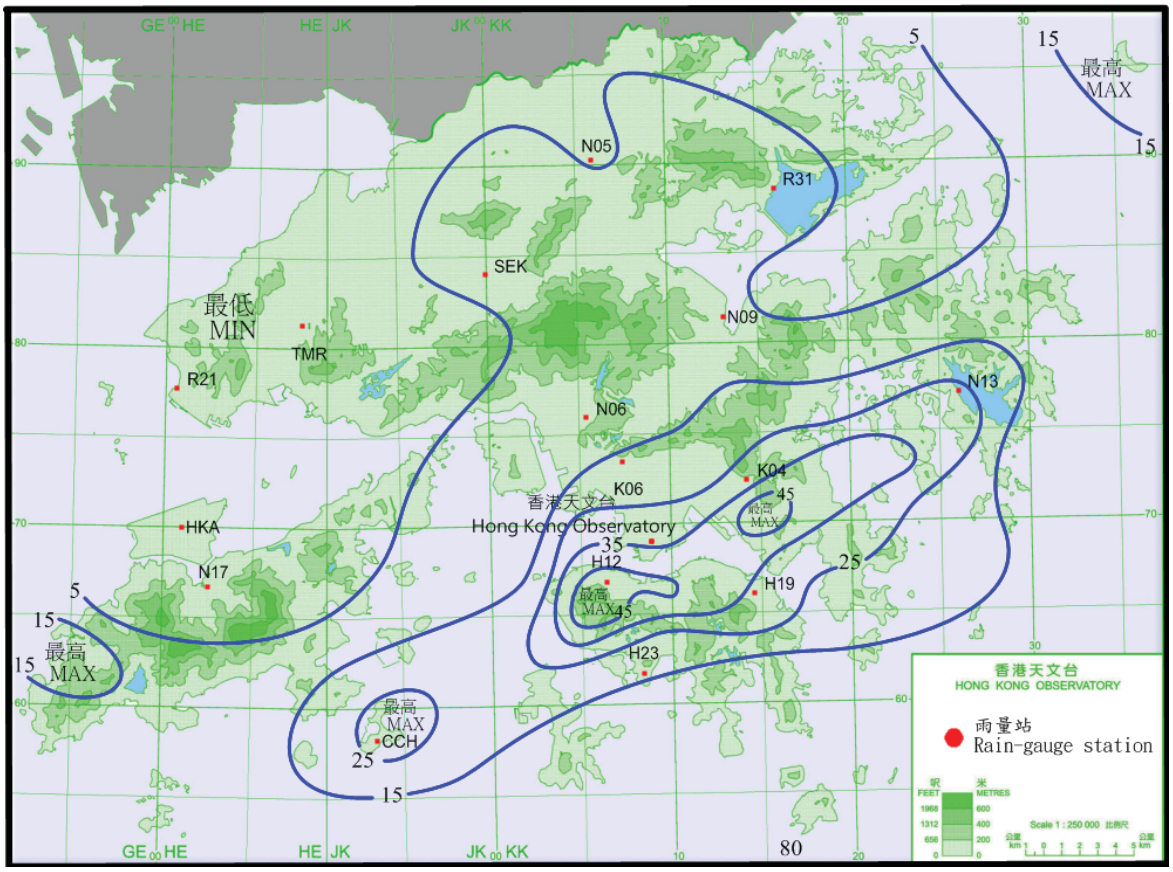


圖 3.7.2　　二零一六年十月六日至九日的雨量分佈(等雨量線單位為毫米)。

Figure 3.7.2　Rainfall distribution on 6 – 9 October 2016 (isohyets are in millimetres).

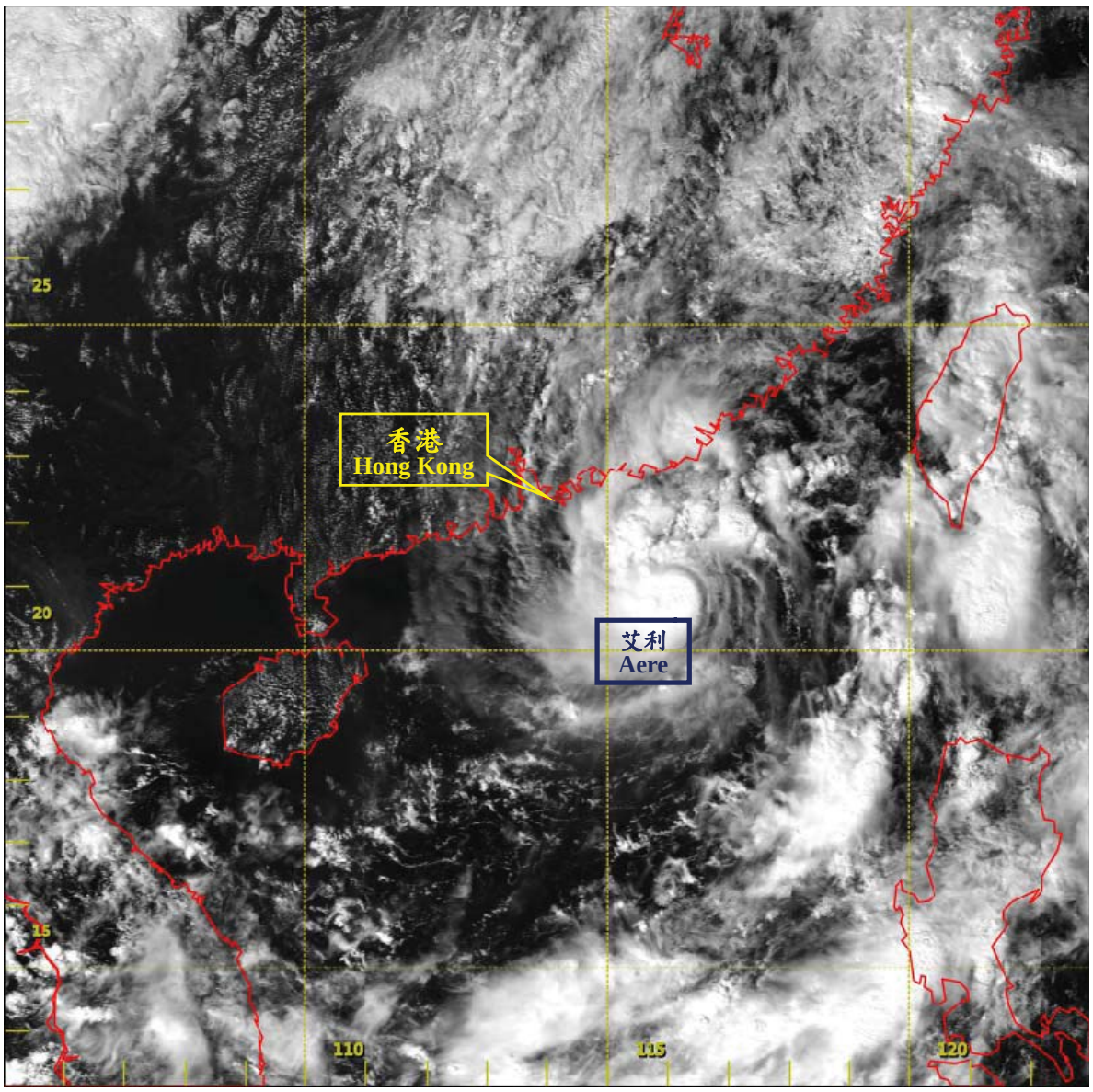


圖 3.7.3a　二零一六年十月七日下午 2 時左右的可見光衛星圖片，當時艾利達到其最高強度，中心附近最高持續風速估計為每小時 85 公里。

Figure 3.7.3a　Visible satellite imagery around 2 p.m. on 7 October 2016 when Aere 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).]

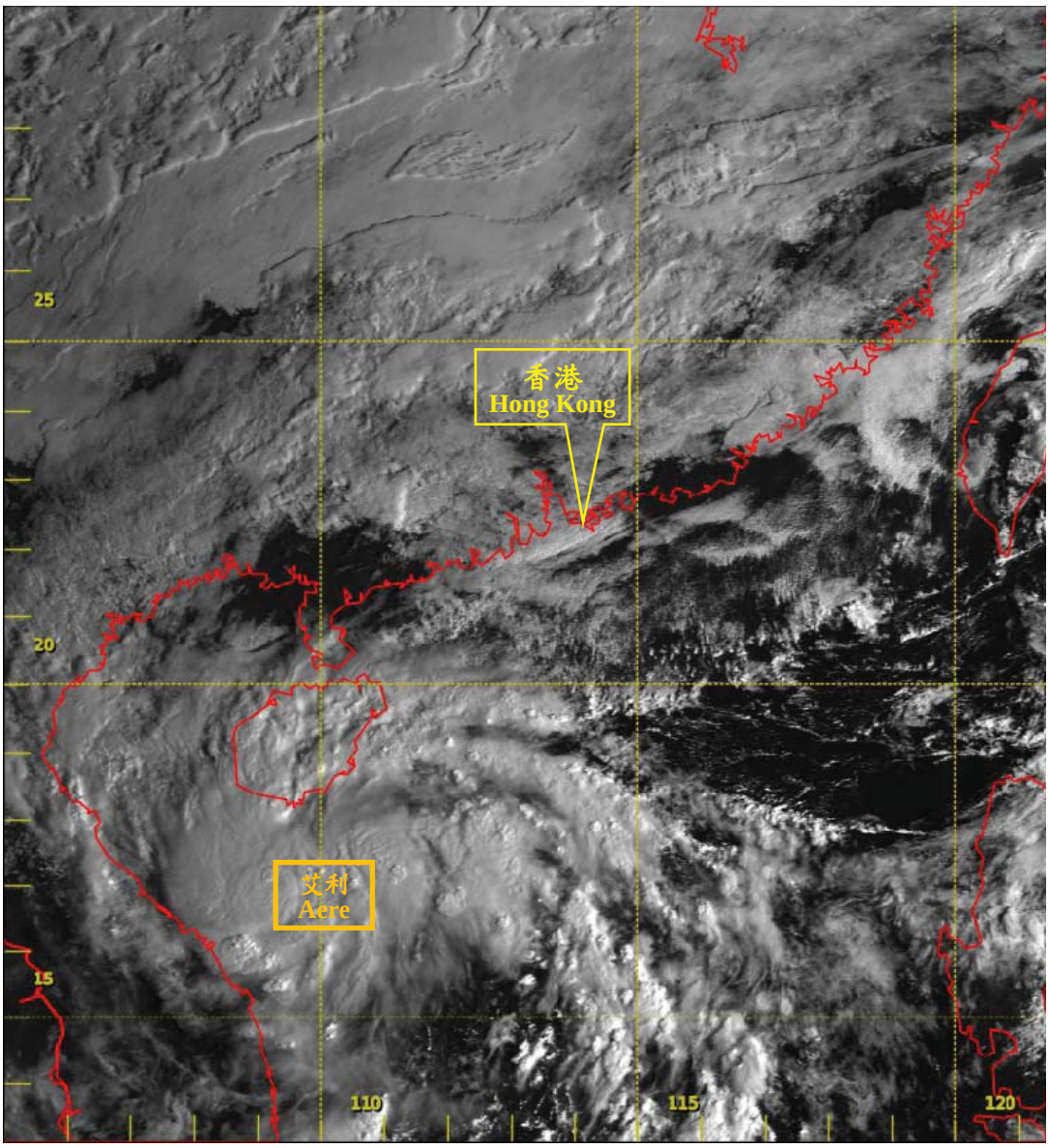


圖 3.7.3b　二零一六年十月十三日上午 8 時左右的可見光衛星圖片，當時艾利在海南島以南再度增強為熱帶低氣壓。

Figure 3.7.3b　Visible satellite imagery around 8 a.m. on 13 October 2016 when Aere re-intensified into a tropical depression south of Hainan Island.

〔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).]

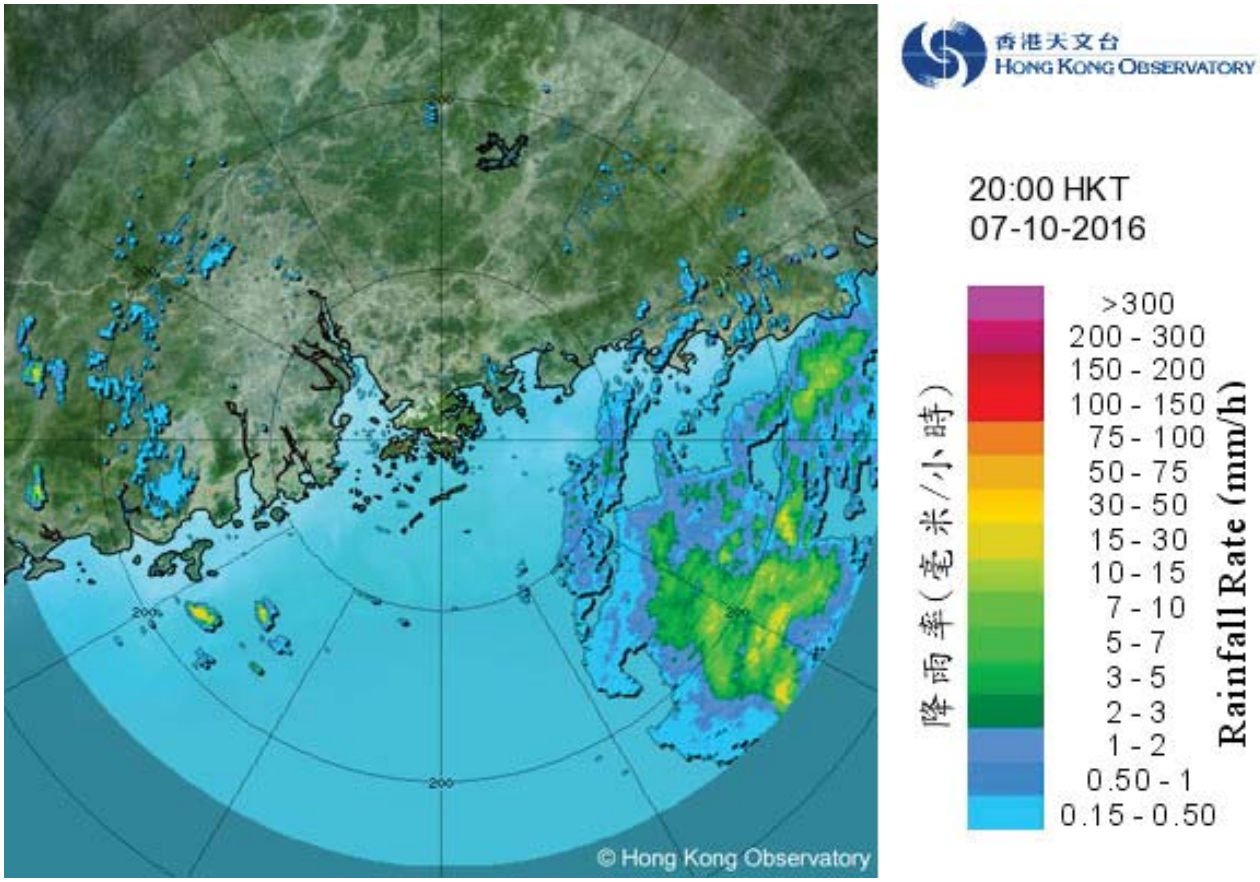


圖 3.7.4　二零一六年十月七日下午八時正的雷達圖像，當時熱帶風暴艾利最接近本港，其中心集結在香港之東南偏東約 260 公里。

Figure 3.7.4　Image of radar echoes at 8 p.m. on 7 October 2016, when Tropical Storm Aere was closest to Hong Kong with its centre about 260 km to the east-southeast.

3.8 超強颱風莎莉嘉(1621)：二零一六年十月十三日至十九日

莎莉嘉是二零一六年第八個導致香港天文台需要發出熱帶氣旋警告信號的熱帶氣旋。

熱帶低氣壓莎莉嘉於十月十三日早上在馬尼拉以東約1 060公里的北太平洋西部上形成，並採取西北偏西路徑移向菲律賓。莎莉嘉當晚已增強為熱帶風暴，翌日更迅速增強，於十月十五日晚上發展為超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185公里。莎莉嘉於十月十六日清晨橫過呂宋時減弱為颱風，進入南海後重新組織。十月十八日早上莎莉嘉在海南島登陸，其後轉向西北移動。十月十九日莎莉嘉橫過北部灣，當天稍後在廣西內陸消散。

根據報章報導，莎莉嘉吹襲菲律賓期間造成最少三人死亡，三人失蹤，多處出現山泥傾瀉，多間房屋倒塌。莎莉嘉吹襲廣東、廣西及海南期間，造成最少370萬人受災，直接經濟損失接近55億元人民幣。

香港天文台於十月十六日晚上9時20分發出一號戒備信號，當時莎莉嘉集結在香港之東南偏南約680公里。當晚及翌日早上本港普遍吹和緩至清勁東北風。由於預料當莎莉嘉移至香港的西南方時本地風力會逐漸增強，天文台於十月十七日下午1時40分發出三號強風信號，當時莎莉嘉集結在本港之西南偏南約550公里。在莎莉嘉及東北季候風的共同影響下，當日下午及翌日本港普遍吹清勁至強風程度的偏東風，離岸及高地間中吹烈風。

莎莉嘉於十月十八日上午5時左右最接近香港，在香港西南約520公里處掠過。天文台總部則在當日下午2時57分錄得最低瞬時海平面氣壓1006.3百帕斯卡。隨著莎莉嘉於十月十八日晚上進入北部灣並進一步減弱，香港逐漸受東北季候風影響，天文台於晚上10時10分取消所有熱帶氣旋警告信號，並接續發出強烈季候風信號。受東北季候風影響，晚間本港多處地區間中吹強風，強烈季候風信號一直維持至翌日早上8時45分才取消。

莎莉嘉影響香港期間，尖鼻咀錄得最高潮位(海圖基準面以上) 3.00米，而大埔滘則錄得最大風暴潮(天文潮高度以上) 0.59米。

十月十七日本港早上短暫時間有陽光，但在莎莉嘉的影響下，下午轉為多雲及有幾陣狂風驟雨。莎莉嘉的外圍偏南氣流與東北季候風的輻合引致本港於十月十八日至十九日持續有大雨和雷暴。雨勢在十月十九日下午最大，為本港普遍帶來超過100毫米雨量，而市區、沙田及大埔的雨量更超過200毫米，自暴雨警告系統在1992年開始運作以來天文台首度在十月份發出黑色暴雨警告。天文台總部於當日下午三至四時錄得78.7毫米雨量，是自1884年有記錄以來十月份的最高一小時雨量紀錄。山泥傾瀉警告及新界北部水浸特別報告在當日亦曾經生效。

在莎莉嘉吹襲期間，香港有多宗塌樹報告及高空墜物意外。在強風大浪下，西貢橫洲對開海面有一艘內河船翻側，船上13名船員有12人獲救，但仍有一人失

蹤。在黃大仙及龍翔道折斷墜下的樹幹導致兩人受傷。深水埗通州街一個棚架倒塌，旺角西洋菜南街一幢商業大廈外牆亦有一幅廣告帆布被強風吹倒。元朗南坑排及荔枝角鍾山台分別有圍牆倒塌。

在十月十九日下午的暴雨期間，本港最少有14宗水浸報告及七宗山泥傾瀉報告。多區道路出現水浸，交通大受影響。其中柴灣及大潭一帶的道路水浸最為嚴重，一輛電單車被沖走，多輛汽車被困。洪水亦沖入柴灣一商場內的店舖。灣仔普樂里的一幅圍牆在暴雨下倒塌。

表3.8.1 - 3.8.4 分別是莎莉嘉影響香港期間各站錄得的最高風速、持續風力達到強風程度的時段、香港的日雨量及最高潮位資料。圖3.8.1 - 3.8.4 分別為莎莉嘉的路徑圖、本港的雨量分佈圖、莎莉嘉的衛星及雷達圖像。莎莉嘉在香港造成的破壞可參見圖3.8.5。

3.8 Super Typhoon Sarika (1621): 13 – 19 October 2016

Sarika was the eighth tropical cyclone necessitating the issuance of tropical cyclone warning signals by the Hong Kong Observatory in 2016.

Sarika formed as a tropical depression over the western North Pacific about 1 060 km east of Manila on the morning of 13 October. Taking a west-northwesterly track towards the Philippines, it intensified into a tropical storm that night. Sarika further intensified rapidly the next day and developed into a super typhoon on the night of 15 October, reaching its peak intensity with an estimated sustained wind of 185 km/h near its centre. Sarika weakened into a typhoon while moving across Luzon in the early morning on 16 October. It re-organized after entering the South China Sea. Sarika made landfall over Hainan Island on the morning of 18 October and turned northwestwards. It moved across Beibu Wan on 19 October and dissipated over inland Guangxi later that day.

According to press reports, at least three persons were killed and three others were missing in the Philippines during the passage of Sarika. There were extensive landslides and many houses collapsed. In Guangdong, Guangxi and Hainan, at least 3.7 million people were affected with direct economic loss of around 5.5 billion RMB.

In Hong Kong, the Standby Signal No. 1 was issued at 9:20 p.m. on 16 October when Sarika was about 680 km south-southeast of the territory. Local winds were generally moderate to fresh northeasterly during the night and the next morning. As local winds were expected to strengthen gradually when Sarika moved to the southwest of Hong Kong, the Strong Wind Signal No. 3 was issued at 1:40 p.m. on 17 October when Sarika was about 550 km south-southwest of the territory. Under the combined effect of Sarika and the northeast monsoon, fresh to strong easterlies generally affected Hong Kong in the afternoon and the next day, with winds occasionally reaching gale force offshore and on high ground.

Sarika came closest to the territory around 5 a.m. on 18 October, passing at a distance of about 520 km southwest of Hong Kong. At the Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 1006.3 hPa was recorded at 2:57 p.m. that day. As Sarika entered Beibu Wan and further weakened on the night of 18 October, Hong Kong came increasingly under the influence of the northeast monsoon. The Observatory cancelled all tropical cyclone warning signals at 10:10 p.m. that night and issued the Strong Monsoon Signal immediately afterwards. Under the influence of the northeast monsoon, occasional strong winds affected many places over the territory during the night. The Strong Monsoon Signal remained in force till 8:45 a.m. the next morning.

Under the influence of Sarika, a maximum sea level (above chart datum) of 3.00 m was recorded at Tsim Bei Tsui, while a maximum storm surge of 0.59 m (above astronomical tide) was recorded at Tai Po Kau.

Locally, there were sunny intervals on the morning of 17 October. Affected by Sarika, the weather became cloudy with a few squally showers in the afternoon. The convergence between the northeast monsoon and the southerly airstream associated with Sarika triggered prolonged periods of heavy rain and thunderstorms on 18 and 19 October. The rain was most intense on the afternoon of 19 October, with more than 100 millimetres of rainfall falling generally over Hong Kong and rainfall even exceeding 200 millimetres over the urban areas, Sha Tin and Tai Po, necessitating the issuance of the first ever Black Rainstorm Warning in October since the Rainstorm Warning System commenced operation in 1992. The hourly

rainfall of 78.7 millimetres recorded at the Observatory Headquarters between 3 and 4 p.m. that day was also the highest in October since records began in 1884. Landslip Warning and Special Announcement on Flooding in the Northern New Territories were also in force that day.

In Hong Kong, there were many reports of fallen trees and incidents of falling objects during the passage of Sarika. A river trade vessel was overturned in the waters off Wang Chau in Sai Kung under strong winds and rough seas. Of the 13 crew members on board, 12 were rescued but one was still missing. Falling tree branches injured two persons in Wong Tai Sin and Lung Cheung Road. Scaffoldings at Tung Chau Street in Sham Shui Po collapsed, and an advertisement banner of a commercial building at Sai Yeung Choi Street South in Mong Kok was also blown down. Walls at Nam Hang Pai in Yuen Long and Chung Shan Terrace in Lai Chi Kok collapsed

During the rainstorm on the afternoon of 19 October, there were at least 14 reports of flooding and seven reports of landslide in Hong Kong. Traffic was seriously disrupted as many roads were flooded, with roads near Chai Wan and Tai Tam being the worst affected. A motorcycle was swept away and many vehicles were marooned. Flood water rushed into the stores of a shopping mall in Chai Wan. A wall at Bullock Lane in Wan Chai collapsed under the heavy rain.

Information on the maximum wind, period of strong winds, daily rainfall and maximum sea level reached in Hong Kong during the passage of Sarika is given in Tables 3.8.1 - 3.8.4 respectively. Figures 3.8.1 - 3.8.4 show respectively the track of Sarika, the rainfall distribution for Hong Kong, satellite imageries and related radar imageries of Sarika. Some damages caused by Sarika in Hong Kong are illustrated in Figures 3.8.5.

表 3.8.1　在莎莉嘉影響下，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 3.8.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when tropical cyclone warning signals for Sarika 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)	東北偏東	ENE	76	17/10	19:46	東南偏東	ESE	47	18/10	18:00
中環碼頭	Central Pier	東	E	70	18/10	17:32	東	E	43	17/10	23:00
長洲	Cheung Chau	東南偏東	ESE	99	18/10	12:39	東南偏東	ESE	59	18/10	19:00
長洲泳灘	Cheung Chau Beach	東北偏東	ENE	104	18/10	12:18	東	E	67	18/10	13:00
青洲	Green Island	東北偏東	ENE	90	18/10	17:51	東北	NE	59	17/10	22:00
香港國際機場	Hong Kong International Airport	東南偏東	ESE	59	18/10	17:57	東	E	36	18/10	13:00
啟德	Kai Tak	東	E	83	18/10	17:22	東	E	41	18/10	18:00
京士柏	King's Park	東南偏東	ESE	59	18/10	08:32	東南	SE	30	18/10	22:00
流浮山	Lau Fau Shan	東	E	62	18/10	13:17	東北偏東	ENE	25	17/10	23:00
北角	North Point	東	E	76	18/10	08:04	東	E	45	18/10	08:00
坪洲	Peng Chau	東	E	72	18/10	12:12	東	E	51	18/10	13:00
平洲	Ping Chau	東北偏東	ENE	40	18/10	16:41	東	E	14	18/10	17:00
西貢	Sai Kung	東	E	77	18/10	15:16	東北偏東	ENE	40	18/10	09:00
沙洲	Sha Chau	東南偏東	ESE	63	18/10	12:37	東南偏東	ESE	41	18/10	20:00
沙螺灣	Sha Lo Wan	東	E	68	18/10	11:06	東北偏東	ENE	31	18/10	10:00
							東北偏東	ENE	31	18/10	11:00
							東	E	31	18/10	12:00
沙田	Sha Tin	東南	SE	62	18/10	15:29	東北	NE	16	17/10	09:00
							東北偏北	NNE	16	17/10	10:00
							東北	NE	16	18/10	10:00
							東	E	16	18/10	13:00
石崗	Shek Kong	東	E	67	18/10	17:45	東	E	31	18/10	13:00
九龍天星碼頭	Star Ferry (Kowloon)	東	E	75	18/10	07:43	東	E	40	18/10	13:00
打鼓嶺	Ta Kwu Ling	東	E	65	18/10	15:45	東北偏東	ENE	22	18/10	16:00
							東	E	22	18/10	19:00
大美督	Tai Mei Tuk	東南偏東	ESE	96	18/10	12:10	東	E	63	18/10	16:00
大帽山	Tai Mo Shan	東南	SE	118	18/10	17:42	東南偏東	ESE	77	18/10	15:00
大埔滘	Tai Po Kau	東南偏東	ESE	70	18/10	15:37	東	E	43	18/10	13:00
塔門	Tap Mun	東北偏東	ENE	67	18/10	08:09	東南偏東	ESE	34	18/10	18:00
大老山	Tate's Cairn	東	E	112	18/10	12:05	東	E	68	18/10	11:00
將軍澳	Tseung Kwan O	東	E	58	18/10	11:30	北	N	13	17/10	22:00
							東北偏北	NNE	13	17/10	23:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南偏東	ESE	59	18/10	12:19	東南偏東	ESE	23	18/10	13:00
屯門政府合署	Tuen Mun Government Offices	東南偏東	ESE	49	18/10	15:50	東南	SE	16	18/10	19:00
橫瀾島	Waglan Island	東北偏東	ENE	92	17/10	20:54	東北偏東	ENE	72	17/10	22:00
濕地公園	Wetland Park	東南偏東	ESE	43	18/10	12:58	東	E	16	18/10	13:00
		東	E	43	18/10	13:07					
黃竹坑	Wong Chuk Hang	西北偏北	NNW	70	18/10	20:21	西北偏北	NNW	30	18/10	08:00

昂坪- 沒有資料　Ngong Ping - data not available

表 3.8.2　在莎莉嘉影響下，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 3.8.2 Periods during which sustained strong winds were attained at the eight reference anemometers in the tropical cyclone warning system when the tropical cyclone warning signals for Sarika were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		最初達到強風*時 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	17/10	18:45	18/10	22:10
香港國際機場	Hong Kong International Airport	18/10	12:47	18/10	18:07
啟德	Kai Tak	18/10	17:24	18/10	18:03
西貢	Sai Kung	18/10	08:41	18/10	15:27

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 3.8.3　　莎莉嘉掠過香港期間，在香港天文台總部及其他各站所錄得的日雨量
Table 3.8.3　　Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Sarika

站 (參閱圖 3.8.2) Station (See Fig. 3.8.2)			十月十六日 16 Oct	十月十七日 17 Oct	十月十八日 18 Oct	十月十九日 19 Oct	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory			0.0	16.7	178.7	223.4	418.8
香港國際機場 Hong Kong International Airport (HKA)			0.0	11.3	87.2	58.3	156.8
長洲 Cheung Chau (CCH)			[0.0]	[7.0]	[46.5]	[31.5]	[85.0]
H23	香港仔	Aberdeen	0.0	17.5	99.0	134.0	250.5
N05	粉嶺	Fanling	0.0	9.0	135.5	231.5	376.0
N13	糧船灣	High Island	0.0	15.5	97.0	79.0	191.5
K04	佐敦谷	Jordan Valley	0.0	19.0	197.0	225.0	441.0
N06	葵涌	Kwai Chung	0.0	14.0	167.5	212.5	394.0
H12	半山區	Mid Levels	0.0	20.0	163.0	155.0	338.0
N09	沙田	Sha Tin	0.0	15.0	205.5	199.5	420.0
H19	筲箕灣	Shau Kei Wan	0.0	21.5	171.5	240.5	433.5
SEK	石崗	Shek Kong	[0.0]	[12.5]	[175.5]	[128.0]	[316.0]
K06	蘇屋邨	So Uk Estate	0.0	17.5	176.0	221.0	414.5
R31	大美督	Tai Mei Tuk	0.5	14.5	139.0	137.5	291.5
R21	踏石角	Tap Shek Kok	0.0	11.0	90.5	44.5	146.0
TMR	屯門水庫	Tuen Mun Reservoir	0.0	8.1	91.7	71.2	171.0
N17	東涌	Tung Chung	0.0	14.5	103.0	50.5	168.0

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

表 3.8.4　　莎莉嘉掠過香港期間，在香港各潮汐站所錄得的最高潮位及最大風暴潮
Table 3.8.4　　Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Sarika

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	2.74	17/10	22:11	0.43	18/10	10:58
石壁	Shek Pik	2.87	17/10	23:19	0.52	18/10	11:59
大廟灣	Tai Miu Wan	2.73	17/10	22:12	0.45	18/10	10:57
大埔滘	Tai Po Kau	2.83	17/10	22:51	0.59	18/10	04:11
尖鼻咀	Tsim Bei Tsui	3.00	17/10	23:10	0.57	18/10	20:09
橫瀾島	Waglan Island	2.87	17/10	22:17	0.46	18/10	11:26

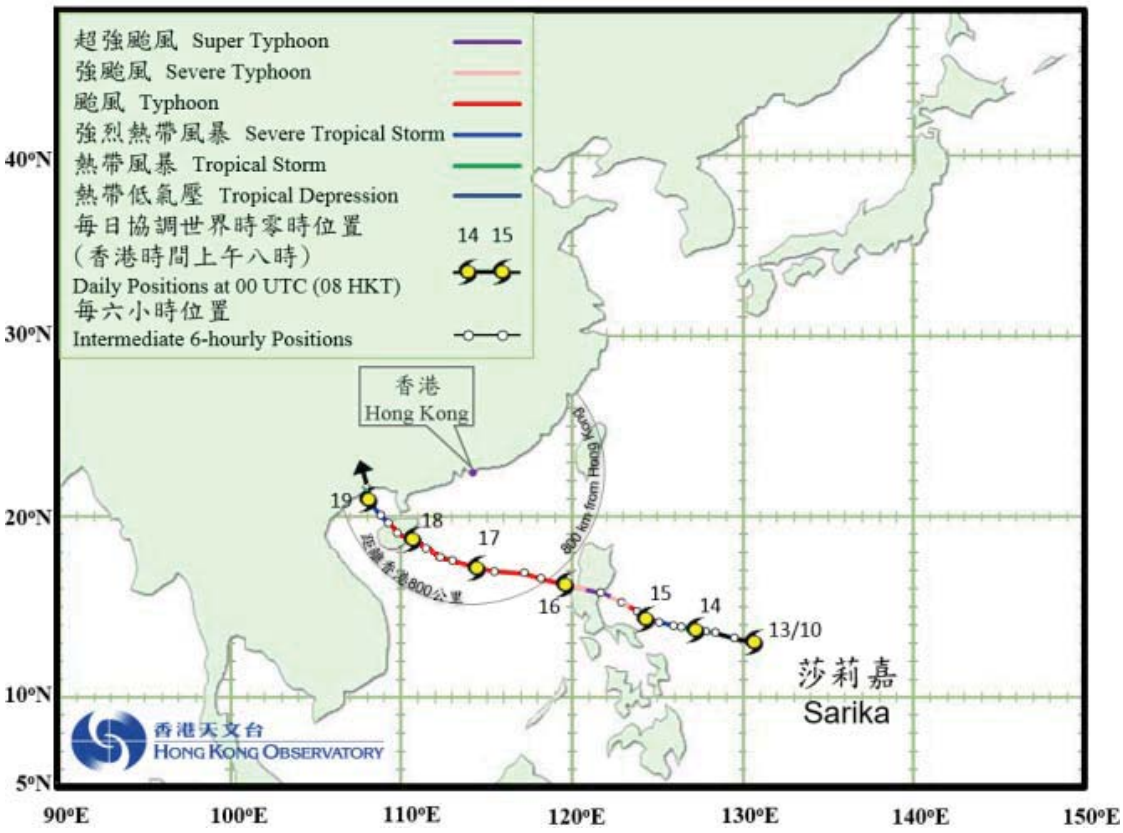


圖 3.8.1 二零一六年十月十三日至十九日莎莉嘉(1621)的路徑圖。

Figure 3.8.1 Track of Sarika (1621) on 13 - 19 October 2016.

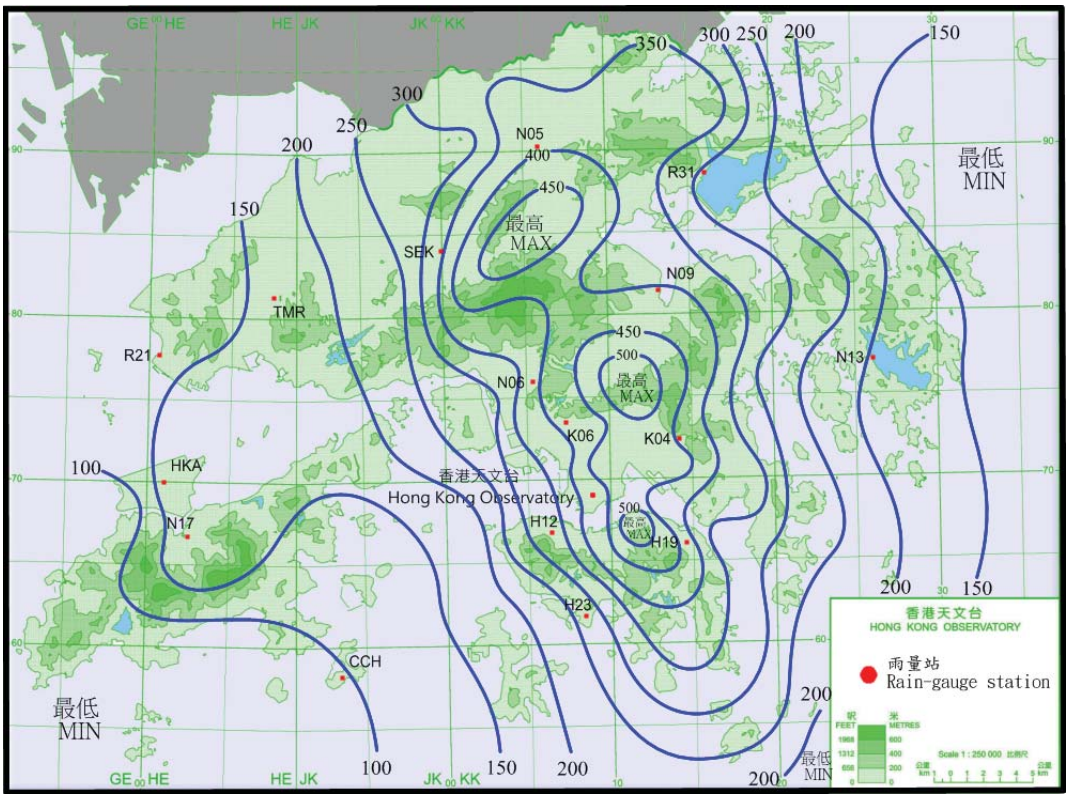


圖 3.8.2 二零一六年十月十六日至十九日的雨量分佈(等雨量線單位為毫米)。

Figure 3.8.2 Rainfall distribution on 16 – 19 October 2016 (isohyets are in millimetres).

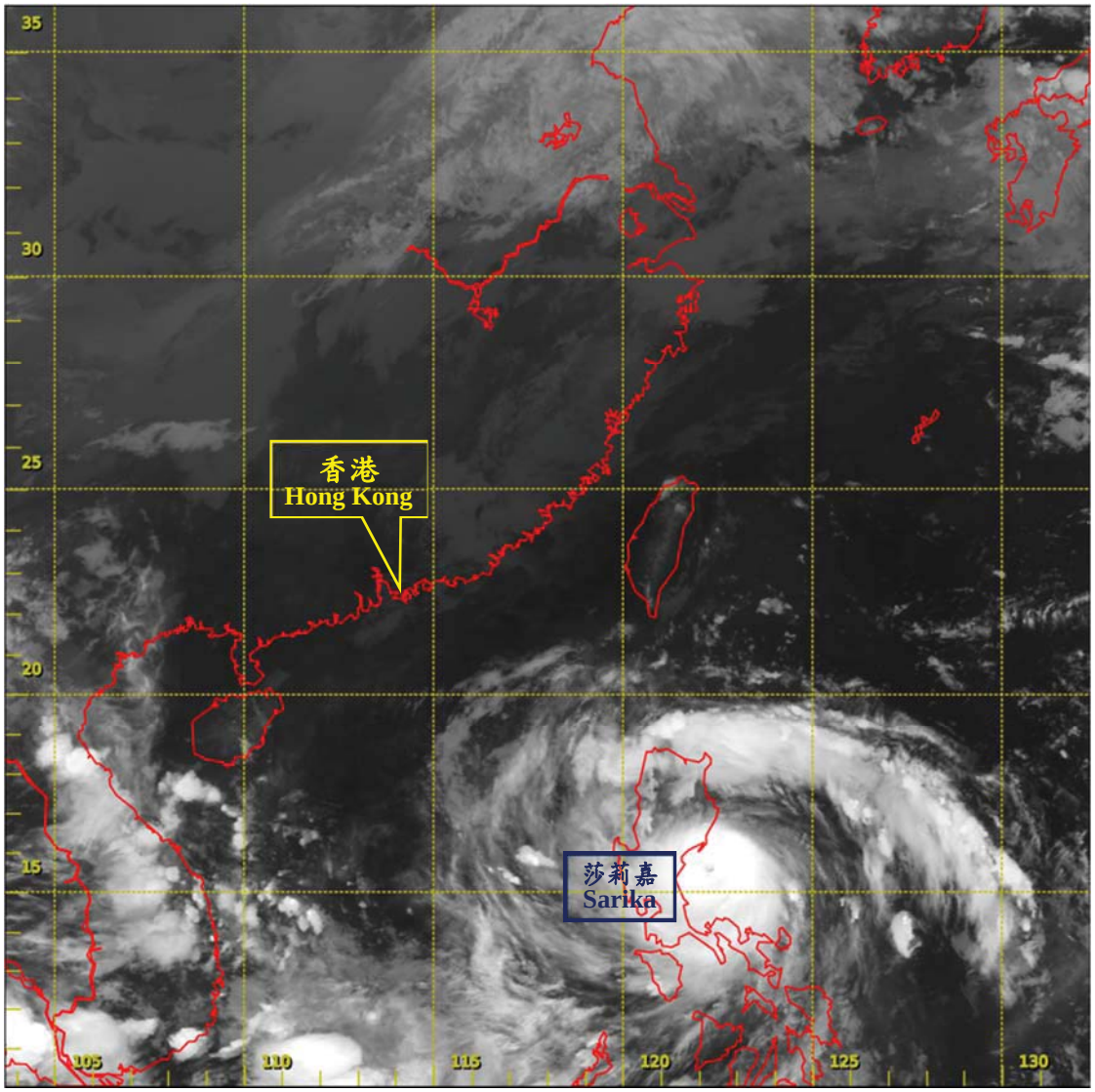


圖 3.8.3a　二零一六年十月十五日晚上 11 時左右的紅外線衛星圖片，當時莎莉嘉達到其最高強度，中心附近最高持續風速估計為每小時 185 公里。

Figure 3.8.3a　Infra-red satellite imagery around 11 p.m. on 15 October 2016 when Sarika was at its peak intensity with estimated maximum sustained winds of 185 km/h near its centre.

〔此衛星圖像接收自日本氣象廳的向日葵 8 號衛星。〕

[The satellite imagery was originally captured by Himawari-8 Satellite (H-8) of Ja Meteorological Agency (JMA).]

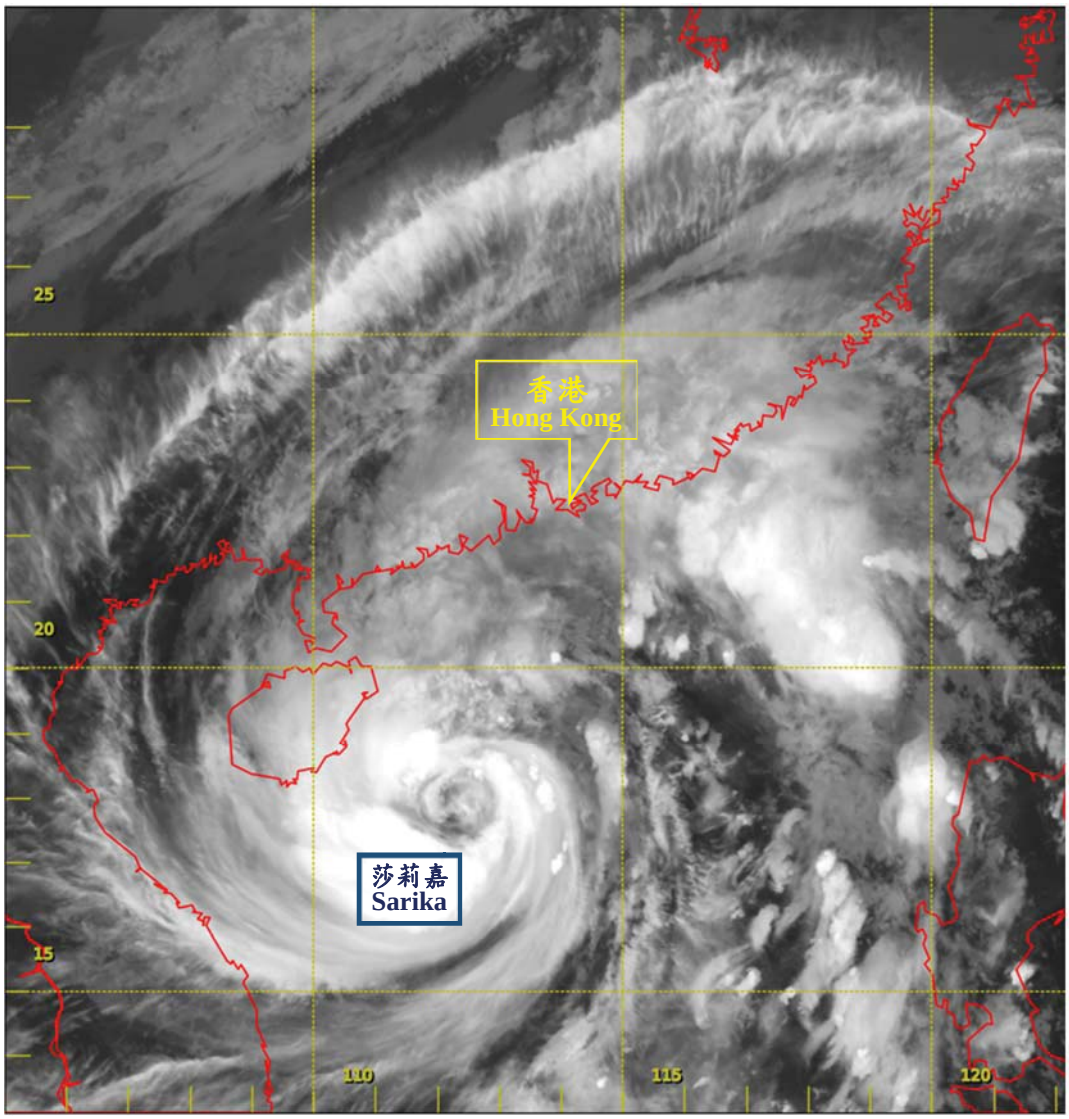


圖 3.8.3b　二零一六年十月十七日晚上 8 時左右的紅外線衛星圖片，當時莎莉嘉的中心附近最高持續風速估計為每小時 145 公里。

Figure 3.8.3b　Infra-red satellite imagery around 8 p.m. on 17 October 2016 when The estimated maximum sustained winds of Sarika was 145 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).]

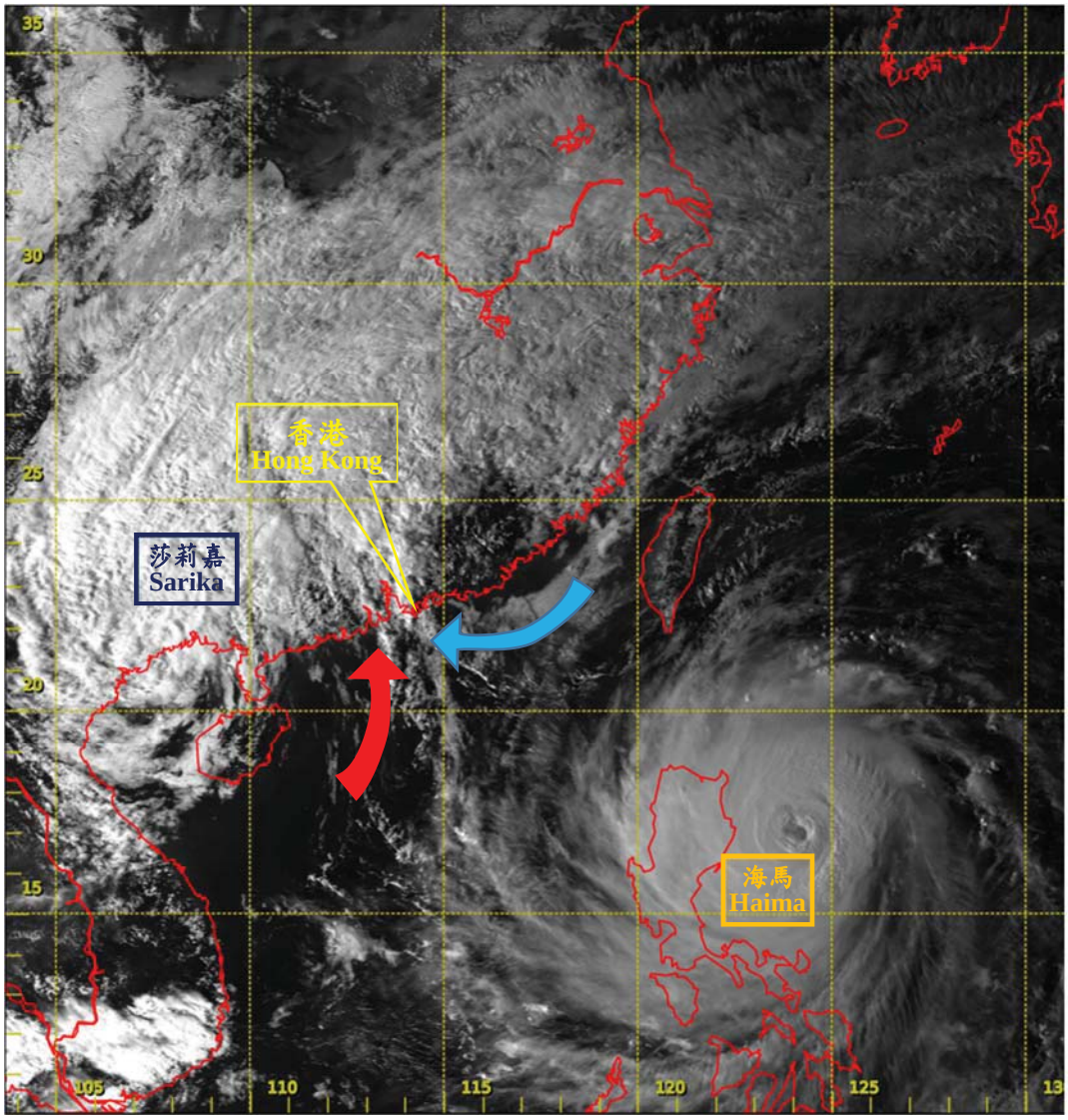


圖 3.8.3c　二零一六年十月十九日下午 4 時左右的可見光衛星圖片，當時莎莉嘉已在廣西內陸減弱為熱帶低氣壓，但其外圍偏南氣流(紅色箭咀)與東北季候風(藍色箭咀)的輻合引致香港附近有大雨和雷暴的發展。同時，位於北太平洋西部的超強颱風海馬正移向呂宋。

Figure 3.8.3c　Visible satellite imagery around 4 p.m. on 19 October 2016. Sarika had already weakened into a tropical depression over inland Guangxi. However, the convergence between the southerly airstream associated with Sarika (arrow in red) and the northeast monsoon (arrow in blue) triggered heavy rain and thunderstorm development near Hong Kong. Meanwhile, Super Typhoon Haima over the western North Pacific was moving towards Luzon.

〔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).]

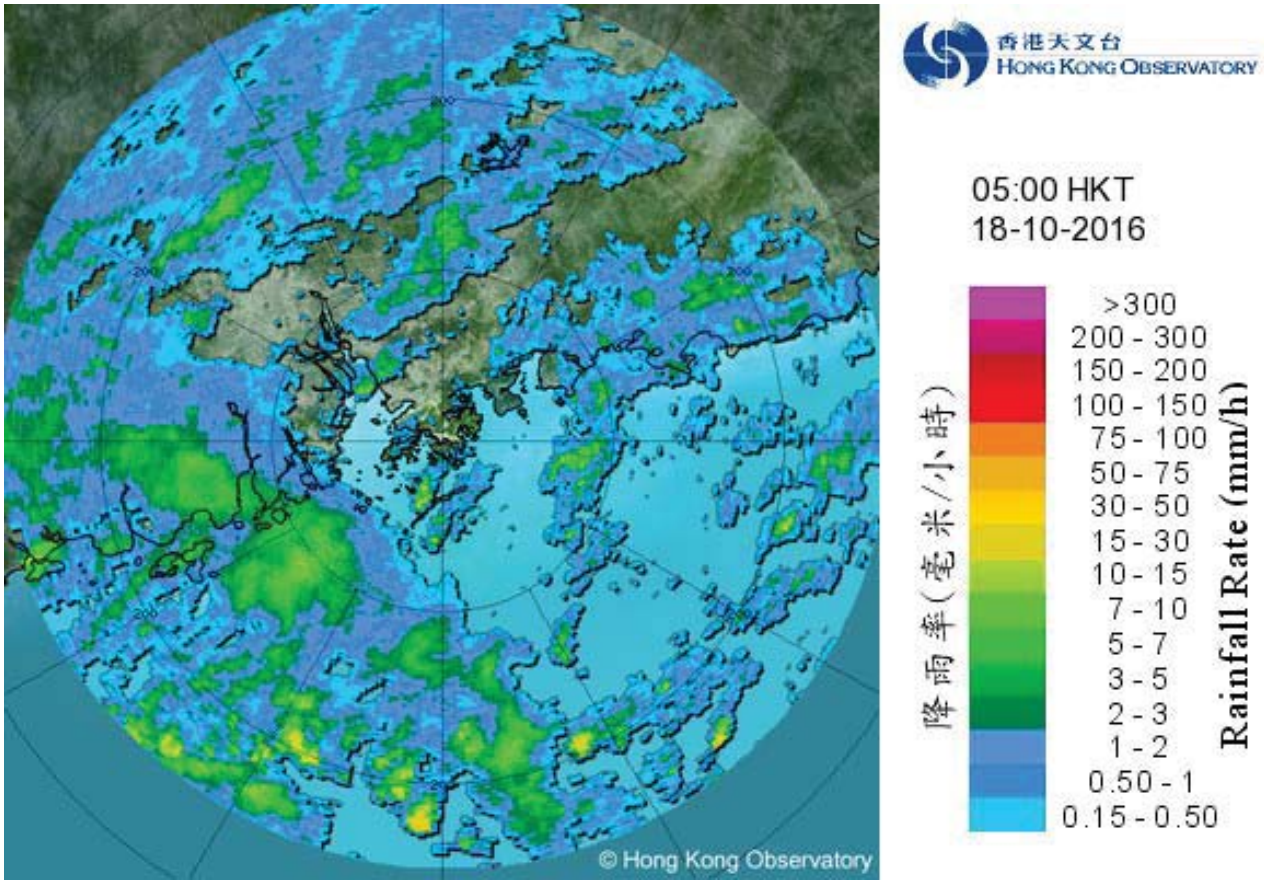


圖 3.8.4a　二零一六年十月十八日上午 5 時的雷達回波圖像，當時莎莉嘉最接近香港，位於本港之西南約 520 公里，其外圍雨帶正影響廣東沿岸及南海北部。

Figure 3.8.4a　Radar echoes captured at 5 a.m. on 18 October 2016, when Sarika was closest to Hong Kong with its centre about 520 km to the southwest. The outer rainbands of Sarika were affecting the coast of Guangdong and the northern part of the South China Sea.

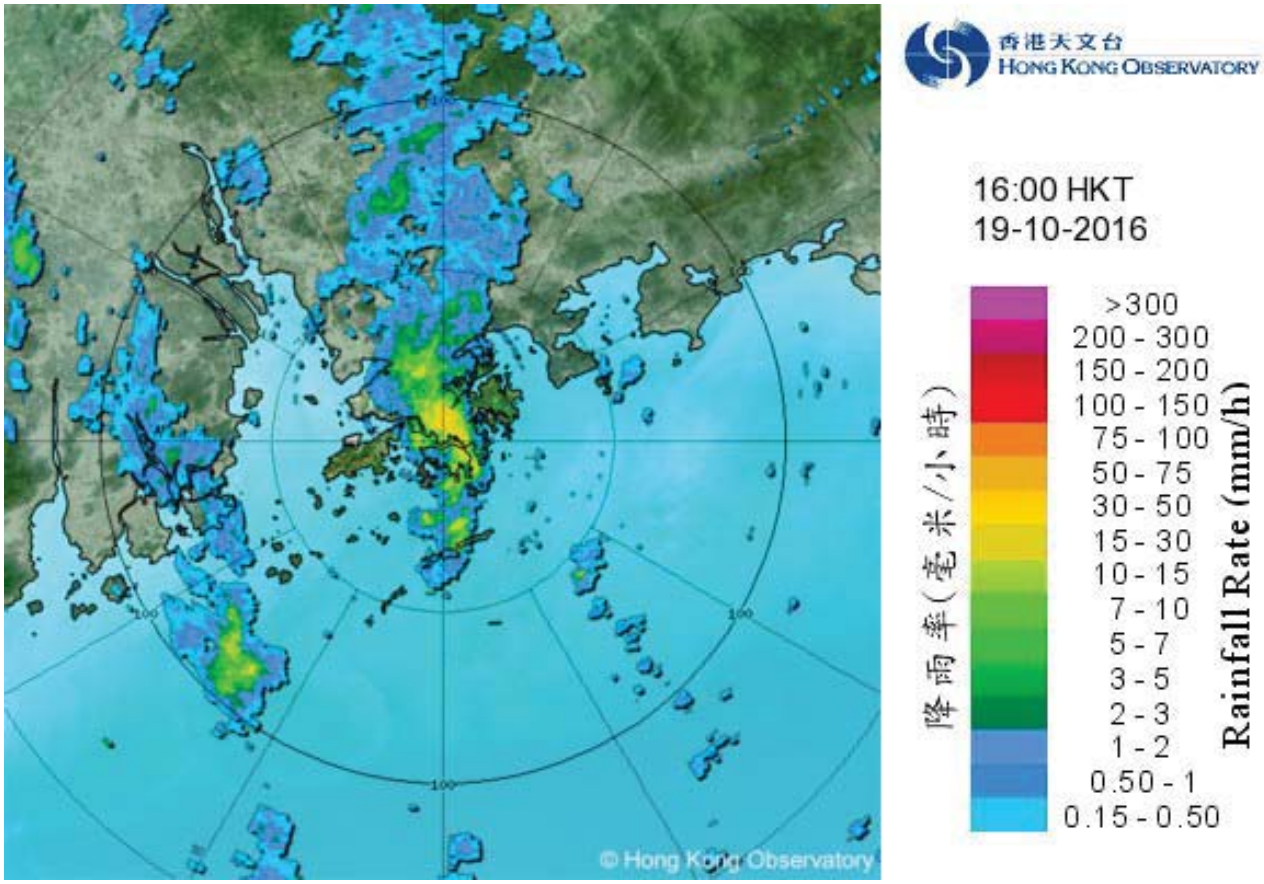


圖 3.8.4b　二零一六年十月十九日下午 4 時的雷達回波圖像，莎莉嘉的外圍偏南氣流與東北季候風的輻合引致香港附近有大雨和雷暴的發展。天文台需要發出黑色暴雨警告、山泥傾瀉警告、新界北部水浸特別報告及雷暴警告。

Figure 3.8.4b　Radar echoes captured at 4 p.m. on 19 October 2016. The convergence between the southerly airstream associated with Sarika and the northeast monsoon triggered heavy rain and thunderstorm development near Hong Kong. Black Rainstorm Warning, Landslip Warning, Special Announcement on Flooding in Northern New Territories and Thunderstorm Warning were issued by the Observatory.

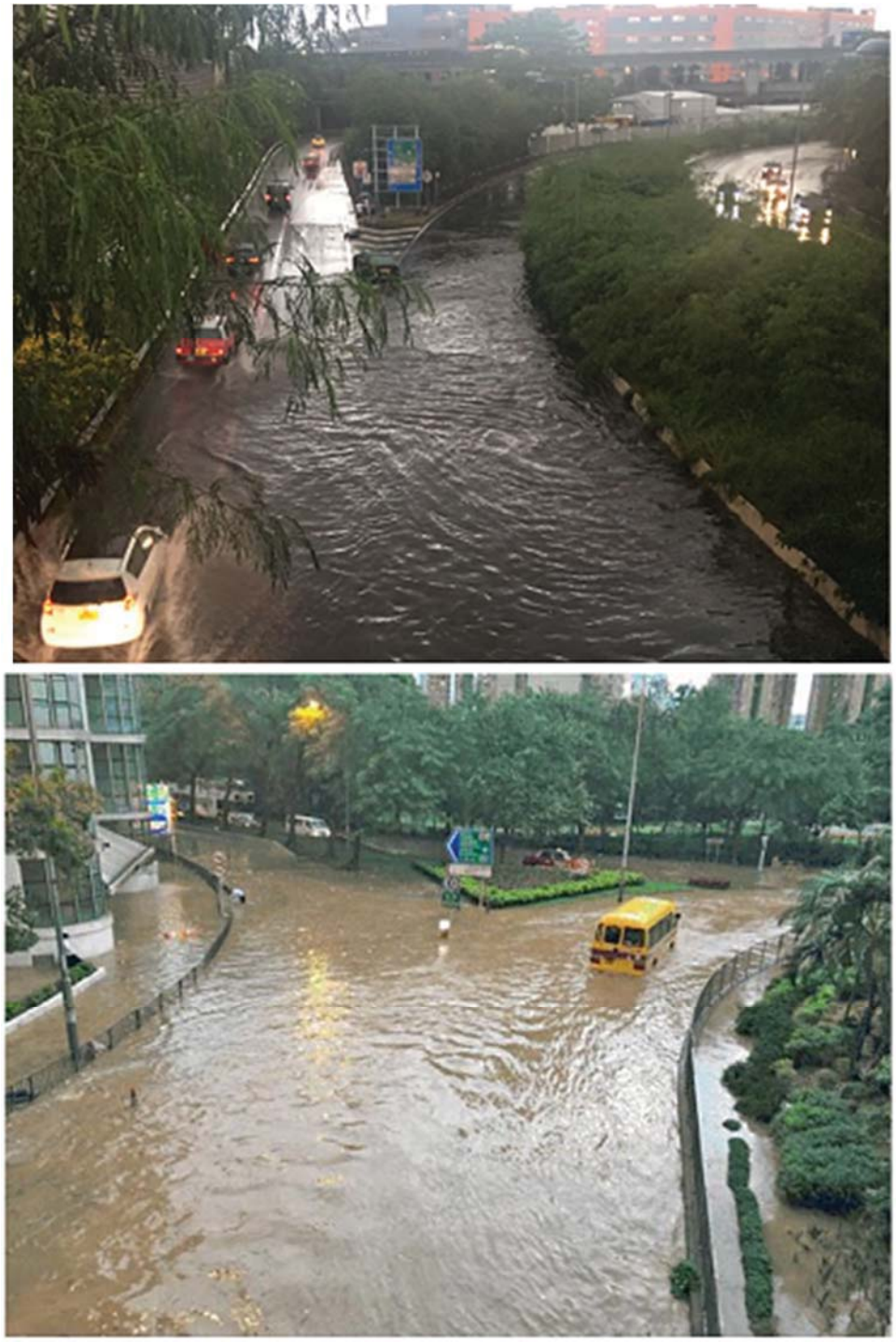


圖 3.8.5　二零一六年十月十九日在呈祥道(上)及柴灣道(下)的嚴重水浸。(鳴謝:渠務署)

Figure 3.8.5　Severe flooding at Ching Cheung Road (up) and Chai Wan Road (bottom) on 19 October 2016 (courtesy of Drainage Services Department).

3.9 超強颱風海馬(1622)：二零一六年十月十四日至二十二日

海馬是二零一六年第九個影響香港的熱帶氣旋。海馬吹襲香港期間，天文台需要發出八號烈風或暴風信號，是自一九九五年颱風斯寶以來再一次在十月份發出八號熱帶氣旋警告信號。

熱帶低氣壓海馬於十月十四日下午在關島以南約710公里的北太平洋西部上形成，大致向西北移動，並逐漸增強。海馬於十月十七日晚上發展為超強颱風，並向西北偏西移動，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230公里。海馬於十月二十日凌晨橫過呂宋北部及減弱為颱風，日間採取西北路徑進入南海東北部。翌日海馬轉向偏北方向移動，下午在廣東東部汕尾附近登陸，晚間在江西減弱為一個低壓區。

根據報章報導，海馬在呂宋北部造成嚴重破壞，廣泛地區出現水浸及山泥傾瀉，多間房屋倒塌，最少八人死亡，逾9萬人需要緊急疏散。海馬亦為廣東及福建帶來狂風大雨，最少180萬人受災，約600間房屋倒塌，海陸空交通大受影響，直接經濟損失超過50億元人民幣。

香港天文台在十月二十日早上8時20分發出一號戒備信號，當時海馬集結在香港之東南偏東約750公里。日間本港吹輕微至和緩偏北風。隨著海馬靠近廣東沿岸，天文台在晚上8時40分發出三號強風信號，當時海馬位於香港之東南約440公里。晚間本港風勢逐漸增強，吹清勁北至西北風，高地間中吹強風。由於海馬繼續靠近珠江口以東的沿岸地區，天文台在十月二十一日上午6時10分發出八號西北烈風或暴風信號，當時海馬集結在香港之東南偏東約230公里。本港風力顯著增強，普遍吹強風至烈風程度的西北風。海馬於下午一時左右在汕尾附近登陸並最接近香港，其中心在香港之東北偏東約110公里。隨著各區開始轉吹西南風，天文台於下午2時15分改發八號西南烈風或暴風信號。下午海馬移入內陸及減弱，本港風力逐漸緩和，天文台於下午5時20分改發三號強風信號，取代八號西南烈風或暴風信號，並於當晚10時10分取消所有熱帶氣旋警告信號。

在海馬的影響下，九龍天星碼頭、香港國際機場及流浮山錄得的最高每小時平均風速分別為每小時63、65及70公里，而最高陣風則分別為每小時88、85及110公里。橫瀾島錄得最高潮位2.89米(海圖基準面以上)，而尖鼻咀及橫瀾島則錄得最大風暴潮(天文潮高度以上) 0.65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	990.7	21/10	上午 11 時 32 分
香港國際機場	992.4	21/10	下午 12 時 11 分
打鼓嶺	989.2	21/10	下午 12 時 26 分
大埔	987.8	21/10	下午 12 時 30 分
沙田	989.7	21/10	下午 12 時 06 分
上水	989.6	21/10	下午 12 時 19 分
流浮山	990.2	21/10	正午 12 時
長洲	990.3	21/10	下午 12 時 05 分
橫瀾島	988.3	21/10	上午 10 時 32 分

在海馬前方的下沉氣流影響下，十月二十日本港部分時間有陽光及有煙霞。海馬的環流於十月二十一日為本港帶來狂風大雨，各區普遍錄得超過70毫米雨量，新界東部、九龍城及黃大仙的雨量更超過100毫米。隨著海馬移入內陸，十月二十二日本港天氣好轉，部分時間有陽光。

海馬吹襲香港期間，最少有13人受傷，另有近300宗塌樹報告及多宗高空墜物意外。荔枝角消防局附近及西貢龍尾村分別有大樹塌下，壓毀三輛私家車。東鐵線大學站附近的塌樹則導致列車服務一度受阻。大圍及沙田分別有帆布篷篷及圍板被吹翻，導致兩人受傷。一人在西貢早禾坑對開海面划獨木舟時墮海，其後獲救。在強風的影響下，深圳灣公路大橋一度封閉。香港國際機場有超過730班航班取消或延誤。

表3.9.1- 3.9.4 分別是海馬影響香港期間各站錄得的最高風速、持續風力達到強風及烈風程度的時段、香港的日雨量及最高潮位資料。圖3.9.1 - 3.9.2 分別為海馬的路徑圖和本港的雨量分佈圖。圖3.9.3顯示香港各站錄得的風向和風速。圖3.9.4顯示天文台總部及大埔錄得的海平面氣壓。圖3.9.5- 3.9.6分別顯示海馬的衛星圖像及雷達圖像。海馬在香港造成的破壞可參見圖3.9.7。

3.9 Super Typhoon Haima (1622): 14 – 22 October 2016

Haima was the ninth tropical cyclone affecting Hong Kong in 2016. The Observatory issued the No. 8 Gale or Storm Signal during the passage of Haima, necessitating the issuance of the No. 8 Signal once again in October since Typhoon Sibyl in 1995.

Haima formed as a tropical depression over the western North Pacific about 710 km south of Guam on the afternoon of 14 October. Moving generally northwestwards, Haima intensified gradually and developed into a super typhoon on the night of 17 October. Tracking to the west-northwest, it reached its peak intensity the next day with an estimated sustained wind of 230 km/h near its centre. Haima moved across northern Luzon on the early morning of 20 October and weakened into a typhoon. It then moved northwestwards and entered the northeastern part of the South China Sea during the day. Haima turned northwards on 21 October and made landfall near Shanwei in eastern Guangdong that afternoon, before finally degenerating into an area of low pressure over Jiangxi during the night.

According to press reports, Haima wreaked havoc in northern Luzon with extensive flooding and landslides as well as the collapse of many houses. At least eight people were killed and more than 90 000 people had to be evacuated. Haima also brought heavy rain and squalls to Guangdong and Fujian. At least 1.8 million people were affected and around 600 houses collapsed. Transportation services were seriously affected and the direct economic loss exceeded 5 billion RMB.

In Hong Kong, the Standby Signal No. 1 was issued at 8:20 a.m. on 20 October when Haima was about 750 km east-southeast of the territory. Local winds were light to moderate northerlies during the day. As Haima edged closer to the coast of Guangdong, the Strong Wind Signal No. 3 was issued at 8:40 p.m. that night when Haima was about 440 km southeast of Hong Kong. Local winds strengthened gradually during the night, becoming fresh north to northwesterlies and occasionally strong on high ground. With Haima approaching the coastal areas east of the Pearl River Estuary, the No. 8 Northwest Gale or Storm Signal was issued at 6:10 a.m. on 21 October when it was about 230 km east-southeast of Hong Kong. Local winds strengthened significantly and became generally strong to gale force from the northwest. Haima made landfall near Shanwei around 1 p.m. and was closest to Hong Kong with its centre about 110 km east-northeast of the territory. Local winds started to turn southwesterly and the No. 8 Southwest Gale or Storm Signal was issued at 2:15 p.m. on 21 October. With Haima moving inland and weakening in the afternoon, local winds subsided gradually. The No. 8 Southwest Gale or Storm Signal was replaced by the Strong Wind Signal No. 3 at 5:20 p.m., and all tropical cyclone warning signals were cancelled at 10:10 p.m. that night.

Under the influence of Haima, maximum hourly mean winds of 63, 65 and 70 km/h and gusts of 88, 85 and 110 km/h were recorded at Star Ferry (Kowloon), the Hong Kong International Airport and Lau Fau Shan respectively. A maximum sea level (above chart datum) of 2.89 m was recorded at Waglan Island, and a maximum storm surge (above astronomical tide) of 0.65 m was recorded at Tsim Bei Tsui and Waglan Island. 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	990.7	21/10	11:32 a.m.
Hong Kong International Airport	992.4	21/10	12:11 p.m.
Ta Kwu Ling	989.2	21/10	12:26 p.m.
Tai Po	987.8	21/10	12:30 p.m.
Shatin	989.7	21/10	12:06 p.m.
Sheung Shui	989.6	21/10	12:19 p.m.
Lau Fau Shan	990.2	21/10	12:00 noon
Cheung Chau	990.3	21/10	12:05 p.m.
Waglan Island	988.3	21/10	10:32 a.m.

Locally, there were sunny periods and haze on 20 October under the influence of the subsiding air ahead of Haima. The circulation of Haima brought heavy rain and squalls to Hong Kong on 21 October. More than 70 millimetres of rainfall were generally recorded over the territory, and rainfall over the eastern part of the New Territories, Kowloon City and Wong Tai Sin even exceeded 100 millimetres. As Haima moved inland, local weather improved on 22 October with sunny periods.

In Hong Kong, at least 13 people were injured during the passage of Haima. There were nearly 300 reports of fallen trees and many incidents of falling objects. Trees toppled near Lai Chi Kok Fire Station and Lung Mei Tsuen in Sai Kung, damaging three private cars; while fallen trees near the University station of the East Rail Line resulted in a disruption of train services. A canopy in Tai Wai and a hoarding in Sha Tin were blown down, injuring two persons. A canoeist fell into the sea off Tso Wo Hang in Sai Kung and was later rescued. The Shenzhen Bay Bridge was closed under high winds. Over 730 flights were cancelled or delayed at the Hong Kong International Airport.

Information on the maximum wind, period of strong and gale force winds, daily rainfall and maximum sea level reached in Hong Kong during the passage of Haima is given in Tables 3.9.1 - 3.9.4 respectively. Figures 3.9.1 - 3.9.2 show respectively the track of Haima and the rainfall distribution for Hong Kong. Figure 3.4.3 shows the winds recorded at various stations in Hong Kong. Figure 3.4.4 shows the trace of mean sea-level pressure recorded at the Hong Kong Observatory's Headquarters and Tai Po. Figures 3.9.5 – 3.9.6 show respectively a satellite imagery and a radar imagery of Haima. Some damages caused by Haima in Hong Kong are illustrated in Figures 3.9.7.

表 3.9.1　在海馬影響下，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 3.9.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when the tropical cyclone warning signals for Haima 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)	西北	NW	68	21/10	10:06	西北	NW	40	21/10	11:00
中環碼頭	Central Pier	西	W	85	21/10	09:31	西	W	51	21/10	12:00
長洲	Cheung Chau	西北偏西	WNW	108	21/10	12:21	西北偏西	WNW	67	21/10	13:00
長洲泳灘	Cheung Chau Beach	西北偏西	WNW	101	21/10	11:14	西	W	59	21/10	13:00
		西	W	101	21/10	12:19					
青洲	Green Island	西北偏西	WNW	96	21/10	12:50	西北偏北	NNW	67	21/10	08:00
香港國際機場	Hong Kong International Airport	西北	NW	85	21/10	11:09	西北偏西	WNW	65	21/10	12:00
啟德	Kai Tak	西	W	90	21/10	09:22	西	W	43	21/10	11:00
京士柏	King's Park	西北偏西	WNW	79	21/10	13:19	西北偏西	WNW	31	21/10	13:00
							西北偏西	WNW	31	21/10	14:00
流浮山	Lau Fau Shan	西	W	110	21/10	13:19	西	W	70	21/10	13:00
北角	North Point	西南偏西	WSW	88	21/10	13:49	西南偏西	WSW	58	21/10	14:00
坪洲	Peng Chau	西南	SW	101	21/10	11:35	西南偏西	WSW	59	21/10	11:00
平洲	Ping Chau	西	W	68	21/10	13:02	西	W	38	21/10	15:00
西貢	Sai Kung	西北	NW	79	21/10	09:40	西北	NW	38	21/10	10:00
沙洲	Sha Chau	西	W	68	21/10	12:23	西南偏南	SSW	43	21/10	19:00
沙螺灣	Sha Lo Wan	西南偏南	SSW	72	21/10	16:41	西南偏西	WSW	31	21/10	14:00
沙田	Sha Tin	西南偏西	WSW	75	21/10	12:35	西南	SW	23	21/10	16:00
石崗	Shek Kong	西	W	58	21/10	11:58	西	W	22	21/10	12:00
九龍天星碼頭	Star Ferry (Kowloon)	西	W	88	21/10	12:43	西	W	63	21/10	13:00
打鼓嶺	Ta Kwu Ling	西南偏西	WSW	54	21/10	12:16	西南偏南	SSW	20	21/10	18:00
大美督	Tai Mei Tuk	西北偏西	WNW	104	21/10	12:47	西	W	63	21/10	13:00
大帽山	Tai Mo Shan	西北偏西	WNW	155	21/10	12:33	西北偏西	WNW	115	21/10	13:00
大埔滘	Tai Po Kau	西	W	88	21/10	11:50	西	W	47	21/10	13:00
塔門	Tap Mun	西	W	106	21/10	13:33	西	W	62	21/10	12:00
大老山	Tate's Cairn	西北偏西	WNW	122	21/10	10:40	西北	NW	77	21/10	10:00
將軍澳	Tseung Kwan O	西北偏西	WNW	52	21/10	10:40	西北偏北	NNW	19	21/10	07:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	西北偏西	WNW	85	21/10	12:29	西北偏西	WNW	51	21/10	13:00
屯門政府合署	Tuen Mun Government Offices	西北偏西	WNW	96	21/10	12:03	西北偏西	WNW	40	21/10	13:00
橫瀾島	Waglan Island	西	W	115	21/10	12:35	西南	SW	83	21/10	16:00
							西南	SW	83	21/10	17:00
濕地公園	Wetland Park	西北偏西	WNW	68	21/10	11:08	西北偏西	WNW	22	21/10	12:00
黃竹坑	Wong Chuk Hang	西北偏北	NNW	88	21/10	10:36	西北偏北	NNW	31	21/10	11:00

昂坪 - 沒有資料　Ngong Ping - data not available

表 3.9.2　在海馬影響下，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 3.9.2　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 Haima 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	21/10	0726	21/10	1533	21/10	1104	21/10	1313
香港國際機場	Hong Kong International Airport	21/10	0339	21/10	2132	21/10	1051	21/10	1151
啟德	Kai Tak	21/10	0729	21/10	1311	-			
流浮山	Lau Fau Shan	21/10	0518	21/10	1803	21/10	1047	21/10	1351
西貢	Sai Kung	21/10	0947	21/10	0951	-			
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	21/10	1051	21/10	1433	-			

沙田及打鼓嶺的持續風力未達到強風程度。

The sustained wind speed did not attain strong force at Sha Tin and Ta Kwu Ling.

- 未達到指定的風速

- not attaining the specified wind speed

* 十分鐘平均風速達每小時 41-62 公里

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

十分鐘平均風速達每小時 63-87 公里

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

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

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

表 3.9.3　海馬掠過期間，香港天文台總部及其他各站所錄得的日雨量
Table 3.9.3　Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Haima

站 (參閱圖 3.10.2) Station (See Fig. 3.10.2)			十月二十日 20 Oct	十月二十一日 21 Oct	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory			0.0	72.5	72.5
香港國際機場 Hong Kong International Airport (HKA)			0.0	24.4	24.4
長洲 Cheung Chau (CCH)			[0.0]	[41.5]	[41.5]
H23	香 港 仔	Aberdeen	0.0	67.5	67.5
N05	粉 嶺	Fanling	0.5	83.0	83.5
N13	糧 船 灣	High Island	0.0	91.0	91.0
K04	佐 敦 谷	Jordan Valley	0.0	90.0	90.0
N06	葵 涌	Kwai Chung	0.0	95.0	95.0
H12	半 山 區	Mid Levels	0.0	76.0	76.0
N09	沙 田	Sha Tin	0.5	95.5	96.0
H19	筲 箕 灣	Shau Kei Wan	0.0	91.0	91.0
SEK	石 崗	Shek Kong	[0.0]	[61.0]	[61.0]
K06	蘇 屋 邨	So Uk Estate	0.0	96.0	96.0
R31	大 美 督	Tai Mei Tuk	[0.0]	122.5	[122.5]
R21	踏 石 角	Tap Shek Kok	0.0	42.0	42.0
TMR	屯 門 水 庫	Tuen Mun Reservoir	0.0	37.2	37.2
N17	東 涌	Tung Chung	[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 3.9.4　海馬掠過期間，香港各潮汐站所錄得的最高潮位及最大風暴潮
Table 3.9.4　Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Haima

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	2.74	21/10	00:28	0.54	21/10	13:44
石壁	Shek Pik	2.75	21/10	01:01	0.48	21/10	14:15
大埔滘	Tai Po Kau	2.80	21/10	01:28	0.57	21/10	14:16
大廟灣	Tai Miu Wan	2.75	21/10	01:34	0.64	21/10	13:37
尖鼻咀	Tsim Bei Tsui	2.88	21/10	00:19	0.65	21/10	14:42
橫瀾島	Waglan Island	2.89	21/10	01:13	0.65	21/10	13:37

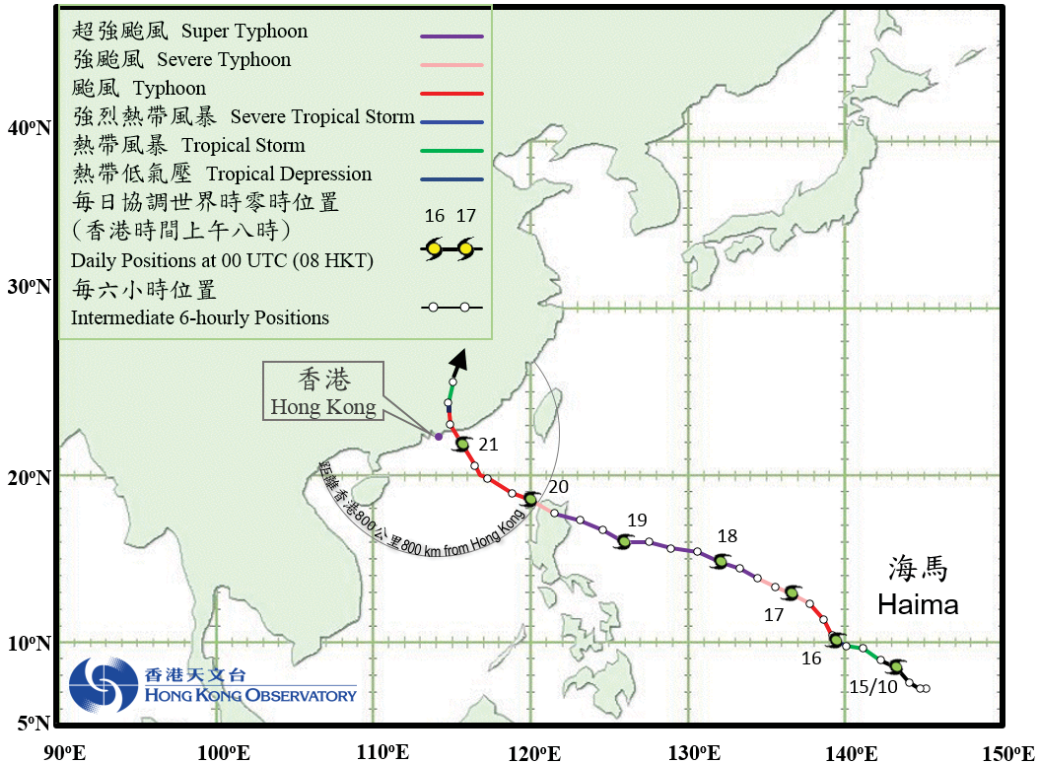


圖 3.9.1a 二零一六年十月十四日至二十二日海馬(1622)的路徑圖。
Figure 3.9.1a Track of Haima (1622) on 14 – 22 October 2016.

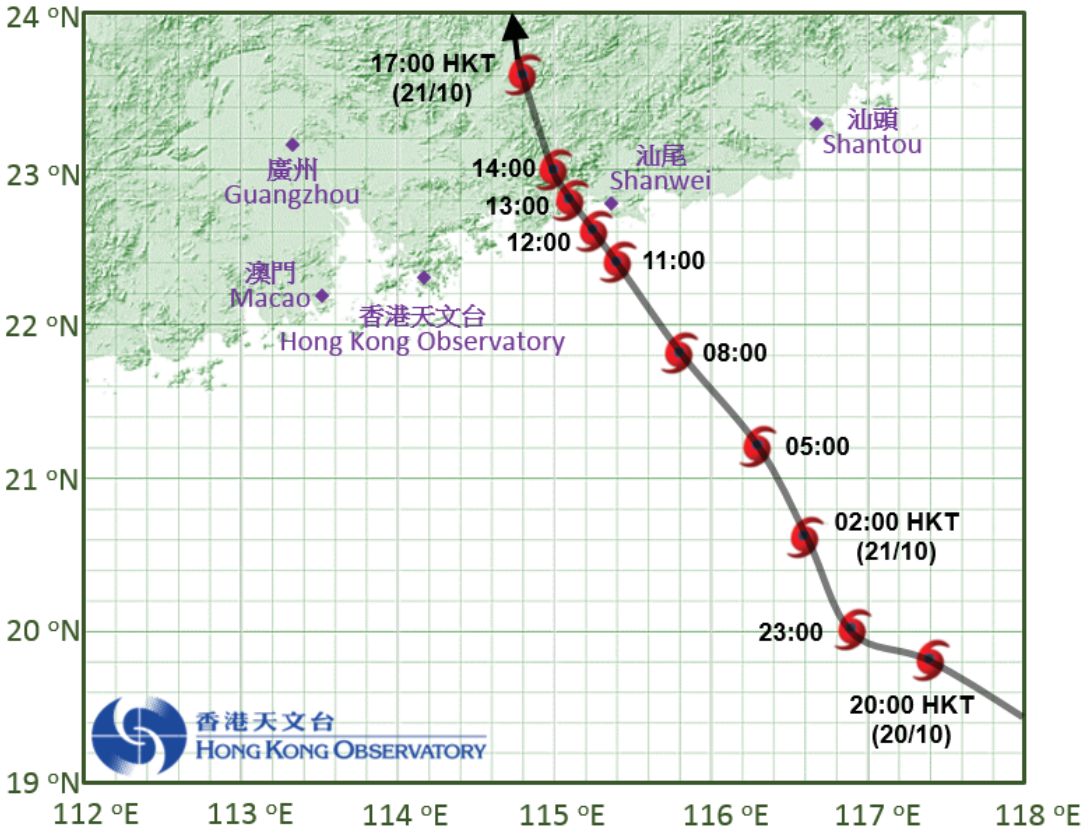


圖 3.9.1b 海馬接近香港時的路徑圖。
Figure 3.9.1b Track of Haima near Hong Kong.

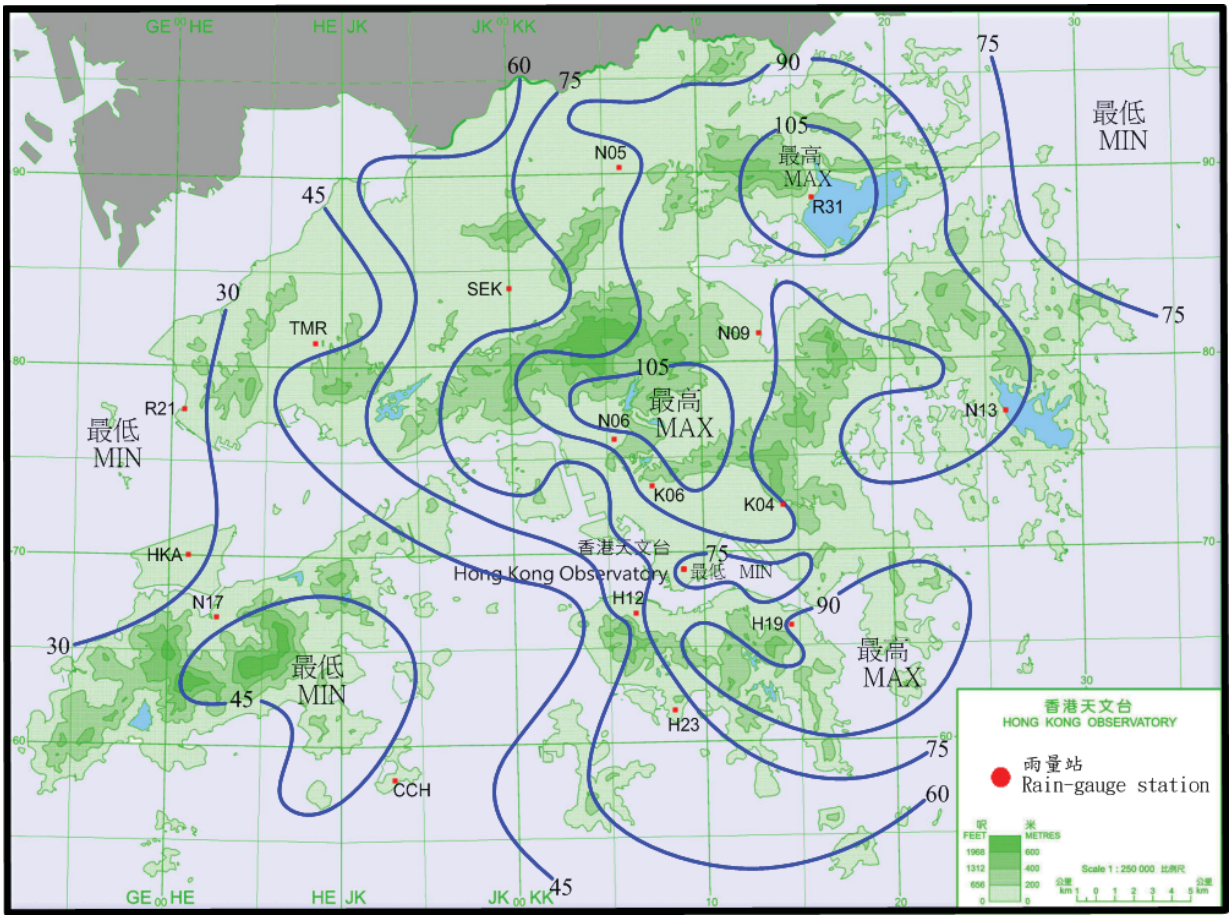


圖 3.9.2　　二零一六年十月二十日至二十一日的雨量分佈(等雨量線單位為毫米)。

Figure 3.9.2　Rainfall distribution on 20 - 21 October 2016 (isohyets in millimetres).

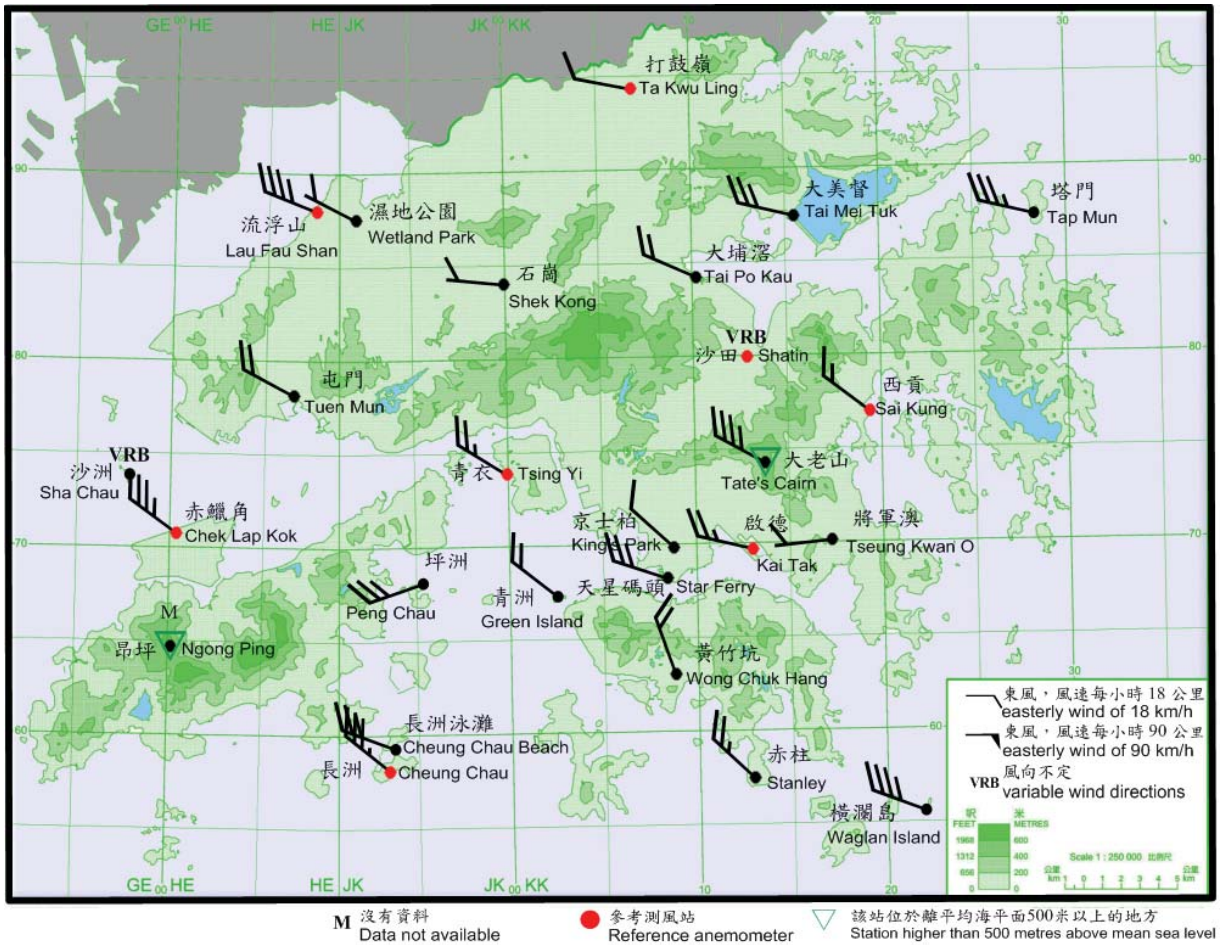


圖 3.9.3　二零一六年十月二十一日上午 11 時香港各站錄得的十分鐘平均風向和風速。當時颱風海馬集結在香港以東約 130 公里。

Figure 3.9.3　10-minute mean wind direction and speed recorded at various stations in Hong Kong at 11:00 a.m. on 21 October 2016. Typhoon Haima was about 130 km east of Hong Kong at the time.

註：　沙洲及沙田當時錄得的十分鐘平均風速分別為每小時 16 及 23 公里。

Note: The 10-minute mean wind speeds recorded at that time at Sha Chau and Shatin were 16 and 23 km/h respectively.

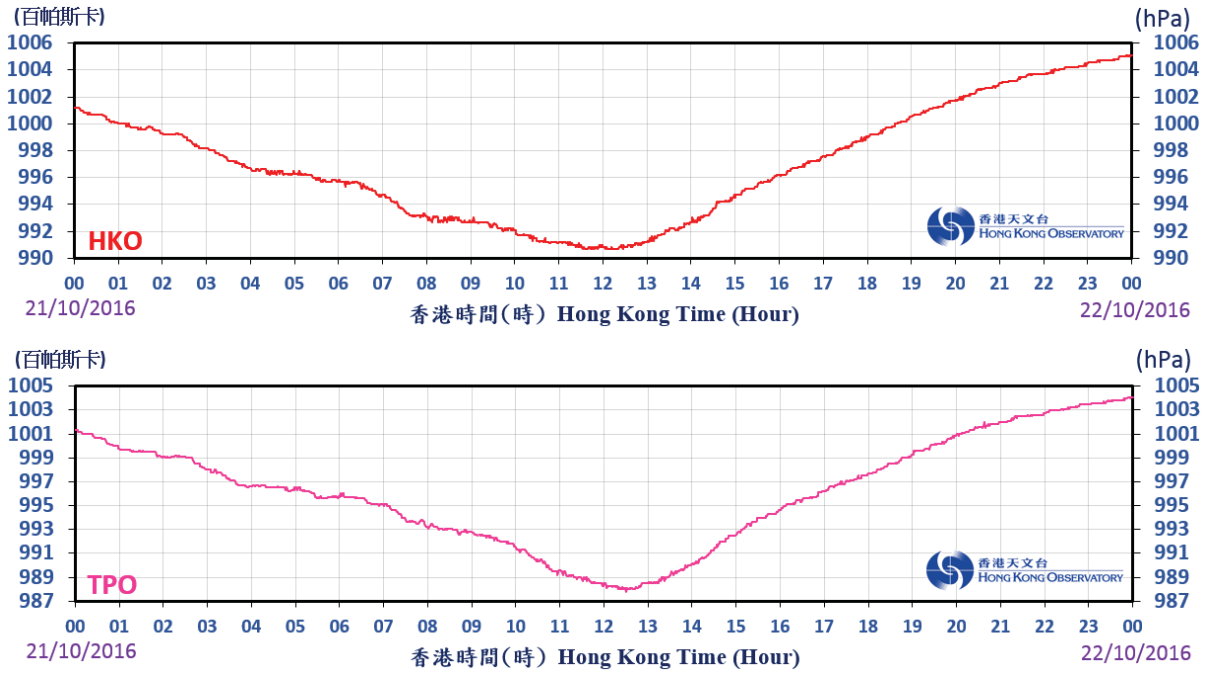


圖 3.9.4　　二零一六年十月二十一日天文台總部(上圖)及大埔(下圖)錄得的海平面氣壓。

Figure 3.9.4　　Traces of mean sea-level pressure recorded at the Observatory Headquarters (top panel) and Tai Po (bottom panel) on 21 October 2016.

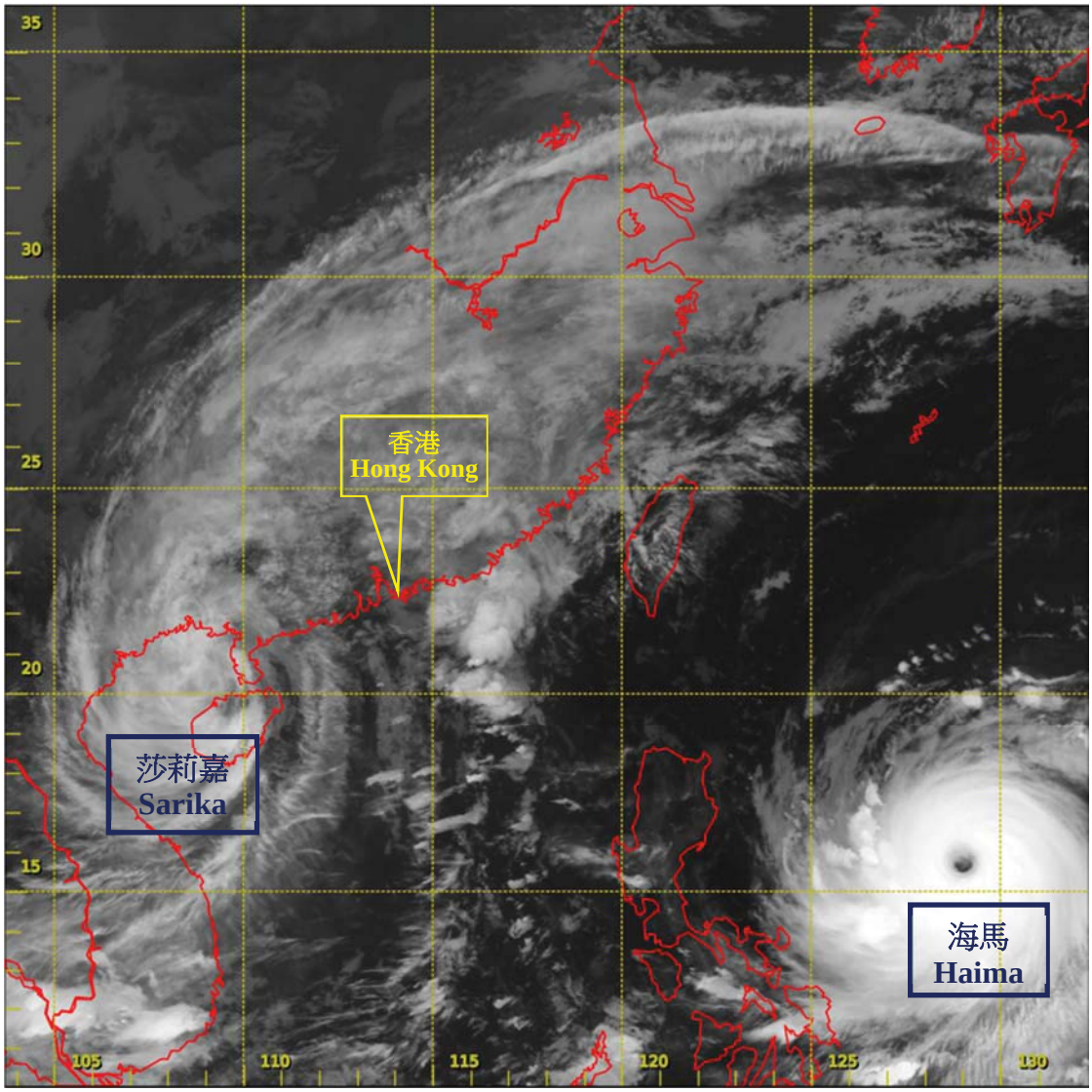


圖 3.9.5a　二零一六年十月十八日晚上 8 時左右的紅外線衛星圖片，當時海馬達到其最高強度，中心附近最高持續風速估計為每小時 230 公里。同時，強烈熱帶風暴莎莉嘉正橫過北部灣。

Figure 3.9.5a　Infra-red satellite imagery around 8 p.m. on 18 October 2016, when Haima was at peak intensity with estimated maximum sustained winds of 230 km/h near its centre. Meanwhile, Severe Tropical Storm Sarika was moving across Beibu Wan.

〔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).]

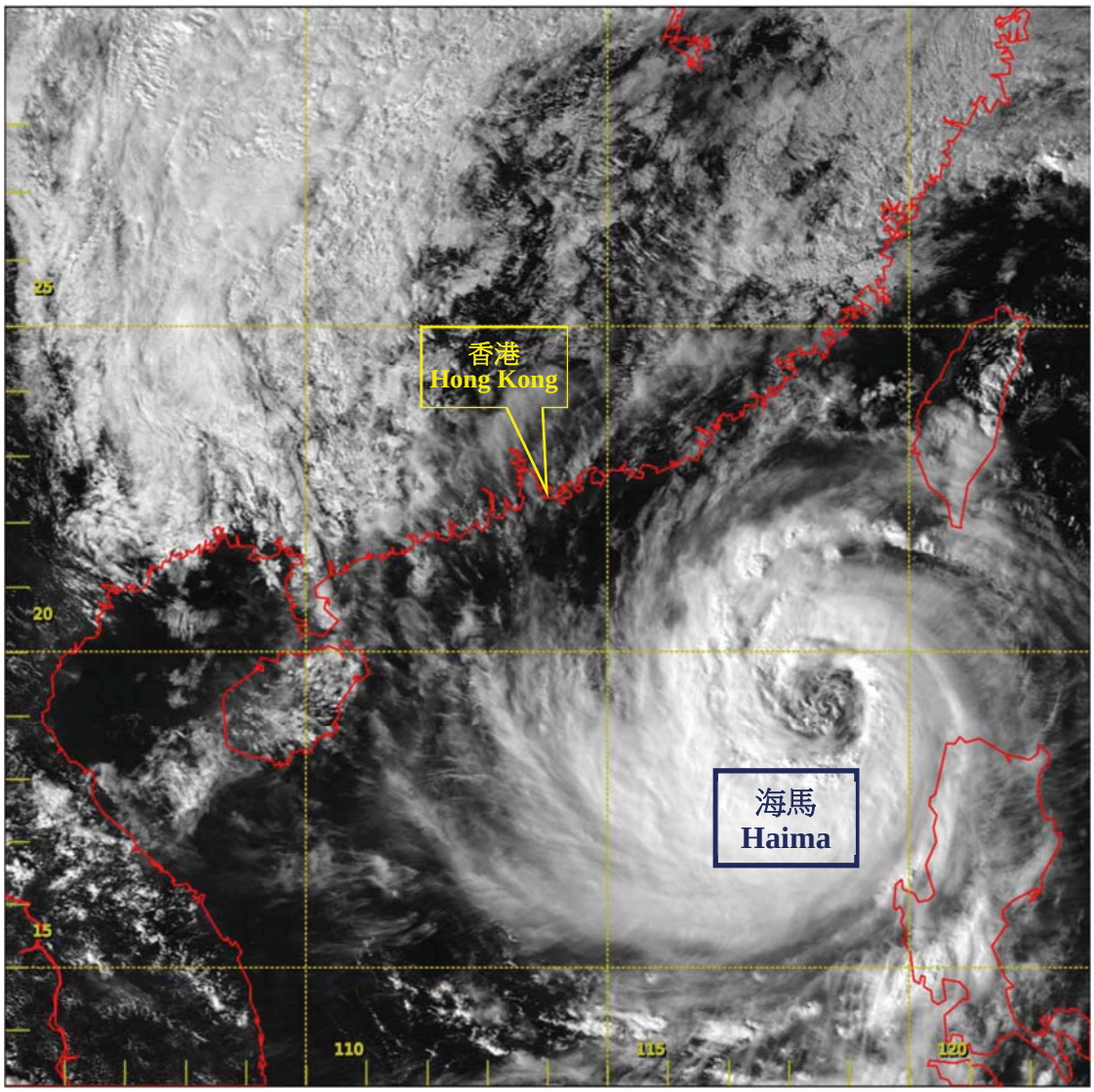


圖 3.9.5b　二零一六年十月二十日下午 3 時左右的可見光衛星圖片，海馬直徑約 130 公里的風眼清晰可見。

Figure 3.9.5b　Visible satellite imagery around 3 p.m. on 20 October 2016, showing clearly the eye of Haima with a diameter of about 130 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).]

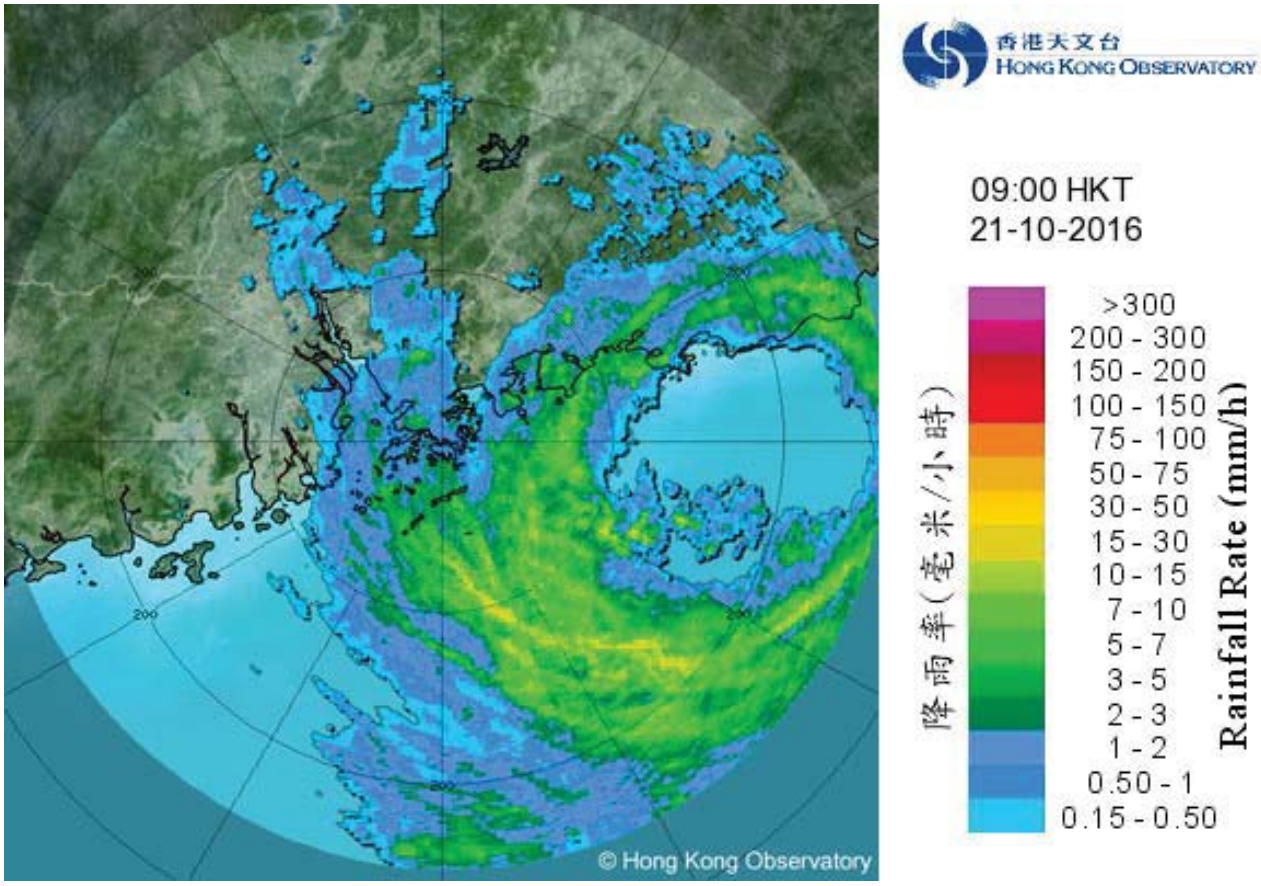


圖 3.9.6a　二零一六年十月二十一日早上 9 時正的雷達回波圖像，海馬擴張的風眼位於香港以東。

Figure 3.9.6a　Image of radar echoes at 9 a.m. on 21 October 2016, with the enlarged eye of Haima located east of Hong Kong.

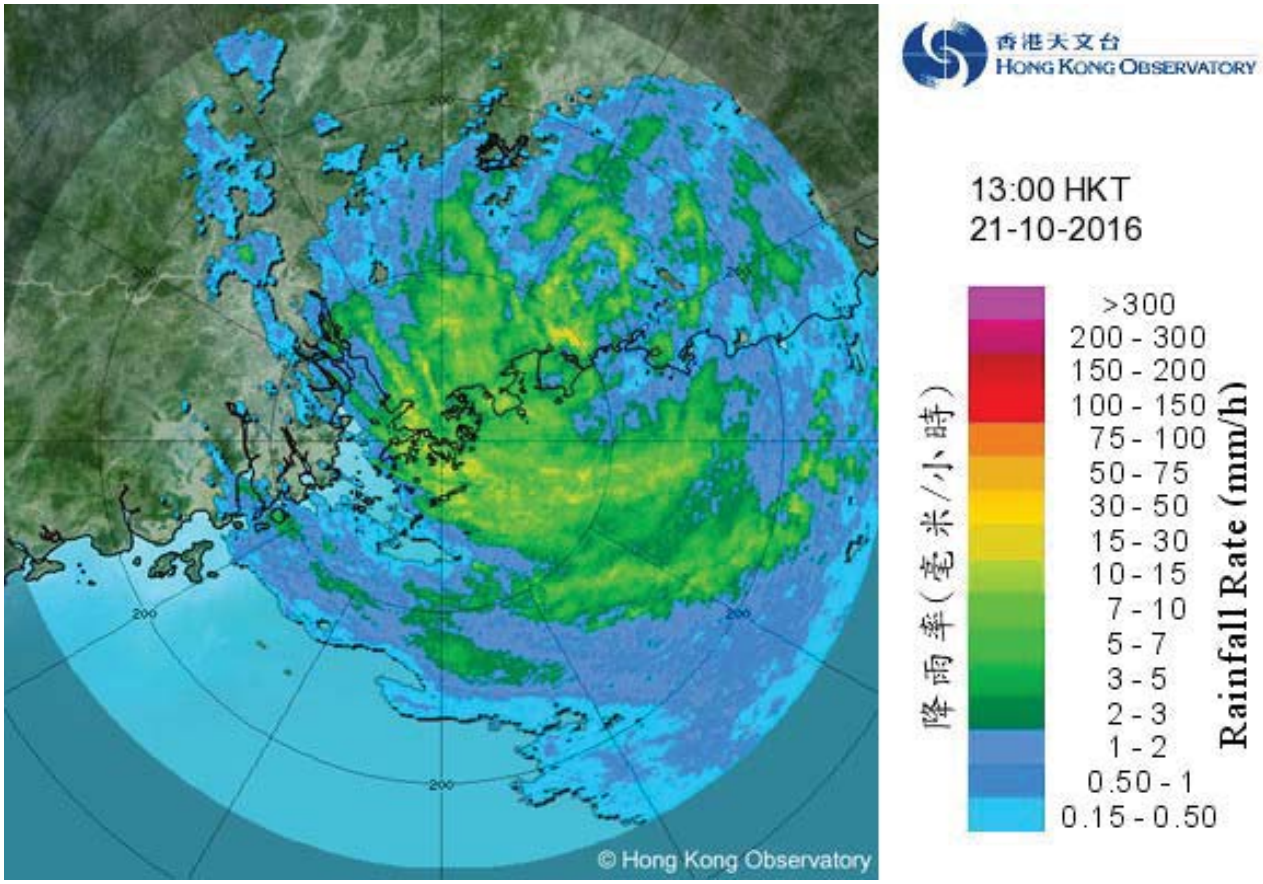


圖 3.9.6b　二零一六年十月二十一日下午 1 時正的雷達回波圖像。當時海馬最接近香港，其中心在本港之東北偏東約 110 公里。海馬的強烈雨帶亦正影響香港。

Figure 3.9.6b　Image of radar echoes at 1 p.m. on 21 October 2016 when Haima was closest to Hong Kong with its centre about 110 km east-northeast of the territory. Hong Kong was also under the influence of the intense rainbands of Haima at the time.

圖 3.9.7　荔枝角消防局附近有樹木被吹倒。(照片由市民提供)

Figure 3.9.7　Trees blown down near Lai Chi Kok Fire Station. (Photo provided by member of the public)

第四節　熱帶氣旋統計表

表4.1是二零一六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是天文台在二零一六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是二零一六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是一九五六至二零一六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是一九五六至二零一六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是一九五六至二零一六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是二零一六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是二零一六年位於香港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二零一六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是自一九四六年至二零一六年間，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是二零一六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及本地報章的報導。

表4.11是一九六零至二零一六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是二零一六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 2016 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 2016, 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 2016. 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 2016 inclusive.

TABLE 4.5 gives the annual number of tropical cyclones in Hong Kong's area of responsibility between 1956 and 2016 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 1956-2016.

TABLE 4.7 is a summary of meteorological information for each tropical cyclone affecting Hong Kong in 2016, 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 2016.

TABLE 4.8.2 highlights the 10 wettest tropical cyclones in Hong Kong for the period 1884-1939 and 1947-2016.

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 2016. 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 2016. The information is based on reports from various government departments, public utility companies and local newspapers.

TABLE 4.11 presents casualties and damage caused by tropical cyclones in Hong Kong: 1960-2016. 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 2016.

表 4.1　　二零一六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 2016

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 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	
熱帶低氣壓	Tropical Depression	-	26 / 5	1200	18.9 113.5	55	998	27 / 5	1200	22.4 112.5	DISP
超強颱風尼伯特	Super Typhoon Nepartak	1601	3 / 7	0000	8.5 144.8	230	905	9 / 7	2100	26.3 116.8	DISP
熱帶風暴盧碧	Tropical Storm Lupit	1602	23 / 7	1200	27.4 155.3	75	996	24 / 7	1800	37.0 159.0	XT
強烈熱帶風暴銀河	Severe Tropical Storm Mirinae	1603	25 / 7	1200	17.0 115.1	90	985	28 / 7	0600	21.2 105.0	DISP
颱風妮妲	Typhoon Nida	1604	29 / 7	1200	12.0 127.4	130	968	2 / 8	1800	24.3 109.5	DISP
強烈熱帶風暴奧麥斯	Severe Tropical Storm Omais	1605	4 / 8	0600	18.9 148.8	105	980	9 / 8	1200	41.8 148.0	XT
熱帶風暴康森	Tropical Storm Conson	1606	8 / 8	0600	17.2 161.6	85	985	14 / 8	1200	40.2 148.0	XT
熱帶風暴燦都	Tropical Storm Chanthu	1607	13 / 8	1200	19.2 141.3	85	985	17 / 8	0600	40.8 142.6	XT
熱帶風暴電母	Tropical Storm Dianmu	1608	17 / 8	0300	20.8 112.8	85	980	20 / 8	0000	21.3 101.6	DISP
強烈熱帶風暴蒲公英	Severe Tropical Storm Mindulle	1609	19 / 8	0000	17.6 142.5	110	975	23 / 8	0000	43.6 143.8	XT
強颱風獅子山	Severe Typhoon Lionrock	1610	19 / 8	1200	32.9 141.6	175	940	30 / 8	1200	41.3 140.0	XT
熱帶風暴圓規	Tropical Storm Kompasu	1611	19 / 8	1800	32.2 149.3	65	994	21 / 8	1200	42.5 143.9	XT
強颱風南川	Severe Typhoon Namtheun	1612	31 / 8	1800	23.1 126.5	165	945	5 / 9	0000	34.2 130.5	DISP
熱帶低氣壓瑪瑙	Tropical Depression Malou	1613	6 / 9	0600	26.7 126.8	55	998	7 / 9	1800	32.3 136.4	XT
超強颱風莫蘭蒂	Super Typhoon Meranti	1614	9 / 9	1800	14.2 141.3	250	890	15 / 9	1200	27.2 117.1	DISP
熱帶低氣壓雷伊	Tropical Depression Rai	1615	12 / 9	0000	13.6 112.1	55	998	13 / 9	0600	16.0 106.2	DISP
強颱風馬勒卡	Severe Typhoon Malakas	1616	12 / 9	0600	13.1 141.7	175	940	20 / 9	0600	34.5 136.2	XT
強颱風鮎魚	Severe Typhoon Megi	1617	22 / 9	0000	11.0 144.0	175	940	28 / 9	1800	25.7 116.0	DISP
超強颱風暹芭	Super Typhoon Chaba	1618	27 / 9	1800	14.6 150.0	220	915	5 / 10	0600	35.9 131.0	XT
熱帶風暴艾利	Tropical Storm Aere	1619	5 / 10	0600	19.5 125.2	85	988	14 / 10	0000	16.8 106.7	DISP
超強颱風桑達	Super Typhoon Songda	1620	8 / 10	0600	19.5 155.8	185	935	13 / 10	0000	38.1 166.3	XT
超強颱風莎莉嘉	Super Typhoon Sarika	1621	13 / 10	0000	13.0 130.7	185	935	19 / 10	0900	21.8 108.0	DISP
超強颱風海馬	Super Typhoon Haima	1622	14 / 10	0600	7.2 145.2	230	910	21 / 10	1800	25.6 115.2	DISP
颱風米雷	Typhoon Meari	1623	1 / 11	1800	11.4 138.8	140	960	7 / 11	0600	29.3 148.0	XT
熱帶風暴馬鞍	Tropical Storm Ma-on	1624	9 / 11	0600	14.6 159.7	65	1000	12 / 11	0000	20.8 145.6	DISP
強烈熱帶風暴蝎虎	Severe Tropical Storm Tokage	1625	24 / 11	0600	9.7 126.7	90	985	28 / 11	0000	17.2 118.6	DISP
熱帶低氣壓	Tropical Depression	-	12 / 12	0600	9.6 109.8	45	1002	13 / 12	0000	10.9 107.9	DISP
超強颱風洛坦	Super Typhoon Nock-ten	1626	21 / 12	0600	6.6 141.5	210	920	27 / 12	1800	13.6 114.8	DISP

表 4.2　　二零一六年為船舶發出的熱帶氣旋警告
TABLE 4.2　TROPICAL CYCLONE WARNINGS FOR SHIPPING ISSUED IN 2016

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+	
* 熱帶低氣壓	* Tropical Depression	11	26 / 5	1200	27 / 5	1500	27
超強颱風尼伯特	Super Typhoon Nepartak	26	6 / 7	2100	9 / 7	2100	72
* 強烈熱帶風暴銀河	* Severe Tropical Storm Mirinae	23	25 / 7	1500	28 / 7	0600	63
* 颱風妮妲	* Typhoon Nida	25	30 / 7	1200	2 / 8	0600	66
* 熱帶風暴電母	* Tropical Storm Dianmu	23	17 / 8	0300	19 / 8	1200	57
熱帶低氣壓雷伊	Tropical Depression Rai	11	12 / 9	0000	13 / 9	0000	24
* 超強颱風莫蘭蒂	* Super Typhoon Meranti	19	13 / 9	0300	15 / 9	0600	51
強颱風馬勒卡	Severe Typhoon Malakas	22	16 / 9	0000	18 / 9	1200	60
* 強颱風鮎魚	* Severe Typhoon Megi	19	26 / 9	1500	28 / 9	1200	45
* 熱帶風暴艾利	* Tropical Storm Aere	43	5 / 10	0900	10 / 10	1200	123
		8	13 / 10	0300	14 / 10	0000	21
* 超強颱風莎莉嘉	* Super Typhoon Sarika	38	14 / 10	2100	19 / 10	0900	108
* 超強颱風海馬	* Super Typhoon Haima	24	19 / 10	0600	21 / 10	1200	54
強烈熱帶風暴蝎虎	Severe Tropical Storm Tokage	31	24 / 11	1500	28 / 11	0900	90
熱帶低氣壓	Tropical Depression	6	12 / 12	0900	13 / 12	0000	15
超強颱風洛坦	Super Typhoon Nock-ten	23	25 / 12	0900	28 / 12	0000	63
	共 Total	352					936

* 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　　二零一六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 2016

摘要 SUMMARY

信號 Signal	次數 No. of occasions	總時段 Total duration	
		時 h	分 min
1	11	174	30
3	7	81	20
8 西北 NW	2	16	5
8 西南 SW	2	11	5
8 東北 NE	0	0	0
8 東南 SE	0	0	0
9	0	0	0
10	0	0	0
共 Total	22	283	0

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*
熱帶低氣壓 Tropical Depression	28	1	26/05	21:40	27/05	05:40
		3	27/05	05:40	27/05	13:40
		1	27/05	13:40	27/05	22:50
強烈熱帶風暴銀河 Severe Tropical Storm Mirinae	16	1	26/07	08:40	26/07	23:20
颱風妮妲 Typhoon Nida	47	1	31/07	22:10	01/08	11:40
		3	01/08	11:40	01/08	20:40
		8 西北 NW	01/08	20:40	02/08	04:40
		8 西南 SW	02/08	04:40	02/08	12:40
		3	02/08	12:40	02/08	17:10
熱帶風暴電母 Tropical Storm Dianmu	30	1	17/08	11:30	17/08	22:15
		3	17/08	22:15	18/08	11:15
		1	18/08	11:15	18/08	13:15
超強颱風莫蘭蒂 Super Typhoon Meranti	20	1	14/09	10:10	15/09	04:20
強颱風鮎魚 Severe Typhoon Megi	18	1	28/09	08:40	28/09	23:10
熱帶風暴艾利 Tropical Storm Aere	56	1	06/10	20:40	09/10	03:45
超強颱風莎莉嘉 Super Typhoon Sarika	51	1	16/10	21:20	17/10	13:40
		3	17/10	13:40	18/10	22:10
超強颱風海馬 Super Typhoon Haima	45	1	20/10	08:20	20/10	20:40
		3	20/10	20:40	21/10	06:10
		8 西北 NW	21/10	06:10	21/10	14:15
		8 西南 SW	21/10	14:15	21/10	17:20
		3	21/10	17:20	21/10	22:10

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

表 4.4　一九五六至二零一六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 : 1956-2016

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
共 Total	406	337	27	34	60	50	20	13	15989	39
平均 Mean	6.7	5.5	0.4	0.6	1.0	0.8	0.3	0.2	262	8

表 4.5　一九五六至二零一六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 : 1956-2016

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
平均 Mean	15.5	5.9

表 4.6　　一九五六至二零一六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 : 1956-2016

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 h	分 min	時 h	分 min	時 h	分 min	時 h	分 min	時 h	分 min	時 h	分 min
一號或以上 1 or higher	375	42	38	161	0 (桃麗達 Tilda, 1964)	4	30 (熱帶低氣壓 T.D., 2000)	262	8	570	15 (1964)	36	35 (1959)
三號或以上 3 or higher	249	29	16	124	15 (瑪麗Mary, 1960)	4	5 (熱帶低氣壓 T.D., 2006)	119	30	306	35 (1974)	15	5 (2004)
八號或以上 8 or higher	90	14	34	66	50 (瑪麗Mary, 1960)	2	40 (雲茵Wynne, 1984)	21	30	100	55 (1964)	0	0
8 西北 NW	27	5	57	15	45	1	30	2	38	18	0	0	0
8 西南 SW	34	4	59	10	45	2	0	2	46	16	10	0	0
8 東北 NE	60	7	41	35	35	1	35	7	33	40	20	0	0
8 東南 SE	50	7	32	21	45	0	20	6	10	31	15	0	0
九號或以上 9 or higher	21	6	54	12	25 (約克York, 1999)	2	0 (杜鵑Dujuan, 2003)	2	22	19	25 (1964)	0	0
十號 10	13	6	17	11	0 (約克York, 1999)	2	30 (愛麗斯 Alice, 1961)	1	20	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　　二零一六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 2016

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
熱帶低氣壓 Tropical Depression	5	27	20	西 W	170	20	北 N	1000	5	27	17:40 - 17:50#	1004.7	0.27	0.36	0.32	0.47	0.27	0.41
											18:00	1004.8						
強烈熱帶風暴銀河 Severe Tropical Storm Mirinae	7	26	14	西南偏南 SSW	490	18	西北偏西 WNW	995	7	26	16:12 - 16:29#	1006.6	0.04	0.12	0.14	0.12	0.07	-
											16:00	1006.7						
颱風妮妲 Typhoon Nida	8	2	05	西北偏北 NNW	40	26	西北偏西 WNW	976	8	2	03:42 - 03:46#	984.5	0.58	0.63	0.64	0.63	0.90	0.63
											3:00	984.8						
熱帶風暴電母 Tropical Storm Dianmu	8	17	11	西南 SW	220	2	南 S	990	8	17	16:59 - 17:03#	991.5	0.25	0.28	0.23	0.37	0.31	0.14
											17:00	991.5						
超強颱風莫蘭蒂 Super Typhoon Meranti	9	15	11	東北 NE	460	23	西北偏北 NNW	984	9	14	15:31 -16:31#	1001.3	0.41	0.21	0.31	0.30	0.20	0.40
											16:00	1001.5						
強颱風鮎魚 Severe Typhoon Megi	9	28	14	東北 NE	390	16	西北偏西 WNW	988	9	28	15:35 - 15:36#	997.2	0.27	0.17	0.14	0.33	0.29	0.17
											15:00, 16:00	997.6						
熱帶風暴艾利 Tropical Storm Aere	10	7	20	東南偏東 ESE	260	2	北 N	988	10	7	15:24 - 16:45#	1005.2	0.23	0.24	0.26	0.29	0.28	0.26
											16:00	1005.2						
超強颱風莎莉嘉 Super Typhoon Sarika	10	18	05	西南 SW	520	17	西北偏西 WNW	955	10	18	14:57 - 15:38#	1006.3	0.43	0.52	0.45	0.59	0.57	0.46
											15:00	1006.3						
超強颱風海馬 Super Typhoon Haima	10	21	13	東北偏東 ENE	110	24	西北偏北 NNW	965	10	21	11:32 - 12:27#	990.7	0.54	0.48	0.57	0.64	0.65	0.65
											12:00	990.8						

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

\# 最初及最後錄得的時間　　\# First and last time recorded

\- 沒有資料　　\- 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	
熱帶低氣壓 Tropical Depression	5	東南偏東 ESE	19	南 S	47	東 E	45	東南 SE	22	南 S	49	東南偏南 SSE	63	南 S	45	南 S	72	東南偏南 SSE	72
強烈熱帶風暴銀河 Severe Tropical Storm Mirinae	7	東南 SE	12	東南偏東 ESE	27	東 E	31	東南 SE	14	東南 SE	30	東，東北偏東 E, ENE	34	東南偏南 SSE	30	東南 SE	41	東 E	41
颱風妮妲 Typhoon Nida	8	西南 SW	38	西南 SW	72	西南 SW	96	西南 SW	45	西南 SW	81	西南偏南 SSW	104	西南偏西 WSW	92	西南 SW	117	西南偏南 SSW	121
熱帶風暴電母 Tropical Storm Dianmu	8	東南偏東 ESE	19	東南 SE	30	東南偏南 SSE	58	東南, 東南偏東 SE, ESE	25	東南 SE	34	東南 SE	67	東南 SE	49	東南 SE	54	東南 SE	81
超強颱風莫蘭蒂 Super Typhoon Meranti	9	西北偏北 NNW	13	西北 NW	31	西北偏西 WNW	30	西北偏北 NNW	19	西北偏北 NNW	34	西北偏西 WNW	31	西北偏北 NNW	34	西北偏北 NNW	40	西北偏西 WNW	41
強颱風鮎魚 Severe Typhoon Megi	9	西北偏西 WNW	16	西北 NW	36	西北偏西 WNW	34	西北 NW	20	西北 NW	40	西北偏西 WNW	40	西 W	47	西北 NW	47	西北偏西 WNW	51
熱帶風暴艾利 Tropical Storm Aere	10	東北偏北 NNE	14	北 N	30	東 E	47	東南偏東, 東北偏北 ESE, NNE	20	西北偏北 NNW	40	東 E	56	東北偏東 ENE	45	西北偏北 NNW	49	東 E	65
超強颱風莎莉嘉 Super Typhoon Sarika	10	東南 SE	30	東 E	40	東北偏東 ENE	75	東南 SE	31	東南偏東 ESE	43	東北偏東 ENE	79	東南偏東 ESE	59	東南偏東 ESE	59	東北偏東 ENE	92
超強颱風海馬 Super Typhoon Haima	10	西北偏西 WNW	34	西北偏西 WNW	67	西南 SW	85	西北偏西 WNW	40	西北偏西 WNW	70	西南 SW	88	西北偏西 WNW	79	西北 NW	85	西 W	115

表 4.8.1　　二零一六年位於香港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 2016

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 Date/Month　時間* 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)
熱帶低氣壓 Tropical Depression	(T_1) 26 / 5 2000 - (T_2) 27 / 5 2000	14.0	63.3	64.1	64.2	78.2
超強颱風尼伯特 # Super Typhoon Nepartak #	(T_1) 8 / 7 1700 - (T_2) 10 / 7 0500	10.6	1.4	13.1	13.2	23.8
強烈熱帶風暴銀河 Severe Tropical Storm Mirinae	(T_1) 25 / 7 2000 - (T_2) 27 / 7 0200	8.0	微量 Trace	微量 Trace	微量 Trace	8.0
颱風妮妲 Typhoon Nida	(T_1) 1 / 8 0600 - (T_2) 3 / 8 0200	125.6	17.3	38.2	38.2	163.8
熱帶風暴電母 Tropical Storm Dianmu	(T_1) 17 / 8 1100 - (T_2) 19 / 8 0100	80.8	10.5	14.3	54.2	135.0
超強颱風莫蘭蒂 Super Typhoon Meranti	(T_1) 14 / 9 1300 - (T_2) 15 / 9 1800	0.7	0.0	0.0	0.0	0.7
強颱風鮎魚 Severe Typhoon Megi	(T_1) 28 / 9 0100 - (T_2) 29 / 9 0200	0.0	0.7	0.7	96.2	96.2
熱帶風暴艾利 Tropical Storm Aere	(T_1) 6 / 10 1100 - (T_2) 10 / 10 1700	34.0	0.1	0.8	1.0	35.0
超強颱風莎莉嘉 Super Typhoon Sarika	(T_1) 17 / 10 0500 - (T_2) 19 / 10 0100	195.6	223.2	223.2	295.7$^+$	491.3
超強颱風海馬 Super Typhoon Haima	(T_1) 20 / 10 1500 - (T_2) 22 / 10 0200	72.5$^+$	1.9	1.9	1.9	74.4
					共 Total	1033.9$^+$

*　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。

$^+$　由於欄（i）有關超強颱風海馬的72.5毫米雨量與欄(iv)有關超強颱風莎莉嘉的雨量重疊出現，所以並不計算在總數內。

* 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.

$^+$ As 72.5 mm of rainfall in column (i) of SuperT. Haima overlaps with the rainfall amount in column (iv) of SuperT. Sarika, it is not included in the total amount.

表 4.8.2　一八八四至一九三九年及一九四七至二零一六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, 1947-2016)

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　　一九四六至二零一六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 1946-2016

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 年份 Date/Month 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

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　　二零一六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 2016

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$)					
		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)	農業 Agriculture	公用建設 Public works facilities	公用業務 Public utilities	私人物業 Private property	工業 Industry	共 Total
熱帶低氣壓 Tropical Depression	5					1						
強烈熱帶風暴銀河 Severe Tropical Storm Mirinae	7									0.00624		0.00624
颱風妮妲 Typhoon Nida	7 - 8	農地 Farmland: 329 公頃 hectares 農作物 Crops: 2118 噸 tons	道路 Road: 1 小徑 Footpath: 2	鐵路 Railway: 3 發電廠設備 Generation plant equipment: 1	2	4	32.76		0.88900	0.00156		33.65056
熱帶風暴電母 Tropical Storm Dianmu	8		道路 Road: 1 小徑 Footpath : 1 行人路 Pedestrian road: 1		1	8						
超強颱風莫蘭蒂 Super Typhoon Meranti	9					2						
熱帶風暴艾利 Tropical Storm Aere	10		小徑 Footpath : 1			1						
超強颱風莎莉嘉 Super Typhoon Sarika	10	農地 Farmland: 351 公頃 hectares 農作物 Crops: 2260 噸 tons	道路 Road: 3 小徑 Footpath : 6 行人路 Pedestrian road: 1 空曠地區 Open space: 1	鐵路 Railway: 1 發電廠設備 Generation plant equipment: 1	3	20	35.10		0.13500			35.23500
超強颱風海馬 Super Typhoon Haima	10		小徑 Footpath : 1	鐵路 Railway: 1	3	8			0.10000	0.00468		0.10468

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。

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.

表 4.11　　一九六零至二零一六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 : 1960-2016

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	34	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

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
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
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

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
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
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	0
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	0

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。
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.

* 缺乏數據 Data unavailable.

+ 被雷電擊中 Struck by lightning.

表 4.12　　二零一六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 2016 (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
尼伯特	Nepartak	1601	SuperT.	52	17	99	13	164	9	261	5	532	2
銀河	Mirinae	1603	S.T.S.	61	8	138	4	-	-	-	-	-	-
妮妲	Nida	1604	T.	67	13	137	9	297	5	515	1	-	-
電母	Dianmu	1608	T.S.	47	7	78	4	-	-	-	-	-	-
蒲公英	Mindulle	1609	S.T.S.	43	2	-	-	-	-	-	-	-	-
獅子山	Lionrock	1610	S.T.	78	24	120	24	192	22	266	19	392	17
南川	Namtheun	1612	S.T.	39	8	86	6	158	4	-	-	-	-
瑪瑙	Malou	1613	T.D.	147	1	-	-	-	-	-	-	-	-
莫蘭蒂	Meranti	1614	SuperT.	68	16	158	12	208	8	200	5	322	2
雷伊	Rai	1615	T.D.	86	2	-	-	-	-	-	-	-	-
馬勒卡	Malakas	1616	S.T.	76	23	166	20	290	16	390	12	486	8
鮸魚	Megi	1617	S.T.	67	14	106	10	148	6	158	3	124	1
暹芭	Chaba	1618	SuperT.	55	11	113	9	278	6	555	3	869	1
艾利	Aere	1619	T.S.	63	16	134	12	239	8	429	4	-	-
莎莉嘉	Sarika	1621	SuperT.	33	21	82	17	169	13	224	9	262	5
海馬	Haima	1622	SuperT.	53	15	109	11	152	7	160	4	179	2
米雷	Meari	1623	T.	122	9	247	9	493	6	688	4	651	2
蝎虎	Tokage	1625	S.T.S.	65	11	112	7	111	3	-	-	-	-
洛坦	Nock-ten	1626	SuperT.	70	15	99	11	98	7	115	4	120	2
平均誤差 Average Error				64		126		215		305		392	
預測總數 Total number of forecasts				233		178		120		73		42	

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　二零一六年熱帶氣旋的位置及強度數據

以下是二零一六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, 2016

Six-hourly position and intensity data are tabulated in this section for the following tropical cyclones in 2016 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

熱帶低氣壓 (由五月二十六日至二十七日) 的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL DEPRESSION OF 26 - 27 MAY

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	26	1200	T.D.	1000	13	18.9	113.5
		1800	T.D.	1000	13	19.9	112.9
	27	0000	T.D.	1000	13	20.5	112.5
		0600	T.D.	998	16	21.3	112.4
		1200	T.D.	1000	13	22.4	112.5
			消散 Dissipated				

超強颱風尼伯特(1601)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON NEPARTAK (1601)

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	3	0000	T.D.	1002	13	8.5	144.8
		0600	T.D.	1000	16	9.1	144.9
		1200	T.S.	996	18	9.9	144.3
		1800	T.S.	992	21	10.6	143.6
	4	0000	T.S.	992	21	11.8	142.0
		0600	T.S.	988	23	12.7	141.2
		1200	S.T.S.	985	25	13.5	139.6
		1800	S.T.S.	975	31	14.4	138.2
	5	0000	T.	965	36	15.3	136.6
		0600	T.	955	41	16.2	135.1
		1200	S.T.	940	49	17.1	133.5
		1800	SuperT.	925	57	17.9	131.9
	6	0000	SuperT.	910	61	18.7	130.1
		0600	SuperT.	905	64	19.3	128.6
		1200	SuperT.	905	64	20.1	127.0
		1800	SuperT.	905	64	20.7	125.6
	7	0000	SuperT.	905	64	21.3	124.4
		0600	SuperT.	910	61	21.5	123.4
		1200	SuperT.	910	61	21.9	122.7
		1800	SuperT.	920	59	22.3	121.8
	8	0000	S.T.	940	49	22.6	120.6
		0600	S.T.	950	43	23.2	120.1
		1200	T.	960	39	23.2	119.8
		1800	T.	970	33	23.3	119.6
	9	0000	S.T.S.	980	28	24.3	119.1
		0600	T.S.	988	23	24.7	118.7
		1200	T.S.	992	18	25.2	118.0
		1800	T.D.	995	13	26.0	117.0
		2100	T.D.	995	13	26.3	116.8
			消散 Dissipated				

熱帶風暴盧碧(1602)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM LUPIT (1602)

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	23	1200	T.D.	1002	16	27.4	155.3
		1800	T.S.	998	18	28.8	156.8
	24	0000	T.S.	996	21	30.6	158.2
		0600	T.S.	996	21	33.0	159.2
		1200	T.S.	996	21	35.0	159.5
		1800	T.S.	998	18	37.0	159.0
			變為溫帶氣旋 Became Extratropical				

強烈熱帶風暴銀河(1603)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM MIRINAE (1603)

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	25	1200	T.D.	1002	13	17.0	115.1
		1800	T.D.	998	16	17.3	114.1
	26	0000	T.D.	998	16	17.9	113.1
		0600	T.S.	995	18	18.3	112.2
		1200	T.S.	992	21	18.7	111.1
		1800	T.S.	995	18	18.9	109.7
	27	0000	T.S.	995	18	19.6	108.6
		0600	T.S.	988	23	19.8	107.4
		1200	S.T.S.	985	25	19.9	106.9
		1800	T.S.	988	23	20.2	106.2
	28	0000	T.S.	992	21	20.5	105.6
		0600	T.D.	998	16	21.2	105.0
			消散 Dissipated				

颱風妮妲(1604)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON NIDA (1604)

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	29	1200	T.D.	1000	13	12.0	127.4
		1800	T.D.	1000	13	12.5	127.2
	30	0000	T.D.	996	16	13.7	127.0
		0600	T.D.	996	16	15.4	126.4
		1200	T.S.	992	18	16.4	124.8
		1800	T.S.	986	23	16.7	123.8
	31	0000	S.T.S.	982	25	17.3	123.4
		0600	S.T.S.	982	25	18.1	122.2
		1200	S.T.S.	976	31	18.8	121.2
		1800	S.T.S.	976	31	19.4	120.2
八月 AUG	1	0000	T.	972	33	20.1	118.8
		0600	T.	972	33	21.0	117.6
		1200	T.	968	36	21.6	116.2
		1800	T.	972	33	22.3	115.0
	2	0000	S.T.S.	980	28	22.8	113.6
		0600	T.S.	988	21	23.5	112.4
		1200	T.S.	990	18	23.9	110.9
		1800	T.D.	995	13	24.3	109.5
			消散 Dissipated				

強烈熱帶風暴奧麥斯(1605)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM OMAIS (1605)

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	4	0600	T.D.	1000	16	18.9	148.8
		1200	T.D.	1000	16	19.3	148.5
		1800	T.S.	996	18	19.5	148.0
	5	0000	T.S.	994	21	20.0	147.5
		0600	T.S.	990	23	21.2	147.5
		1200	S.T.S.	985	25	22.5	147.5
		1800	S.T.S.	985	25	23.2	147.4
	6	0000	S.T.S.	980	28	24.3	147.6
		0600	S.T.S.	980	28	25.2	147.5
		1200	S.T.S.	980	28	26.1	147.4
		1800	S.T.S.	980	28	27.5	147.1
	7	0000	S.T.S.	980	28	28.9	146.5
		0600	S.T.S.	980	28	29.9	146.1
		1200	S.T.S.	980	28	30.8	145.8
		1800	S.T.S.	985	25	32.2	145.1
	8	0000	S.T.S.	985	25	33.2	144.6
		0600	T.S.	990	23	34.3	144.0
		1200	T.S.	990	23	35.7	143.9
		1800	T.S.	990	23	36.8	143.9
	9	0000	T.S.	990	23	38.2	144.7
		0600	T.S.	990	23	40.0	146.8
		1200	T.S. 變為溫帶氣旋 Became Extratropical	990	23	41.8	148.0

熱帶風暴康森(1606)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM CONSON (1606)

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	0600	T.D.	998	16	17.2	161.6
		1200	T.D.	998	16	17.0	160.9
		1800	T.S.	995	18	17.1	160.3
	9	0000	T.S.	995	18	17.2	159.2
		0600	T.S.	990	21	16.9	158.7
		1200	T.S.	985	23	17.1	158.0
		1800	T.S.	985	23	17.7	157.0
	10	0000	T.S.	985	23	18.0	156.0
		0600	T.S.	985	23	18.6	155.1
		1200	T.S.	985	23	18.9	154.4
		1800	T.S.	985	23	19.6	154.0
	11	0000	T.S.	985	23	20.0	153.6
		0600	T.S.	985	23	20.5	154.0
		1200	T.S.	985	23	21.8	154.4
		1800	T.S.	985	23	23.6	155.2
	12	0000	T.S.	985	23	25.2	155.5
		0600	T.S.	990	21	26.2	155.7
		1200	T.S.	990	21	28.1	155.9
		1800	T.S.	990	21	29.0	155.5
	13	0000	T.S.	990	21	30.0	155.1
		0600	T.S.	990	21	31.6	154.2
		1200	T.S.	990	21	32.6	153.1
		1800	T.S.	985	23	33.9	152.2
	14	0000	T.S.	985	23	35.7	151.1
		0600	T.S.	990	21	38.1	149.8
		1200	T.S.	990	21	40.2	148.0
			變為溫帶氣旋 Became Extratropical				

熱帶風暴燦都(1607)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM CHANTHU (1607)

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	13	1200	T.D.	1000	13	19.2	141.3
		1800	T.D.	998	16	19.6	141.5
	14	0000	T.S.	996	18	21.1	143.0
		0600	T.S.	992	18	22.6	143.8
		1200	T.S.	988	21	24.7	144.3
		1800	T.S.	985	23	25.8	144.7
	15	0000	T.S.	985	23	26.8	145.2
		0600	T.S.	985	23	27.7	144.2
		1200	T.S.	988	21	29.4	143.9
		1800	T.S.	988	21	30.3	142.7
	16	0000	T.S.	985	23	31.1	142.2
		0600	T.S.	985	23	33.1	141.4
		1200	T.S.	985	23	34.3	141.1
		1800	T.S.	985	23	35.9	141.1
	17	0000	T.S.	985	23	37.7	141.7
		0600	T.S. 變為溫帶氣旋 Became Extratropical	985	23	40.8	142.6

熱帶風暴電母(1608)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM DIANMU (1608)

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	0300	T.D.	990	13	20.8	112.8
		0600	T.D.	990	13	20.8	112.8
		1200	T.D.	986	16	20.7	112.7
		1800	T.D.	986	16	20.7	112.4
	18	0000	T.S.	984	18	21.0	111.8
		0600	T.S.	984	18	20.9	110.7
		1200	T.S.	984	18	20.5	109.6
		1800	T.S.	982	21	20.3	108.7
	19	0000	T.S.	980	23	20.4	107.8
		0600	T.S.	980	23	20.6	106.4
		1200	T.S.	984	18	20.8	105.4
		1800	T.D.	988	16	21.1	103.6
	20	0000	T.D.	992	13	21.3	101.6
			消散 Dissipated				

強烈熱帶風暴蒲公英(1609)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM MINDULLE (1609)

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	19	0000	T.D.	998	13	17.6	142.5
		0600	T.D.	995	16	17.8	141.8
		1200	T.S.	992	18	18.7	141.8
		1800	T.S.	990	21	19.4	140.6
	20	0000	T.S.	988	23	20.2	140.6
		0600	T.S.	988	23	22.1	140.7
		1200	T.S.	988	23	24.0	141.0
		1800	T.S.	988	23	26.2	141.0
	21	0000	S.T.S.	985	25	28.0	140.7
		0600	S.T.S.	985	25	29.8	139.9
		1200	S.T.S.	980	28	31.3	139.8
		1800	S.T.S.	975	31	33.2	139.1
	22	0000	S.T.S.	975	31	34.2	139.5
		0600	S.T.S.	980	28	35.7	140.0
		1200	S.T.S.	985	25	37.7	140.6
		1800	S.T.S.	985	25	40.7	141.5
	23	0000	S.T.S.	985	25	43.6	143.8
			變為溫帶氣旋 Became Extratropical				

強颱風獅子山(1610)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON LIONROCK (1610)

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	19	1200	T.D.	996	16	32.9	141.6
		1800	T.D.	996	16	32.7	139.7
	20	0000	T.S.	994	18	31.4	138.6
		0600	T.S.	994	18	31.1	137.5
		1200	T.S.	994	18	30.6	136.8
		1800	T.S.	994	18	30.5	135.7
	21	0000	T.S.	994	18	30.1	134.3
		0600	T.S.	994	18	29.5	133.7
		1200	T.S.	990	21	29.0	133.4
		1800	T.S.	990	21	28.9	133.2
	22	0000	T.S.	988	23	28.7	133.2
		0600	T.S.	988	23	28.6	133.4
		1200	T.S.	988	23	28.4	134.1
		1800	S.T.S.	984	25	28.1	134.3
	23	0000	S.T.S.	984	25	27.7	134.3
		0600	S.T.S.	980	28	27.4	134.2
		1200	S.T.S.	975	31	27.0	134.1
		1800	T.	970	33	26.3	133.5
	24	0000	T.	965	36	25.4	132.8
		0600	T.	955	41	24.9	132.4
		1200	S.T.	950	43	24.4	131.8
		1800	S.T.	940	49	23.8	131.4
	25	0000	S.T.	940	49	23.6	131.0
		0600	S.T.	940	49	23.4	130.9
		1200	S.T.	940	49	23.4	130.9
		1800	S.T.	945	46	23.3	130.6
	26	0000	S.T.	950	43	23.2	131.0
		0600	S.T.	950	43	23.1	131.2
		1200	T.	955	41	23.1	132.2
		1800	T.	955	41	23.4	132.5
	27	0000	S.T.	950	43	23.7	133.1
		0600	S.T.	945	46	24.0	133.8
		1200	S.T.	945	46	24.5	134.6
		1800	S.T.	945	46	25.1	135.6
	28	0000	S.T.	940	49	26.1	136.6
		0600	S.T.	940	49	27.6	137.8
		1200	S.T.	940	49	28.4	138.8
		1800	S.T.	945	46	29.4	140.5
	29	0000	S.T.	945	46	30.4	141.6
		0600	T.	955	41	31.4	142.7
		1200	T.	960	39	32.6	143.3
		1800	T.	965	36	33.4	143.9
	30	0000	T.	970	33	35.9	142.2
		0600	S.T.S.	975	31	37.7	142.0
		1200	S.T.S.	980	28	41.3	140.0
			變為溫帶氣旋 Became Extratropical				

熱帶風暴圓規(1611)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM KOMPASU (1611)

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	19	1800	T.D.	998	16	32.2	149.3
	20	0000	T.S.	994	18	32.7	147.3
		0600	T.S.	994	18	34.4	145.7
		1200	T.S.	994	18	36.3	143.7
		1800	T.S.	994	18	37.8	142.4
	21	0000	T.S.	994	18	39.1	142.8
		0600	T.S.	994	18	40.6	142.8
		1200	T.D.	998	16	42.5	143.9
			變為溫帶氣旋 Became Extratropical				

強颱風南川(1612)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON NAMTHEUN (1612)

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	31	1800	T.D.	1002	13	23.1	126.5
九月 SEP	1	0000	T.S.	996	18	23.8	127.5
		0600	T.S.	990	23	24.3	128.9
		1200	S.T.S.	980	28	24.9	130.0
		1800	S.T.S.	975	31	25.8	130.6
	2	0000	T.	965	36	26.4	130.7
		0600	S.T.	945	46	27.1	130.8
		1200	S.T.	945	46	27.8	130.8
		1800	S.T.	950	43	28.4	130.5
	3	0000	T.	955	41	29.3	130.2
		0600	T.	965	36	30.1	130.1
		1200	S.T.S.	975	31	30.5	130.0
		1800	S.T.S.	985	25	31.0	129.8
	4	0000	T.S.	988	23	31.3	129.6
		0600	T.S.	988	23	31.9	129.6
		1200	T.S.	992	21	32.3	129.6
		1800	T.S.	996	18	33.1	129.8
	5	0000	T.D.	1002	13	34.2	130.5
			消散 Dissipated				

熱帶低氣壓瑪瑙(1613)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL DEPRESSION MALOU (1613)

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	6	0600	T.D.	998	16	26.7	126.8
		1200	T.D.	998	16	28.3	127.8
		1800	T.D.	998	16	29.0	129.0
	7	0000	T.D.	998	16	29.4	130.2
		0600	T.D.	998	16	30.4	132.2
		1200	T.D.	1000	13	31.3	134.6
		1800	T.D.	1000	13	32.3	136.4
			變為溫帶氣旋 Became Extratropical				

超強颱風莫蘭蒂(1614)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON MERANTI (1614)

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	9	1800	T.D.	1002	13	14.2	141.3
	10	0000	T.D.	1000	16	14.4	139.8
		0600	T.S.	998	18	14.8	138.9
		1200	T.S.	994	21	15.3	137.7
		1800	T.S.	990	23	15.7	136.6
	11	0000	S.T.S.	982	28	16.3	135.7
		0600	S.T.S.	975	31	16.7	134.5
		1200	T.	965	36	17.3	133.0
		1800	S.T.	950	43	17.5	131.7
	12	0000	SuperT.	935	52	18.0	130.3
		0600	SuperT.	925	57	18.3	129.4
		1200	SuperT.	915	61	18.8	128.2
		1800	SuperT.	910	64	19.3	126.7
	13	0000	SuperT.	900	67	19.5	125.5
		0600	SuperT.	890	69	20.1	124.1
		1200	SuperT.	890	69	20.5	122.9
		1800	SuperT.	900	67	20.8	121.9
	14	0000	SuperT.	915	61	21.5	120.8
		0600	SuperT.	930	54	22.5	119.8
		1200	SuperT.	935	52	23.4	119.0
		1800	S.T.	940	49	24.3	118.4
	15	0000	T.	970	33	25.2	117.5
		0600	T.S.	994	21	26.3	116.9
		1200	T.D.	998	16	27.2	117.1
			消散 Dissipated				

熱帶低氣壓雷伊(1615)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL DEPRESSION RAI (1615)

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	12	0000	T.D.	998	16	13.6	112.1
		0600	T.D.	998	16	14.4	111.0
		1200	T.D.	998	16	14.8	110.2
		1800	T.D.	998	16	15.3	108.9
	13	0000	T.D.	998	16	15.9	107.5
		0600	T.D.	1000	13	16.0	106.2
			消散 Dissipated				

強颱風馬勒卡(1616)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON MALAKAS (1616)

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	12	0600	T.D.	1002	16	13.1	141.7
		1200	T.S.	998	18	13.7	140.5
		1800	T.S.	994	21	14.1	139.1
	13	0000	T.S.	994	21	14.3	138.2
		0600	T.S.	990	23	14.6	136.8
		1200	S.T.S.	984	25	14.8	135.6
		1800	S.T.S.	984	25	15.0	134.7
	14	0000	S.T.S.	975	31	15.5	133.2
		0600	S.T.S.	975	31	15.7	132.1
		1200	S.T.S.	975	31	16.2	131.2
		1800	T.	970	33	16.7	130.0
	15	0000	T.	965	36	17.0	128.8
		0600	T.	955	41	17.6	127.9
		1200	T.	955	41	18.4	126.7
		1800	S.T.	950	43	19.2	125.6
	16	0000	S.T.	950	43	20.2	124.7
		0600	S.T.	950	43	21.1	123.9
		1200	S.T.	945	46	22.0	123.4
		1800	S.T.	940	49	22.9	123.1
	17	0000	S.T.	940	49	24.1	123.0
		0600	S.T.	945	46	25.2	122.8
		1200	S.T.	950	43	25.8	122.7
		1800	T.	955	41	26.2	122.8
	18	0000	T.	955	41	26.8	123.5
		0600	T.	955	41	27.5	124.2
		1200	T.	955	41	28.0	125.1
		1800	S.T.	950	43	28.6	126.1
	19	0000	S.T.	950	43	29.4	127.1
		0600	S.T.	950	43	30.2	128.2
		1200	T.	955	41	30.8	129.7
		1800	T.	960	39	31.6	131.4
	20	0000	T.	965	36	33.0	133.5
		0600	S.T.S. 變為溫帶氣旋 Became Extratropical	975	31	34.5	136.2

強颱風鮎魚(1617)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON MEGI (1617)

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	22	0000	T.D.	1000	13	11.0	144.0
		0600	T.D.	1000	13	12.0	142.6
		1200	T.D.	998	16	12.9	141.3
		1800	T.D.	998	16	13.8	140.5
	23	0000	T.S.	994	18	15.2	140.1
		0600	T.S.	994	18	15.9	139.6
		1200	T.S.	990	21	16.1	138.6
		1800	T.S.	988	23	16.6	137.6
	24	0000	S.T.S.	984	25	17.3	136.4
		0600	S.T.S.	980	28	18.2	135.3
		1200	T.	970	33	18.6	133.9
		1800	T.	970	33	18.8	132.6
	25	0000	T.	965	36	19.3	131.6
		0600	T.	955	41	19.9	130.3
		1200	T.	955	41	20.2	129.4
		1800	S.T.	950	43	20.5	128.1
	26	0000	S.T.	945	46	20.7	127.3
		0600	S.T.	945	46	21.4	126.3
		1200	S.T.	945	46	21.9	125.3
		1800	S.T.	940	49	22.3	124.2
	27	0000	S.T.	940	49	22.9	123.5
		0600	S.T.	945	46	24.0	121.6
		1200	T.	960	39	23.8	120.5
		1800	T.	965	36	24.5	119.4
	28	0000	S.T.S.	980	28	25.0	118.3
		0600	T.S.	988	23	24.9	116.7
		1200	T.S.	994	18	25.4	116.3
		1800	T.D.	996	13	25.7	116.0
			消散 Dissipated				

超強颱風暹芭(1618)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON CHABA (1618)

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	27	1800	T.D.	1000	13	14.6	150.0
	28	0000	T.D.	998	16	14.2	148.2
		0600	T.S.	994	18	14.2	146.8
		1200	T.S.	994	18	14.0	145.0
		1800	T.S.	994	18	14.4	144.3
	29	0000	T.S.	994	18	14.1	142.8
		0600	T.S.	994	18	13.9	141.9
		1200	T.S.	990	21	13.6	140.2
		1800	T.S.	990	21	13.6	139.3
	30	0000	T.S.	988	23	13.5	138.2
		0600	T.S.	988	23	13.7	137.3
		1200	T.S.	988	23	14.7	136.6
		1800	T.S.	988	23	15.5	135.9
十月 OCT	1	0000	S.T.S.	978	28	16.0	135.4
		0600	S.T.S.	978	28	17.0	134.5
		1200	S.T.S.	975	31	17.6	133.7
		1800	T.	970	33	18.5	132.6
	2	0000	S.T.	950	43	19.6	131.5
		0600	S.T.	940	49	20.8	130.4
		1200	S.T.	940	49	21.8	129.2
		1800	SuperT.	935	52	22.8	128.3
	3	0000	SuperT.	930	54	23.8	127.6
		0600	SuperT.	915	61	24.9	127.0
		1200	SuperT.	920	59	25.7	126.7
		1800	SuperT.	925	57	26.8	126.5
	4	0000	SuperT.	930	54	27.8	126.3
		0600	SuperT.	930	54	29.5	126.1
		1200	S.T.	940	49	31.3	125.8
		1800	S.T.	950	43	32.8	126.8
	5	0000	T.	970	33	34.5	128.1
		0600	S.T.S.	980	28	35.9	131.0
			變為溫帶氣旋 Became Extratropical				

熱帶風暴艾利(1619)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM AERE (1619)

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	5	0600	T.D.	1000	13	19.5	125.2
		1200	T.D.	998	16	19.6	123.6
		1800	T.D.	998	16	19.8	122.1
	6	0000	T.D.	998	16	20.6	120.5
		0600	T.S.	994	18	20.6	118.8
		1200	T.S.	994	18	20.6	117.9
		1800	T.S.	990	21	20.5	117.3
	7	0000	T.S.	990	21	20.6	116.4
		0600	T.S.	988	23	20.7	116.2
		1200	T.S.	988	23	21.0	116.3
		1800	T.S.	988	23	21.0	116.4
	8	0000	T.S.	988	23	21.1	116.4
		0600	T.S.	988	23	21.5	116.6
		1200	T.S.	990	21	21.8	117.0
		1800	T.S.	990	21	21.8	117.2
	9	0000	T.S.	990	21	21.7	117.4
		0600	T.S.	990	21	21.7	117.6
		1200	T.S.	994	18	21.6	117.7
		1800	T.S.	994	18	21.6	117.6
	10	0000	T.D.	998	16	21.6	117.5
		0600	T.D.	1000	13	21.5	117.2
		1200	LOW	1002	11	21.2	116.6
		1800	LOW	1002	11	20.8	116.2
	11	0000	LOW	1002	11	20.1	115.4
		0600	LOW	1002	11	19.4	114.6
		1200	LOW	1002	11	18.5	113.6
		1800	LOW	1002	11	17.7	112.9
	12	0000	LOW	1002	11	17.0	112.3
		0600	LOW	1002	11	16.7	111.9
		1200	LOW	1002	11	16.5	111.6
		1800	LOW	1002	11	16.4	111.0
	13	0000	T.D.	998	16	16.3	110.3
		0600	T.D.	998	16	16.5	108.9
		1200	T.D.	998	16	16.5	108.2
		1800	T.D.	998	16	16.6	107.6
	14	0000	T.D.	1000	13	16.8	106.7
			消散 Dissipated				

LOW: 低壓區 Low Pressure Area

超強颱風桑達(1620)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON SONGDA (1620)

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	8	0600	T.D.	1002	13	19.5	155.8
		1200	T.D.	1000	16	19.9	154.4
		1800	T.S.	998	18	20.6	152.7
	9	0000	T.S.	995	21	21.2	151.1
		0600	T.S.	995	21	22.1	149.7
		1200	T.S.	990	23	22.8	148.2
		1800	S.T.S.	985	25	23.6	147.3
	10	0000	S.T.S.	975	31	24.6	146.3
		0600	T.	955	41	25.5	145.9
		1200	S.T.	945	46	26.3	145.8
		1800	S.T.	945	46	27.2	145.8
	11	0000	S.T.	950	43	27.8	146.0
		0600	S.T.	950	43	28.5	146.7
		1200	S.T.	940	49	29.3	147.4
		1800	SuperT.	935	52	30.3	148.9
	12	0000	S.T.	940	49	31.3	151.0
		0600	S.T.	950	43	32.6	153.7
		1200	S.T.	950	43	33.9	156.8
		1800	T.	960	39	35.8	161.1
	13	0000	S.T.S.	975	31	38.1	166.3
			變為溫帶氣旋 Became Extratropical				

超強颱風莎莉嘉(1621)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON SARIKA (1621)

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	13	0000	T.D.	1000	13	13.0	130.7
		0600	T.D.	998	16	13.2	129.6
		1200	T.S.	995	18	13.5	128.5
		1800	T.S.	992	21	13.6	127.9
	14	0000	T.S.	988	23	13.7	127.3
		0600	S.T.S.	984	25	13.8	126.5
		1200	S.T.S.	975	31	13.9	126.0
		1800	T.	970	33	14.1	125.2
	15	0000	T.	965	36	14.3	124.4
		0600	T.	955	41	14.7	123.9
		1200	S.T.	945	46	15.2	123.0
		1800	SuperT.	935	52	15.7	121.8
	16	0000	T.	955	41	16.2	119.7
		0600	T.	960	39	16.5	118.3
		1200	T.	960	39	16.8	117.3
		1800	T.	960	39	16.9	115.6
	17	0000	T.	960	39	17.1	114.5
		0600	T.	955	41	17.5	113.1
		1200	T.	955	41	17.7	112.4
		1800	T.	955	41	18.2	111.6
	18	0000	T.	960	39	18.7	110.8
		0600	T.	965	36	19.0	109.9
		1200	S.T.S.	975	31	19.6	109.4
		1800	S.T.S.	980	28	20.0	108.9
	19	0000	T.S.	988	23	20.9	108.2
		0600	T.D.	996	16	21.5	108.2
		0900	T.D. 消散 Dissipated	998	13	21.8	108.0

超強颱風海馬(1622)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON HAIMA (1622)

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	14	0600	T.D.	1002	13	7.2	145.2
		1200	T.D.	1002	13	7.2	144.8
		1800	T.D.	1002	13	7.6	144.1
	15	0000	T.D.	1000	16	8.5	143.3
		0600	T.S.	996	18	8.9	142.3
		1200	T.S.	992	21	9.6	141.2
		1800	S.T.S.	984	25	9.8	140.1
	16	0000	S.T.S.	975	31	10.1	139.5
		0600	T.	965	36	10.4	139.2
		1200	T.	955	41	11.3	138.7
		1800	S.T.	945	46	12.3	137.8
	17	0000	S.T.	940	49	12.9	136.6
		0600	S.T.	940	49	13.3	135.6
		1200	SuperT.	935	52	13.8	134.5
		1800	SuperT.	925	57	14.4	133.4
	18	0000	SuperT.	920	59	14.8	132.1
		0600	SuperT.	915	61	15.4	130.7
		1200	SuperT.	910	64	15.6	129.0
		1800	SuperT.	910	64	16.0	127.6
	19	0000	SuperT.	915	61	16.0	126.0
		0600	SuperT.	920	59	16.7	124.7
		1200	SuperT.	930	54	17.3	123.2
		1800	S.T.	945	46	17.7	121.6
	20	0000	T.	955	41	18.5	120.1
		0600	T.	955	41	18.9	118.9
		1200	T.	955	41	19.8	117.4
		1800	T.	955	41	20.6	116.6
	21	0000	T.	955	41	21.8	115.8
		0600	T.	970	33	23.0	115.0
		1200	T.S.	988	23	24.3	114.9
		1800	T.D.	998	13	25.6	115.2
			消散 Dissipated				

颱風米雷(1623)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON MEARI (1623)

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	1	1800	T.D.	1000	13	11.4	138.8
	2	0000	T.D.	1000	13	12.0	138.2
		0600	T.D.	1000	13	12.6	138.1
		1200	T.D.	1000	13	13.0	137.7
		1800	T.D.	1000	13	13.2	137.0
	3	0000	T.D.	998	16	13.6	137.1
		0600	T.D.	998	16	13.6	137.1
		1200	T.S.	994	18	14.0	137.3
		1800	T.S.	992	21	14.5	137.2
	4	0000	T.S.	992	21	14.8	138.0
		0600	T.S.	988	23	15.6	139.0
		1200	T.S.	988	23	16.0	139.3
		1800	S.T.S.	984	25	16.7	139.6
	5	0000	S.T.S.	975	31	17.3	140.0
		0600	T.	965	36	17.5	140.1
		1200	T.	960	39	18.3	140.7
		1800	T.	960	39	18.7	141.7
	6	0000	T.	960	39	19.5	142.6
		0600	T.	960	39	20.6	143.5
		1200	T.	960	39	22.2	144.8
		1800	T.	960	36	24.0	145.7
	7	0000	T.	965	33	27.0	146.9
		0600	S.T.S. 變為溫帶氣旋 Became Extratropical	970	31	29.3	148.0

熱帶風暴馬鞍(1624)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM MA-ON (1624)

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.	1004	16	14.6	159.7
		1200	T.D.	1004	16	15.6	158.3
		1800	T.D.	1004	16	16.4	157.7
	10	0000	T.D.	1004	16	16.9	157.0
		0600	T.S.	1000	18	17.2	155.5
		1200	T.S.	1000	18	17.4	154.1
		1800	T.S.	1000	18	18.0	153.2
	11	0000	T.S.	1000	18	18.3	152.2
		0600	T.S.	1000	18	19.0	151.0
		1200	T.S.	1000	18	19.5	150.0
		1800	T.S.	1000	18	20.0	148.0
	12	0000	T.D.	1004	16	20.8	145.6
			消散 Dissipated				

強烈熱帶風暴蝎虎(1625)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM TOKAGE (1625)

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	24	0600	T.D.	1002	13	9.7	126.7
		1200	T.D.	1000	16	10.6	125.4
		1800	T.D.	1000	16	11.2	123.6
	25	0000	T.S.	998	18	11.3	122.5
		0600	T.S.	998	18	11.4	121.0
		1200	T.S.	998	18	11.8	120.4
		1800	T.S.	994	21	12.4	120.1
	26	0000	T.S.	990	23	13.2	118.7
		0600	S.T.S.	985	25	13.8	117.8
		1200	S.T.S.	985	25	14.5	117.3
		1800	S.T.S.	985	25	15.2	117.3
	27	0000	S.T.S.	985	25	15.8	117.4
		0600	S.T.S.	985	25	16.3	117.9
		1200	T.S.	990	23	16.6	118.2
		1800	T.S.	998	18	16.9	118.4
	28	0000	T.D.	1002	13	17.2	118.6
			消散 Dissipated				

熱帶低氣壓(由十二月十二日至十三日)的的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL DEPRESSION OF 12 - 13 DECEMBER

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	12	0600	T.D.	1002	13	9.6	109.8
		1200	T.D.	1002	13	10.4	109.5
		1800	T.D.	1002	13	10.9	109.1
	13	0000	T.D.	1002	13	10.9	107.9
			消散 Dissipated				

超強颱風洛坦(1626)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON NOCK-TEN (1626)

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	21	0600	T.D.	1002	13	6.6	141.5
		1200	T.D.	1000	16	6.8	140.9
		1800	T.S.	996	18	7.5	140.2
	22	0000	T.S.	996	18	8.5	139.2
		0600	T.S.	990	21	9.3	137.9
		1200	S.T.S.	984	25	10.1	136.4
		1800	S.T.S.	984	25	10.9	135.0
	23	0000	S.T.S.	980	28	11.7	133.3
		0600	S.T.S.	975	31	11.9	132.1
		1200	T.	960	36	12.6	130.9
		1800	S.T.	950	43	13.0	129.9
	24	0000	S.T.	940	49	13.1	128.9
		0600	SuperT.	925	57	13.3	128.2
		1200	SuperT.	925	57	13.4	127.5
		1800	SuperT.	925	57	13.6	126.7
	25	0000	SuperT.	920	59	13.5	126.0
		0600	SuperT.	920	59	13.5	125.1
		1200	SuperT.	925	57	13.5	124.0
		1800	S.T.	940	49	13.5	122.8
	26	0000	S.T.	950	43	13.5	121.5
		0600	T.	960	39	14.0	119.8
		1200	T.	965	36	14.3	118.5
		1800	T.	970	33	14.6	117.2
	27	0000	S.T.S.	975	31	14.9	116.3
		0600	S.T.S.	984	25	14.7	115.9
		1200	T.S.	990	21	14.4	115.5
		1800	T.D.	1000	16	13.6	114.8
			消散 Dissipated				