二零一二年的熱帶氣旋路徑圖
TRACKS OF TROPICAL CYCLONES IN 2012

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

布拉萬 BOLAVEN 八月AUG
三巴 SANBA 九月SEP
卡努 KHANUN 七月JUL
逢維 DAMREY 八月AUG
天秤 TEMBIN 八月AUG
杰拉華 JELAWAT 十月OCT
鴻雁 KIROGI 八月AUG
艾雲尼 EWINIAR 九月SEP
古超 GUCHOL 六月JUN
馬力斯 MALIKSI 十月OCT
派比安 PRAPIROON 十月OCT
瑪娃 MAWAR(1203) 六月JUN
瑪莉亞 MARIA 十月OCT
海葵 HAIKUI 八月AUG
蘇拉 SAOLA 八月AUG
泰利 TALIM 六月JUN
珊瑚 SANVU 五月MAY
逢維 DAMREY(1210) 七月JUL
鴻雁 KIROGI(1212) 八月AUG
啟德 KAI-TAK 八月AUG
韋森特 VICENTE 七月JUL
杜蘇芮 DOKSURI 六月JUN
山神 SON-TINH 十月OCT
海葵 HAIKUI(1211) 八月AUG
卡努 KHANUN(1207) 七月JUL
天秤 TEMBIN(1214) 八月AUG
艾雲尼 EWINIAR(1218) 九月SEP
泰利 TALIM(1205) 六月JUN
格美 GAEMI(1220) 十月OCT
寶霞 BOPHA 十二月DEC
韋森特 VICENTE(1208) 七月JUL
啟德 KAI-TAK(1213) 八月AUG
派比安 PRAPIROON(1221) 十月OCT
瑪莉亞 MARIA(1222) 十月OCT
布拉萬 BOLAVEN(1215) 八月AUG
杜蘇芮 DOKSURI(1206) 六月JUN
瑪娃 MAWAR(1203) 六月JUN
蘇拉 SAOLA(1209) 七月JUL
杰拉華 JELAWAT(1217) 九月SEP
珊瑚 SANVU(1202) 五月MAY
馬力斯 MALIKSI(1219) 九月SEP
帕卡 PAKHAR 四月APR
格美 GAEMI 十月OCT
熱帶低氣壓 T.D. 十一月NOV
熱帶低氣壓 T.D. 二月FEB
悟空 WUKONG 十月OCT
帕卡 PAKHAR(1201) 三月MAR
熱帶低氣壓 T.D. 二月FEB
熱帶低氣壓 T.D. 十一月NOV
悟空 WUKONG(1225) 十二月DEC
三巴 SANBA(1216) 九月SEP
山神 SON-TINH(1223) 十月OCT
古超 GUCHOL(1204) 六月JUN
寶霞 BOPHA(1224) 十一月NOV

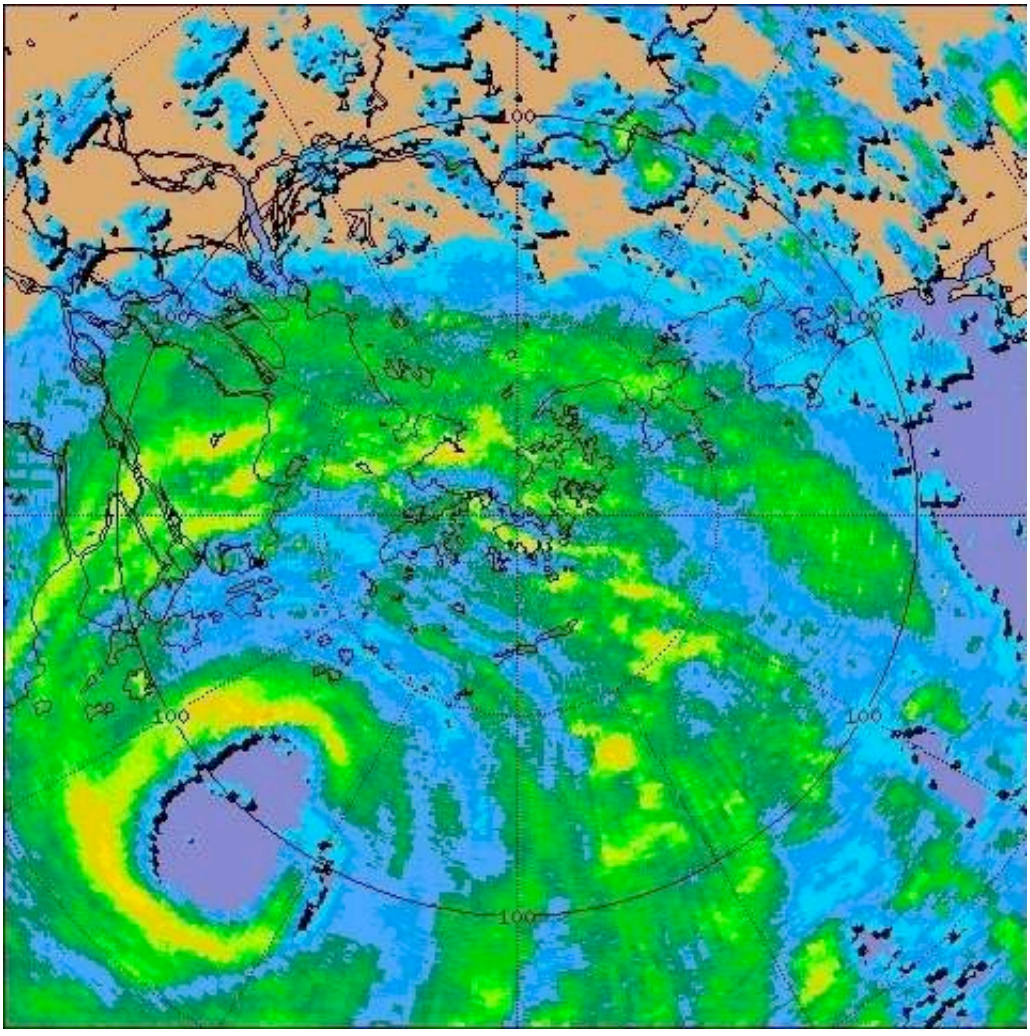
香港天文台
HONG KONG OBSERVATORY

90°E 95°E 100°E 105°E 110°E 115°E 120°E 125°E 130°E 135°E 140°E 145°E 150°E 155°E 160°E 165°E 170°E 175°E 180°
45°N 40°N 35°N 30°N 25°N 20°N 15°N 10°N 5°N 0°

香港天文台
HONG KONG OBSERVATORY

二零一二年熱帶氣旋

TROPICAL CYCLONES IN 2012



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Prepared by:
Hong Kong Observatory
134A Nathan Road
Kowloon, Hong Kong

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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"1201"代表在二零一二年區內第一個被日本氣象廳分類為熱帶風暴或更強的熱帶氣旋。在年報內，此編號會顯示在熱帶氣旋名稱後的括弧內，例如強烈熱帶風暴帕卡(1201)。

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

年報第二節是二零一二年所有影響北太平洋西部及南海區域的熱帶氣旋的概述。

年報第三節是二零一二年影響香港的熱帶氣旋的個別詳細報告，內容包括：

(a) 該熱帶氣旋對香港造成的影響；
(b) 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

(c) 香港各地錄得的最高陣風風速及最高每小時平均風速；
(d) 香港天文台錄得的最低平均海平面氣壓；
(e) 香港天文台及其他地方錄得的每日總雨量；
(f) 香港各潮汐測量站錄得的最高潮位及最大風暴潮；及
(g) 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。

二零一二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(請參閱圖 1.1)。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:

(i) A TROPICAL DEPRESSION (T.D.) has maximum sustained winds of less than 63 km/h.
(ii) A TROPICAL STORM (T.S.) has maximum sustained winds in the range 63-87 km/h.
(iii) A SEVERE TROPICAL STORM (S.T.S.) has maximum sustained winds in the range 88-117 km/h.
(iv) A TYPHOON[#] (T.) has maximum sustained winds of 118-149 km/h.
(v) A SEVERE TYPHOON* (S.T.) has maximum sustained winds of 150-184 km/h.
(vi) 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 2012 was assigned the code "1201". In this report, the associated code immediately follows the name of the tropical cyclone in bracket, e.g. Severe Tropical Storm Pakhar (1201).

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 2012 is presented.

The reports in Section 3 are individual accounts of the life history of tropical cyclones affecting Hong Kong in 2012. 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 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 as 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 二零一二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 2012

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	菲特 Fitow	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	寶霞 Bopha	羅莎 Krosa	美莎克 Maysak	燦都 Chanthu	納沙 Nesat
中國	China	悟空 Wukong	海燕 Haiyan	海神 Haishen	電母 Dianmu	海棠 Haitang
朝鮮	DPR Korea	清松 Sonamu	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	天鷹 Washi
老撾	Lao PDR	麗琵 Leepi	法茜 Faxai	燦鴻 Chan-hom	南川 Namtheun	帕卡 Pakhar

表 1.1 (續)
TABLE 1.1 (cont'd)

來源	Contributed by	I	II	III	IV	V
		名字 Name	名字 Name	名字 Name	名字 Name	名字 Name
中國澳門	Macau, China	貝碧嘉 Bebinca	琵琶 Peipah	蓮花 Linfa	瑪瑙 Malou	珊瑚 Sanvu
馬來西亞	Malaysia	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	威馬遜 Rammasun	艾莎尼 Atsani	暹芭 Chaba	卡努 Khanun
美國	U.S.A.	尤特 Utor	麥德姆 Matmo	艾濤 Etau	艾利 Aere	韋森特 Vicente
越南	Viet Nam	潭美 Trami	夏浪 Halong	環高 Vamco	桑達 Songda	蘇拉 Saola

註：在二零一二年，西北太平洋和南海的熱帶氣旋名單上，新增一個新名字「雷伊」，取代舊有名字「凡亞比」。
Note: In 2012, a new name "Rai" has been adopted for tropical cyclones in the western North Pacific and South China Sea, replacing "Fanapi".

表 1.2 年報內各氣壓表的位置及海拔高度
TABLE 1.2 Positions and elevations of various barometers 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
坪洲	Peng Chau	22°17’28”	114°02’36”	35
橫瀾島	Waglan Island	22°10’56”	114°18’12”	60

表 1.3　　年報內各風速表的位置及海拔高度

TABLE 1.3　Positions and elevations of various anemometers mentioned in this annual report

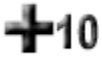
站 Station		位置 Position		風速表的海拔高度(米) Elevation of anemometer above M.S.L. (m)
		北緯 Latitude N	東經 Longitude E	
黃麻角(赤柱)	Bluff Head (Stanley)	22°11’51”	114°12’43”	103
中環碼頭	Central Pier	22°17’20”	114°09’21”	30
長洲	Cheung Chau	22°12’04”	114°01’36”	99
長洲泳灘	Cheung Chau Beach	22°12’39”	114°01’45”	27
青洲	Green Island	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
鯽魚湖	Tsak Yue Wu	22°24’10”	114°19’23”	23
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

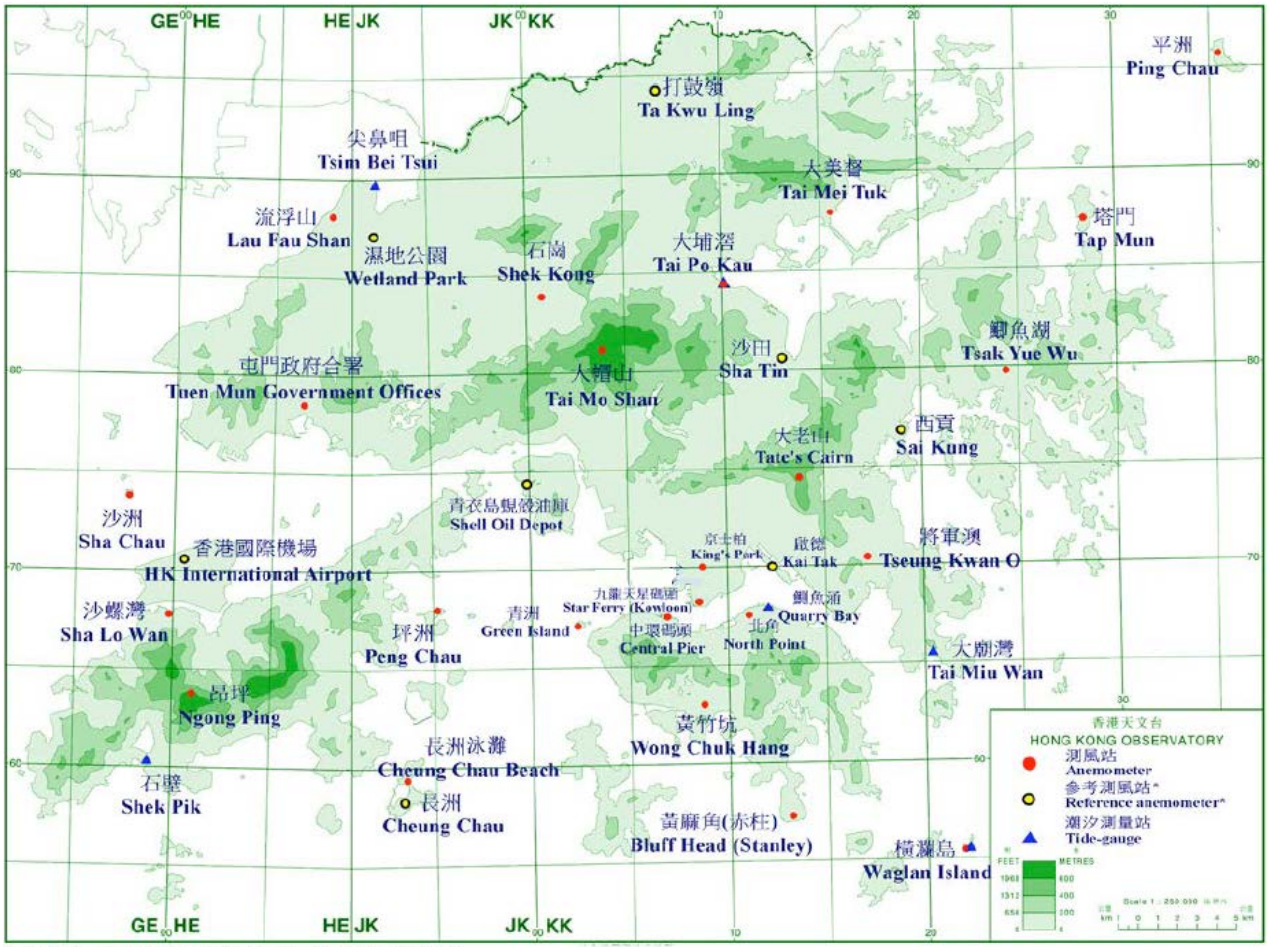
所指風速表在北跑道近中間位置

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

表 1.4　　二零一二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 2012

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

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　二零一二年熱帶氣旋概述

2.1　二零一二年的熱帶氣旋回顧

2.1.1　北太平洋西部（包括南海區域）的熱帶氣旋

二零一二年有27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），略少於1961-2010年約30個的長期年平均數目。全年有15個熱帶氣旋達到颱風或以上強度，接近1961-2010年的長期年平均數目 。

首個熱帶氣旋在二月形成，最後一個則在十二月形成。圖2.1是二零一二年在北太平洋西部及南海區域熱帶氣旋數目之逐月分佈。

二零一二年內有七個熱帶氣旋在中國大陸登陸，其中兩個在香港300公里內的華南沿岸登陸。兩個熱帶氣旋橫過台灣，四個登陸朝鮮半島，兩個登陸日本，四個橫過菲律賓及五個登陸越南。

二零一二年最強的熱帶氣旋於九月在北太平洋西部上出現，分別為超強颱風三巴(1216)及杰拉華(1217)（圖2.3及2.4），中心附近最高持續風速估計均為每小時220公里，而最低海平面氣壓為905百帕斯卡（表4.1）。

天秤(1214)是二零一二年路徑最複雜的熱帶氣旋（圖2.5）。受北太平洋西部上另一股熱帶氣旋布拉萬(1215)的牽引，其路徑頗為曲折，並兩度吹襲台灣。

2.1.2　香港責任範圍內的熱帶氣旋

在二零一二年的27個熱帶氣旋中，有14個進入香港責任範圍（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少（表2.1），當中有四個在香港責任範圍內形成。年內，香港天文台總共發出443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

二零一二年共有十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少，當中有兩個在南海上形成，其餘八個從北太平洋西部及南海以南海域進入南海。

2.1.4　影響香港的熱帶氣旋

二零一二年香港的颱風季節於六月十七日開始，當天熱帶低氣壓泰利(1205)在海南島以東的南海北部上形成，並緩慢向東移動，天文台發出一號戒備信號。八月二十六日，颱風天秤遠離香港，天文台取消所有熱帶氣旋信號，成為自一九九七年以來最早結束的颱風季節。

年內共有五個熱帶氣旋影響香港（圖2.2），略少於1961-2010年約6個的長期年平均數目(表2.2)。這五個熱帶氣旋分別為六月的強烈熱帶風暴泰利(1205)及熱帶風暴杜蘇芮(1206)、七月的強颱風韋森特(1208) 、八月的颱風啟德(1213) 及強颱風天秤(1214)。天文台在韋森特影響香港期間曾發出十號颶風信號，是年內發出的最高熱帶氣旋警告信號，也是

自一九九九年九月颱風約克襲港以來首次十號信號。杜蘇芮及啟德吹襲期間天文台曾發出八號烈風或暴風信號。泰利及天秤則分別引致天文台發出三號強風信號和一號戒備信號。

2.1.5 熱帶氣旋的雨量

二零一二年各熱帶氣旋為香港帶來的雨量（即該熱帶氣旋在出現於香港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，天文台錄得的雨量）共為483.4毫米（表4.8.1），約佔年內總雨量1924.7毫米的百分之25，比1981-2010年正常的678.0毫米少約29%。

強颱風韋森特(1208)為天文台總部帶來350.8毫米的雨量(表4.8.1)，是年內為香港帶來最多雨量的熱帶氣旋。

2.2 每月概述

這一節逐月介紹二零一二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

一月並無熱帶氣旋影響北太平洋西部及南海區域。

二月

一個熱帶低氣壓於二月十八日在南沙之西南偏西約180公里的南海南部上形成，並緩慢向西南偏西移動，其中心附近最高持續風力為每小時55公里。該熱帶低氣壓於二月二十一日在南海南部上消散。

三月

熱帶低氣壓帕卡(1201)於三月二十八日在胡志明市之東南偏東約700公里的南海南部上形成，並向西緩慢移動，翌日增強為熱帶風暴。帕卡於三月三十日在胡志明市之東南偏東約540公里處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力達到每小時105公里。帕卡於四月一日轉向西北移動，並在越南南部登陸，當日黃昏減弱為熱帶風暴，翌日在柬埔寨內陸上消散。

四月

四月並無熱帶氣旋在北太平洋西部及南海區域上形成。

五月

熱帶低氣壓珊瑚(1202)於五月二十二日在關島以南約140公里的北太平洋西部上形成，並大致向西北移動。當日下午珊瑚增強為熱帶風暴，翌日再增強為強烈熱帶風暴及向西北偏北移動。珊瑚於五月二十四日向北移動，並在硫黃島之西南偏南約 510 公里處成為颱風及達到其最高強度，中心附近最高持續風力達到每小時120公里。珊瑚於五月二十五日轉向東北移動，隨後於五月二十七日減弱為熱帶風暴。珊瑚於五月二十八日在日本東南的北太平洋西部上演變為温帶氣旋。

六月

熱帶低氣壓瑪娃(1203)於六月一日在馬尼拉以東約560公里的北太平洋西部上形成，並向西北偏北移動，當日傍晚時增強為熱帶風暴。它於六月二日逐漸增強為颱風，並轉向北至東北偏北移動。瑪娃於六月四日在沖繩島西南偏南的太平洋上達到其最高強度，中心附近最高持續風力達到每小時145公里，並向東北移動。它於六月五日減弱為強烈熱帶風暴，翌日在日本東南的北太平洋西部上演變為温帶氣旋。

熱帶低氣壓古超(1204)於六月十二日在關島以南約460公里的北太平洋西部上形成。古超向西至西北偏西移動及逐漸增強，當日傍晚增強為熱帶風暴，兩天後進一步增強為強烈熱帶風暴。它於六月十五日轉向西北偏北移動及增強為颱風，翌日黃昏成為超強颱風。古超於六月十七日在呂宋以東的太平洋上達到其最高強度，中心附近最高持續風力達到每小時205公里。古超於六月十八日在沖繩島以南處向北至東北偏北移動，並開始減弱。它於六月十九日向東北移動及減弱為颱風，並於當日黃昏時橫過日本東南部及減弱為強烈熱帶風暴，翌日在日本以東的北太平洋西部上演變為一個温帶氣旋。古超吹襲日本期間，最少造成一人死亡、一人失蹤、另七十多人受傷及約一萬戶家庭停電。

熱帶低氣壓泰利(1205)於六月十七日在海南島以東的南海北部上形成，並緩慢向東移動。它於六月十八日早上增強為熱帶風暴，晚上於香港以南的南海北部上進一步增強為強烈熱帶風暴，並達到其最高強度，中心附近持續風力達到每小時90公里。泰利於六月十九日轉向東北移動，橫過南海東北部，翌日減弱為熱帶風暴，並橫過台灣海峽。泰利於六月二十一日首先減弱為熱帶低氣壓，隨後在東海上消散。

熱帶低氣壓杜蘇芮(1206)於六月二十六日在馬尼拉以東約1 280公里的北太平洋西部上形成，並向西北偏西移動，翌日增強為熱帶風暴及向西北移動。杜蘇芮於六月二十八日在呂宋東北的海面上達到其最高強度，中心附近最高持續風力達到每小時85公里。當日日間杜蘇芮向西北偏西移動，橫過呂宋海峽，晚上進入南海，翌日橫過南海北部。杜蘇芮於六月三十日凌晨在珠江口以西的華南沿岸登陸，當日早上減弱為熱帶低氣壓，隨後在廣東西部上消散。

七月

熱帶低氣壓卡努(1207)於七月十六日在硫黃島以南約340公里的北太平洋西部上形成，並向西北偏西至西北移動，當日黃昏增強為熱帶風暴，翌日橫過沖繩島附近海域。卡努於七月十八日早上在東海上增強為強烈熱帶風暴及轉向北移動，並達到其最高強度，中心附近最高持續風力達到每小時90公里。卡努於當日黃昏減弱為熱帶風暴，隨後橫過韓國，七月十九日在朝鮮半島附近消散。根據報章報導，卡努吹襲期間，造成韓國一人死亡、數間房屋被破壞，超過26 000間房屋無電力供應。朝鮮至少有七人死亡，部分沿岸地區出現風暴潮。

熱帶低氣壓韋森特(1208)於七月二十日在馬尼拉之東北約450公里的北太平洋西部上形成，並向西北偏西移動，當晚經過呂宋海峽。韋森特於七月二十一日進入南海北部，並向西移動及在當晚增強為熱帶風暴，翌日在南海上幾乎停留不動。韋森特在七月二十三日開始移近珠江口以西一帶，並於下午迅速增強為一個颱風，當晚接近午夜時進一步增強為強

颱風，並達到其最高強度，中心附近最高持續風力達到每小時155公里。韋森特於七月二十四日黎明前在香港西南偏西約130公里的台山附近沿岸地區登陸，並減弱為颱風。隨後它大致向西北偏西移動，橫過廣東西部及廣西，並逐漸減弱。韋森特於七月二十五日在越南北部消散。

熱帶低氣壓蘇拉(1209)於七月二十八日在馬尼拉以東約710公里的北太平洋西部上形成，並大致向西北偏北移動，黃昏時增強為熱帶風暴。蘇拉於七月二十九日繼續增強為強烈熱帶風暴，翌日在呂宋海峽以東進一步增強為颱風。蘇拉於八月一日在台灣以東海域轉向西北移動，並達到其最高強度，中心附近最高持續風力達每小時145公里。八月二日蘇拉橫過台灣北部，進入台灣海峽。它於八月三日早上減弱為強烈熱帶風暴，並在福建沿岸登陸，翌日在江西內陸消散。根據報章報導，蘇拉吹襲菲律賓期間造成37人死亡。蘇拉帶來的暴雨在台灣引致嚴重水浸及山泥傾瀉，造成至少五人死亡、兩人失蹤、另15人受傷。福建緊急疏散30.6萬人。

熱帶低氣壓達維(1210)於七月二十八日在硫黃島東北偏東約590公里的北太平洋西部上形成，初時移動緩慢。它於七月三十日開始向西北偏西至西北移動及增強為熱帶風暴。達維於七月三十一日在日本以南的北太平洋西部上進一步增強為強烈熱帶風暴，八月一日掠過九州以南海域。翌日達維在東海上增強為颱風，並達到其最高強度，中心附近最高持續風力達到每小時140公里，並於當晚在江蘇北部沿岸登陸。達維於八月三日逐漸減弱為熱帶風暴及轉為向東北偏北移動，八月四日在中國東北部沿岸消散。達維吹襲期間，造成山東最少兩人死亡、二十九人受傷、兩萬多間房屋倒塌或受損。

八月

熱帶低氣壓海葵(1211)於八月二日在硫黃島之東南偏東約410公里的北太平洋西部上形成，並大致向西北偏西移動，於八月三日在北太平洋西部上增強為熱帶風暴，八月五日進一步增強為強烈熱帶風暴。海葵於八月六日橫過東海及減慢移動速度，並增強為颱風，翌日在温州以東的東海上進一步增強為強颱風，並達到其最高強度，中心附近最高持續風力達到每小時155公里。海葵於八月八日早上在浙江沿岸地區登陸，並逐漸減弱為熱帶風暴。它於八月九日繼續減弱為熱帶低氣壓，八月十日在安徽上空消散。海葵吹襲浙江期間，造成至少4 000 間房屋倒塌，40 萬戶停電。

熱帶低氣壓鴻雁(1212)於八月三日在硫黃島以東約2 080公里的北太平洋西部上形成，初時在太平洋上徘徊，八月五日向偏北移動，翌日增強為熱帶風暴。鴻雁於八月七日向西北移動，於八月九日下午在日本以東的北太平洋西部上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力達到每小時90公里。鴻雁於當日黃昏減弱為熱帶風暴，八月十日在日本北海道以東演變為温帶氣旋。

熱帶低氣壓啟德(1213)於八月十二日在馬尼拉之東北偏東約960公里的北太平洋西部上形成，並向西至西北偏西移動，於翌日增強為熱帶風暴。啟德於八月十五日橫過呂宋北部，黃昏時進入南海北部及增強為強烈熱帶風暴。八月十六日啟德加速向西北偏西移動橫過南海北部及進一步增強為颱風，並達到其最高強度，中心附近最高持續風力達到每小時120公里。它於八月十七日下午初時在廣東西部湛江附近登陸，其後橫過北部灣，黃昏時減弱為強烈熱帶風暴。啟德於八月十八日橫過越南北部，隨後在內陸消散。

熱帶低氣壓天秤(1214)於八月十八日在馬尼拉東北約660公里的北太平洋西部上形成及移動緩慢，翌日逐漸增強為強烈熱帶風暴。天秤於八月二十日在呂宋以東的海域上繼續逐漸增強為強颱風，並向北移動及達到其最高強度，中心附近最高持續風力達到每小時175公里。它於八月二十二日轉向西移動，移向台灣及減弱為颱風。天秤於翌日再次增強為強颱風，於八月二十四日橫過台灣南部，減弱為颱風及進入南海東北部，隨後兩天在南海東北部徘徊。受北太平洋西部的另一股熱帶氣旋布拉萬的影響，天秤於八月二十七日向東北偏東移動，並於翌日向東北加速，橫過台灣以東海域及減弱為強烈熱帶風暴。它於八月二十九日向東北偏北移動，橫過東海，八月三十日早上在韓國登陸，黃昏時在韓國演變為温帶氣旋。

熱帶低氣壓布拉萬(1215)於八月二十日在硫黃島以南約890公里的北太平洋西部上形成，並大致向西北移動。它在北太平洋西部上逐漸增強，於八月二十二日增強為颱風，兩天後成為強颱風。布拉萬於八月二十五日在冲繩島之東南進一步增強為超強颱風，並達到其最高強度，中心附近最高持續風力達到每小時185公里，翌日黃昏時橫過沖繩島及減弱為強颱風。它於八月二十七日轉向西北偏北移動，橫過東海，並減弱為颱風，翌日橫過黃海，晚上在朝鮮沿岸登陸。布拉萬於八月二十九日在中國東北部內陸消散。布拉萬吹襲期間，造成沖繩島至少四人受傷及約三萬七千戶停電。此外，韓國最少有七人喪生，超過一百七十萬戶停電。濟州島附近海域有兩艘中國漁船在風暴中分別擱淺及沉沒，造成至少五人死亡、十人失蹤。

九月

熱帶低氣壓三巴(1216)於九月十一日在馬尼拉東南偏東約1 560公里的北太平洋西部上形成，並向西北移動，當日下午發展為熱帶風暴，九月十二日增強為強烈熱帶風暴。三巴於九月十三日早上在馬尼拉以東的北太平洋西部上進一步增強為颱風並轉向北移動。當日三巴繼續增強，黃昏時成為超強颱風。它於九月十四日在呂宋以東的北太平洋西部上達到其最高強度，中心附近最高持續風力達每小時220公里。三巴於九月十六日早上橫過沖繩島，其後橫過東海，並減弱為強颱風，九月十七日在韓國登陸並逐漸減弱為強烈熱帶風暴。當日三巴向東北偏北移動，橫過韓國東部，黃昏時橫過日本海並減弱為熱帶風暴。三巴於九月十八日在朝鮮以東的日本海上演變為温帶氣旋。根據報章報導，三巴的外圍雨帶影響菲律賓，引致一人死亡。台灣海面附近有一艘貨輪傾側，船上16人獲救，一人失蹤。三巴吹襲沖繩島期間，造成該處超過六萬戶家庭停電。三巴亦引致日本西南部一死四傷，另有一人失蹤。韓國則有一人死亡，一人受傷，45萬戶家庭停電。

熱帶低氣壓杰拉華(1217)於九月二十一日在馬尼拉以東約1 160公里的北太平洋西部上形成，並緩慢向西南移動，下午增強為熱帶風暴。杰拉華於九月二十二日增強為強烈熱帶風暴。它於九月二十三日在菲律賓中部以東的海面上顯著增強成為超強颱風，並轉向西北偏北至西北移動。杰拉華於九月二十五日在馬尼拉以東的北太平洋西部上達到其最高強度，中心附近最高持續風力達每小時220公里。它於九月二十七日在台灣東南海面轉向北移動，九月二十八日進一步轉向東北移動，並減弱為強颱風，翌日在沖繩島附近掠過。九月三十日杰拉華首先在日本以南的海域上減弱為颱風，隨後在日本本州南部登陸及橫過本州。杰拉華肆虐日本期間，導致冲繩島最少有80人受傷，超過33 萬戶無電力供應，多輛汽車被吹翻，日本其他地區最少有兩人死亡、超過100人受傷。

熱帶低氣壓艾雲尼(1218)於九月二十四日在硫黃島西南偏南約710公里的北太平洋西部上形成，並向西北偏北移動。它於九月二十五日增強為熱帶風暴，並轉向東北移動。艾雲尼於九月二十六日在小笠原群島附近向北移動，並增強為強烈熱帶風暴及達到其最高強度，中心附近最高持續風力達每小時90公里。艾雲尼於九月二十七日在太平洋徘徊，於九月二十八日轉向東北移動，翌日減弱為熱帶風暴，隨後於九月三十日在日本以東的北太平洋西部上演變為一個温帶氣旋。

熱帶低氣壓馬力斯(1219)於九月三十日在關島以東約560公里的北太平洋西部上形成，並大致向西北移動，翌日增強為熱帶風暴。馬力斯於十月三日在硫黃島附近掠過，期間轉向東北偏北移動及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力達每小時90公里。它於十月四日在日本以東的北太平洋西部上變為温帶氣旋。

十月

熱帶低氣壓格美(1220)於十月一日在西沙之東南偏東約260公里的南海中部上形成，初時移動緩慢。它於十月二日開始向東南偏東移動，並增強為熱帶風暴。格美於十月三日減慢移動速度，並進一步增強為強烈熱帶風暴及達到其最高強度，中心附近最高持續風力達到每小時90公里。它於十月四日轉向西至西南偏西移動，橫過南海中部，並減弱為熱帶風暴。格美於十月六日在西沙以南掠過，黃昏時在越南中部沿岸登陸，隨後在越南內陸上消散。根據報章報導，格美吹襲期間，越南中部有一人受傷，約30間房屋及學校受損。

熱帶低氣壓派比安(1221)於十月七日在馬尼拉之東北偏東約1 790公里的北太平洋西部上形成，並向西至西北偏西移動。派比安於十月八日逐漸增強為強烈熱帶風暴，十月九日繼續增強為颱風，十月十日在沖繩島東南偏南約880公里增強為強颱風，翌日達到其最高強度，中心附近最高持續風力達到每小時165公里，於十月十一日至十五日在琉球羣島東南的海面上徘徊，期間減弱為颱風。派比安於十月十六日採取一個西北偏北途徑移動，並減弱為強烈熱帶風暴。它於十月十七日加快速度向東北移動，黃昏時在沖繩島之東南約230公里掠過。派比安於十月十九日在日本東南的北太平洋西部上演變為温帶氣旋。派比安為琉球羣島北部奄美大島帶來大雨，觸發山泥傾瀉，導致超過1 200戶沒有電力供應。

熱帶低氣壓瑪莉亞(1222)於十月十四日在硫黃島東南偏南約870公里的北太平洋西部上形成，並向西北偏西移動，傍晚時增強為熱帶風暴，翌日轉向北移動。瑪莉亞於十月十六日在琉黃島西南處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力達到每小時90公里，其後它轉向東北移動。瑪莉亞於十月十七日向東北偏東移動，翌日減弱為熱帶風暴，最後於十月十九日在東經157度附近的北太平洋西部上演變為温帶氣旋。

熱帶低氣壓山神(1223)於十月二十二日在馬尼拉之東南偏東約1 320公里的北太平洋西部上形成，並向西移動。山神於十月二十四日增強為熱帶風暴，並向西北偏西移動，橫過菲律賓中部。 山神於十月二十五日進入南海中部，翌日增強為強烈熱帶風暴。山神橫過南海中部並繼續增強，於十月二十七日在海南島以南的海面上成為強颱風，並達到其最高強度，中心附近最高持續風力達到每小時155公里。它於翌日在北部灣上減弱為颱風，並轉向西北偏北移動。山神於九月二十九日在越南北部沿岸登陸後，轉向東面緩慢移動，並於翌日在北部灣消散。山神吹襲菲律賓期間，造成約27人死亡。山神亦導致海南島最少有一人死亡、五人失蹤、超過2 700間房屋倒塌或受損、41 000多公頃農田受災，直接經濟損失超過九億元人民幣。

十一月

一個熱帶低氣壓於十一月十四日在胡志明市東南約450公里的南海南部上形成，並向西北偏西移動，其中心附近最高持續風力為每小時55公里。該熱帶低氣壓於十一月十五日轉向西北移動，當日黃昏在越南南部附近的海面上消散。

寶霞(1224)於十一月二十六日在關島東南約1 740公里的北太平洋西部上形成，並大致向西至西北偏西移動，翌日增強為熱帶風暴。寶霞於十一月三十日在關島以南處進一步增強為強烈熱帶風暴。它於十二月一日在雅浦島東南約770公里的北太平洋西部上增強為颱風，當日黃昏逐漸增強為超強颱風，翌日達到其最高強度，中心附近最高持續風力達每小時210公里。寶霞於十二月四日橫過菲律賓南部，並逐漸減弱為颱風，於十二月五日進入南海中部及轉向西北移動。它於十二月七日在西沙東南偏東的南海上增強為強颱風，翌日在西沙以東轉向東北偏東移動，並逐漸減弱為強烈熱帶風暴。寶霞於十二月九日進一步減弱為熱帶風暴，下午在呂宋以西的海域上消散。根據報章報導，寶霞吹襲菲律賓期間，觸發菲律賓水災及山泥傾瀉，導致至少1 146人死亡，超過800人失蹤。

十二月

熱帶低氣壓悟空(1225)於十二月二十四日在馬尼拉東南偏東約1 250公里的北太平洋西部上形成，並向西移動，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力達每小時65公里。悟空於十二月二十六日向西至西北偏西移動，橫過菲律賓中部，十二月二十七日減弱為熱帶低氣壓，進入南海中部及轉向西南偏西移動。悟空於十二月二十八日在南沙西南偏西的南海南部上消散。悟空吹襲菲律賓期間，造成11人死亡。

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 2012

2.1 Review of tropical cyclones in 2012

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

In 2012, a total of 27 tropical cyclones occurred over the western North Pacific and the South China Sea bounded by the Equator, 45°N, 100°E and 180°, slightly less than the long term (1961-2010) average figure of around 30. During the year, 15 of the tropical cyclones attained typhoon intensity or above, close to the long term average of 1961 - 2010.

The first tropical cyclone of the year formed in February and the last one in December. Figure 2.1 shows the monthly frequencies of the occurrence of tropical cyclones in the western North Pacific and the South China Sea in 2012.

During the year, seven tropical cyclones made landfall over mainland China, with two of them making landfall over the south China coast within 300 km of Hong Kong. Two tropical cyclones crossed Taiwan, four made landfall over the Korean Peninsula, two made landfall over Japan, four traversed the Philippines and five made landfall over Vietnam.

The most intense tropical cyclone in 2012 were Super Typhoons Sanba (1216) and Jelawat (1217) over the western North Pacific in September (Figures 2.3 and 2.4). Both have an estimated maximum sustained wind speed of 220 km/h and a minimum sea-level pressure of 905 hPa near their centres (Table 4.1).

The track of Tembin (1214) was the most complicated in 2012 (Figure 2.5). Under the influence of another tropical cyclone Bolaven (1215) over the western North Pacific, Tembin moved erratically and struck Taiwan twice.

2.1.2 Tropical cyclones in Hong Kong's area of responsibility

Amongst the 27 tropical cyclones in 2012, 14 occurred inside Hong Kong's area of responsibility (i.e. the area bounded by 10°N, 30°N, 105°E and 125°E), less than the long term annual average figure of around 16 (Table 2.1). Four of them developed within Hong Kong's area of responsibility. Altogether, 443 tropical cyclone warnings to ships and vessels were issued by the Hong Kong Observatory in 2012 (Table 4.2).

2.1.3 Tropical cyclones over the South China Sea

Ten tropical cyclones affected the South China Sea bounded by 10°N, 25°N, 105°E and 120°E in 2012, less than the long term annual average of around 12. Two of them formed over the area. Eight moved into the area from the western North Pacific or from the sea areas to the south.

2.1.4 Tropical cyclones affecting Hong Kong

In 2012, the typhoon season in Hong Kong started on 17 June when Tropical Depression Talim (1205) formed over the northern part of the South China Sea east of Hainan Island and moved slowly eastwards, necessitating the issuance of the Standby Signal No. 1. The typhoon season ended on 26 August as Typhoon Tembin moved away from Hong Kong and all tropical cyclone warning signals were cancelled. It was also the earliest end of the typhoon season since 1997.

Five tropical cyclones affected Hong Kong during 2012 (Figure 2.2), slightly less than the long term (1961-2010) average figure of about six in a year (Table 2.2). These five tropical cyclones were Severe Tropical Storm Talim (1205) and Tropical Storm Doksuri (1206) in June, Severe Typhoon Vicente (1208) in July, Typhoon Kai-tak (1213) and Severe Typhoon Tembin (1214) in August. The Hurricane Signal No. 10 was issued during the passage of Vicente, the highest tropical cyclone warning signal in 2012 and also the first No. 10 signal in Hong Kong since Typhoon York in September 1999. The No. 8 Gale or Storm Signal was issued during the passages of Doksuri and Kai-tak. Talim and Tembin necessitated the issuance of Strong Wind Signal No. 3 and Standby Signal No. 1 in Hong Kong respectively.

2.1.5 Tropical cyclone rainfall

Tropical cyclone rainfall (total rainfall recorded at the Hong Kong Observatory 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 2012 was 483.4 mm (Table 4.8.1). This accounted for approximately 25% of the year's total rainfall of 1924.7 mm and was about 29% below the 1981-2010 normal of 678.0 mm.

Severe Typhoon Vicente (1208) brought 350.8 mm of rainfall to the Hong Kong Observatory Headquarters (Table 4.8.1) and was the wettest tropical cyclone in 2012.

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

No tropical cyclone occurred over the western North Pacific and the South China Sea in January.

FEBRUARY

A tropical depression formed over the southern part of the South China Sea about 180 km west-southwest of Nansha on 18 February and moved slowly west-southwestwards. The estimated maximum sustained wind near its centre was about 55 km/h. The tropical depression dissipated over the southern part of the South China Sea on 21 February.

MARCH

Pakhar (1201) formed as a tropical depression over the southern part of the South China Sea about 700 km east-southeast of Ho Chi Minh City on 28 March and moved westwards slowly. It intensified into a tropical storm on the following day. Pakhar strengthened further into a severe tropical storm about 540 km east-southeast of Ho Chi Minh City on 30 March, reaching its peak intensity with an estimated sustained wind of 105 km/h near its centre. Pakhar turned to move northwestwards and made landfall over southern Vietnam on 1 April. It weakened into a tropical storm that evening and dissipated inland over Cambodia on 2 April.

APRIL

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

MAY

Sanvu (1202) formed as a tropical depression over the western North Pacific about 140 km south of Guam on 22 May and moved generally northwestwards. Sanvu intensified into a tropical storm that afternoon. It strengthened further into a severe tropical storm on 23 May and moved north-northwestwards. Sanvu moved northwards and became a typhoon about 510 km south-southwest of Iwo Jima on 24 May, reaching its peak intensity with an estimated sustained wind of 120 km/h near its centre. Sanvu turned to move northeastwards on 25 May and subsequently weakened into a tropical storm on 27 May. Sanvu became an extratropical cyclone over the western North Pacific to the southeast of Japan on 28 May.

JUNE

Mawar (1203) formed as a tropical depression over the western North Pacific about 560 km east of Manila on 1 June. Moving north-northwestwards, it intensified into a tropical storm that evening. Mawar intensified gradually into a typhoon on 2 June and turned to move north to north-northeastwards. On 4 June, Mawar reached its peak intensity over the Pacific to the south-southwest of Okinawa with an estimated maximum sustained wind of 145 km/h near its centre and move northeastwards. It weakened into a severe tropical storm on 5 June and became an extratropical cyclone over the western North Pacific to the southeast of Japan on 6 June.

Guchol (1204) formed as a tropical depression over the western North Pacific about 460 km south of Guam on 12 June. Moving west to west-northwestwards, it gradually strengthened into a tropical storm that evening and further into a severe tropical storm two days afterwards. Guchol turned to move north-northwestwards on 15 June and strengthened into a typhoon. It became a super typhoon on the following evening. Guchol reached its peak intensity over the Pacific to the east of Luzon on 17 June, with an estimated maximum sustained wind of 205 km/h near its centre. It moved north to north-northeastwards to the south of Okinawa on 18 June and started to weaken. Moving northeastwards, Guchol weakened into a typhoon on 19 June. It crossed southeastern Japan that evening and weakened into a severe tropical storm. Guchol subsequently became an extratropical cyclone over the western North Pacific to the east of Japan on 20 June. According to press reports, at least one person was killed, one missing and some 70 people injured in Japan during the passage of Guchol. There were also interruptions of electricity supply to around 10 000 households.

Talim (1205) formed as a tropical depression over the northern part of the South China Sea to the east of Hainan Island on 17 June and moved slowly eastwards. It intensified into a tropical storm on the morning of 18 June and further into a severe tropical storm over the northern part of

the South China Sea to the south of Hong Kong at night, reaching its peak intensity with an estimated maximum sustained wind of 90 km/h near its centre. Talim turned to move northeastwards across the northeastern part of the South China Sea on 19 June. It weakened into a tropical storm and moved across the Taiwan Strait on 20 June. Talim first weakened into a tropical depression and then dissipated over the East China Sea on 21 June.

Doksuri (1206) formed as a tropical depression over the western North Pacific about 1 280 km east of Manila on 26 June and moved west-northwestwards. It intensified into a tropical storm and moved northwestwards on the following day. Doksuri reached its peak intensity over the seas to the northeast of Luzon on 28 June with an estimated maximum sustained wind of 85 km/h near its centre. It moved west-northwestwards across the Luzon Strait during the day and entered the South China Sea that night. Doksuri moved across the northern part of the South China Sea on 29 June. It made landfall over the south China coast to the west of the Pearl River Estuary in the small hours on 30 June. Doksuri weakened into a tropical depression and subsequently dissipated inland over western Guangdong that morning.

JULY

Khanun (1207) formed as a tropical depression over the western North Pacific about 340 km south of Iwo Jima on 16 July. Moving west-northwest to northwestwards, it intensified into a tropical storm that evening and moved across the seas near Ryukyu Islands on the following day. Khanun intensified into a severe tropical storm over the East China Sea in the morning on 18 July and turned to move northwards, reaching its peak intensity with an estimated maximum sustained wind of 90 km/h near its centre. It weakened into a tropical storm that evening and subsequently moved across the Republic of Korea. Khanun dissipated near the Korean Peninsula on 19 July. According to press reports, one person was killed, several buildings were damaged and over 26 000 houses were left without electricity in the Republic of Korea during the passage of Khanun. At least seven people were killed in DPR Korea and storm surge was reported in some coastal areas.

Vicente (1208) formed as a tropical depression over the western North Pacific about 450 km northeast of Manila on 20 July. Moving west-northwestwards, it made its way over Luzon Strait that night and entered the northern part of the South China Sea on 21 July. Moving westwards, it intensified into a tropical storm that night and became almost stationary over the South China Sea on the following day. Vicente began to edge towards the south China coast to the west of the Pearl River Estuary on 23 July and underwent rapid intensification to a typhoon in the afternoon and further to a severe typhoon around mid-night, reaching its peak intensity with an estimated maximum sustained wind of 155 km/h near its centre. Vicente made landfall near the coastal areas of Taishan about 130 km west-southwest of Hong Kong before dawn on 24 July and weakened into a typhoon. It subsequently moved generally west-northwestwards across western Guangdong and Guangxi and weakened gradually. Vicente dissipated over the northern part of Vietnam on 25 July.

Saola (1209) formed as a tropical depression over the western North Pacific about 710 km east of Manila on 28 July. Moving generally north-northwestwards, it intensified into a tropical storm that evening. Saola continued to intensify into a severe tropical storm on 29 July and further into a typhoon to the east of the Luzon Strait on the following day. It turned to move northwestwards over the seas to the east of Taiwan on 1 August, reaching its peak intensity with an estimated maximum sustained wind of 145 km/h near its centre. Saola moved across the northern part of Taiwan and entered the Taiwan Strait on 2 August. It weakened into a severe tropical storm and made landfall over the coast of Fujian on the morning of 3 August, dissipating inland over Jiangxi on the following day. According to press reports, 37 people were killed in the Philippines during the passage of Saola. Rainstorms brought about by Saola resulted in severe flooding and

landslides in Taiwan where at least 5 people were killed, two missing and 15 others injured. In Fujian, 306 000 people had to be evacuated during the passage of Saola.

Damrey (1210) formed as a tropical depression over the western North Pacific about 590 km east-northeast of Iwo Jima on 28 July and was slow moving initially. It started to move west-northwest to northwestwards on 30 July and intensified into a tropical storm. Damrey strengthened further into a severe tropical storm over the western North Pacific to the south of Japan on 31 July and moved across the seas south of Kyushu on the following day. It intensified into a typhoon over the East China Sea on 2 August, reaching its peak intensity with an estimated maximum sustained wind of 140 km/h near its centre, and made landfall over the coast of northern Jiangsu that night. Damrey gradually weakened into a tropical storm on 3 August and turned to move generally north-northeastwards. It dissipated over the coastal areas of northeast China on 4 August. At least two people were killed, 29 others injured and some 20 000 houses collapsed or damaged in Shandong during the passage of Damrey.

AUGUST

Haikui (1211) formed as a tropical depression over the western North Pacific about 410 km east-southeast of Iwo Jima on 2 August and moved generally west-northwestwards. Haikui intensified into a tropical storm over the western North Pacific on 3 August and further into a severe tropical storm on 5 August. Haikui slowed down as it moved across the East China Sea on 6 August and intensified into a typhoon. It strengthened further into a severe typhoon over the East China Sea to the east of Wenzhou on 7 August, reaching its peak intensity with an estimated maximum sustained wind of 155 km/h near its centre. Haikui made landfall over the coastal areas of Zhejiang on the morning of 8 August and gradually weakened into a tropical storm. It continued to weaken into a tropical depression on 9 August and dissipated over Anhui on 10 August. At least 4 000 houses collapsed and electricity supply to 0.4 million households were interrupted in Zhejiang during the passage of Haikui.

Kirogi (1212) formed as a tropical depression over the western North Pacific about 2 080 km east of Iwo Jima on 3 August and lingered over the Pacific initially. It moved northwards on 5 August and intensified into a tropical storm the following day. Kirogi moved northwestwards on 7 August and intensified into a severe tropical storm over the western North Pacific to the east of Japan on the afternoon of 9 August, reaching its peak intensity with an estimated maximum sustained wind of 90 km/h near its centre. It weakened into a tropical storm that evening and became an extratropical cyclone to the east of Hokkaido, Japan on 10 August.

Kai-tak (1213) formed as a tropical depression over the western North Pacific about 960 km east-northeast of Manila on 12 August. Moving west to west-northwestwards, it intensified into a tropical storm on the following day. Kai-tak moved across northern Luzon on 15 August, entered the northern part of the South China Sea that evening and intensified into a severe tropical storm. On 16 August, Kai-tak speeded up on a west-northwesterly track across the northern part of the South China Sea and intensified further into a typhoon, reaching its peak intensity with an estimated maximum sustained wind of 120 km/h. It made landfall near Zhanjiang over western Guangdong in the early afternoon on 17 August, moved across Beibu Wan later and weakened into a severe tropical storm that evening. Kai-tak moved across northern Vietnam and dissipated inland on 18 August.

Tembin (1214) formed as a tropical depression over the western North Pacific about 690 km northeast of Manila on 18 August and was slow moving. It intensified gradually into a severe tropical storm on the following day. Tembin continued to intensify gradually into a severe typhoon over the seas to the east of Luzon on 20 August and moved northwards, reaching its peak intensity with an estimated maximum sustained wind of 175 km/h near its centre. It turned to move

westwards towards Taiwan and weakened into a typhoon on 22 August. Tembin strengthened into a severe typhoon again on 23 August. It moved across the southern part of Taiwan, weakening into a typhoon and entered the northeastern part of the South China Sea on 24 August. Tembin lingered over the northeastern part of the South China Sea for the following two days. Under the influence of another tropical cyclone Bolaven over the western North Pacific, Tembin turned to move east-northeastwards on 27 August, accelerated northeastwards across the seas east of Taiwan and weakened into a severe tropical storm on 28 August. Tembin then moved north-northeastwards across the East China Sea on 29 August and made landfall over the Republic of Korea on the morning of 30 August. It became an extratropical cyclone over the Republic of Korea that evening.

Bolaven (1215) formed as a tropical depression over the western North Pacific about 890 km south of Iwo Jima on 20 August and moved generally northwestwards. It intensified gradually over the western North Pacific, becoming a typhoon on 22 August and a severe typhoon two days later. Bolaven strengthened further into a super typhoon to the southeast of Okinawa on 25 August, reaching its peak intensity with an estimated maximum sustained wind of 185 km/h near its centre. Bolaven moved across the Ryukyu Islands in the following evening and weakened into a severe typhoon. It turned to move north-northwestwards across the East China Sea on 27 August, weakening into a typhoon. Bolaven moved across the Yellow Sea on 28 August and made landfall over the coast of DPR Korea that night. Bolaven dissipated inland over northeastern China on 29 August. During the passage of Bolaven, four people were injured and around 37 000 housesholds left without electricity in Okinawa. At least seven people were killed and over 1.7 million households left without electricity in the Republic of Korea. Two Chinese fishing boats ran aground and sank respectively in the waters near Jeju, causing at least five deaths and 10 others missing.

SEPTEMBER

Sanba (1216) formed as a tropical depression over the western North Pacific about 1 560 km east-southeast of Manila on 11 September. Moving northwestwards, Sanba intensified into a tropical storm that afternoon and a severe tropical storm on 12 September. Sanba intensified into a typhoon over the western North Pacific to the east of Manila in the morning on 13 September and turned to move northwards. It continued to strengthen and became a super typhoon that evening. Sanba reached its peak intensity with an estimated maximum sustained wind of 220 km/h near its centre over the Pacific to the east of Luzon on 14 September. It moved across Okinawa in the morning on 16 September and subsequently moved across the East China Sea and weakened into a severe typhoon. Sanba made landfall over the Republic of Korea on 17 September and weakened gradually into a severe tropical storm. It moved north-northeastwards across the eastern part of the Republic of Korea that day, subsequently moved across the Sea of Japan and weakened into a tropical storm that evening. Sanba became an extratropical cyclone over the Sea of Japan east of DPR Korea on 18 September. According to press reports, the outer rainbands of Sanba affected the Philippines where one person was killed. A freighter capsized over the waters near Taiwan. Sixteen people on board were rescued and another person missing. Over 60 000 households were left without electricity in Okinawa during the passage of Sanba. In the southwestern part of Japan, one person was killed, four injured and another person missing. One person was killed, one missing and electricity supply to 450 000 households were interrupted in the Republic of Korea.

Jelawat (1217) formed as a tropical depression over the western North Pacific about 1 160 km east of Manila on 21 September. Moving slowly southwestwards, it intensified into a tropical storm that afternoon. Jelawat intensified into a severe tropical storm on 22 September. It strengthened significantly into a super typhoon over the seas east of the central Philippines on 23 September and turned to move north-northwest to northwestwards. Jelawat reached its peak

intensity with an estimated maximum sustained wind of 220 km/h near its centre over the Pacific to the east of Manila on 25 September. It turned to move northwards over the seas to the southeast of Taiwan on 27 September, and further to move northeastwards on 28 September and weakened into a severe typhoon. Jelawat passed close to Okinawa on 29 September. On 30 September, Jelawat first weakened into a typhoon over the seas south of Japan, subsequently making landfall over southern Honshu, Japan, and moved across Honshu. In the fury of Jelawat, at least 80 people were injured, over 330 000 households were left without electricity and many vehicles were overturned in Okinawa. At least two people were killed and over 100 people were injured in other areas in Japan during the passage of Jelawat.

Ewiniar (1218) formed as a tropical depression over the western North Pacific about 710 km south-southwest of Iwo Jima on 24 September and moved north-northwestwards. It intensified into a tropical storm on 25 September and turned to move northeastwards. Ewiniar moved northwards and intensified into a severe tropical storm near the Ogasawara Islands on 26 September, reaching its peak intensity with an estimated maximum sustained wind of 90 km/h near its centre. After lingering over the Pacific on 27 September, Ewiniar turned to move northeastwards on 28 September and weakened into a tropical storm on the following day. Ewiniar subsequently became an extratropical cyclone over the western North Pacific to the east of Japan on 30 September.

Maliksi (1219) formed as a tropical depression over the western North Pacific about 560 km east of Guam on 30 September and moved generally northwestwards. It intensified into a tropical storm the next day. While passing close to Iwo Jima on 3 October, Maliksi turned to move north-northeastwards and intensified into a severe tropical storm, reaching its peak intensity with an estimated maximum sustained wind of 90 km/h near its centre. Maliksi became an extratropical cyclone over the western Pacific to the east of Japan on 4 October.

OCTOBER

Gaemi (1220) formed as a tropical depression over the central part of the South China Sea about 260 km east-southeast of Xisha on 1 October and was slow-moving initially. It started to move east-southeastwards on 2 October and intensified into a tropical storm. Gaemi slowed down and intensified further into a severe tropical storm on 3 October, reaching its peak intensity with an estimated maximum sustained wind of 90 km/h near its centre. It turned to move west to west-southwestwards across the central part of the South China Sea on 4 October and weakened into a tropical storm. Gaemi passed to the south of Xisha on 6 October, made landfall over the coast of central Vietnam in the evening and dissipated over inland Vietnam. According to press reports, one person was injured, around 30 houses and schools were damaged in central Vietnam during the passage of Gaemi.

Prapiroon (1221) formed as a tropical depression over the western North Pacific about 1 790 km east-northeast of Manila on 7 October and moved west to west-northwestwards. Prapiroon intensified gradually into a severe tropical storm on 8 October and continued to strengthen into a typhoon on 9 October. It intensified further into a severe typhoon about 880 km south-southeast of Okinawa on 10 October, reaching its peak intensity the following day with an estimated maximum sustained wind of 165 km/h near its centre. Prapiroon lingered over the seas to the southeast of Ryukyu Islands from 11 October to 15 October, during which it weakened into a typhoon. It adopted a north-northwesterly track on 16 October and weakened into a severe tropical storm. It speeded up towards the northeast on 17 October, passing about 230 km southeast of Okinawa that evening. Prapiroon became an extratropical cyclone over the western North Pacific to the southeast of Japan on 19 October. Heavy rain brought about by Prapiroon triggered

landslides on the island of Amami Oshima in the northern part of the Ryukyu Islands, leaving more than 1 200 households without power there.

Maria (1222) formed as a tropical depression over the western North Pacific about 870 km south-southeast of Iwo Jima on 14 October and moved west-northwestwards. It intensified into a tropical storm that evening and turned to move northwards on the following day. Maria intensified further into a severe tropical storm to the southwest of Iwo Jima on 16 October, reaching its peak intensity with an estimated maximum sustained wind of 90 km/h near its centre and turned to move northeastwards subsequently. It moved east-northeastwards on 17 October and weakened into a tropical storm on the following day. Maria finally became an extratropical cyclone over the western North Pacific near 157 °E on 19 October.

Son-tinh (1223) formed as a tropical depression over the western North Pacific about 1 320 km east-southeast of Manila on 22 October and moved westwards. It intensified into a tropical storm on 24 October and took up a west-northwesterly track across the central part of the Philippines. Son-tinh entered the central part of the South China Sea on 25 October and intensified into a severe tropical storm on the following day. It moved across the central part of the South China Sea and continued to strengthen, became a severe typhoon over the seas south of Hainan Island on 27 October, reaching its peak intensity with an estimated maximum sustained wind of 155 km/h near its centre. Son-tinh weakened into a typhoon over Beibu Wan on the following day and adopted a north-northwesterly track. It made landfall over the coast of northern Vietnam, then turned to drift eastwards on 29 October, and finally dissipated over Beibu Wan the next day. In the fury of Son-tinh, around 27 people were killed in the Philippines. On Hainan Island, at least one person was killed and five missing during the passage of Son-tinh. In addition, over 2 700 houses collapsed or were damaged, some 41 000 hectares of farmland inundated and the direct economic loss estimated to exceed 900 million RMB.

NOVEMBER

A tropical depression formed over the southern part of the South China Sea about 450 km southeast of Ho Chi Minh City on 14 November and moved west-northwestwards. The estimated maximum sustained wind near its centre was 55 km/h. The tropical depression turned to move northwestwards on 15 November and dissipated over the seas just off the coast of southern Vietnam that evening.

Bopha (1224) formed as a tropical depression over the western North Pacific about 1 740 km southeast of Guam on 26 November and moved generally west to west-northwestwards. It intensified into a tropical storm on the following day and further into a severe tropical storm on 30 November. Bopha became a typhoon over the western North Pacific about 770 km southeast of Yap on 1 December. It intensified gradually into a super typhoon that evening, reaching its peak intensity the following day with an estimated maximum sustained wind of 210 km/h near its centre. Bopha crossed the southern part of the Philippines on 4 December and gradually weakened into a typhoon. It entered the central part of the South China Sea on 5 December and turned to move northwestwards. It intensified again into a severe typhoon over the South China Sea to the east-southeast of Xisha on 7 December. Bopha turned to move east-northeastwards to the east of Xisha on the following day and gradually weakened into a severe tropical storm. Bopha weakened further into a tropical storm on 9 December and dissipated over the seas west of Luzon that afternoon. According to press reports, Bopha triggered flooding and landslides in the Philippines, where at least 1 146 people were killed, and more than 800 people missing.

DECEMBER

Wukong (1225) formed as a tropical depression over the western North Pacific about 1 250 km east-southeast of Manila on 24 December and moved westwards. It intensified into a tropical storm on the following day, reaching its peak intensity with an estimated maximum sustained wind of 65 km/h near its centre. Wukong moved west to west-northwestwards across the central Philippines on 26 December. It weakened into a tropical depression on 27 December, entered the central part of the South China Sea and turned to move west-southwestwards. Wukong dissipated over the southern part of the South China Sea to the west-southwest of Nansha on 28 December. Eleven people were killed in the Philippines during the passage of Wukong.

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

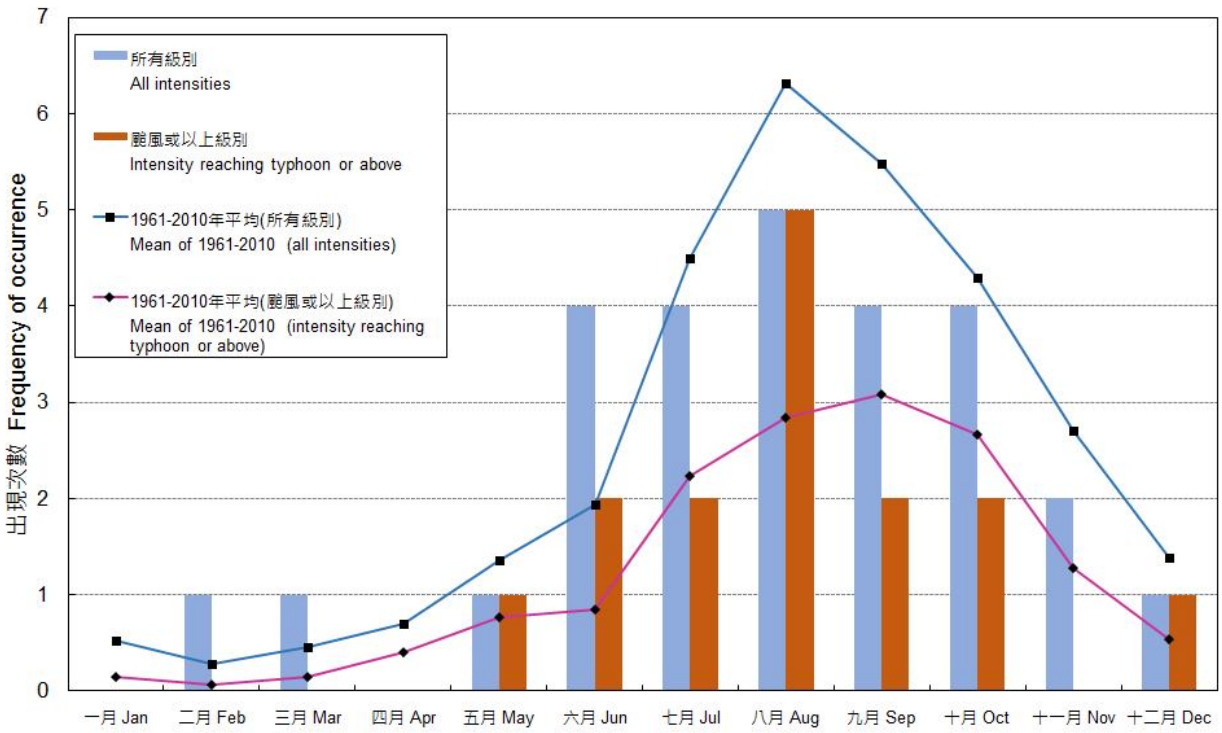


圖 2.1　二零一二年在北太平洋西部及南海區域的熱帶氣旋出現次數之每月分佈 (以熱帶氣旋在該月初次出現為準)。

Figure 2.1 Monthly frequencies of the occurrence of tropical cyclones in the western North Pacific and the South China Sea in 2012 (based on the first occurrence of the tropical cyclone in the month).

圖 2.2　二零一二年五個影響香港的熱帶氣旋的路徑圖。

Figure 2.2 Tracks of the five tropical cyclones affecting Hong Kong in 2012.

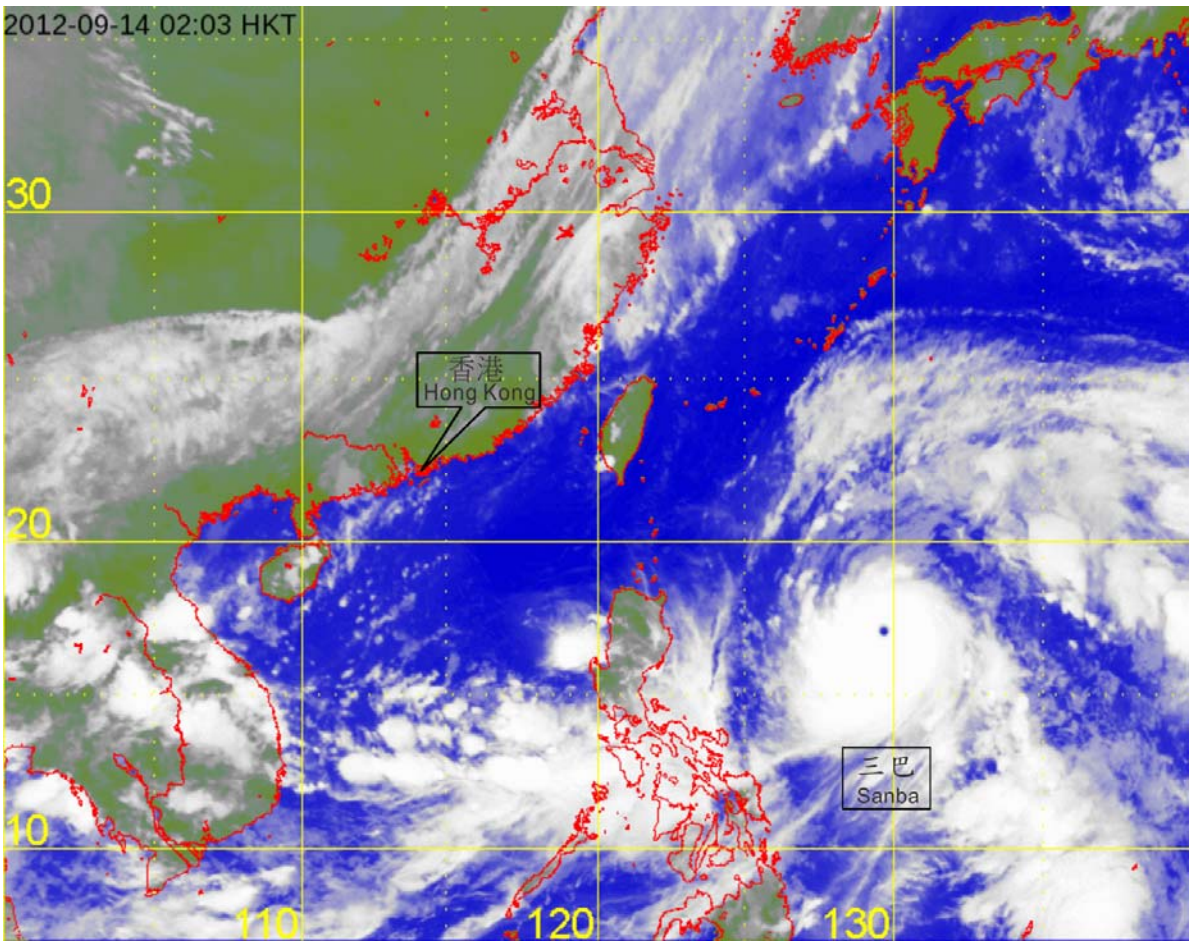


圖 2.3　超強颱風三巴(1216)在二零一二年九月十四日上午2時的紅外線衛星圖片。當時三巴位於馬尼拉東北偏東約980公里的北太平洋西部上，最高風速估計為每小時220公里，而最低中心氣壓為905百帕斯卡，是二零一二年風力最強的熱帶氣旋之一。

Figure 2.3　Infra-red satellite imagery of Super Typhoon Sanba (1216) at peak intensity at 2 a.m. on 14 September 2012. Sanba, one of the most intense tropical cyclones in 2012, was centred over the western North Pacific about 980 km east-northeast of Manila with an estimated maximum sustained wind of 220 km/h and a minimum sea-level pressure of 905 hPa at that time.

〔此衛星圖像接收自日本氣象廳的多用途輸送衛星-2。〕

[The satellite imagery was originally captured by the Multi-functional Transport Satellite (MTSAT-2) of Japan Meteorological Agency (JMA).]

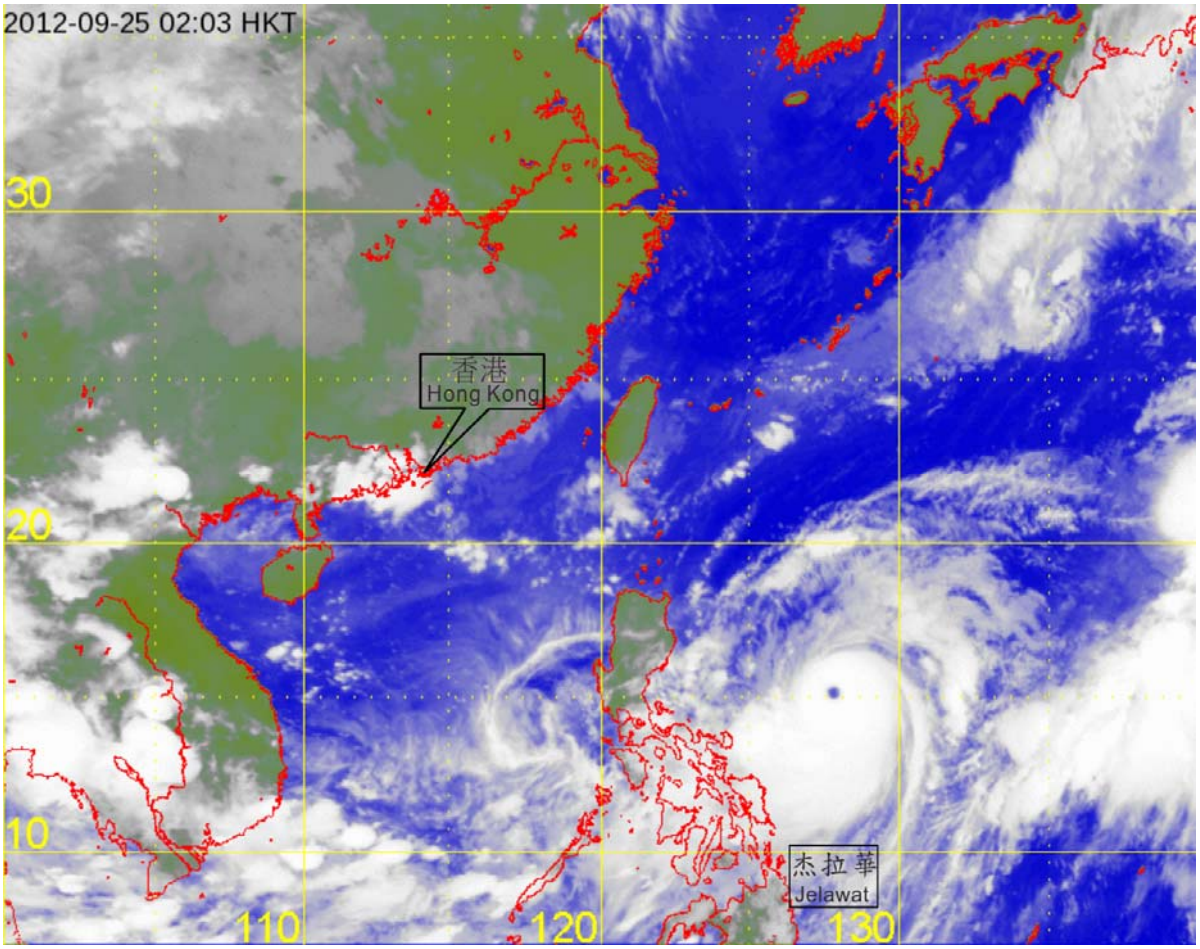


圖 2.4　超強颱風杰拉華(1217)在二零一二年九月二十五日上午2時的紅外線衛星圖片。 當時杰拉華位於馬尼拉以東約750公里的北太平洋西部上，最高風速估計為每小時220公里，而最低中心氣壓為905百帕斯卡，是二零一二年風力最強的熱帶氣旋之一。

Figure 2.4　Infra-red satellite imagery of Super Typhoon Jelawat (1217) at peak intensity at 2 a.m. on 25 September 2012. Jelawat, one of the most intense tropical cyclones in 2012, was centred over the western North Pacific about 750 km east of Manila with an estimated maximum sustained wind of 220 km/h and a minimum sea-level pressure of 905 hPa at that time.

〔此衛星圖像接收自日本氣象廳的多用途輸送衛星-2。〕

[The satellite imagery was originally captured by the Multi-functional Transport Satellite (MTSAT-2) of Japan Meteorological Agency (JMA).]

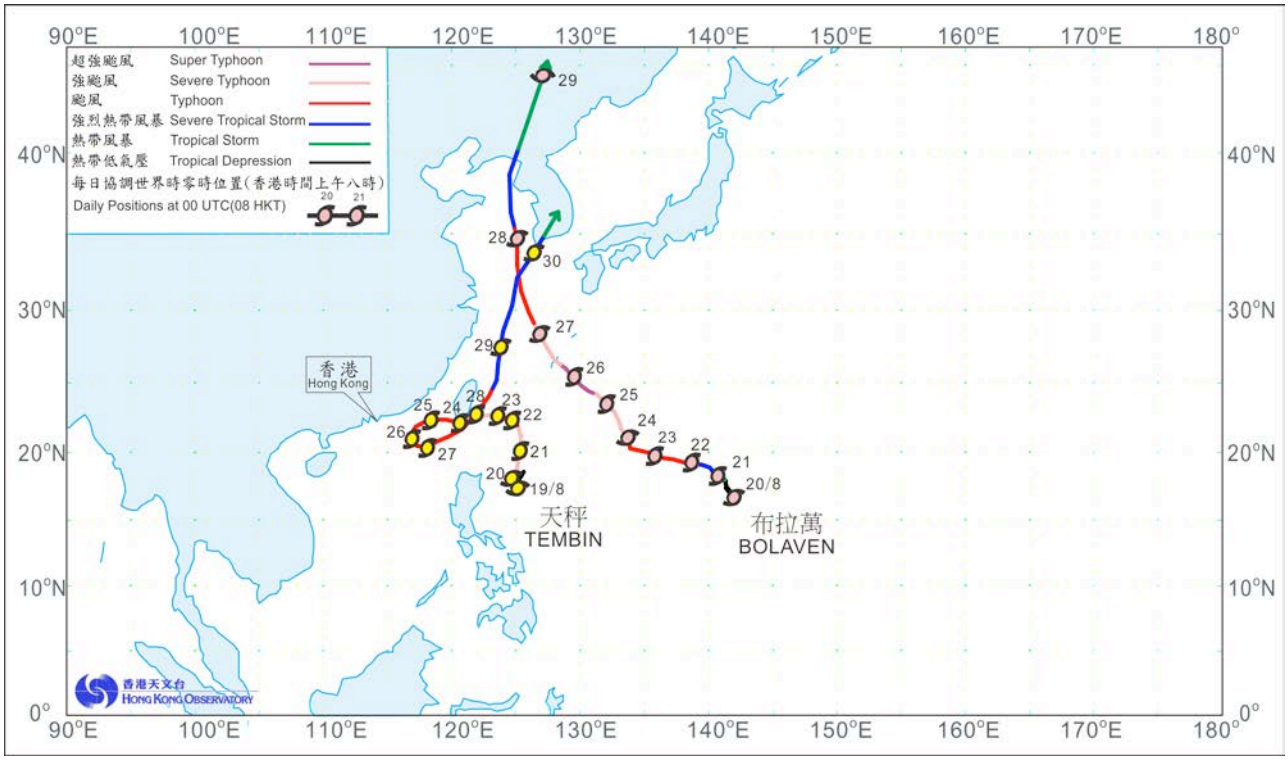


圖 2.5　　天秤(1214)及布拉萬(1215)的路徑圖。

Figure 2.5　Tracks of Tembin (1214) and Bolaven (1215).

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

TABLE 2.1　MONTHLY DISTRIBUTION OF THE OCCURRENCE OF TROPICAL CYCLONES IN HONG KONG'S AREA OF RESPONSIBILITY (10° - 30°N, 105° - 125°E), BASED ON THE FIRST OCCURRENCE OF THE TROPICAL CYCLONE IN THE MONTH

年份 Year	月份 Month												共 Total
	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	
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
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

年份 Year	月份 # Month #												共 Total
	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	
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
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　二零一二年影響香港的熱帶氣旋

3.1　強烈熱帶風暴泰利(1205) ：二零一二年六月十七日至二十一日

泰利是香港天文台在二零一二年首個需要發出熱帶氣旋警告信號的熱帶氣旋。

熱帶低氣壓泰利於六月十七日在海南島以東的南海北部上形成，並緩慢向東移動。它於六月十八日早上增強為熱帶風暴，晚上於香港以南約360公里處的南海北部上進一步增強為強烈熱帶風暴，並達到其最高強度，中心附近持續風力達到每小時90公里。泰利於六月十九日轉向東北移動，時速約17公里，橫過南海東北部，翌日減弱為熱帶風暴，並橫過台灣海峽。泰利於六月二十一日首先減弱為熱帶低氣壓，隨後在東海上消散。根據報章報導，泰利在掠過台灣期間造成多處水浸及停電，至少有三人死亡。福建有海堤受到破壞，浙江寧波有四十萬畝農田受淹。

香港天文台於六月十七日下午4時20分發出一號戒備信號，當時泰利位於香港之西南約470公里。本港吹和緩至清勁東風，離岸及高地間中吹強風。由於泰利有跡象增強為強烈熱帶風暴及採取較偏北路徑移動移近本港，天文台在六月十八日下午10時40分發出三號強風信號，當時泰利位於香港以南約360公里。六月十九日早上香港轉吹東北風，由於受到附近山形屏障，本港普遍持續受強風影響的機會減低，天文台於當日上午10時20分改發一號戒備信號，取代三號強風信號。泰利於下午5時左右最為接近香港，並在本港東南約260公里處掠過。香港天文台總部稍後於下午5時23分錄得最低瞬時海平面氣壓992.2百帕斯卡。下午及黃昏本港風勢減弱。隨着泰利開始移離香港，天文台於下午8時40分取消所有熱帶氣旋警告信號。泰利吹襲期間，大帽山、大老山及昂坪錄得時速超過80公里的陣風。

六月十七日及十八日香港多雲及有狂風驟雨。六月十九日初時仍然有驟雨，日間雨勢減弱及部份時間有陽光。

泰利影響香港期間，本港多處有塌樹報告，其中包括大埔、沙田及鯽魚涌。西貢海面一艘遊艇被風浪沖脫錨鏈，漂到岸邊擱淺，事件中無人受傷。

表3.1.1 – 3.1.4 分別是泰利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 分別為泰利的路徑圖、本港的雨量分佈圖、泰利的衛星及相關雷達圖像。

Section 3 TROPICAL CYCLONES AFFECTING HONG KONG IN 2012

3.1 Severe Tropical Storm Talim (1205): 17 – 21 June 2012

Talim was the first tropical cyclone that necessitated the issuance of a tropical cyclone warning signal by the Hong Kong Observatory in 2012.

Talim formed as a tropical depression over the northern part of the South China Sea to the east of Hainan Island on 17 June and moved slowly eastwards. It intensified into a tropical storm on the morning of 18 June and further into a severe tropical storm over the northern part of the South China Sea about 360 km south of Hong Kong at night, reaching its peak intensity with an estimated maximum sustained wind of 90 km/h near its centre. Talim turned to move northeastwards at about 17 km/h across the northeastern part of the South China Sea on 19 June. It weakened into a tropical storm and moved across the Taiwan Strait on the following day. On 21 June, it first weakened into a tropical depression and then dissipated over the East China Sea. According to press reports, Talim caused the deaths of at least 3 people and brought flooding and interruptions of electricity supply to many areas in Taiwan during its passage. There were reports of damaged shorelines in Fujian. In Ninbo, Zhejiang, 400 000 hectares of farmland were inundated.

In Hong Kong, the Standby Signal No. 1 was issued at 4:20 p.m. on 17 June when Talim was about 470 km southwest of Hong Kong. Local winds were moderate to fresh easterlies, occasionally strong offshore and on high ground. As Talim showed signs of strengthening into a severe tropical storm and adopting a more northerly track, moving closer to the territory, the Strong Wind Signal No. 3 was issued at 10:40 p.m. on 18 June when Talim was about 360 km south of Hong Kong. Local winds turned to northeasterly in the morning of 19 June. Due to sheltering by terrain, the chance of sustained strong winds generally affecting Hong Kong decreased and the Strong Wind Signal No. 3 was replaced by the Standby Signal No. 1 at 10:20 a.m. Talim was closest to Hong Kong at about 5 p.m. that day passing about 260 km to the southeast. At the Hong Kong Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 992.2 hPa was recorded shortly afterwards at 5:23 p.m. Local winds subsided further during the afternoon and evening. All signals were cancelled at 8:40 p.m. as Talim started to move away from the territory. Gusts of over 80 km/h were recorded at Tai Mo Shan, Tate's Cairn and Ngong Ping during the passage of Talim.

The weather in Hong Kong was cloudy with squally showers on 17 June and 18 June. Showers continued to affect the territory at first on 19 June, but eased off later and there were sunny periods during the day.

During the passage of Talim, there were many reports of fallen trees in Hong Kong, including Tai Po, Sha Tin and Quarry Bay. A yacht broke off its anchor in rough seas over the waters of Sai Kung and ran aground over the shore. No one was injured during the incident.

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

表 3.1.1　在泰利影響下，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 3.1.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when tropical cyclone warning signals for Talim were in force

站（參閱圖 1.1）Station (See Fig. 1.1)		最高陣風 Maximum Gust					最高每小時平均風速 Maximum Hourly Mean Wind				
		風向 Direction		風速（公里/時）Speed (km/h)	日期/月份 Date/Month	時間 Time	風向 Direction		風速（公里/時）Speed (km/h)	日期/月份 Date/Month	時間 Time
黃麻角(赤柱)	Bluff Head (Stanley)	東南	SE	51	17/6	23:00	東南	SE	31	17/6	23:00
中環碼頭	Central Pier	東	E	52	17/6	22:25	東	E	30	17/6	20:00
							東	E	30	17/6	23:00
長洲	Cheung Chau	東南偏東	ESE	70	17/6	22:34	東	E	43	17/6	23:00
長洲泳灘	Cheung Chau Beach	東	E	62	17/6	22:38	東	E	43	17/6	23:00
青洲	Green Island	東北	NE	65	17/6	22:30	東北	NE	38	17/6	19:00
香港國際機場	Hong Kong International Airport	東南偏東	ESE	47	18/6	12:47	東	E	31	17/6	23:00
啟德	Kai Tak	東南	SE	51	18/6	00:39	東	E	25	17/6	23:00
							東南偏東	ESE	25	18/6	11:00
京士柏	King's Park	東南偏東	ESE	49	18/6	00:43	東南偏東	ESE	20	18/6	12:00
流浮山	Lau Fau Shan	東北偏東	ENE	45	18/6	14:42	東	E	22	18/6	16:00
昂坪	Ngong Ping	東	E	113	17/6	21:45	東	E	85	17/6	23:00
北角	North Point	東	E	49	17/6	22:23	東	E	27	18/6	12:00
坪洲	Peng Chau	東	E	56	17/6	22:39	東	E	34	17/6	23:00
平洲	Ping Chau	東北偏東	ENE	38	18/6	10:03	東	E	12	18/6	10:00
							東	E	12	18/6	11:00
西貢	Sai Kung	東	E	41	17/6	22:17	東北偏東	ENE	25	17/6	20:00
沙洲	Sha Chau	東南	SE	45	18/6	12:52	東	E	31	18/6	00:00
沙螺灣	Sha Lo Wan	東北偏東	ENE	45	17/6	23:20	東	E	23	17/6	23:00
沙田	Sha Tin	東北	NE	41	17/6	22:21	東北偏北	NNE	14	19/6	15:00
石崗	Shek Kong	東北偏東	ENE	41	17/6	19:39	東	E	20	17/6	21:00
		東	E	41	17/6	21:35					
九龍天星碼頭	Star Ferry (Kowloon)	東	E	54	17/6	22:29	東	E	31	18/6	12:00
打鼓嶺	Ta Kwu Ling	東	E	43	18/6	01:53	東	E	14	18/6	13:00
大美督	Tai Mei Tuk	東北偏東	ENE	62	17/6	22:31	東	E	34	17/6	23:00
大帽山	Tai Mo Shan	東南偏東	ESE	83	17/6	22:44	東南偏東	ESE	58	17/6	23:00
塔門	Tap Mun	東北偏東	ENE	47	18/6	00:01	東南偏東	ESE	22	18/6	16:00
大老山	Tate's Cairn	東	E	83	17/6	22:16	東	E	45	17/6	22:00
將軍澳	Tseung Kwan O	東南	SE	43	18/6	13:15	東北偏北	NNE	14	19/6	08:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南偏東	ESE	36	18/6	10:50	東南偏東	ESE	16	18/6	13:00
屯門政府合署	Tuen Mun Government Offices	東北	NE	38	19/6	14:19	東南偏東	ESE	14	18/6	14:00
橫瀾島	Waglan Island	東	E	59	17/6	21:53	東北偏東	ENE	43	19/6	07:00
							東北偏東	ENE	43	19/6	09:00
濕地公園*	Wetland Park*	東	E	38	18/6	13:49	東	E	14	18/6	17:00
黃竹坑	Wong Chuk Hang	東南偏東	ESE	52	17/6	21:26	東	E	20	17/6	23:00
							東南偏東	ESE	20	18/6	12:00

* 濕地公園後備測風站 * Backup station of Wetland Park

表 3.1.2　在泰利影響下，在熱帶氣旋警告系統的八個參考測風站所錄到持續風力達到強風程度的時段

Table 3.1.2　Periods during which sustained strong winds were reached at the eight reference anemometers in the tropical cyclone warning system when warning signals for Talim 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 reached		最後達到強風*時間 End time when 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	17/6	19:47	18/6	12:59

香港國際機場、啟德、西貢、沙田、打鼓嶺、青衣及濕地公園的持續風力未達到強風程度。
The sustained wind speed did not attain strong force at Hong Kong International Airport, Kai Tak, Sai Kung, Sha Tin, Ta Kwu Ling, Tsing Yi and Wetland Park.

* 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　泰利影響香港期間，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 Talim

站 (參閱圖 3.1.2) Station (See Fig. 3.1.2)			六月十七日 17 Jun	六月十八日 18 Jun	六月十九日 19 Jun	總雨量(毫米) Total (mm)
香港天文台 Hong Kong Observatory			24.6	17.7	1.4	43.7
香港國際機場 Hong Kong International Airport (HKA)			7.6	7.5	0.9	16.0
長洲 Cheung Chau (CCH)			11.5	1.0	1.5	14.0
N05	粉嶺	Fanling	28.5	21.0	3.0	52.5
N13	糧船灣	High Island	24.0	17.5	2.5	44.0
K04	佐敦谷	Jordan Valley	17.5	28.0	6.0	51.5
N06	葵涌	Kwai Chung	25.0	26.0	6.0	57.0
H12	半山區	Mid Levels	24.0	31.5	4.5	60.0
H21	淺水灣	Repulse Bay	26.0	27.5	7.5	61.0
N09	沙田	Sha Tin	29.5	21.5	3.5	54.5
H19	筲箕灣	Shau Kei Wan	15.5	12.0	3.5	31.0
SEK	石崗	Shek Kong	21.0	19.0	2.5	42.5
K06	蘇屋邨	So Uk Estate	23.0	27.0	3.0	53.0
R31	大美督	Tai Mei Tuk	31.0	22.0	3.0	56.0
R21	踏石角	Tap Shek Kok	8.5	16.5	0.5	25.5
N17	東涌	Tung Chung	14.0	8.5	5.0	27.5
R27	元朗	Yuen Long	9.0	20.5	2.5	32.0

表 3.1.4　泰利影響香港期間，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 Talim

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	2.52	19/6	07:34	0.38	18/6	06:26
石壁	Shek Pik	2.57	19/6	07:25	0.33	19/6	07:21
大廟灣	Tai Miu Wan	2.42	19/6	07:13	0.34	19/6	07:13
大埔滘	Tai Po Kau	2.42	19/6	06:57	0.52	18/6	12:50
尖鼻咀	Tsim Bei Tsui	2.82	19/6	08:58	0.34	18/6	01:58
橫瀾島	Waglan Island	2.52	19/6	06:41	0.39	17/6	22:35

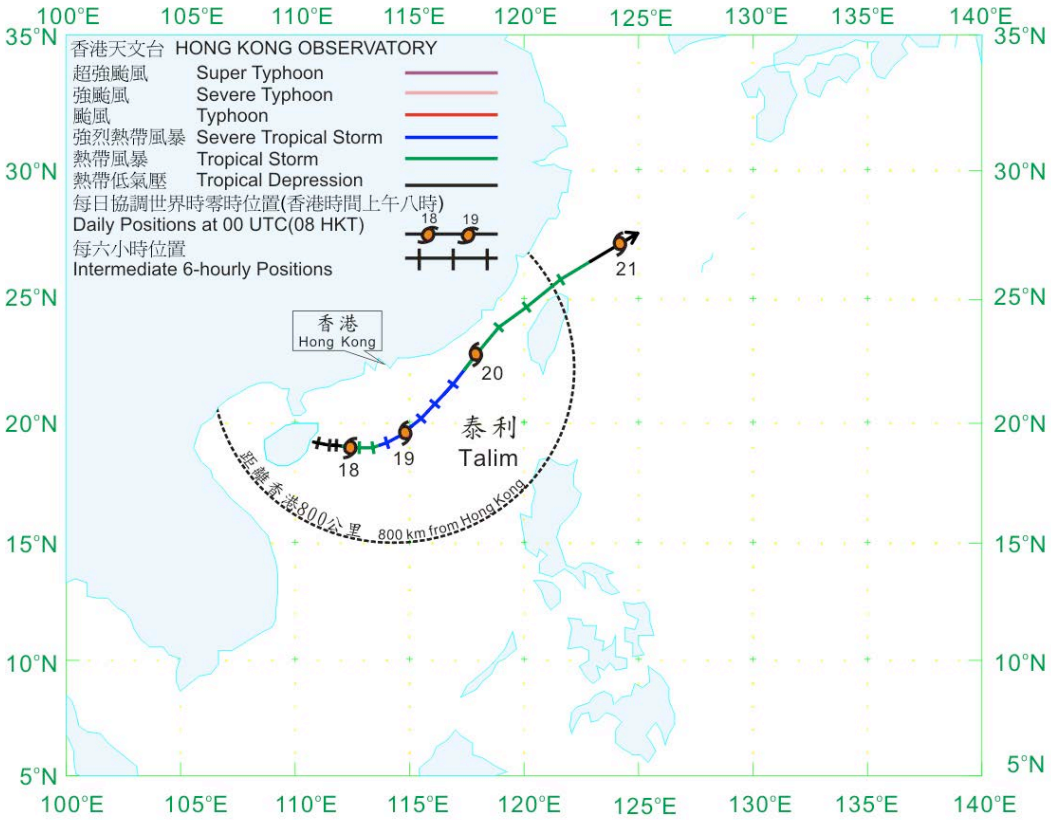


圖 3.1.1 泰利（1205）在二零一二年六月十七日至二十一日的路徑圖。

Figure 3.1.1 Track of Talim (1205) for 17 - 21 June 2012.

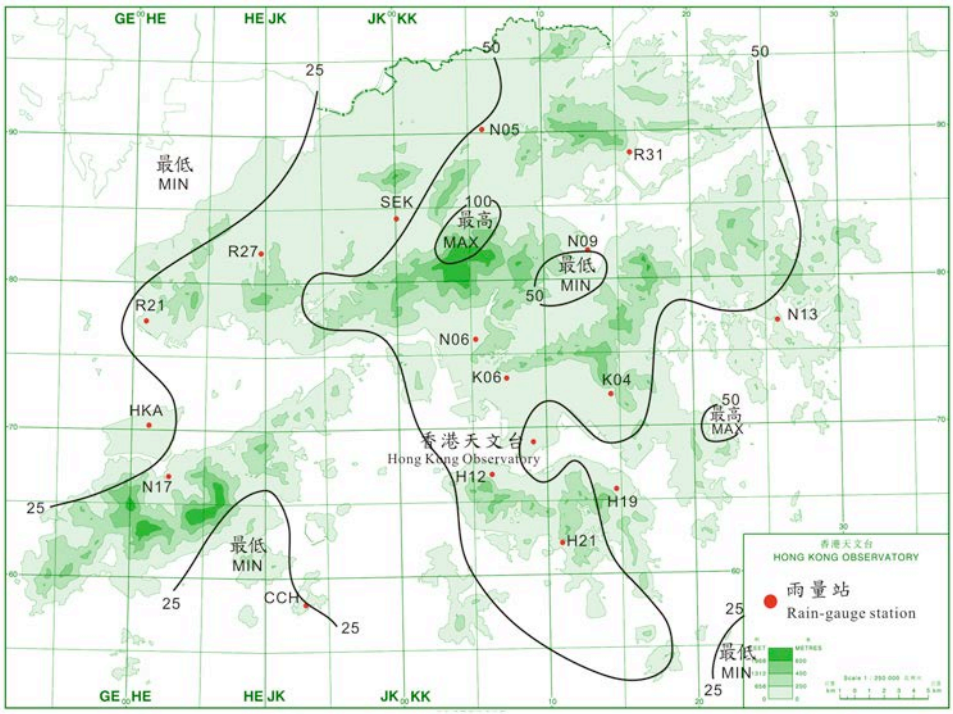


圖 3.1.2 二零一二年六月十七日至十九日的雨量分佈(等雨量線單位為毫米)。

Figure 3.1.2 Rainfall distribution for 17 - 19 June 2012 (isohyets are in millimetres).

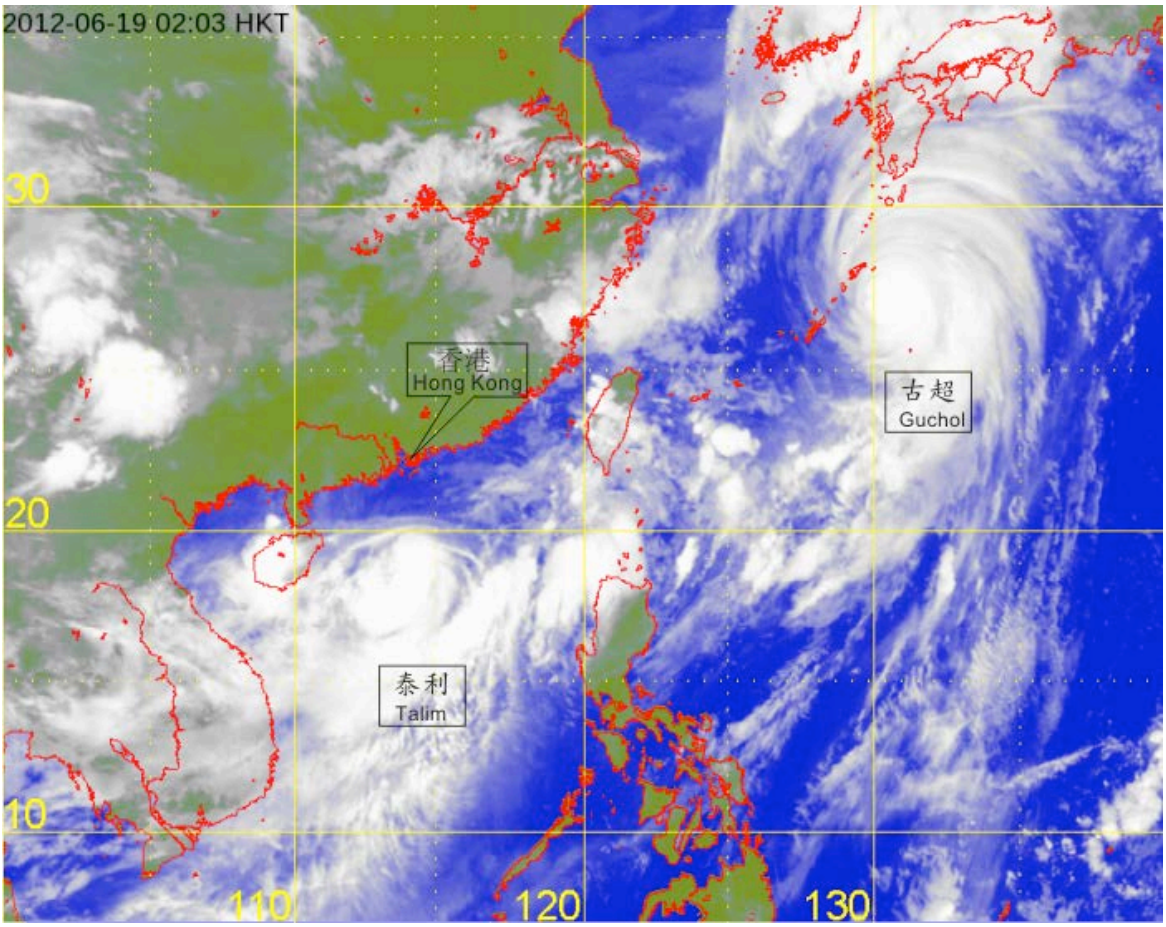


圖 3.1.3　強烈熱帶風暴泰利在二零一二年六月十九日上午 2 時的紅外線衛星圖片。當時泰利位於香港以南約 340 公里，並達到其最高強度，中心附近估計最高持續風速達到每小時 90 公里。

Figure 3.1.3　Infra-red satellite imagery of Severe Tropical Storm Talim at 2 a.m. on 19 June 2012. Talim was located about 340 km south of Hong Kong and at its peak intensity with estimated maximum sustained winds of 90 kilometres per hour near its centre at that time.

〔此衛星圖像接收自日本氣象廳的多用途輸送衛星-2。〕

[The satellite imagery was originally captured by the Multi-functional Transport Satellite (MTSAT-2) of Japan Meteorological Agency (JMA).]

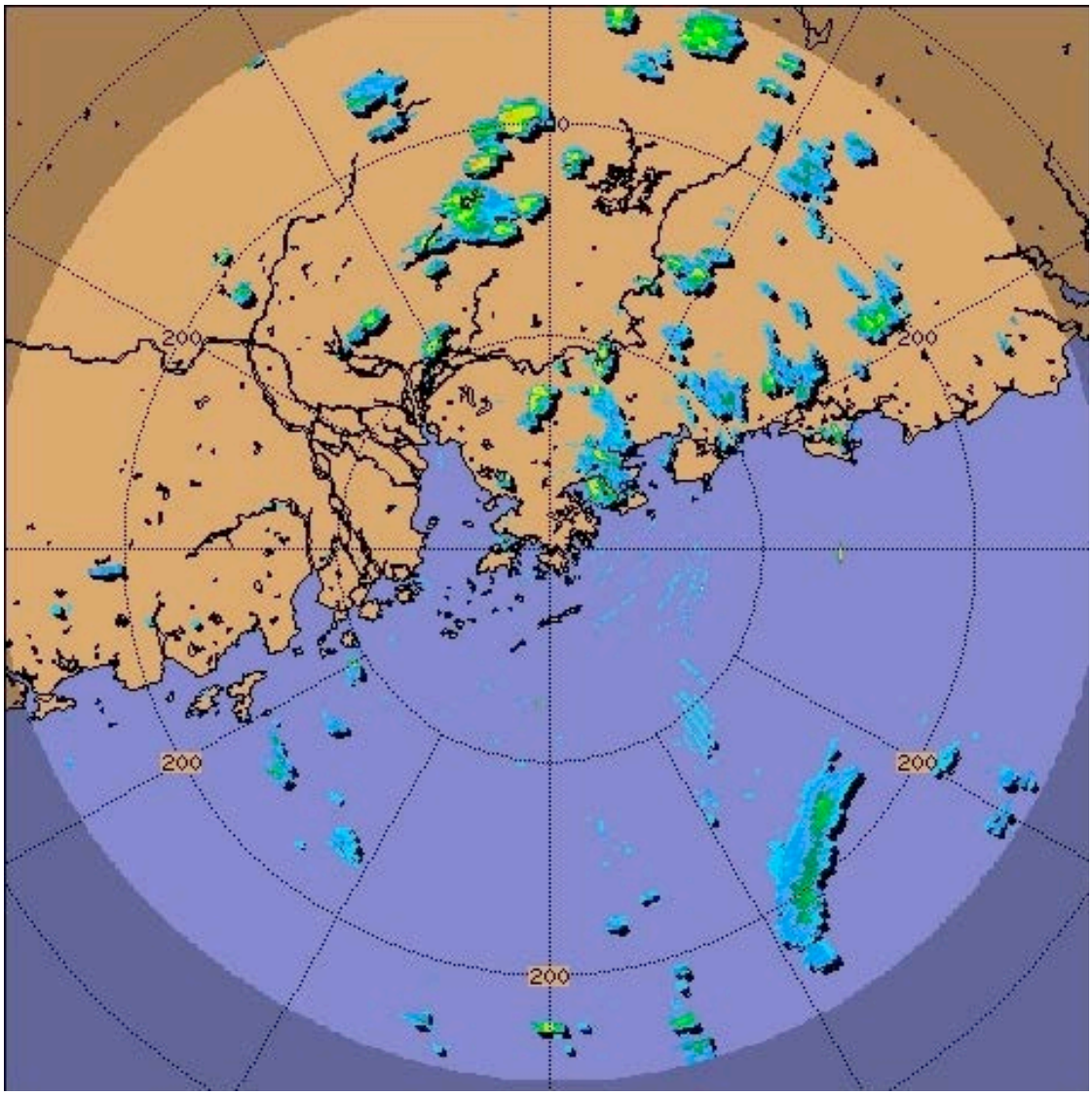


圖 3.1.4　二零一二年六月十九日下午 5 時的雷達回波圖像，當時強烈熱帶風暴泰利的中心集結在香港東南約 260 公里，並向東北移動，橫過南海東北部。與泰利相連的外圍雨帶正影響廣東沿岸地區。

Figure 3.1.4　Radar echoes captured at 5:00 p.m. on 19 June 2012. The centre of Severe Tropical Storm Talim was located about 260 km southeast of Hong Kong at that time and was moving northeastwards across the northeastern part of the South China Sea. The outer rainbands associated with Talim were affecting the coastal region of Guangdong.

3.2 熱帶風暴杜蘇芮(1206) ：二零一二年六月二十六日至三十日

杜蘇芮是香港天文台在二零一二年第二個需要發出熱帶氣旋警告信號的熱帶氣旋。天文台亦在杜蘇芮襲港期間發出本年首個八號烈風或暴風信號。

熱帶低氣壓杜蘇芮於六月二十六日在馬尼拉以東約1 280公里的北太平洋西部上形成，並向西北偏西移動，翌日增強為熱帶風暴及向西北移動。杜蘇芮於六月二十八日在呂宋東北的海面上達到其最高強度，中心附近最高持續風力達到每小時85公里。當日日間杜蘇芮向西北偏西移動，橫過呂宋海峽，晚上進入南海。翌日杜蘇芮以27公里的時速橫過南海北部，移向珠江口附近的廣東沿岸。杜蘇芮於六月三十日凌晨在澳門以西的廣東沿岸登陸，當日早上減弱為熱帶低氣壓，隨後在廣東西部上消散。 根據報章報導，杜蘇芮吹襲期間，澳門有建築物煙囪被損毀，廣東無傷亡或重大損毀報告。

香港天文台於六月二十八日下午9時40分發出一號戒備信號，當時杜蘇芮位於香港之東南偏東約710公里。本港當日黃昏吹微風。杜蘇芮移動速度頗快，於六月二十九日穩定地移向廣東沿岸。當日初時本港吹和緩北風，風勢逐漸增強，下午較後時間轉吹清勁東北風，離岸及高地間中吹強風。天文台在下午4時20分發出三號強風信號，當時杜蘇芮集結在香港之東南約200公里。黃昏本港風勢繼續增強。天文台在下午7時22分錄得最低瞬時海平面氣壓997.8百帕斯卡，當時杜蘇芮集結在香港之東南約140公里。晚間本港風勢進一步增強，轉吹強風程度東風，部分地區，尤其是離岸及高地吹烈風。天文台在晚上11時05分改發八號東北烈風或暴風信號，當時杜蘇芮已經移至天文台以南約90公里。杜蘇芮在午夜至六月三十日上午一時左右最接近香港，並在天文台之西南約70公里處掠過。六月三十日凌晨本港轉吹東南風，天文台在上午零時40分改發八號東南烈風或暴風信號，取代八號東北烈風或暴風信號。隨着杜蘇芮在澳門以西登陸，本港轉吹南至東南風，風勢逐漸減弱，天文台在上午3時25分改發三號強風信號，取代八號東南烈風或暴風信號，隨後於上午6時40分改發一號戒備信號。當杜蘇芮進一步移離香港及在內陸減弱，天文台於上午8時15分取消所有熱帶氣旋警告信號。杜蘇芮吹襲期間，大帽山、大老山及昂坪錄得時速超過120公里的陣風，而橫瀾島及青洲的最高陣風則分別為104及113公里。

六月二十八日及二十九日初時香港天晴，日間天氣酷熱。六月二十九日下午廣東內陸有驟雨發展並向南移動影響本港。隨着杜蘇芮移近珠江口，當日晚上及六月三十日初時本港有狂風驟雨。六月三十日其餘時間本港有零散驟雨及幾陣狂風雷暴。

杜蘇芮影響香港期間，本港有兩人受傷，超過100宗樹木及棚架倒塌、招牌搖搖欲墜事件。油塘有一座工廠大廈平台的屋頂於狂風驟雨中塌下，幸無人受傷。本港有數宗樹木倒塌令到交通受阻的報告。跑馬地有大樹塌下，電車電纜設備受損，影響電車服務。此外，一輛途經車輛的擋風玻璃亦被毀壞。一艘舢舨在西貢白沙灣對開海面在巨浪中翻沉。香港國際機場有九班航機延誤、另兩班航機取消。

表3.2.1- 3.2.4 分別是杜蘇芮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3.2.1-3.2.5 分別為杜蘇芮的路徑圖、天文台錄得的海平面氣壓圖、本港的雨量分佈圖、杜蘇芮的衛星及雷達圖像。

3.2 Tropical Storm Doksuri (1206): 26 – 30 June 2012

Doksuri was the second tropical cyclone that necessitated the issuance of a tropical cyclone warning signal by the Hong Kong Observatory in 2012. It also necessitated the issuance of the first No. 8 Gale or Storm Signal in the year.

Doksuri formed as a tropical depression over the western North Pacific about 1 280 km east of Manila on 26 June and moved west-northwestwards. It intensified into a tropical storm and moved northwestwards on the following day. Doksuri reached its peak intensity over the seas to the northeast of Luzon on 28 June with an estimated maximum sustained wind of 85 km/h near its centre. It moved west-northwestwards across the Luzon Strait during the day and entered the South China Sea that night. Doksuri moved across the northern part of the South China Sea at about 27 km/h towards the coast of Guangdong near the Pearl River Estuary on 29 June, and made landfall over the coast of Guangdong to the west of Macao on the small hours of 30 June. Doksuri weakened into a tropical depression and subsequently dissipated inland over western Guangdong that morning. According to press reports, minor damage to chimneys were reported in Macao and there were no casualties or significant damage in Guangdong during the passage of Doksuri.

In Hong Kong, the Standby Signal No. 1 was issued at 9:40 p.m. on 28 June when Doksuri was about 710 km east-southeast of Hong Kong. Local winds were light that evening. Doksuri was a relatively fast-moving tropical cyclone and it moved steadily towards the coast of Guangdong on 29 June. Local winds were moderate northerlies at first that day, strengthening gradually and becoming fresh northeasterlies in the late afternoon, occasionally strong offshore and on high ground. The Strong Wind Signal No. 3 was issued at 4:20 p.m. when Doksuri was about 200 km southeast of Hong Kong. Local winds continued to strengthen during the evening. At the Hong Kong Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 997.8 hPa was recorded at 7:22 p.m. when Doksuri was about 140 km to the southeast. Local winds strengthened further at night, becoming strong easterlies, reaching gale force over parts of Hong Kong, particularly offshore and on high ground. The No. 8 NE Gale or Storm Signal was issued at 11:05 p.m. when Doksuri moved to about 90 km to the south of the Hong Kong Observatory. Doksuri was closest to Hong Kong at about 1a.m. on 30 June, passing about 70 km to the southwest of the Hong Kong Observatory. Local winds veered to the southeast on the small hours of 30 June and the No. 8 NE Gale or Storm Signal was replaced by the No. 8 SE Gale or Storm Signal at 12:40 a.m. As Doksuri made landfall to the west of Macao, local winds became south to southeasterlies and gradually subsided. The No. 3 Signal was issued at 3:25 a.m. to replace the No. 8 SE Gale or Storm Signal, followed by the Standby Signal No. 1 at 6:40 a.m. All signals were cancelled at 8:15 a.m. as Doksuri moved further away and weakened over land. Gusts of over 120 km/h were recorded at Tai Mo Shan, Tate's Cairn and Ngong Ping during the passage of Doksuri, while gusts of 104 and 113 km/h were recorded at Waglan Island and Green Island respectively.

The weather in Hong Kong was fine and very hot during the day on 28 June and at first on 29 June. Showers developed over inland Guangdong moved southwards to

affect Hong Kong during the afternoon of 29 June. Squally showers affected the territory that night and at first on 30 June as Doksuri moved closer to the Pearl River Estuary. Scattered showers and a few squally thunderstorms affected Hong Kong for the rest of the day on 30 June.

During the passage of Doksuri, two people were injured in Hong Kong and there were over 100 reports of fallen trees, scaffoldings and sign-boards being blown lose. A large part of the rooftop on the terrace of a factory building collapsed in Yau Tong during squally showers, fortunately no one was injured. There were also reports of interruption to traffic due to fallen trees in various parts of Hong Kong. A large tree was uprooted in Happy Valley, damaging the electric wire installations of the tram and interrupting the tram services. The windscreen of a vehicle passing by was also damaged. A sampan sank in rough seas off the seas at Hebe Haven in Sai Kung. At the Hong Kong International Airport, nine flights were delayed and two others cancelled.

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 Doksuri is given in Tables 3.2.1 - 3.2.4 respectively. Figures 3.2.1 - 3.2.5 show respectively the track of Doksuri, trace of mean sea-level pressure recorded at the Hong Kong Observatory, the rainfall distribution for Hong Kong, a satellite imagery and a radar imagery of Doksuri.

表 3.2.1　在杜蘇芮影響下，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 Doksuri were in force

站（參閱圖 1.1）Station (See Fig. 1.1)		最高陣風 Maximum Gust					最高每小時平均風速 Maximum Hourly Mean Wind				
		風向 Direction		風速（公里/時）Speed (km/h)	日期/月份 Date/Month	時間 Time	風向 Direction		風速（公里/時）Speed (km/h)	日期/月份 Date/Month	時間 Time
黃麻角（赤柱）	Bluff Head (Stanley)	東南偏東	ESE	92	29/6	22:26	東	E	49	29/6	23:00
中環碼頭	Central Pier	東北偏東	ENE	85	29/6	22:27	東	E	63	29/6	23:00
長洲	Cheung Chau	東南偏東	ESE	87	29/6	23:49	東南偏東	ESE	67	30/6	01:00
長洲泳灘	Cheung Chau Beach	東北偏東	ENE	96	29/6	22:10	東北偏東	ENE	65	29/6	23:00
青洲	Green Island	東北	NE	113	29/6	22:44	東北	NE	77	29/6	23:00
香港國際機場	Hong Kong International Airport	東南偏東	ESE	75	30/6	01:15	東南偏東	ESE	49	30/6	02:00
啟德	Kai Tak	東北	NE	81	29/6	21:57	東	E	43	30/6	02:00
京士柏	King's Park	東北偏東	ENE	76	29/6	21:46	東南偏東	ESE	31	30/6	01:00
流浮山	Lau Fau Shan	東	E	67	30/6	00:23	東	E	38	30/6	01:00
昂坪	Ngong Ping	東北偏東	ENE	161	29/6	22:56	東	E	122	30/6	01:00
北角	North Point	東	E	90	29/6	22:26	東北偏東	ENE	47	29/6	23:00
坪洲	Peng Chau	東	E	81	29/6	22:49	東	E	56	30/6	00:00
平洲	Ping Chau	東北偏東	ENE	70	29/6	21:59	東北偏東	ENE	20	29/6	21:00
西貢	Sai Kung	東北偏東	ENE	96	29/6	22:21	東北偏東	ENE	56	29/6	23:00
沙洲	Sha Chau	東北偏北	NNE	70	29/6	20:16	東	E	49	30/6	02:00
沙螺灣	Sha Lo Wan	東	E	90	30/6	01:18	東	E	38	30/6	02:00
沙田	Sha Tin	東北	NE	62	29/6	22:28	東北	NE	25	29/6	23:00
石崗	Shek Kong	東北	NE	83	29/6	21:44	東	E	38	30/6	00:00
九龍天星碼頭	Star Ferry (Kowloon)	東	E	90	29/6	23:13	東	E	58	30/6	00:00
打鼓嶺	Ta Kwu Ling	東北偏東	ENE	75	30/6	00:04	東北偏東	ENE	31	29/6	23:00
大美督	Tai Mei Tuk	東	E	99	29/6	22:56	東	E	72	30/6	00:00
大帽山	Tai Mo Shan	東	E	146	29/6	23:17	東南偏東	ESE	87	30/6	01:00
		東	E	146	29/6	23:18					
塔門	Tap Mun	東	E	72	29/6	21:23	東	E	41	29/6	22:00
大老山	Tate's Cairn	東北偏東	ENE	126	29/6	22:37	東	E	76	30/6	00:00
將軍澳	Tseung Kwan O	東北偏北	NNE	87	29/6	21:12	東北偏北	NNE	30	29/6	21:00
							東北偏北	NNE	30	29/6	22:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東	E	65	30/6	01:03	東南	SE	27	30/6	04:00
屯門政府合署	Tuen Mun Government Offices	東北偏北	NNE	72	29/6	20:00	東南	SE	25	30/6	03:00
橫瀾島	Waglan Island	東北偏東	ENE	104	29/6	21:50	東北	NE	85	29/6	22:00
濕地公園*	Wetland Park*	東	E	58	30/6	01:34	東	E	23	30/6	01:00
							東南偏東	ESE	23	30/6	02:00
黃竹坑	Wong Chuk Hang	東南偏東	ESE	96	29/6	22:39	東	E	38	29/6	23:00

* 濕地公園後備測風站 Backup station of Wetland Park

表 3.2.2　在杜蘇芮影響下，在熱帶氣旋警告系統的八個參考測風站所錄到持續風力達到強風及烈風程度的時段

Table 3.2.2　Periods during which sustained strong and gale force winds were reached at the eight reference anemometers in the tropical cyclone warning system when warning signals for Doksuri 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 reached		最後達到強風*時間 End time when strong wind speed* was reached		最初達到烈風#時間 Start time when gale force wind speed* was reached		最後達到烈風#時間 End time when gale force wind speed* was reached	
		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	29/6	19:44	30/6	04:03	30/6	00:19	30/6	01:36
香港國際機場	Hong Kong International Airport	29/6	16:10	30/6	02:25	-			
啟德	Kai Tak	29/6	22:44	30/6	01:56	-			
西貢	Sai Kung	29/6	16:57	30/6	03:38	-			

沙田、打鼓嶺、青衣及濕地公園的持續風力未達到強風程度。
The sustained wind speed did not attain strong force at Sha Tin, Ta Kwu Ling, Tsing Yi and Wetland Park.

- 未達到指定的風力
- not reaching the specified wind speed

* 十分鐘平均風力達每小時 41-62 公里
* 10-minute mean wind speed of 41- 62 km/h

十分鐘平均風力達每小時 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及烈風程度的時間。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 or gale force winds were recorded. Note that the winds might fluctuate above or below the specified wind speeds in between the times indicated.

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

站 (參閱圖 3.2.3) Station (See Fig. 3.2.3)			六月二十八日 28 Jun	六月二十九日 29 Jun	六月三十日 30 Jun	總雨量(毫米) Total(mm)
香港天文台 Hong Kong Observatory			0.0	3.9	38.1	42.0
香港國際機場 Hong Kong International Airport (HKA)			3.0	3.6	8.1	14.7
長洲 Cheung Chau (CCH)			0.0	0.5	13.5	14.0
N05	粉 嶺	Fanling	0.0	2.5	29.5	32.0
N13	糧 船 灣	High Island	3.0	0.5	10.0	13.5
K04	佐 敦 谷	Jordan Valley	0.0	4.0	49.5	53.5
N06	葵 涌	Kwai Chung	0.0	6.0	56.0	62.0
H12	半 山 區	Mid Levels	0.0	7.0	65.5	72.5
H21	淺 水 灣	Repulse Bay	0.0	8.0	40.0	48.0
N09	沙 田	Sha Tin	0.0	7.0	25.5	32.5
H19	筲 箕 灣	Shau Kei Wan	0.0	1.5	31.0	32.5
SEK	石 崗	Shek Kong	0.0	9.0	49.0	58.0
K06	蘇 屋 邨	So Uk Estate	0.0	8.0	47.5	55.5
R31	大 美 督	Tai Mei Tuk	0.0	1.0	30.0	31.0
R21	踏 石 角	Tap Shek Kok	0.0	1.0	12.0	13.0
N17	東 涌	Tung Chung	2.5	6.5	19.0	28.0
R27	元 朗	Yuen Long	0.0	2.5	46.0	48.5

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

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	2.33	30/6	05:03	0.41	30/6	01:23
石壁	Shek Pik	2.56	30/6	04:33	0.48	30/6	04:33
大廟灣	Tai Miu Wan	2.35	30/6	04:30	0.43	30/6	01:29
大埔滘	Tai Po Kau	2.47	30/6	05:57	0.70	30/6	00:30
尖鼻咀	Tsim Bei Tsui	2.91	30/6	05:13	0.71	30/6	05:13
橫瀾島	Waglan Island	2.42	30/6	04:22	0.55	29/6	23:28

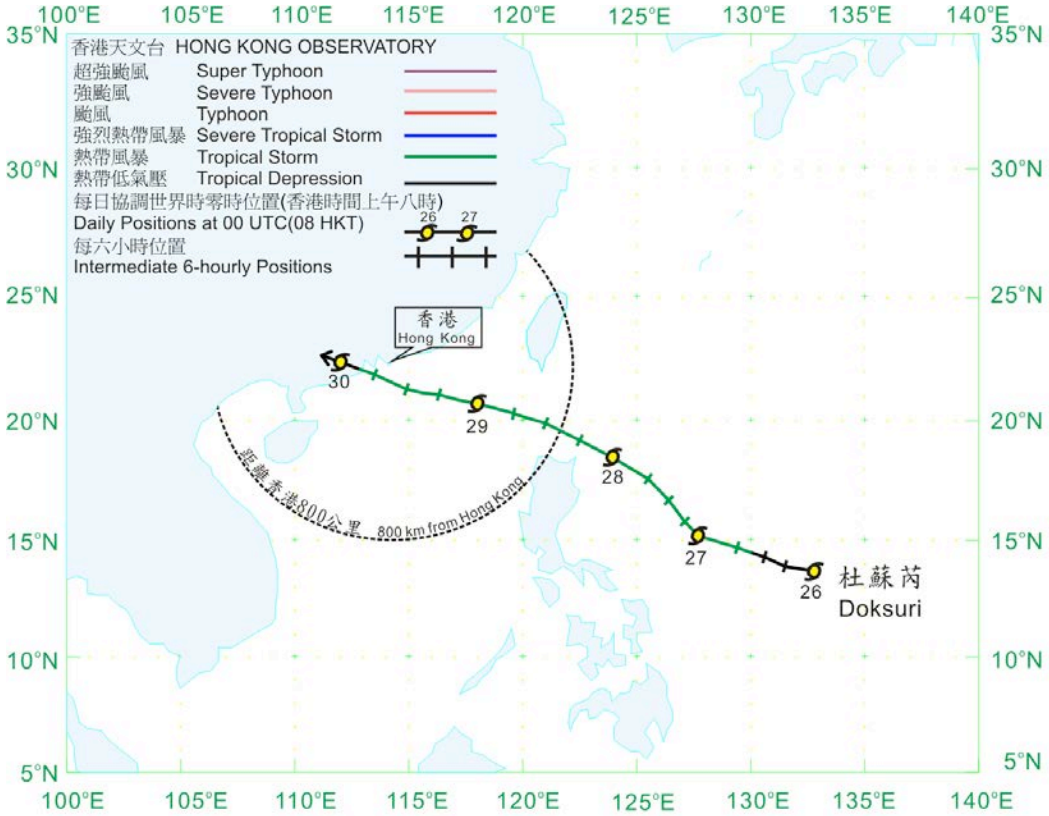


圖 3.2.1(a) 杜蘇芮（1206）在二零一二年六月二十六日至三十日的路徑圖。
Figure 3.2.1(a) Track of Doksuri (1206) for 26 - 30 June 2012.

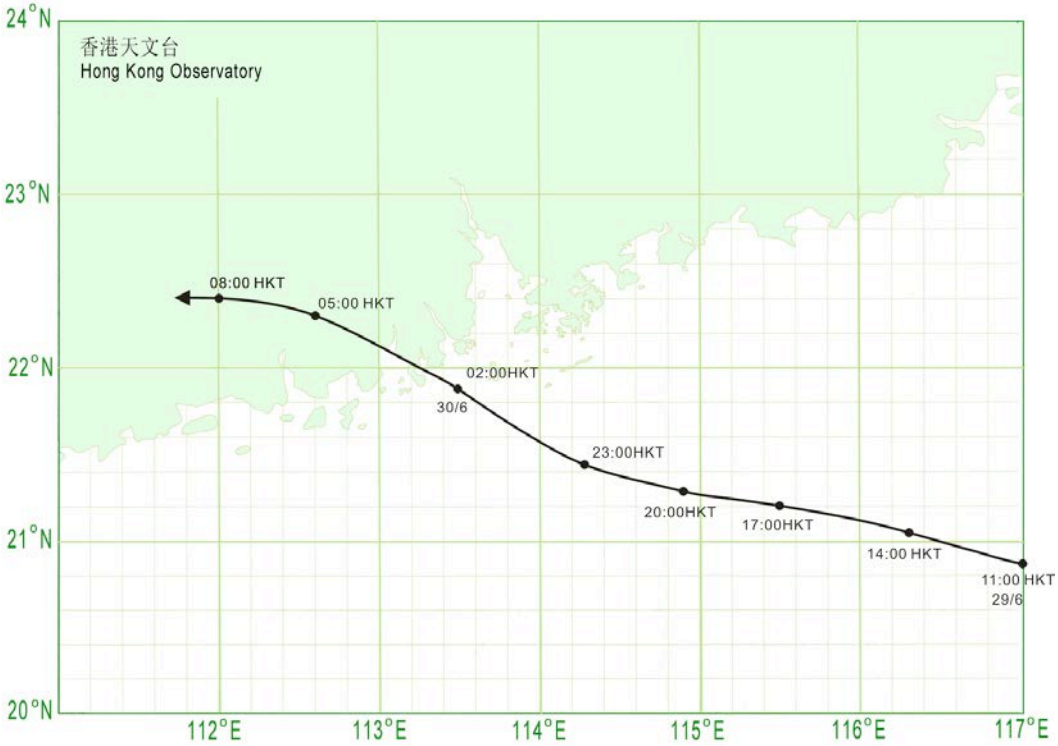


圖 3.2.1(b) 杜蘇芮 (1206)接近香港時的路徑圖。
Figure 3.2.1(b) Track of Doksuri (1206) near Hong Kong.

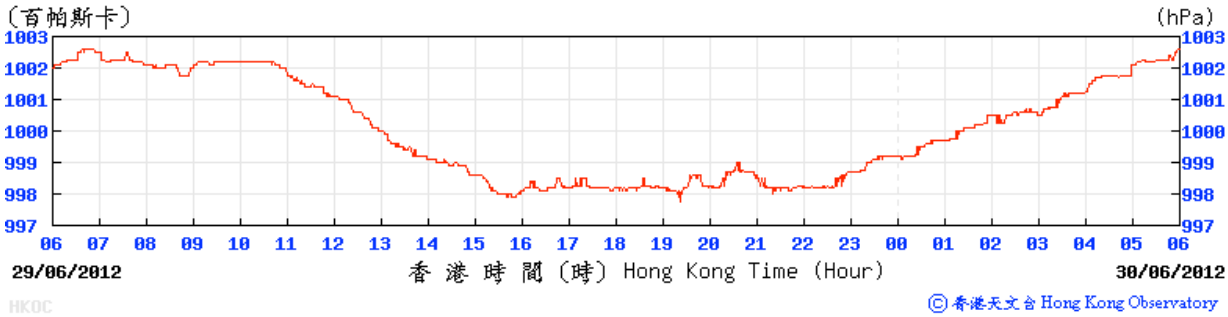


圖 3.2.2　　二零一二年六月二十九日至三十日天文台總部錄得的海平面氣壓。

Figure 3.2.2　　Trace of mean sea-level pressure recorded at the Hong Kong Observatory's Headquarters on 29 - 30 June 2012.

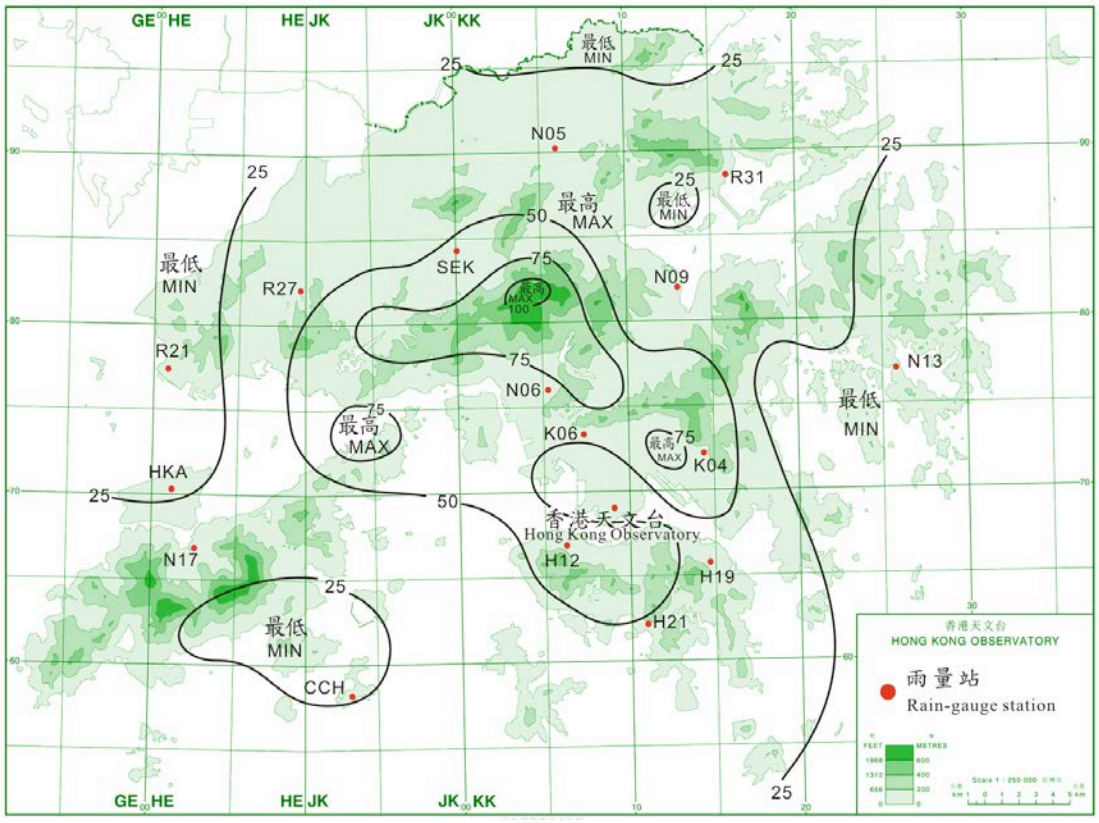


圖 3.2.3　　二零一二年六月二十八日至三十日的雨量分佈(等雨量線單位為毫米)。

Figure 3.2.3　　Rainfall distribution for 28 - 30 June 2012 (isohyets are in millimetres).

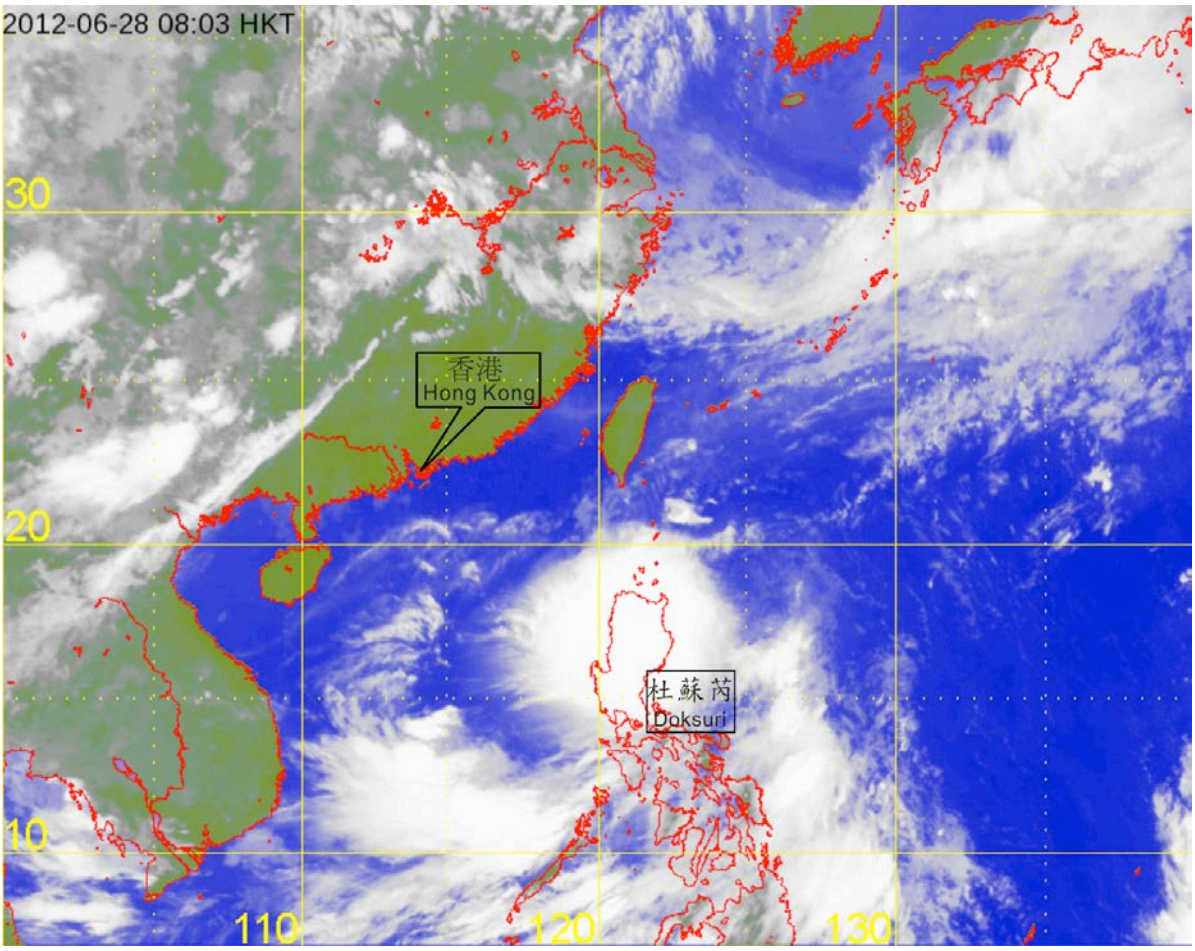


圖 3.2.4　熱帶風暴杜蘇芮在二零一二年六月二十八日上午 8 時的紅外線衛星圖片。當時杜蘇芮的中心集結在呂宋東北的北太平洋西部上，並達到其最高強度，中心附近估計最高持續風速達到每小時 85 公里。

Figure 3.2.4　Infra-red satellite imagery of Tropical Storm Doksuri at 8 a.m. on 28 June 2012. The centre of Doksuri was located over the western North Pacific to the northeast of Luzon at that time and at its peak intensity with estimated maximum sustained winds of 85 kilometres per hour near its centre.

〔此衛星圖像接收自日本氣象廳的多用途輸送衛星-2。〕

[The satellite imagery was originally captured by the Multi-functional Transport Satellite (MTSAT-2) of Japan Meteorological Agency (JMA).]

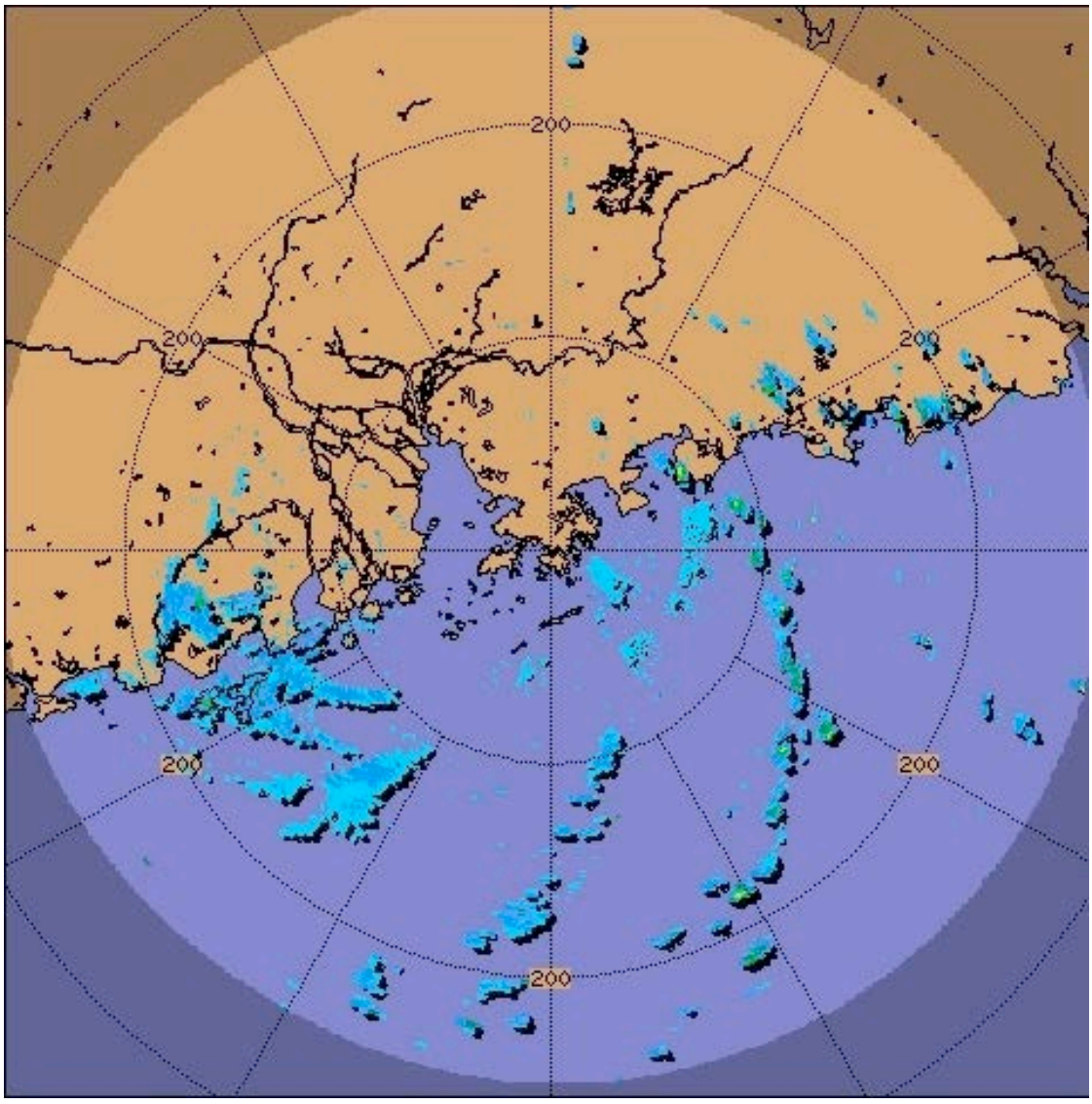


圖 3.2.5　二零一二年六月三十日上午 1 時的雷達回波圖像，當時熱帶風暴杜蘇芮的中心集結在香港天文台西南約 70 公里，最為接近香港。與杜蘇芮相連的雨帶正影響廣東沿岸地區。

Figure 3.2.5　Radar echoes captured at 1:00 a.m. on 30 June 2012. The centre of Tropical Storm Doksuri was at its closest to Hong Kong at about 70 km to the southwest of the Hong Kong Observatory at that time. Rainbands associated with Doksuri were affecting the coast of Guangdong.

3.3 強颱風韋森特 (1208) ： 二零一二年七月二十日至二十五日

韋森特是香港天文台在二零一二年第三個需要發出熱帶氣旋警告信號的熱帶氣旋。韋森特亦是天文台在一九九九年九月颱風約克襲港以來首次發出十號颶風信號。 韋森特吹襲期間，本港西南部風力達到颶風程度。韋森特在最接近香港前約三十小時內迅速增強，從熱帶風暴增強三級成為強颱風。這樣迅速增強的情況，對自1946 年來引致天文台發出十號颶風信號的熱帶氣旋來說是較為罕見的。

熱帶低氣壓韋森特於七月二十日在馬尼拉之東北約 450 公里的北太平洋西部上形成，並向西北偏西移動，晚間經過呂宋海峽。韋森特於七月二十一日早上進入南海北部，並向西移動及在晚上增強為熱帶風暴，於七月二十二日在距離香港東南偏南約 350 公里的南海上幾乎停留不動。韋森特於七月二十三日凌晨增強成為強烈熱帶風暴，早上逐漸轉向西北移動，並於下午增強為一個颱風，其風眼在天文台雷達圖像上清晰可見。入夜後，雷達及閃電位置圖像顯示韋森特風眼壁附近出現非常強烈的對流，其雲頂高度超過 15 公里，直達對流層[1]頂部，並伴隨有雲對地閃電，顯示上升運動轉趨劇烈。韋森特其後在接近午夜時於香港西南偏南的南海上迅速增強為強颱風，並達到其最高強度，中心附近最高持續風力達到每小時 155 公里。韋森特其後加速移近珠江口以西一帶，於七月二十四日黎明前在香港西南偏西約 130 公里的台山附近沿岸地區登陸及減弱為颱風。當日早上它在廣東西部採取西北偏西方向移動，並減弱為強烈熱帶風暴，下午繼續減弱為熱帶風暴，並轉向西移動橫過廣西。韋森特於晚上進一步減弱為熱帶低氣壓，七月二十五日在越南北部消散。

根據報章報導，韋森特為廣東帶來暴雨，造成最少五人死亡，另六人失蹤。此外，廣東有 44 000 公頃農作物受災，約 1 085 間房屋倒塌，直接經濟損失達 8.45 億元人民幣。

香港天文台於七月二十一日下午3時40分發出一號戒備信號，當時韋森特位於香港之東南約540公里。本港當日下午吹和緩西風，黃昏時轉吹東北風。七月二十二日吹和緩至清勁東北風，離岸及高地間中吹強風。隨着韋森特開始移向華南沿岸，天文台在七月二十三日上午5時20分發出三號強風信號，當時韋森特集結在香港之東南偏南約320公里。日間本港風勢逐漸增強，下午普遍吹東北強風，離岸及高地吹烈風。天文台在下午5時40分改發八號東北烈風或暴風信號，當時韋森特集結在香港以南約170公里。晚間本港風力進一步增強，多處吹烈風，南部海域更達暴風程度。天文台在下午11時20分改發九號烈風或暴風風力增強信號，當時韋森特已移至香港之西南偏南約110公里。

七月二十四日凌晨韋森特繼續移近香港，其眼壁接近本港西南部，本港轉吹東至東南風，維多利亞港及赤鱲角、新界東北部分地區及本港南部海域吹烈風或暴風、西南部海域及高地吹颶風。天文台在上午 12 時 45 分改發十號颶風信號。韋森特的中心在上午 1 時至 2 時最接近香港，並在天文台西南約 100 公里掠過。隨著韋

[1] 根據大氣温度的垂直分佈，可將大氣分為四層，即對流層、平流層、中間層和熱成層。對流層是大氣中的最低一層。

森特開始移離香港及風力逐漸減弱，天文台先後在上午 3 時 35 分改發八號東南烈風或暴風信號，在上午 10 時 10 分改發三號強風信號，及後在下午 2 時 40 分改發一號戒備信號。當晚韋森特進一步遠離香港，其環流不再覆蓋香港，天文台於下午 11 時 15 分取消所有熱帶氣旋警告信號。但由於中國東南沿岸的一道高壓脊持續為本港離岸海域帶來強風，天文台接續發出強烈季候風信號，直至七月二十五日上午 5 時 20 分取消。

韋森特吹襲期間，長洲、大帽山及昂坪錄得的最高每小時平均風速分別為 126、135 及 153 公里，最高陣風則分別為每小時 184、196 及 256 公里。各站錄得的最低瞬時海平面氣壓如下：—

站	最低瞬時海平面氣壓 (百帕斯卡)	日期/月份	時間
香港天文台總部	986.0	24/7	上午 12 時 53 分
長洲	981.6	24/7	上午 1 時 25 分
香港國際機場	982.8	24/7	上午 1 時 45 分
京士柏	985.7	24/7	上午 1 時 27 分
流浮山	985.3	24/7	上午 1 時 42 分
坪洲	983.2	24/7	上午 1 時 28 分
橫瀾島	983.5	24/7	上午 12 時 42 分

韋森特吹襲期間，尖鼻咀錄得海圖基準面以上 3.23 米的最高潮位，而最大風暴潮亦在尖鼻咀錄得，高度為 1.51 米。

七月二十一日天氣酷熱及有煙霞，但黃昏時有狂風雷暴，本港東部錄得超過20毫米的雨量。七月二十二日大致多雲及有幾陣狂風驟雨及雷暴。受到韋森特的雨帶影響，七月二十三日及二十四日早上香港有狂風大驟雨，期間本港多處地區錄得超過200毫米的雨量。七月二十四日下午本港雨勢逐漸減弱。

韋森特影響香港期間，本港最少有138人受傷，約 8 800 棵樹木倒塌、兩宗山泥傾瀉及七宗水浸報告。本港多處有危險招牌或棚架，部分道路要封閉及多部車輛被毀壞。中環干諾道中有一塊木板被狂風吹起，擊中數名途人。風暴期間，港鐵東鐵線電纜被塌樹壓毀，致東鐵線全線癱瘓，乘客被迫通宵滯留在車箱或車站。此外，上水多塊菜田被浸，農作物損毀。一艘遊艇在深水灣擱淺及損毀。七個貨櫃從一艘貨輪在香港附近海域上墮海，引致約150噸膠粒飄浮海上，或湧上海灘。香港國際機場最少有90班航班取消、超過446班航班延誤及50班航機轉飛其他地方。

表3.3.1- 3.3.4 分別是韋森特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及3.3.2 分別為韋森特的路徑圖及韋森特中心附近最高持續風速的時間序列圖。圖3.3.3顯示長洲錄得的風向、風速及海平面氣壓圖及天文台錄得的海平面氣壓圖。圖3.3.4顯示韋森特最接近香港時本港各站錄得的風向和風速。圖3.3.5顯示尖鼻咀錄得的潮位及風暴潮。

圖3.3.6 - 3.3.8 分別為本港的雨量分佈圖、韋森特的衛星圖像及最接近香港時的雷達圖像[2]。圖3.3.9顯示當韋森特迅速增強為強颱風時，雷達及閃電系統顯示強烈的對流活動上升至超過15公里，而且伴隨著閃電。韋森特在香港造成的一些破壞可參見圖3.3.10。

有關引致天文台需要發出十號颶風信號的颱風的資料，請參考表4.9。

[2] 請參看天文台網頁有關韋森特的衛星圖像及雷達圖像動畫 (http://www.hko.gov.hk/informtc/vicente/vicente_uc.htm)。

3.3 Severe Typhoon Vicente (1208): 20 – 25 July 2012

Vicente was the third tropical cyclone that necessitated the issuance of a tropical cyclone warning signal by the Hong Kong Observatory in 2012. It also necessitated the issuance of the first No. 10 Hurricane Signal in Hong Kong since Typhoon York in September 1999. Hurricane force winds were recorded over the southwestern part of Hong Kong during the passage of Vicente. Vicente underwent rapid intensification within around 30 hours prior to its closest approach to Hong Kong, strengthening by three categories from a tropical storm to a severe typhoon. Such rapid intensification near the territory was rather rare among the tropical cyclones that had necessitated the issuance of the No. 10 Signal since 1946.

Vicente formed as a tropical depression over the western North Pacific about 450 km northeast of Manila on 20 July. Moving west-northwestwards, it made its way over Luzon Strait that night and entered the northern part of the South China Sea on the morning of 21 July. Moving westwards, it intensified into a tropical storm that night. On 22 July, it was almost stationary over the South China Sea about 350 km south-southeast of Hong Kong. Vicente intensified into a severe tropical storm on the small hours of 23 July and gradually turned to move northwestwards in the morning. It underwent intensification into a typhoon in the afternoon, with its eye clearly discernible on the Observatory's radar. After dusk, very intense convection was observed on the eyewall of Vicente and was captured on both radar imagery and lightning location map. The corresponding cloud top overshot 15 km up to the top of the troposphere[3] accompanied by cloud-to-ground lightning. Such observations signified that the associated updraft turned violent. Shortly afterwards, Vicente intensified rapidly to a severe typhoon over the South China Sea to the south-southwest of Hong Kong towards mid-night, reaching its peak intensity with an estimated maximum sustained wind of 155 km/h near its centre. Vicente speeded up towards the region west of the Pearl River Estuary thereafter and made landfall near the coastal areas of Taishan, about 130 km west-southwest of Hong Kong before dawn on 24 July and subsequently weakened into a typhoon. It took up a west-northwesterly track over western Guangdong that morning and weakened into a severe tropical storm. Vicente continued to weaken into a tropical storm in the afternoon and turned to move westwards across Guangxi. It became a tropical depression that night and dissipated over the northern part of Vietnam on 25 July.

According to press reports, Vicente brought rainstorms to Guangdong where at least five people were killed and six others missing. Over 44 000 hectares of farmland were inundated, some 1 085 houses collapsed and the economic loss amounted to 845 million RMB.

In Hong Kong, the Standby Signal No. 1 was issued at 3:40 p.m. on 21 July when Vicente was about 540 km southeast of Hong Kong. Local winds were moderate westerlies that afternoon, becoming northeasterly in the evening. Moderate to fresh northeasterlies prevailed over Hong Kong on 22 July, with occasional strong winds over

[3] Based on the temperature distribution in the vertical, the atmosphere can be divided into four layers, that is, the troposphere, stratosphere, mesosphere and thermosphere. Troposphere is the lowest layer of the atmosphere.

offshore waters and on high ground. As Vicente started to move towards the south China coast, the Strong Wind Signal No. 3 was issued at 5:20 a.m. on 23 July, when Vicente was about 320 km south-southeast of Hong Kong. Local winds strengthened gradually during the day, becoming generally strong northeasterlies in the afternoon, reaching gale force offshore and on high ground. The No. 8 NE Gale or Storm Signal was issued at 5:40 p.m. when Vicente was about 170 km south of Hong Kong. Local winds strengthened further that night, with gales in many parts of Hong Kong, reaching storm force over the waters in the southern part of Hong Kong. The Increasing Gale or Storm Signal No. 9 was issued at 11:20 p.m. when Vicente was about 110 km south-southwest of Hong Kong.

Vicente continued to move closer to Hong Kong and its eyewall came close to the southwestern part of Hong Kong during the small hours on 24 July. Local winds turned to the east to southeasterlies, with gale or storm force winds over Victoria Harbour, Chek Lap Kok, parts of the northeastern New Territories and the waters over the southern part of Hong Kong, reaching hurricane force over the waters in the southwestern part of Hong Kong and on high ground. The Hurricane Signal No. 10 was issued at 12:45 a.m. The centre of Vicente was closest to Hong Kong between 1 a.m. and 2 a.m., passing about 100 km to the southwest of the Hong Kong Observatory. As Vicente started to move away and local winds gradually subsided, the No. 8 SE Gale or Storm Signal was issued at 3:35 a.m. to replace the No. 10 Signal. The No. 8 Signal was then replaced by the Strong Wind Signal No. 3 at 10:10 a.m., followed by the Standby Signal No. 1 at 2:40 p.m. Vicente moved further away and its outer circulation no longer covered Hong Kong that night and all tropical cyclone warning signals were cancelled at 11:15 p.m. Nevertheless, a ridge of high pressure along the southeastern coast of China came into play and continued to maintain strong winds over the offshore waters of Hong Kong. The Strong Monsoon Signal was issued immediately afterwards, which was cancelled at 5:20 a.m. on 25 July.

During the passage of Vicente, a maximum hourly mean wind of 126, 135 and 153 km/h and gusts of 184, 196 and 256 km/h were recorded at Cheung Chau, Tai Mo Shan and Ngong Ping respectively. The lowest instantaneous mean sea-level pressures recorded at some selected stations were as follows:-

Station	Lowest instantaneous mean sea-level pressure (hPa)	Date/Month	Time
Hong Kong Observatory Headquarters	986.0	24/7	12:53 a.m.
Cheung Chau	981.6	24/7	1:25 a.m.
Hong Kong International Airport	982.8	24/7	1:45 a.m.
King's Park	985.7	24/7	1:27 a.m.
Lau Fau Shan	985.3	24/7	1:42 a.m.
Peng Chau	983.2	24/7	1:28 a.m.
Waglan Island	983.5	24/7	12:42 a.m.

During the passage of Vicente, a maximum sea level of 3.23 m above chart datum was recorded at Tsim Bei Tsui. The maximum storm surge was 1.51 m also at Tsim Bei Tsui.

The weather in Hong Kong was very hot and hazy on 21 July, but there were squally thunderstorms in the evening, bringing over 20 millimetres of rainfall to the eastern part of the territory. It was mainly cloudy with a few squally showers and thunderstorms on 22 July. The rainbands of Vicente brought heavy squally showers to Hong Kong on 23 July and on the morning of 24 July, during which more than 200 millimetres of rainfall were recorded over many parts of the territory. The showers gradually abated on the afternoon of 24 July.

In Hong Kong, at least 138 people were injured during the passage of Vicente. The number of fallen trees amounted to about 8 800. There were two reports of landslip and 7 reports of flooding. Dangerous signboards or fallen scaffoldings were reported in many parts of the territory, resulting in closure of some roads and damage to many vehicles. A wooden board was blown up by strong winds in Connaught Road, Central, hitting a number of passers-by. During the storm, the East Rail line of the Mass Transit Railway had to halt service because of damage of overhead cables by toppling trees. As a result, hundreds of commuters were forced to spend the night in trains or at the MTR stations. Crops were damaged by flood waters in some farmlands in Sheung Shui. A small craft ran aground in Deep Water Bay and was damaged. Seven containers fell overboard from a freighter in waters nearby and about 150 tons of plastic pallets drifted over the sea or were washed ashore. At the Hong Kong International Airport, at least 90 flights were cancelled, over 446 flights delayed and 50 flights diverted on 23 - 24 July.

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 Vicente is given in Tables 3.3.1 - 3.3.4 respectively. Figures 3.3.1 - 3.3.2 show respectively the track of Vicente and the time series of the maximum sustained wind speed near the centre of Vicente. Charts in figures 3.3.3 show the time traces of wind direction, wind speed and mean sea-level pressure recorded at Cheung Chau and mean sea-level pressure recorded at the Hong Kong Observatory. Figure 3.3.4 shows the winds recorded at

various stations in Hong Kong at the time of closest approach of Vicente. Figure 3.3.5 shows the tide and storm surge recorded at Tsim Bei Tsui. Figures 3.3.6 - 3.3.8 show respectively the rainfall distribution for Hong Kong, a satellite imagery of Vicente and radar imagery of Vicente near its closest approach to Hong Kong[4]. Figure 3.3.9 shows the radar imagery of Vicente with intense convection exceeding 15 km in elevation and locations of lightning, during which Vicente intensified rapidly into a severe typhoon. Some damages caused by Vicente in Hong Kong are illustrated in Figure 3.3.10.

Details on typhoons that had necessitated the issuance of the Hurricane Signal No. 10 are available in Table 4.9.

[4] The animation sequences of satellite and radar imageries are available on the Observatory's website at http://www.hko.gov.hk/informtc/vicente/vicente.htm.

表 3.3.1　在韋森特影響下，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 the tropical cyclone warning signals for Vicente were in force

站（參閱圖 1.1）Station (See Fig. 1.1)		最高陣風 Maximum Gust					最高每小時平均風速 Maximum Hourly Mean Wind				
		風向 Direction		風速（公里/時）Speed (km/h)	日期/月份 Date/Month	時間 Time	風向 Direction		風速（公里/時）Speed (km/h)	日期/月份 Date/Month	時間 Time
中環碼頭	Central Pier	東北偏東	ENE	122	23/7	22:39	東	E	76	23/7	23:00
長洲	Cheung Chau	東	E	184	24/7	00:17	東南	SE	126	24/7	02:00
長洲泳灘	Cheung Chau Beach	東	E	171	23/7	23:54	東	E	115	24/7	00:00
青洲	Green Island	東北	NE	155	23/7	23:20	東北	NE	92	23/7	21:00
香港國際機場	Hong Kong International Airport	東	E	133	24/7	01:34	東	E	85	24/7	01:00
啟德	Kai Tak	東	E	135	24/7	01:34	東南偏東	ESE	67	24/7	07:00
京士柏	King's Park	東南偏東	ESE	110	24/7	01:26	東南偏東	ESE	52	24/7	02:00
流浮山	Lau Fau Shan	-	-	106	24/7	00:27	-	-	59	24/7	00:00
昂坪	Ngong Ping	東北偏東	ENE	256	23/7	23:48	東	E	153	24/7	02:00
北角	North Point	東	E	130	24/7	00:33	東	E	65	24/7	00:00
							東	E	65	24/7	01:00
坪洲	Peng Chau	東南偏東	ESE	128	24/7	01:28	東	E	90	24/7	01:00
平洲	Ping Chau	東	E	121	23/7	21:09	東	E	41	23/7	22:00
西貢	Sai Kung	東北偏東	ENE	121	23/7	21:26	東北偏東	ENE	72	23/7	22:00
沙洲	Sha Chau	東南偏南	SSE	126	24/7	03:31	東南	SE	85	24/7	03:00
沙螺灣	Sha Lo Wan	東	E	149	24/7	02:06	東	E	76	24/7	02:00
沙田	Sha Tin	東南偏南	SSE	88	24/7	02:54	東南	SE	41	24/7	05:00
石崗	Shek Kong	東北偏東	ENE	121	24/7	01:33	東	E	58	24/7	02:00
九龍天星碼頭	Star Ferry (Kowloon)	東	E	122	24/7	00:33	東	E	83	24/7	00:00
打鼓嶺	Ta Kwu Ling	東北偏東	ENE	94	24/7	01:11	東	E	40	24/7	03:00
大美督	Tai Mei Tuk	東北偏東	ENE	146	23/7	19:20	東	E	96	24/7	01:00
大帽山	Tai Mo Shan	東南偏東	ESE	196	24/7	01:01	東南偏東	ESE	135	24/7	01:00
大埔滘	Tai Po Kau	東南偏東	ESE	115	24/7	00:21	東南偏東	ESE	72	24/7	01:00
		東南偏東	ESE	115	24/7	01:34					
大老山	Tate's Cairn	東南偏東	ESE	166	23/7	23:45	東	E	115	24/7	00:00
將軍澳	Tseung Kwan O	東南偏東	ESE	101	24/7	01:58	東南偏東	ESE	36	24/7	05:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南	SE	106	24/7	01:42	東南偏東	ESE	43	24/7	01:00
屯門政府合署	Tuen Mun Government Offices	東南偏東	ESE	128	24/7	02:26	東南偏東	ESE	43	24/7	03:00
橫瀾島	Waglan Island	東南偏東	ESE	149	23/7	22:10	東	E	106	23/7	22:00
濕地公園	Wetland Park	東	E	94	24/7	01:06	東	E	40	24/7	01:00
							東	E	40	24/7	02:00
							東南	SE	40	24/7	04:00
黃竹坑	Wong Chuk Hang	東	E	124	24/7	01:18	東南偏東	ESE	51	24/7	01:00

黃麻角(赤柱)、塔門 - 沒有資料　Bluff Head (Stanley), Tap Mun - data not available

表 3.3.2　在韋森特影響下，在熱帶氣旋警告系統的八個參考測風站所錄到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 reached at the eight reference anemometers in the tropical cyclone warning system when warning signals for Vicente 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 reached		最後達到強風*時間 End time when strong wind speed* was reached		最初達到烈風#時間 Start time when gale force wind speed# was reached		最後達到烈風#時間 End time when gale force wind speed# was reached	
		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	21/7	18:15	24/7	23:15	23/7	16:23	24/7	09:36
香港國際機場	Hong Kong International Airport	23/7	13:37	24/7	13:03	23/7	22:25	24/7	05:29
啟德	Kai Tak	21/7	17:49	24/7	12:17	23/7	23:35	24/7	07:58
西貢	Sai Kung	21/7	17:34	24/7	12:15	23/7	19:23	24/7	06:45
沙田	Sha Tin	23/7	22:23	24/7	06:16	-			
打鼓嶺	Ta Kwu Ling	23/7	19:30	24/7	02:44	-			
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	23/7	23:01	24/7	05:35	-			
濕地公園	Wetland Park	23/7	22:59	24/7	05:17	-			

- 未達到指定的風力
- not reaching the specified wind speed

* 十分鐘平均風力達每小時 41-62 公里
* 10-minute mean wind speed of 41- 62 km/h

十分鐘平均風力達每小時 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及烈風程度的時間。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 or gale force winds were recorded. Note that the winds might fluctuate above or below the specified wind speeds in between the times indicated.

表 3.3.3　　韋森特影響香港期間，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 Vicente

站 (參閱圖 3.3.6) Station (See Fig. 3.3.6)			七月二十一日 21 Jul	七月二十二日 22 Jul	七月二十三日 23 Jul	七月二十四日 24 Jul	總雨量 (毫米) Total(mm)
香港天文台 Hong Kong Observatory			2.2	1.0	112.0	99.5	214.7
香港國際機場 Hong Kong International Airport (HKA)			2.6	1.7	98.4	162.2	264.9
長洲 Cheung Chau (N26)			1.0	1.5	85.0	117.5	205.0
N05	粉 嶺	Fanling	2.0	6.5	101.5	106.0	216.0
N13	糧 船 灣	High Island	21.5	5.5	81.5	44.5	153.0
K04	佐 敦 谷	Jordan Valley	5.5	3.0	130.0	119.0	257.5
N06	葵 涌	Kwai Chung	1.5	4.0	139.5	125.5	270.5
H12	半 山 區	Mid Levels	5.5	4.5	138.5	135.0	283.5
N09	沙 田	Sha Tin	9.0	10.0	176.0	155.0	350.0
H19	筲 箕 灣	Shau Kei Wan	4.5	4.0	72.5	59.0	140.0
SEK	石 崗	Shek Kong	1.0	9.0	169.0	175.5	354.5
K06	蘇 屋 邨	So Uk Estate	1.5	4.0	158.0	132.0	295.5
R31	大 美 督	Tai Mei Tuk	8.5	6.0	116.0	80.0	210.5
R21	踏 石 角	Tap Shek Kok	0.0	2.0	92.0	141.5	235.5
N17	東 涌	Tung Chung	2.0	4.0	116.0	207.5	329.5
R27	元 朗	Yuen Long	0.0	3.5	118.5	134.0	256.0

淺水灣 (H21) - 沒有資料 Repulse Bay (H21) - data not available;

表 3.3.4　　韋森特影響香港期間，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 Vicente

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	2.76	24/7	01:48	1.11	24/7	01:48
石壁	Shek Pik	3.19	24/7	02:08	1.47	24/7	02:08
大廟灣	Tai Miu Wan	2.78	24/7	01:45	1.19	24/7	01:45
大埔滘	Tai Po Kau	3.09	24/7	01:53	1.47	24/7	03:24
尖鼻咀	Tsim Bei Tsui	3.23	24/7	03:46	1.51	24/7	03:46

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

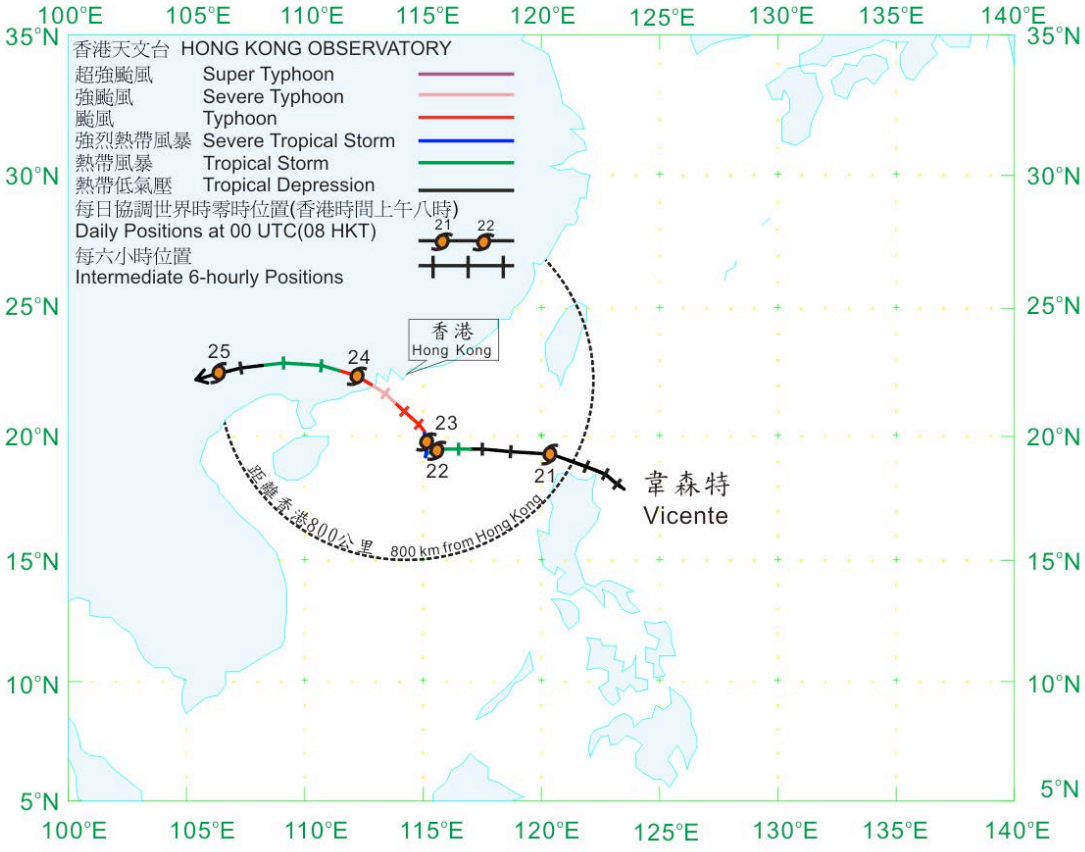


圖 3.3.1(a) 韋森特（1208）在二零一二年七月二十日至二十五日的路徑圖。
Figure 3.3.1(a) Track of Vicente (1208) for 20 - 25 July 2012.

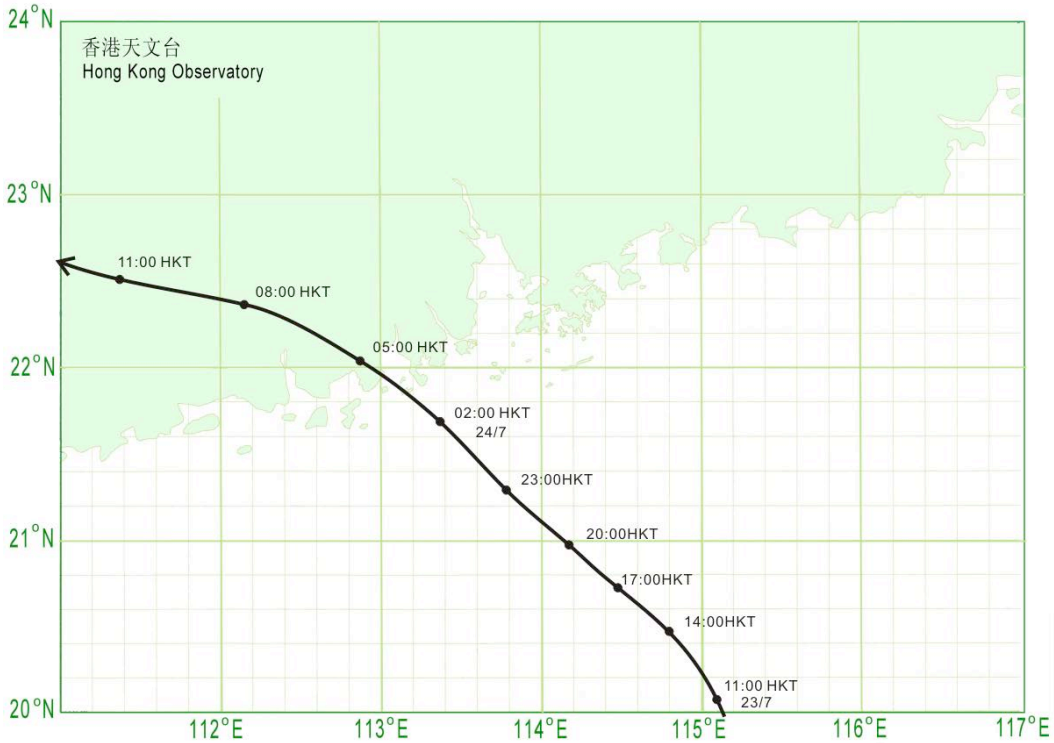


圖 3.3.1(b) 韋森特（1208）接近香港時的路徑圖。
Figure 3.3.1(b) Track of Vicente (1208) near Hong Kong.

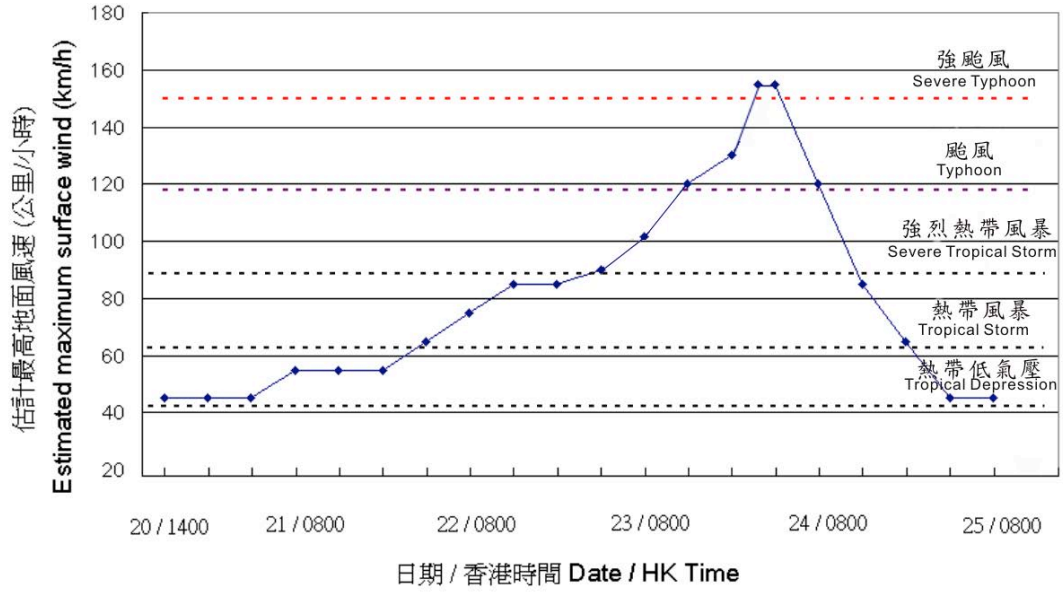


圖 3.3.2　韋森特（1208）中心附近最高持續風速(十分鐘平均)的時間序列。

Figure 3.3.2　Time series of the maximum sustained wind speed (10-minute mean) near the centre of Vicente (1208).

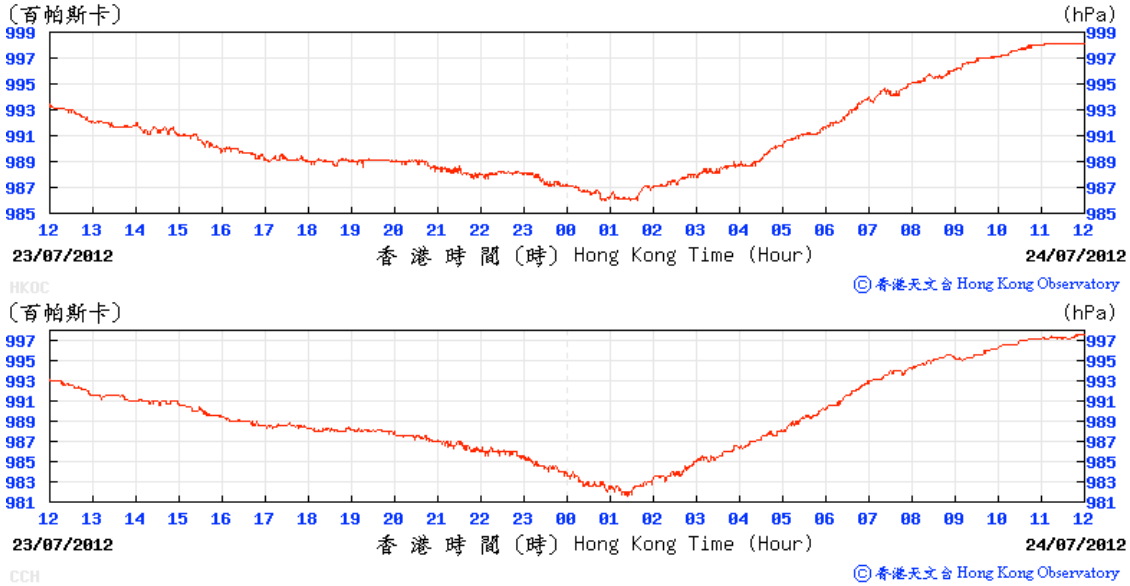


圖 3.3.3(a)　二零一二年七月二十三日至二十四日天文台總部(上)及長洲自動氣象站(下)錄得的海平面氣壓。

Figure 3.3.3(a)　Trace of mean sea-level pressure recorded at the Hong Kong Observatory's Headquarters (top) and Cheung Chau automatic weather station (bottom) on 23 - 24 July 2012.

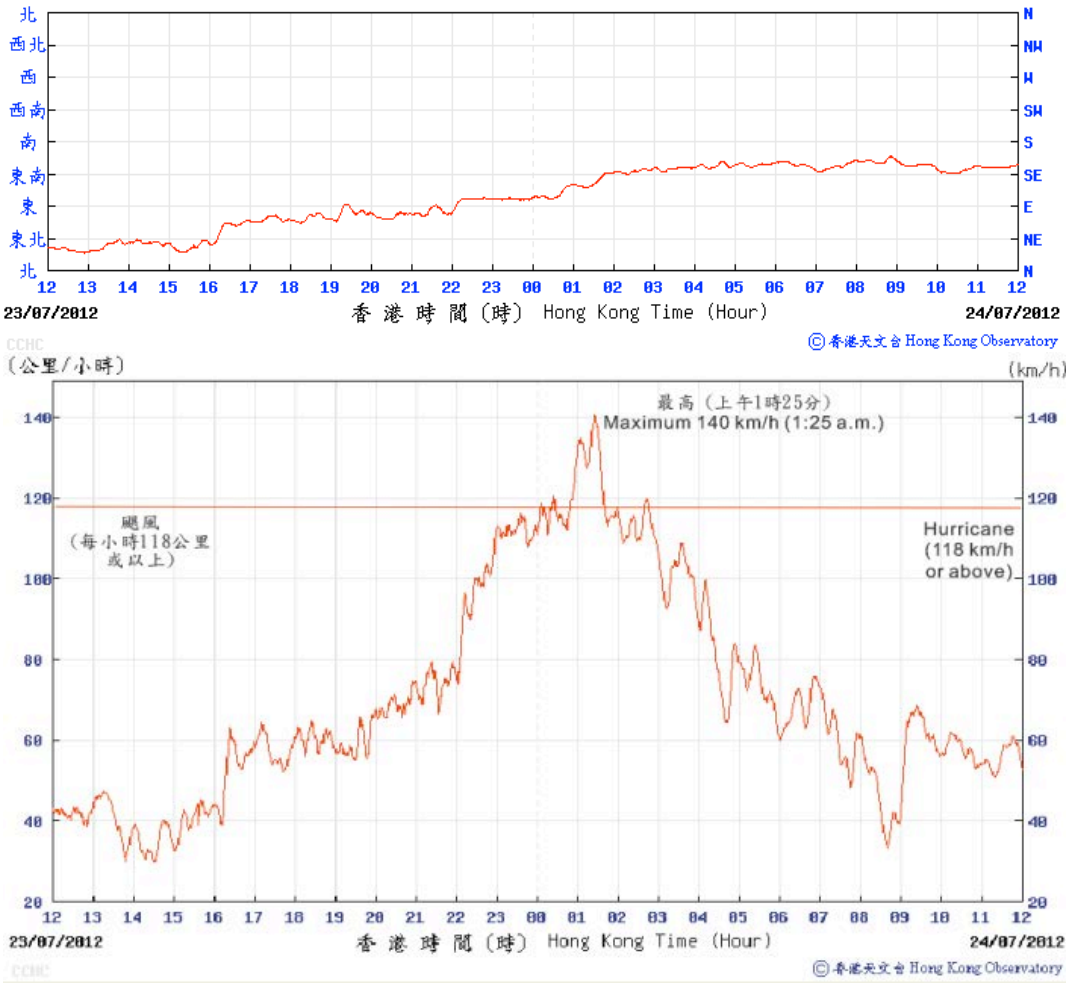


圖 3.3.3(b) 二零一二年七月二十三日至二十四日長洲自動氣象站錄得的十分鐘平均風向(上)及風速(下)。該站在七月二十四日上午 12 時 07 分至 2 時 45 分之間錄得颶風(每小時 118 公里或以上)的風力。

Figure 3.3.3(b) Trace of 10-minute mean wind direction (top) and speed (bottom) recorded at Cheung Chau automatic weather station on 23 - 24 July 2012. Hurricane force winds (118 km/h or above) were recorded at that station between 12:07 a.m. and 2:45 a.m. on 24 July.

圖 3.3.4　　二零一二年七月二十四日上午 1 時 30 分韋森特的中心最接近香港時香港各站錄得的風向和風速。

Figure 3.3.4　Winds recorded at various stations in Hong Kong at 1:30 a.m. on 24 July 2012 when the centre of Vicente was closest to Hong Kong.

「M」　：表示該站在維修中 Maintenance

「 」　：表示東風，風速每小時 18 公里 Easterly wind of 18 km/h

「 」　：表示東風，風速每小時 90 公里 Easterly wind of 90 km/h

「 」　：表示該站位於離平均海平面 500 米以上的地方
Station higher than 500 metres above mean sea level

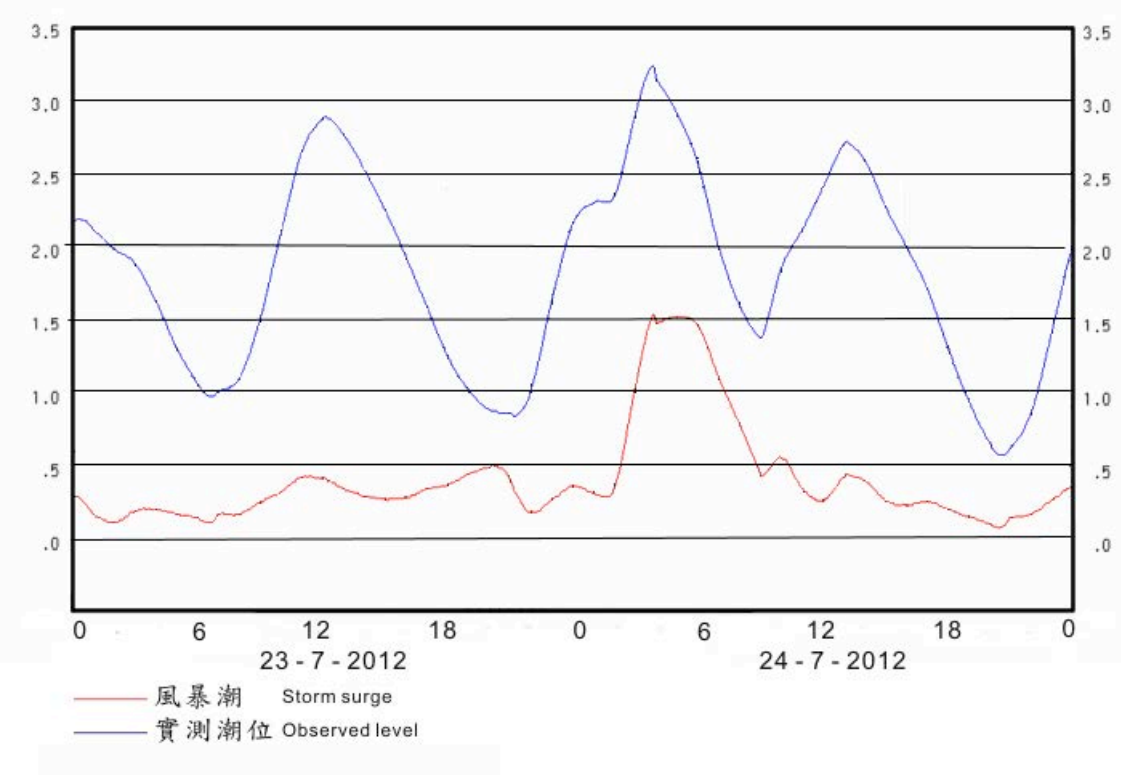


圖 3.3.5　　二零一二年七月二十三日至二十四日尖鼻咀錄得的潮位圖(潮位為海圖基準面以上，單位為米)。

Figure 3.3.5　Tide and storm surge recorded at Tsim Bei Tsui for 23 - 24 July 2012 (Sea level in metres above chart datum).

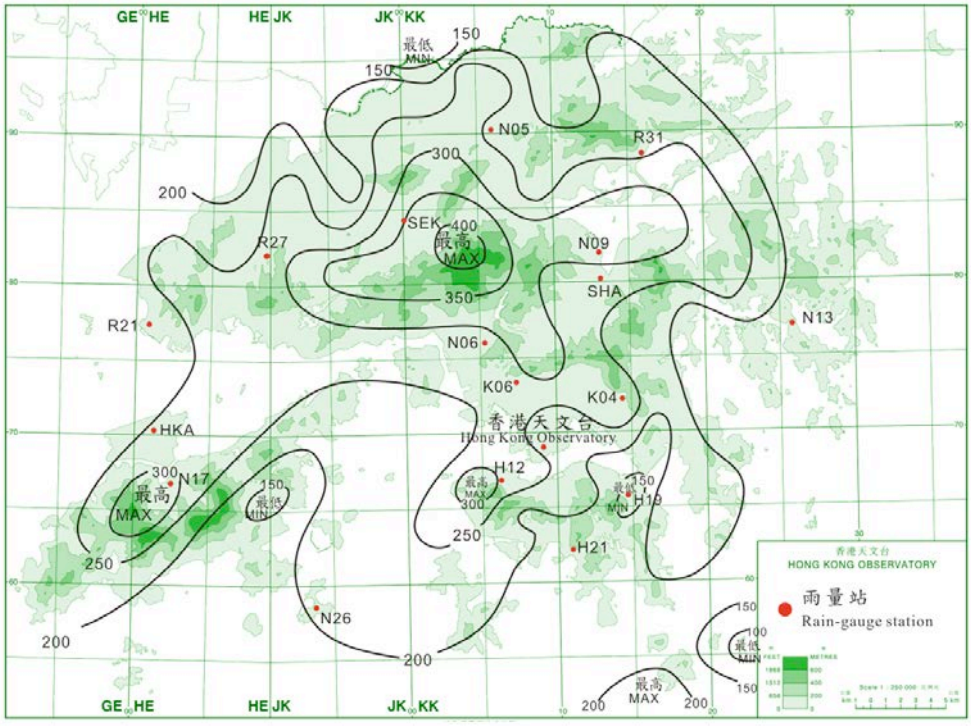


圖 3.3.6　　二零一二年七月二十一日至二十四日的雨量分佈(等雨量線單位為毫米)。

Figure 3.3.6　Rainfall distribution for 21 - 24 July 2012 (isohyets are in millimetres).

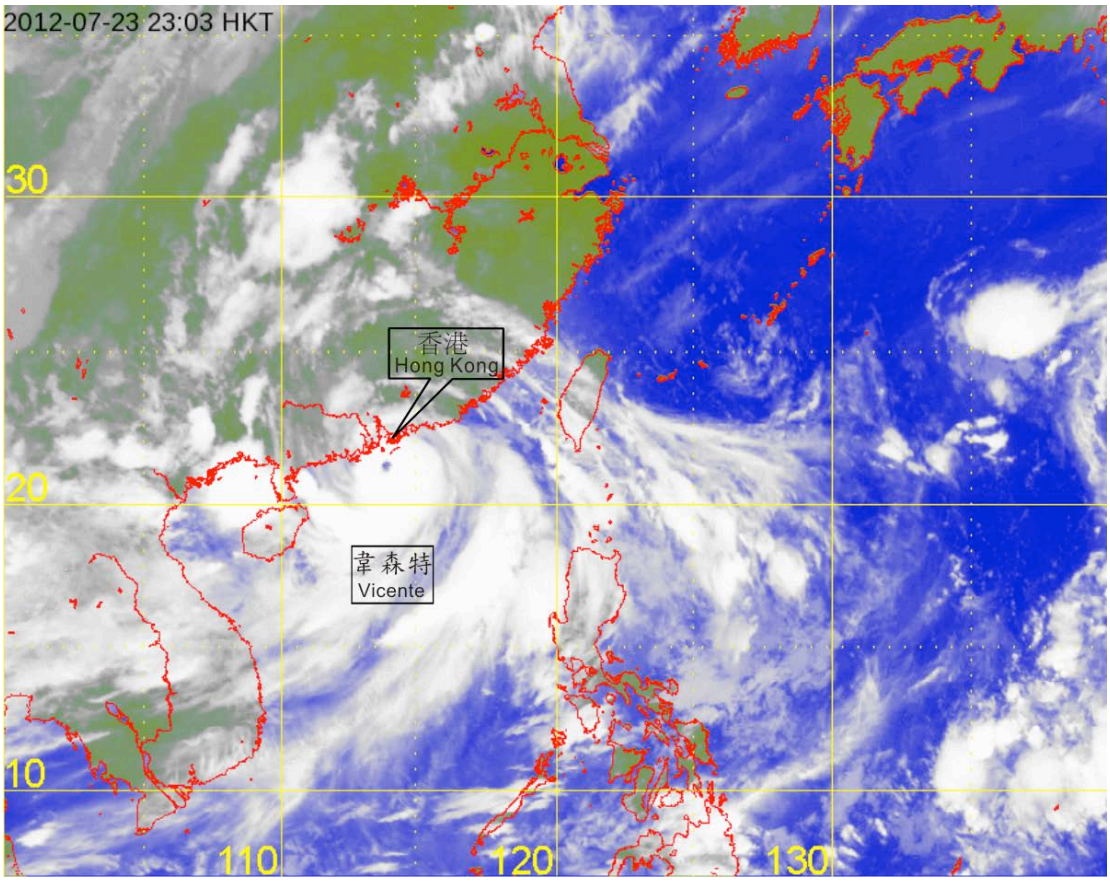


圖 3.3.7　強颱風韋森特在二零一二年七月二十三日下午 11 時的紅外線衛星圖片，其風眼清晰可見，並位於香港之西南偏南約 120 公里的南海北部上。當時韋森特達到其最高強度，中心附近估計最高持續風速達到每小時 155 公里。

Figure 3.3.7　Infra-red satellite imagery of Severe Typhoon Vicente at 11 p.m. on 23 July 2012, showing a distinct eye at about 120 km south-southwest of Hong Kong. Vicente was at its peak intensity with estimated maximum sustained winds of 155 kilometres per hour near its centre.

〔此衛星圖像接收自日本氣象廳的多用途輸送衛星-2。〕

[The satellite imagery was originally captured by the Multi-functional Transport Satellite (MTSAT-2) of Japan Meteorological Agency (JMA).]

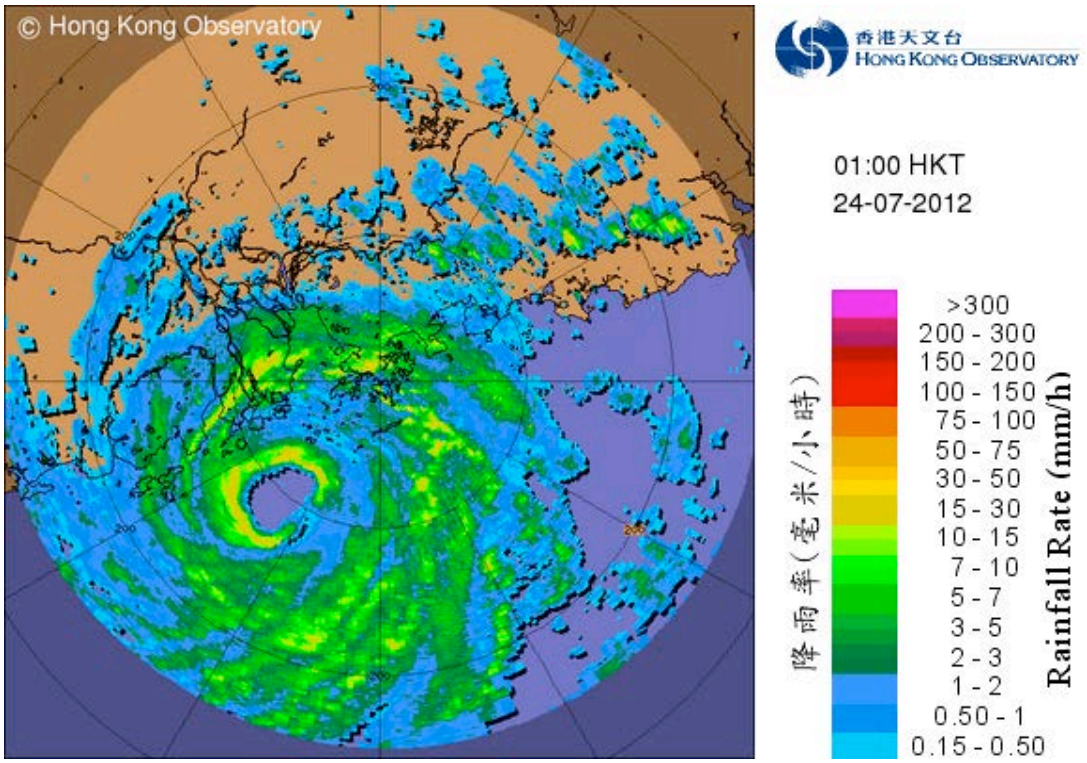


圖 3.3.8(a) 二零一二年七月二十四日上午 1 時的雷達回波圖像，當時強颱風韋森特的中心集結在香港天文台西南約 100 公里。與韋森特相連的雨帶正影響香港及廣東沿岸地區。

Figure 3.3.8(a) Radar echoes captured at 1:00 a.m. on 24 July 2012 when the centre of Severe Typhoon Vicente was about 100 km to the southwest of the Hong Kong Observatory. Rainbands associated with Vicente were affecting Hong Kong and the coast of Guangdong.

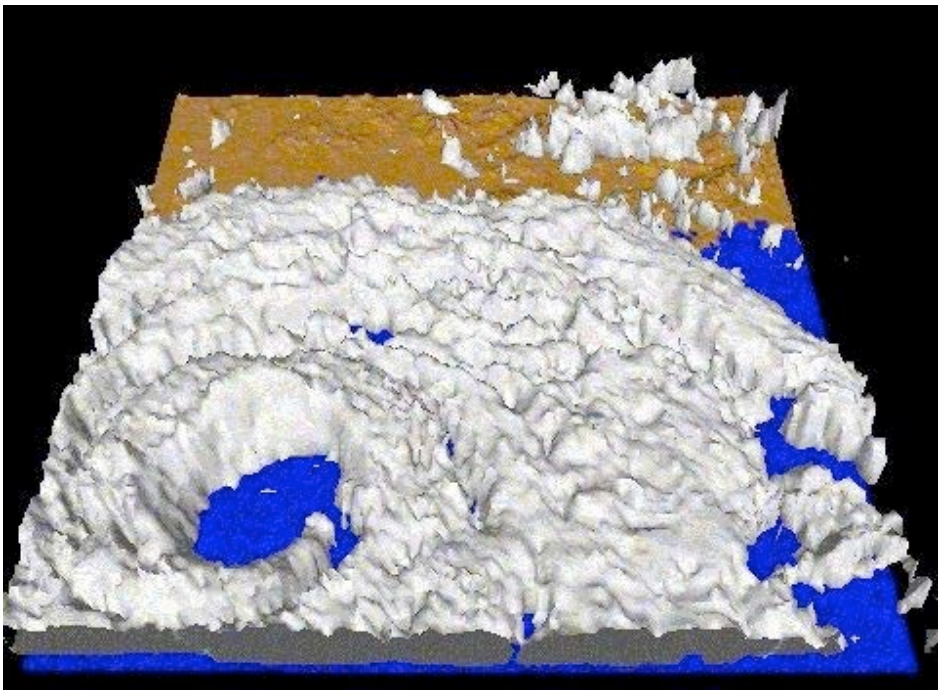


圖 3.3.8(b) 二零一二年七月二十四日上午 1 時的立體雷達回波圖片。

Figure 3.3.8(b) 3-dimensional radar echoes captured at 1:00 a.m. on 24 July 2012.

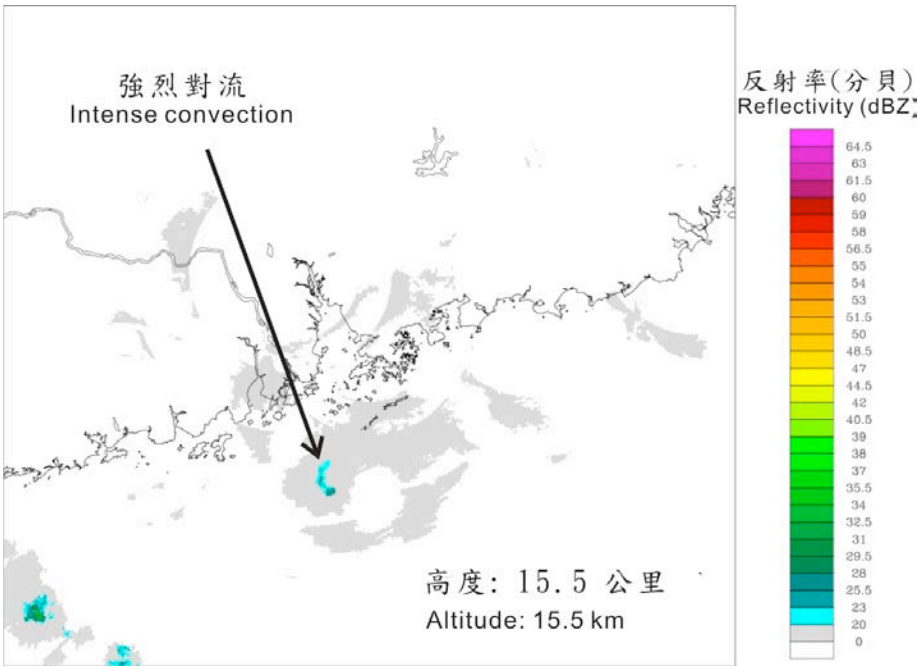


圖 3.3.9(a) 二零一二年七月二十三日下午 10 時 30 分的雷達反射率圖片：15.5 公里高的水平切面圖。箭頭所指之處，顯示韋森特風眼壁（圖中香港以南的灰色區域）上出現強烈對流區域，有劇烈上升運動把雲中水點抬升至對流層頂部。

Figure 3.3.9(a) Radar reflectivity images at 10:30 p.m. on 23 July 2012: horizontal cross-section taken at an altitude of 15.5 km. The arrow points to an area of intense convection on the eyewall of Vicente (grey shadings south of Hong Kong in the image). This signifies the existence of violent updraft raising cloud water to the top of the troposphere.

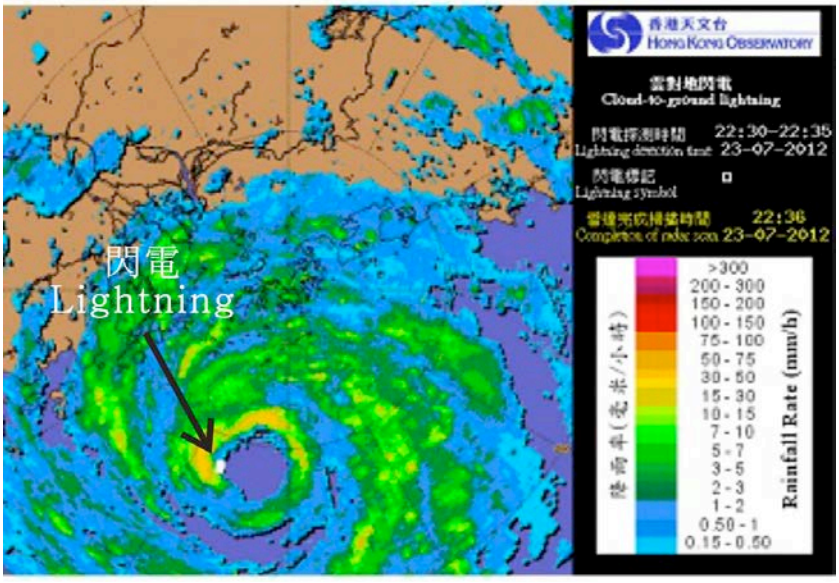


圖 3.3.9(b) 二零一二年七月二十三日下午 10 時 30 分左右雷達圖像上的閃電位置。

Figure 3.3.9(b) Lightning location on the radar imagery around 10:30 p.m. on 23 July 2012.

圖 3.3.10(a) 強颱風韋森特吹襲香港期間奧海城附近的樹木被吹倒。(相片由 Ms. Carly Tse 提供)

Figure 3.3.10(a) Trees blown down near Olympian City during the passage of Severe Typhoon Vicente (photo courtesy of Ms. Carly Tse).

圖 3.3.10(b) 尖沙咀在強颱風韋森特吹襲下的塌樹情況 (相片由成報提供) 。

Figure 3.3.10(b) Trees blown down in Tsim Sha Tsui during the passage of Severe Typhoon Vicente (photo courtesy of Sing Pao).

3.4 颱風啟德(1213)：二零一二年八月十二日至十八日

啟德是香港天文台在二零一二年第四個需要發出熱帶氣旋警告信號的熱帶氣旋。啟德亦是年內第三個引致天文台發出八號烈風或暴風信號的熱帶氣旋。

熱帶低氣壓啟德於八月十二日在馬尼拉之東北偏東約 960 公里的西北太平洋上形成，並向西至西北偏西移動，於翌日增強為熱帶風暴。啟德於八月十五日橫過呂宋北部，黃昏時進入南海北部及增強為強烈熱帶風暴。八月十六日啟德加速向西北偏西移動，在東沙的西南偏南掠過，下午進一步增強為颱風，並達到其最高強度，中心附近最高持續風力達到每小時 120 公里。八月十七日早上啟德移近廣東西部沿岸，在上午 11 時，湛江錄得的海平面氣壓為 982.2 百帕斯卡。啟德於下午初時在湛江附近登陸，其後橫過北部灣，黃昏時減弱為強烈熱帶風暴，並在中越邊境交界處再次登陸。啟德於八月十八日早上橫過越南北部及減弱為熱帶風暴，下午在內陸消散。

根據報章報導，啟德吹襲菲律賓期間，造成七人死亡，兩人失蹤。啟德造成廣東、廣西、海南兩人死亡，另兩人失蹤。廣東約有2 000 間房屋倒塌，5 300 餘間受損，而廣西則有2 200餘間房屋倒塌，12 000間受損。啟德登陸湛江時，恰逢天文大潮期，帶來強風暴潮。一艘輪船受到啟德影響在廣西欽州港擱淺，船上六人獲救。廣西北海市有輸油船擱淺，泄漏柴油。啟德導致越南北部至少17人受傷，數千房屋被毀。

香港天文台於八月十五日下午8時10分發出一號戒備信號，當時啟德位於香港之東南偏東約690公里。當晚本港吹微風。隨着啟德移近華南沿岸，八月十六日本港風勢逐漸增強，天文台在下午1時40分發出三號強風信號，當時啟德集結在香港之東南偏南約380公里。下午本港吹清勁東北風，離岸及高地風勢強烈。晚間啟德繼續移近香港，本港普遍吹偏東強風，高地吹烈風，風勢進一步增強，天文台在下午10時15分改發八號東南烈風或暴風信號，當時啟德集結在香港以南約270公里。啟德在午夜左右最接近香港，並在香港西南偏南約260公里處掠過。八月十七日凌晨本港逐漸轉吹東南風，高地及本港西南部海域吹烈風。隨著啟德開始遠離，黎明前本港風勢逐漸減弱，天文台在上午6時20分改發三號強風信號，取代八號信號。日間啟德繼續移離本港，風勢進一步減弱，天文台在下午3時20分改發一號戒備信號，隨後於下午4時25分取消所有熱帶氣旋警告信號。

啟德吹襲期間，本港接近海平面錄得的最高每小時平均風速分別為長洲及橫瀾島的 68 及 70 公里，而長洲及青洲均錄得每小時 103 公里的陣風。香港天文台總部於八月十六日下午 3 時 06 分至 5 時 26 分錄得最低瞬時海平面氣壓 999.1 百帕斯卡。

啟德吹襲期間，尖鼻咀錄得海圖基準面以上 2.89 米的最高潮位及最大高度為 0.60 米的風暴潮。

八月十五日香港天氣大致天晴及天氣酷熱。八月十六日轉為大致多雲及有幾陣狂風驟雨及雷暴，本港部分地區錄得超過20毫米的雨量。八月十七日初時本港繼續有狂風驟雨，日間雨勢逐漸減弱。

啟德影響香港期間，本港有一人受傷及共有493棵樹木倒塌。香港國際機場有34班航班延誤、六班航班取消，另外六班轉飛其他機場。

表3.4.1- 3.4.4 分別是啟德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3.4.1為啟德的路徑圖。圖3.4.2顯示長洲錄得的風向及風速。圖3.4.3 - 3.4.5 分別為本港的雨量分佈圖、啟德的衛星圖像及最接近香港時的雷達圖像。

3.4 Typhoon Kai-tak (1213): 12 – 18 August 2012

Kai-tak was the fourth tropical cyclone that necessitated the issuance of a tropical cyclone warning signal by the Hong Kong Observatory in 2012. It was also the third tropical cyclone that necessitated the issuance of the No. 8 Gale or Storm Signal during the year.

Kai-tak formed as a tropical depression over the western North Pacific about 960 km east-northeast of Manila on 12 August. Moving west to west-northwestwards, it intensified into a tropical storm on the following day. Kai-tak moved across northern Luzon on 15 August, entered the northern part of the South China Sea that evening and intensified into a severe tropical storm. On 16 August, Kai-tak speeded up on a west-northwesterly track across the northern part of the South China Sea to the south-southwest of Dongsha and intensified further into a typhoon in the afternoon, reaching its peak intensity with an estimated maximum sustained wind of 120 km/h. Kai-tak moved close to the coast of western Guangdong in the morning on 17 August. Mean sea-level pressure of 982.2 hPa was recorded at Zhanjiang at 11 a.m. It made landfall near Zhanjiang in the early afternoon and moved across Beibu Wan later. Kai-tak weakened into a severe tropical storm and made landfall over the region of the Sino-Vietnamese border that evening. It moved across northern Vietnam and weakened into a tropical storm in the morning on 18 August, dissipating inland in the afternoon.

According to press reports, seven people were killed and two missing in the Philippines during the passage of Kai-tak. In the fury of Kai-tak, two people were killed and two others missing in Guangdong, Guangxi and Hainan. Around 2 000 houses collapsed and 5 300 houses damaged in Guangdong. Some 2 200 houses collapsed and 12 000 houses damaged in Guangxi. In Zhanjiang, spring tide coincided with the landfall of Kai-tak and brought severe storm surge there. A vessel ran aground in Qinzhou, Guangxi and six people on board were rescued. A tanker ran aground in Beihai, Guangxi, with the spilling of diesel fuel. In northern Vietnam, at least 17 people were killed and thousands of houses damaged during the passage of Kai-tak.

In Hong Kong, the Standby Signal No. 1 was issued at 8:10 p.m. on 15 August when Kai-tak was about 690 km east-southeast of Hong Kong. Light winds prevailed over the territory that night. As Kai-tak moved closer to the south China coast, local winds strengthened gradually on 16 August and the Strong Wind Signal No. 3 was issued at 1:40 p.m. when Kai-tak was about 380 km south-southeast of Hong Kong. Local winds were fresh northeasterlies, strong offshore and on high ground in the afternoon. With Kai-tak moving closer to Hong Kong at night, local winds strengthened further and became generally strong easterlies, reaching gale force on high ground. The No. 8 SE Gale or Storm Signal was issued at 10:15 p.m. when Kai-tak was about 270 km south of Hong Kong. Kai-tak was closest to Hong Kong at around midnight when it was passing about 260 km to the south-southwest. Winds gradually changed to the southeasterlies in the small hours on 17 August, with gales on high ground and over the waters in the southwestern part of Hong Kong. Winds gradually subsided before dawn as Kai-tak started to move away from Hong Kong. The Strong Wind Signal No. 3 was issued at 6:20 a.m. to replace the No. 8 Signal. Kai-tak continued to move away from Hong

Kong during the day and local winds continued to weaken. The Standby Signal No. 1 was issued at 3:20 p.m and all tropical cyclone warning signals were subsequently cancelled at 4:25 p.m.

During the passage of Kai-tak, the maximum hourly mean wind recorded near sea level were 68 and 70 km/h at Cheung Chau and Waglan Island respectively, while gusts of 103 km/h were recorded at both Cheung Chau and Green Island. At the Hong Kong Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 999.1 hPa was recorded between 3:06 p.m. and 5:26 p.m. on 16 August.

During the passage of Kai-tak, a maximum sea level and maximum storm surge of 2.89 m and 0.60 m respectively above chart datum was recorded at Tsim Bei Tsui.

The weather in Hong Kong was generally fine and very hot on 15 August. It became mainly cloudy with a few squally showers and thunderstorms on 16 August. More than 20 millimetres of rainfall were recorded over parts of the territory. Squally showers continued to affect Hong Kong at first on 17 August. The showers gradually eased off during the day.

In Hong Kong, one person was injured during the passage of Kai-tak. The number of fallen trees amounted to 493. At the Hong Kong International Airport, 34 flights were delayed, six flights were cancelled and another six flights diverted during the passage of Kai-tak.

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 Kai-tak is given in Tables 3.4.1- 3.4.4 respectively. Figures 3.4.1 show the track of Kai-tak. Charts in figures 3.4.2 show the time traces of wind direction and wind speed recorded at Cheung Chau. Figures 3.4.3 – 3.4.5 show respectively the rainfall distribution for Hong Kong, a satellite imagery of Kai-tak and radar imagery of Kai-tak near its closest approach to Hong Kong.

表 3.4.1　在啟德影響下，本港各站在熱帶氣旋警告信號生效時所錄得的最高陣風、最高每小時平均風速及風向

Table 3.4.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when the tropical cyclone warning signals for Kai-tak were in force

站（參閱圖 1.1）Station (See Fig. 1.1)		最高陣風 Maximum Gust					最高每小時平均風速 Maximum Hourly Mean Wind				
		風向 Direction		風速（公里/時）Speed (km/h)	日期/月份 Date/Month	時間 Time	風向 Direction		風速（公里/時）Speed (km/h)	日期/月份 Date/Month	時間 Time
黃麻角（赤柱）	Bluff Head (Stanley)	東南偏東	ESE	77	17/8	02:05	東南偏東	ESE	51	17/8	03:00
中環碼頭	Central Pier	東北偏東	ENE	79	16/8	19:28	東	E	52	16/8	20:00
長洲	Cheung Chau	東南偏東	ESE	103	17/8	00:39	東南偏東	ESE	68	17/8	03:00
長洲泳灘	Cheung Chau Beach	東	E	96	17/8	00:18	東	E	67	17/8	01:00
青洲	Green Island	東北	NE	103	16/8	19:29	東北	NE	63	16/8	20:00
香港國際機場	Hong Kong International Airport	東南偏東	ESE	75	17/8	02:28	東南偏東	ESE	47	17/8	11:00
啟德	Kai Tak	東	E	77	16/8	19:16	東	E	36	16/8	21:00
京士柏	King's Park	東	E	72	17/8	00:30	東南偏東	ESE	31	17/8	02:00
流浮山	Lau Fau Shan	東北偏東	ENE	72	17/8	00:47	東北偏東	ENE	31	16/8	21:00
昂坪	Ngong Ping	東	E	137	17/8	00:21	東	E	94	17/8	02:00
北角	North Point	東	E	81	16/8	19:28	東	E	40	16/8	22:00
坪洲	Peng Chau	東南偏東	ESE	79	16/8	19:35	東	E	54	16/8	21:00
西貢	Sai Kung	東南偏南	SSE	77	17/8	13:24	東北偏東	ENE	47	16/8	21:00
沙洲	Sha Chau	東南	SE	76	17/8	10:50	東南	SE	49	17/8	04:00
沙螺灣	Sha Lo Wan	東	E	81	16/8	19:11	東	E	43	16/8	22:00
沙田	Sha Tin	東北偏東	ENE	65	16/8	19:15	東北	NE	22	16/8	20:00
石崗	Shek Kong	東北	NE	68	16/8	20:13	東	E	31	17/8	01:00
九龍天星碼頭	Star Ferry (Kowloon)	東	E	83	16/8	22:35	東	E	47	17/8	01:00
打鼓嶺	Ta Kwu Ling	東	E	63	17/8	02:29	東	E	23	17/8	02:00
大美督	Tai Mei Tuk	東北偏東	ENE	79	16/8	22:13	東北偏東	ENE	59	16/8	21:00
		東	E	79	16/8	22:56					
大帽山	Tai Mo Shan	-	-	117	17/8	00:28	-	-	83	17/8	01:00
大埔滘	Tai Po Kau	東南	SE	79	17/8	02:18	東	E	43	16/8	21:00
塔門	Tap Mun	東南	SE	72	17/8	02:27	東	E	31	16/8	20:00
							東南	SE	31	17/8	03:00
大老山	Tate's Cairn	東北偏東	ENE	112	16/8	19:12	東北偏東	ENE	70	16/8	20:00
將軍澳	Tseung Kwan O	東南偏東	ESE	54	16/8	18:22	東	E	20	16/8	20:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南偏東	ESE	68	17/8	01:21	東南偏東	ESE	27	17/8	01:00
							東南偏東	ESE	27	17/8	02:00
							東南偏東	ESE	27	17/8	03:00
屯門政府合署	Tuen Mun Government Offices	東南偏東	ESE	65	17/8	11:16	東南	SE	31	17/8	13:00
橫瀾島	Waglan Island	東南	SE	88	17/8	02:14	東北偏東	ENE	70	16/8	18:00
濕地公園	Wetland Park	東南偏東	ESE	52	17/8	02:24	東南偏東	ESE	27	17/8	11:00
黃竹坑	Wong Chuk Hang	東	E	68	16/8	20:19	東	E	30	17/8	03:00

平洲 - 沒有資料 Ping Chau - data not available

表 3.4.2　在啟德影響下，在熱帶氣旋警告系統的八個參考測風站所錄到持續風力達到強風及烈風程度的時段

Table 3.4.2　Periods during which sustained strong and gale force winds were reached at the eight reference anemometers in the tropical cyclone warning system when warning signals for Kai-tak were in force

站（參閱圖 1.1）Station (See Fig. 1.1)		最初達到強風* 時間		最後達到強風* 時間		最初達到烈風# 時間		最後達到烈風# 時間	
		Start time when strong wind speed* was reached		End time when strong wind speed* was reached		Start time when gale force wind speed# was reached		End time when gale force wind speed# was reached	
		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	16/8	16:06	17/8	14:37	17/8	00:40	17/8	03:28
香港國際機場	Hong Kong International Airport	16/8	18:24	17/8	12:52	-			
啟德	Kai Tak	16/8	20:43	17/8	02:36	-			
西貢	Sai Kung	16/8	16:41	17/8	02:35	-			

沙田、打鼓嶺、青衣及濕地公園的持續風力未達到強風程度。
The sustained wind speed did not attain strong force at Sha Tin, Ta Kwu Ling, Tsing Yi and Wetland Park.

- 未達到指定的風力
- not reaching the specified wind speed

* 十分鐘平均風力達每小時 41-62 公里
* 10-minute mean wind speed of 41- 62 km/h

十分鐘平均風力達每小時 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及烈風程度的時間。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 or gale force winds were recorded. Note that the winds might fluctuate above or below the specified wind speeds in between the times indicated.

表 3.4.3　啟德影響香港期間，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 Kai-tak

站 (參閱圖 3.4.3) Station (See Fig. 3.4.3)			八月十五日 15 Aug	八月十六日 16 Aug	八月十七日 17 Aug	總雨量(毫米) Total(mm)
香港天文台 Hong Kong Observatory			0.0	15.4	微量 Trace	15.4
香港國際機場 Hong Kong International Airport (HKA)			0.0	12.1	13.4	25.5
長洲 Cheung Chau (CCH)			0.0	10.5	6.0	16.5
N05	粉 嶺	Fanling	0.0	22.0	20.0	42.0
N13	糧 船 灣	High Island	7.5	6.5	4.5	18.5
K04	佐 敦 谷	Jordan Valley	0.5	27.5	1.0	29.0
N06	葵 涌	Kwai Chung	0.0	11.5	1.5	13.0
H12	半 山 區	Mid Levels	0.0	16.5	0.0	16.5
H21	淺 水 灣	Repulse Bay	0.0	25.0	0.0	25.0
N09	沙 田	Sha Tin	1.0	7.5	12.5	21.0
H19	筲 箕 灣	Shau Kei Wan	0.0	7.0	0.0	7.0
SEK	石 崗	Shek Kong	0.0	25.0	2.5	27.5
K06	蘇 屋 邨	So Uk Estate	0.0	22.0	2.5	24.5
R31	大 美 督	Tai Mei Tuk	0.0	8.0	5.5	13.5
R21	踏 石 角	Tap Shek Kok	0.0	18.5	0.5	19.0
N17	東 涌	Tung Chung	0.0	11.5	10.5	22.0
R27	元 朗	Yuen Long	0.0	22.0	0.0	22.0

表 3.4.4　啟德影響香港期間，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 Kai-tak

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	2.46	17/8	07:10	0.43	16/8	22:02
石壁	Shek Pik	2.73	17/8	08:23	0.58	17/8	01:47
大廟灣	Tai Miu Wan	2.46	17/8	07:01	0.56	16/8	22:23
大埔滘	Tai Po Kau	2.47	17/8	06:42	0.59	17/8	00:46
尖鼻咀	Tsim Bei Tsui	2.89	17/8	09:43	0.60	17/8	04:57
橫瀾島	Waglan Island	2.59	17/8	07:06	0.52	16/8	21:38

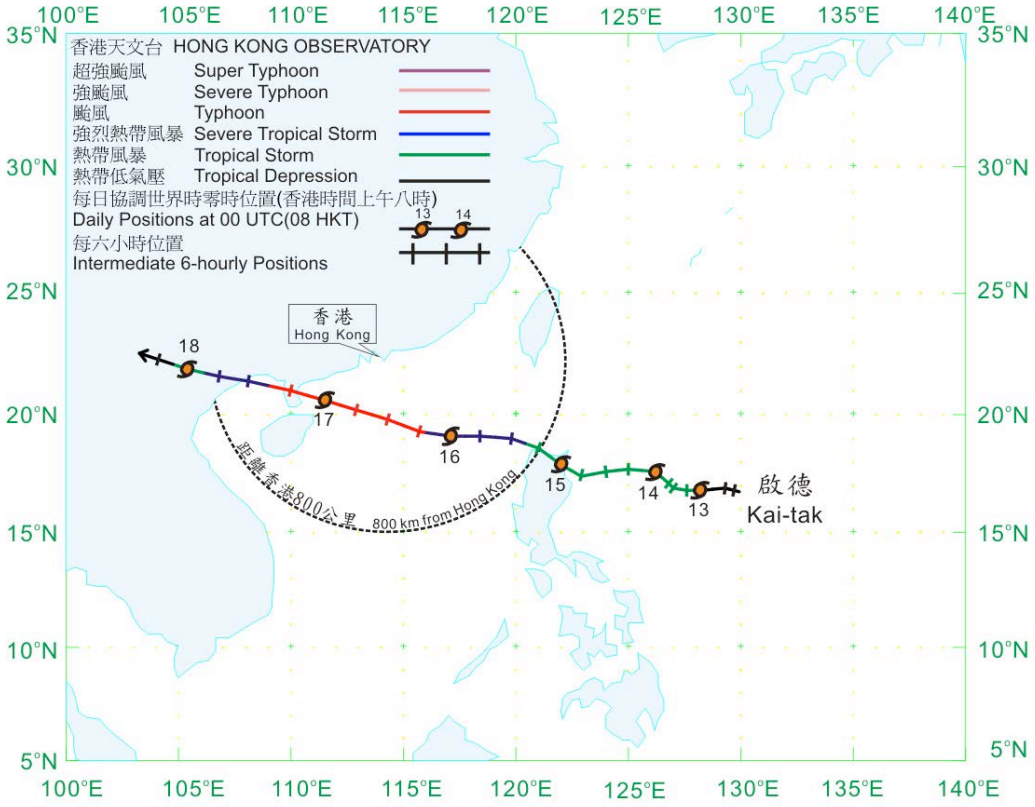


圖 3.4.1(a) 啟德（1213）在二零一二年八月十二日至十八日的路徑圖。
Figure 3.4.1(a) Track of Kai-tak (1213) for 12 - 18 August 2012.

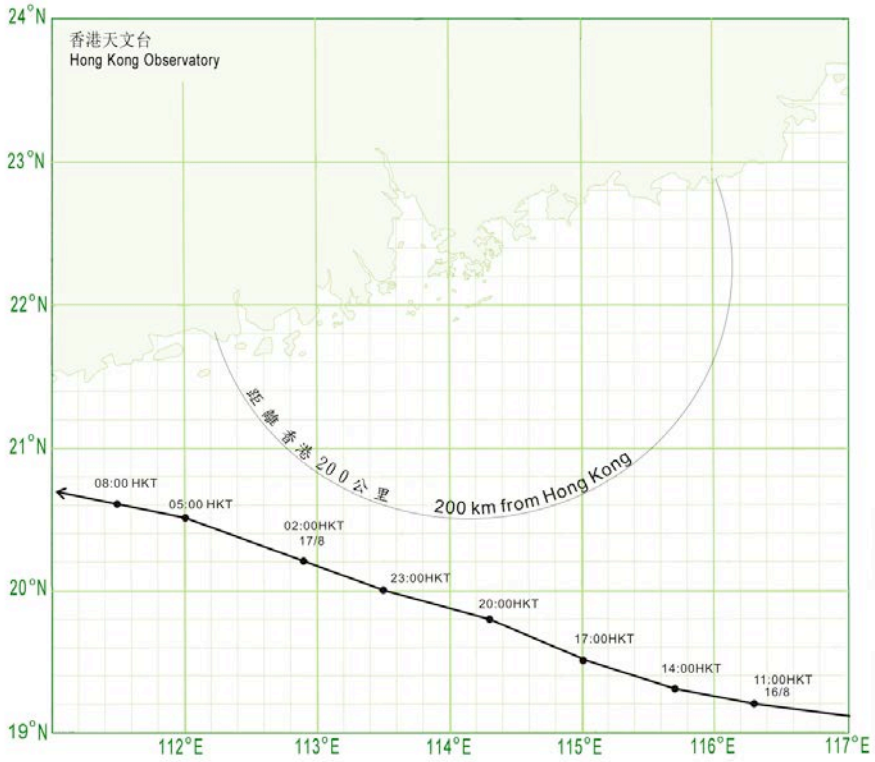


圖 3.4.1(b) 啟德（1213）接近香港時的路徑圖。
Figure 3.4.1(b) Track of Kai-tak (1213) near Hong Kong.

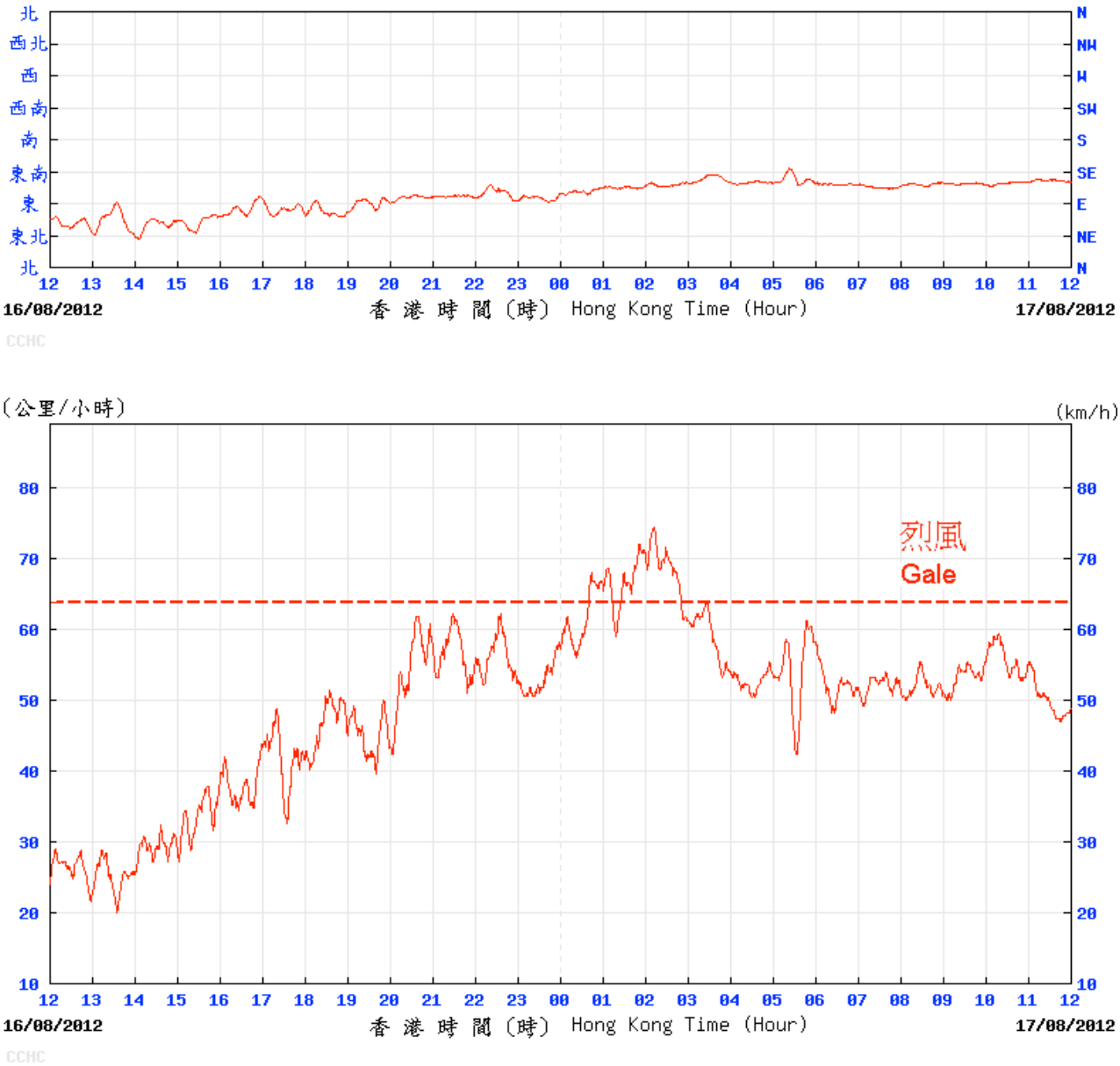


圖 3.4.2　二零一二年八月十六日至十七日長洲自動氣象站錄得的十分鐘平均風向(上)及風速(下)。

Figure 3.4.2　Trace of 10-minute mean wind direction (top) and speed (bottom) recorded at Cheung Chau automatic weather station on 16 - 17 August 2012.

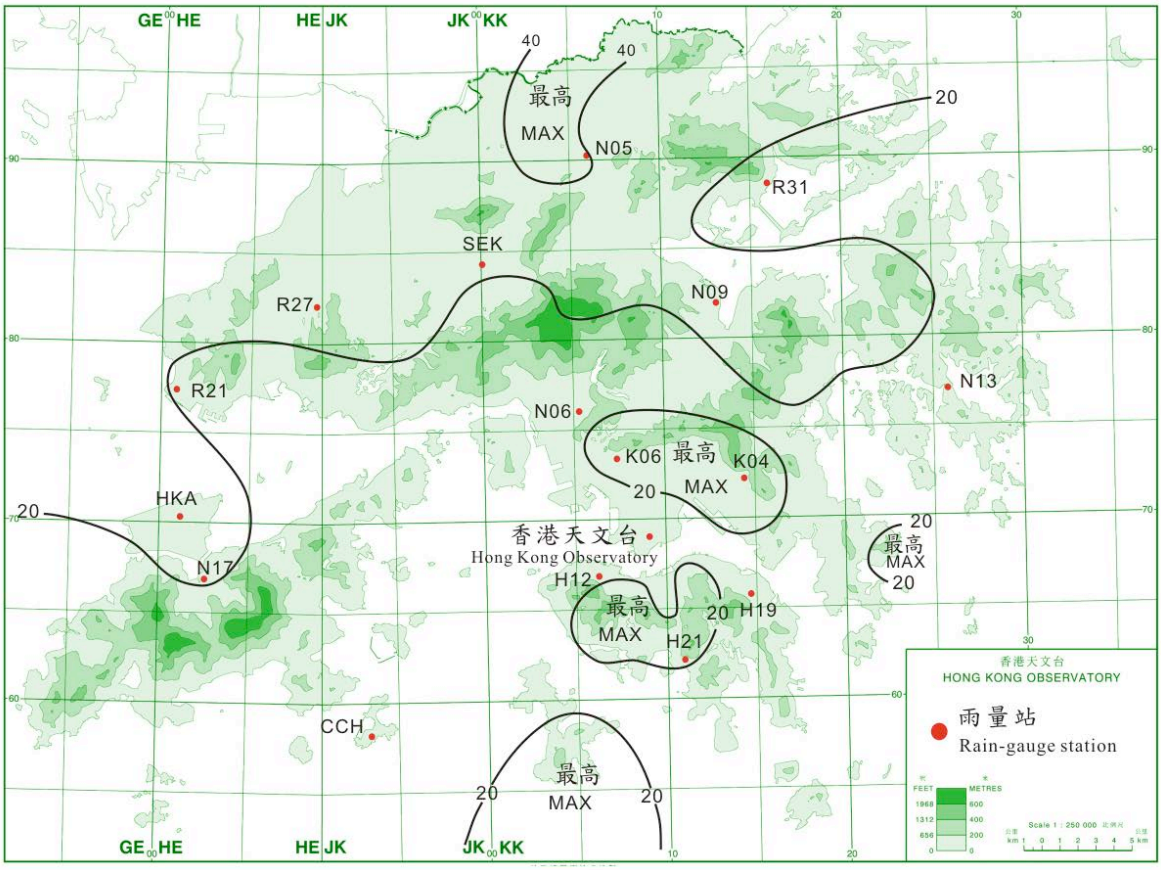


圖 3.4.3　　二零一二年八月十五日至十七日的雨量分佈(等雨量線單位為毫米)。

Figure 3.4.3　Rainfall distribution for 15 - 17 August 2012 (isohyets are in millimetres).

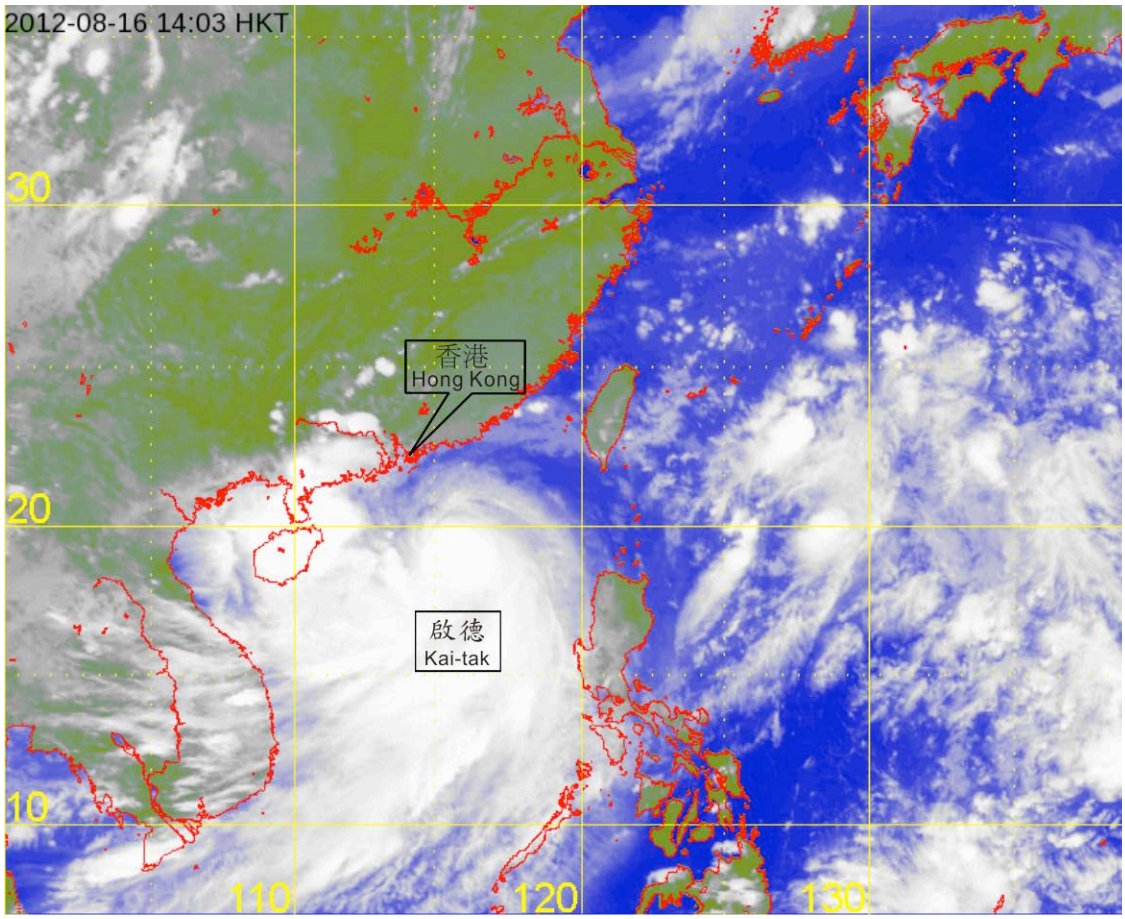


圖 3.4.4　颱風啟德在二零一二年八月十六日下午 2 時的紅外線衛星圖片，當時啟德達到其最高強度，中心附近估計最高持續風速達到每小時 120 公里，位置在香港東南偏南約 370 公里的南海北部上。

Figure 3.4.4　Infra-red satellite imagery of Typhoon Kai-tak at 2 p.m. on 16 August 2012 at its peak intensity with estimated maximum sustained winds of 120 kilometres per hour near its centre. Kai-tak was located about 370 km south-southeast of Hong Kong at that time.

〔此衛星圖像接收自日本氣象廳的多用途輸送衛星-2。〕

[The satellite imagery was originally captured by the Multi-functional Transport Satellite (MTSAT-2) of Japan Meteorological Agency (JMA).]

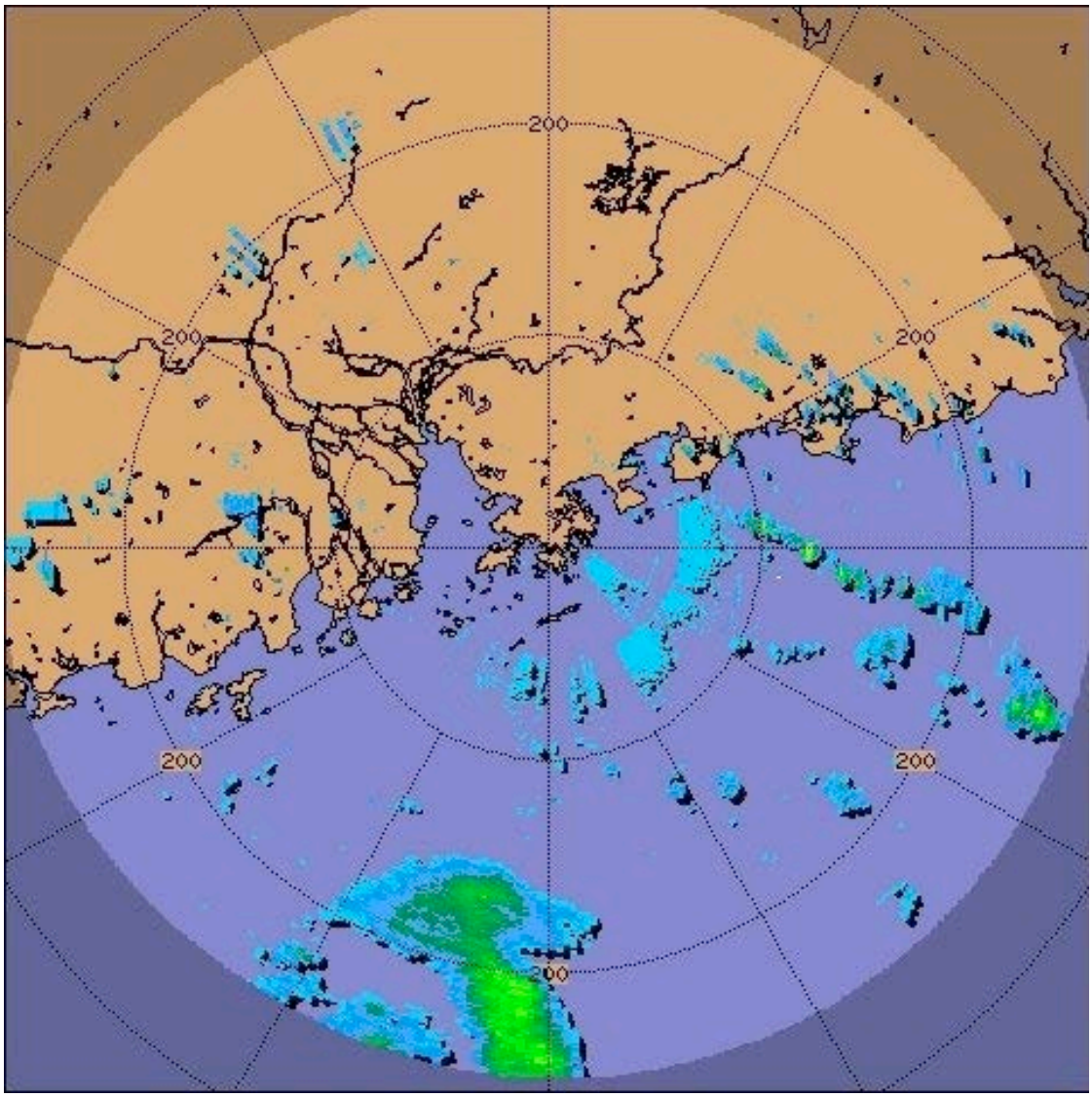


圖 3.4.5　二零一二年八月十六日午夜的雷達回波圖像，當時颱風啟德的中心集結在香港西南偏南約 260 公里，最為接近香港。

Figure 3.4.5　Radar echoes captured at midnight on 16 August 2012 when the centre of Typhoon Kai-tak was closest to Hong Kong, about 260 km south-southwest of Hong Kong.

3.5 強颱風天秤 (1214): 二零一二年八月十八日至三十日

天秤是香港天文台在二零一二年第五個需要發出熱帶氣旋警告信號的熱帶氣旋。

熱帶低氣壓天秤於八月十八日在馬尼拉東北約 660 公里的北太平洋西部上形成，並向西南偏南移動，翌日轉為移動緩慢，並逐漸增強為強烈熱帶風暴。天秤於八月二十日採取偏北方向移動，並逐漸增強，下午在馬尼拉東北偏北約 590 公里的太平洋上成為強颱風，當晚達到其最高強度，中心附近最高持續風力達到每小時 175 公里。它於八月二十二日轉向西移動，移向台灣及減弱為颱風，但於翌日在台灣以東的太平洋上再次增強為強颱風。天秤於八月二十四日早上橫過台灣南部，下午減弱為颱風及進入南海東北部。它於隨後兩天在南海東北部轉了一個圈，於八月二十六日從北向南掠過東沙，下午二時，東沙錄得的海平面氣壓為 968.5 百帕斯卡。受北太平洋西部的另一股熱帶氣旋布拉萬的牽引，天秤於八月二十七日轉向東北偏東移動，並於翌日向東北加速，橫過台灣以東海域及減弱為強烈熱帶風暴。它於八月二十九日向東北偏北移動，橫過東海，八月三十日早上在韓國登陸，下午減弱為熱帶風暴，黃昏時在韓國東部變為溫帶氣旋。

天秤的路徑頗為曲折，並兩次在台灣附近掠過。根據報章報導，天秤首次掠過台灣期間為當地帶來暴雨，引致最少一人死亡、五人受傷及超過130 000戶沒有電力供應。天秤於八月二十八日第二次移近台灣，導致另一人死亡、一人失蹤、11人受傷。天秤亦導致韓國兩人死亡、三人受傷及4 000戶沒有電力供應。

香港天文台於八月二十四日下午10時40分發出一號戒備信號，當時天秤位於香港以東約540公里的南海東北部上。本港吹和緩至清勁北至西北風，高地間中吹強風。天秤於八月二十五日慢慢地移近華南沿岸，於八月二十六日上午一時左右最接近香港，並在本港東南偏東約290公里處掠過。天秤於當日開始慢慢移離本港。天文台總部在下午4時26分錄得最低瞬時海平面氣壓999.6百帕斯卡，當時天秤集結在香港之東南偏東約330公里。下午天秤進一步遠離本港，天文台於下午4時40分取消所有熱帶氣旋警告信號。

天秤吹襲期間，大帽山錄得的最高每小時平均風速為 47 公里，而大老山錄得的最高陣風為每小時 70 公里。橫瀾島錄得的最高潮位(海圖基準面以上)及最大風暴潮分別為 2.52 米及 0.49 米。

受天秤相關的偏北下沉氣流影響，八月二十四日至二十六日本港天氣酷熱。八月二十五日本港有幾陣局部地區性驟雨，並錄得一兩毫米的雨量。

天秤影響香港期間，兩人在西貢海傍被大浪捲走，其中一人死亡、另一人受傷。

表3.5.1- 3.5.3 分別是天秤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 –3.5.3分別為天秤的路徑圖、天秤的衛星圖像及天秤外圍雨帶的雷達圖像。

3.5 Severe Typhoon Tembin (1214): 18 – 30 August 2012

Tembin was the fifth tropical cyclone that necessitated the issuance of a tropical cyclone warning signal by the Hong Kong Observatory in 2012.

Tembin formed as a tropical depression over the western North Pacific about 660 km northeast of Manila on 18 August and moved south-southwestwards. It became slow moving on the following day and intensified gradually into a severe tropical storm. On 20 August, Tembin took on a northerly track and continued to intensify gradually and became a severe typhoon over the Pacific about 590 km north-northeast of Manila in the afternoon. It reached its peak intensity that night with an estimated maximum sustained wind of 175 km/h near its centre. Tembin turned to move westwards towards Taiwan and weakened into a typhoon on 22 August, but strengthened again into a severe typhoon over the Pacific to the east of Taiwan on the next day. It crossed the southern part of Taiwan in the morning on 24 August, weakened into a typhoon and entered the northeastern part of the South China Sea that afternoon. Tembin looped over the northeastern part of the South China Sea on the following two days, passing close to Dongsha from north to south on 26 August, where a mean sea level pressure of 968.5 hPa was recorded at 2 p.m. Under the influence of another tropical cyclone Bolaven over the western North Pacific, Tembin turned to move east-northeastwards on 27 August, accelerated northeastwards across the seas east of Taiwan, weakening into a severe tropical storm on 28 August. Tembin then moved north-northeastwards across the East China Sea on 29 August and made landfall over the Republic of Korea in the morning on 30 August. It weakened into a tropical storm that afternoon and became an extratropical cyclone over the eastern part of the country that evening.

The track of Tembin was quite erratic. It passed close to Taiwan twice during its life history. According to press reports, Tembin brought rainstorms to Taiwan during its first passage where at least one person was killed, five people injured and about 130 000 households left without electricity. Tembin came close to Taiwan again on 28 August. Another person was killed, one missing and 11 people injured during its second passage. Tembin also caused the death of two people, injured three others and left 4 000 households without electricity in the Republic of Korea.

In Hong Kong, the Standby Signal No. 1 was issued at 10:40 p.m. on 24 August when Tembin was over the northeastern part of the South China Sea about 540 km east of the territory. Local winds were moderate to fresh north to northwesterly winds, occasionally strong on high ground. Tembin moved slowly closer to the south China coast on 25 August and was closest to Hong Kong at around 1 a.m. on 26 August when it was passing about 290 km to the east-southeast. It started to move slowly away from Hong Kong that day. At the Hong Kong Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 999.6 hPa was recorded at 4:26 p.m. on 26 August when Tembin was about 330 km to the east-southeast. Tembin moved further away from Hong Kong that afternoon and all tropical cyclone warning signals were cancelled at 4:40 p.m.

During the passage of Tembin, a maximum hourly mean wind of 47 km/h was recorded at Tai Mo Shan, while gust of 70 km/h was recorded at Tate's Cairn. A maximum sea level (above chart datum) and maximum storm surge of 2.52 m and 0.49 m was recorded at Waglan Island respectively.

Affected by the subsiding northerly airstream associated with Tembin, it was very hot in Hong Kong from 24 to 26 August. There were a few isolated showers on 25 August, bringing a couple of millimetres of rainfall.

In Hong Kong, two people were swept away by waves in the sea front at Sai Kung. One person was killed while another was injured.

Information on the maximum wind, daily rainfall and maximum sea level reached in Hong Kong during the passage of Tembin is given in Tables 3.5.1 - 3.5.3 respectively. Figures 3.5.1 - 3.5.3 show respectively the track of Tembin, a satellite imagery of Tembin and the radar imagery of the outer rainbands of Tembin.

表 3.5.1　在天秤影響下，本港各站在熱帶氣旋警告信號生效時所錄得的最高陣風、最高每小時平均風速及風向

Table 3.5.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when the tropical cyclone warning signal for Tembin 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)	北	N	36	26/8	02:29	西北	NW	13	25/8	14:00
中環碼頭	Central Pier	西	W	36	25/8	13:01	西	W	22	25/8	08:00
長洲	Cheung Chau	東北偏北	NNE	47	25/8	22:45	東北偏北	NNE	30	26/8	00:00
長洲泳灘	Cheung Chau Beach	東北	NE	45	25/8	22:43	東北	NE	22	26/8	00:00
青洲	Green Island	東北偏北	NNE	54	25/8	22:59	北	N	36	26/8	10:00
香港國際機場	Hong Kong International Airport	西北偏北	NNW	36	25/8	09:46	西北偏北	NNW	31	25/8	11:00
啟德	Kai Tak	北	N	49	26/8	02:05	西北偏西	WNW	20	25/8	08:00
京士柏	King's Park	東北偏北	NNE	40	25/8	23:04	東北偏北	NNE	16	25/8	23:00
		東北	NE	40	26/8	04:13					
流浮山	Lau Fau Shan	北	N	43	25/8	23:02	西北偏西	WNW	25	25/8	18:00
昂坪	Ngong Ping	北	N	51	25/8	06:33	東北	NE	30	26/8	00:00
北角	North Point	東北偏北	NNE	38	25/8	22:51	西	W	20	25/8	16:00
坪洲	Peng Chau	北	N	47	25/8	22:32	西北	NW	25	25/8	15:00
平洲	Ping Chau	東北偏北	NNE	30	26/8	00:25	西北	NW	7	25/8	06:00
西貢	Sai Kung	北	N	47	26/8	10:55	北	N	25	26/8	11:00
沙洲	Sha Chau	西北偏北	NNW	47	25/8	09:17	北	N	31	26/8	08:00
沙螺灣	Sha Lo Wan	北	N	31	25/8	22:33	東北偏北	NNE	13	26/8	00:00
沙田	Sha Tin	東北	NE	34	26/8	12:07	北	N	14	26/8	11:00
石崗	Shek Kong	西北偏西	WNW	30	26/8	14:33	西北	NW	13	25/8	15:00
九龍天星碼頭	Star Ferry (Kowloon)	西	W	34	25/8	13:12	西	W	25	25/8	13:00
打鼓嶺	Ta Kwu Ling	北	N	27	26/8	12:51	北	N	12	26/8	12:00
大美督	Tai Mei Tuk	東北偏北	NNE	47	26/8	08:50	東北偏北	NNE	23	25/8	23:00
							東北偏北	NNE	23	26/8	00:00
大帽山	Tai Mo Shan	東北偏北	NNE	63	26/8	03:22	東北偏北	NNE	47	25/8	23:00
大埔滘	Tai Po Kau	西北偏西	WNW	36	25/8	09:52	西北	NW	16	25/8	14:00
塔門	Tap Mun	北	N	34	26/8	11:27	西北偏西	WNW	19	25/8	08:00
大老山	Tate's Cairn	西北偏北	NNW	70	26/8	02:42	北	N	45	25/8	23:00
將軍澳	Tseung Kwan O	東	E	31	26/8	05:34	北	N	13	26/8	13:00
							西北偏北	NNW	13	26/8	15:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	西北	NW	36	26/8	12:04	西北偏北	NNW	16	26/8	12:00
屯門政府合署	Tuen Mun Government Offices	西北偏西	WNW	41	25/8	12:23	西北偏西	WNW	14	25/8	14:00
橫瀾島	Waglan Island	北	N	45	26/8	06:01	北	N	38	26/8	07:00
濕地公園	Wetland Park	西北偏北	NNW	27	26/8	14:02	西北偏北	NNW	13	25/8	13:00
黃竹坑	Wong Chuk Hang	北	N	38	26/8	10:04	西北偏北	NNW	14	26/8	14:00

表 3.5.2　　天秤影響香港期間，香港天文台總部及其他各站所錄得的日雨量

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

站 Station	八月二十四日 24 Aug	八月二十五日 25 Aug	八月二十六日 26 Aug	總雨量(毫米) Total(mm)
香港天文台 Hong Kong Observatory	0.0	微量 Trace	0.0	微量 Trace
大帽山 Tai Mo Shan	0.5	0.0	0.0	0.5
索罟灣 Sok Kwu Wan	0.0	2.5	0.0	2.5

其他各站均沒有雨量紀錄。

No rainfall was recorded at other stations.

表 3.5.3　　天秤影響香港期間，香港各潮汐站所錄得的最高潮位及最大風暴潮

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

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	2.29	26/8	04:27	0.34	26/8	16:35
石壁	Shek Pik	2.37	26/8	04:55	0.27	26/8	16:35
大廟灣	Tai Miu Wan	2.31	26/8	03:52	0.37	26/8	16:26
大埔滘	Tai Po Kau	2.45	26/8	05:24	0.41	26/8	16:40
尖鼻咀	Tsim Bei Tsui	2.44	26/8	03:56	0.29	26/8	07:05
橫瀾島	Waglan Island	2.52	26/8	04:38	0.49	26/8	16:07

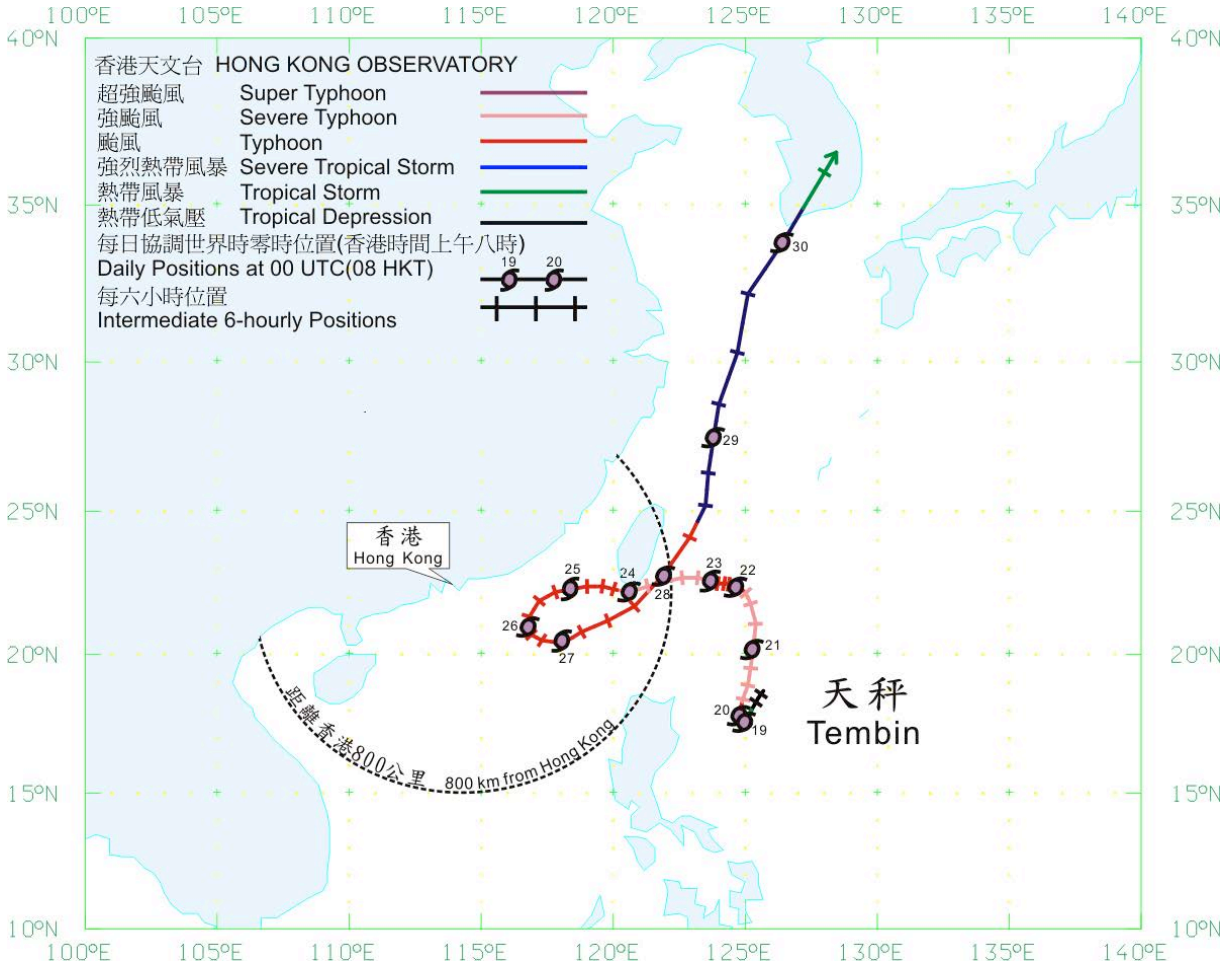


圖 3.5.1 天秤（1214）在二零一二年八月十八日至三十日的路徑圖。
Figure 3.5.1 Track of Tembin (1214) for 18 - 30 August 2012.

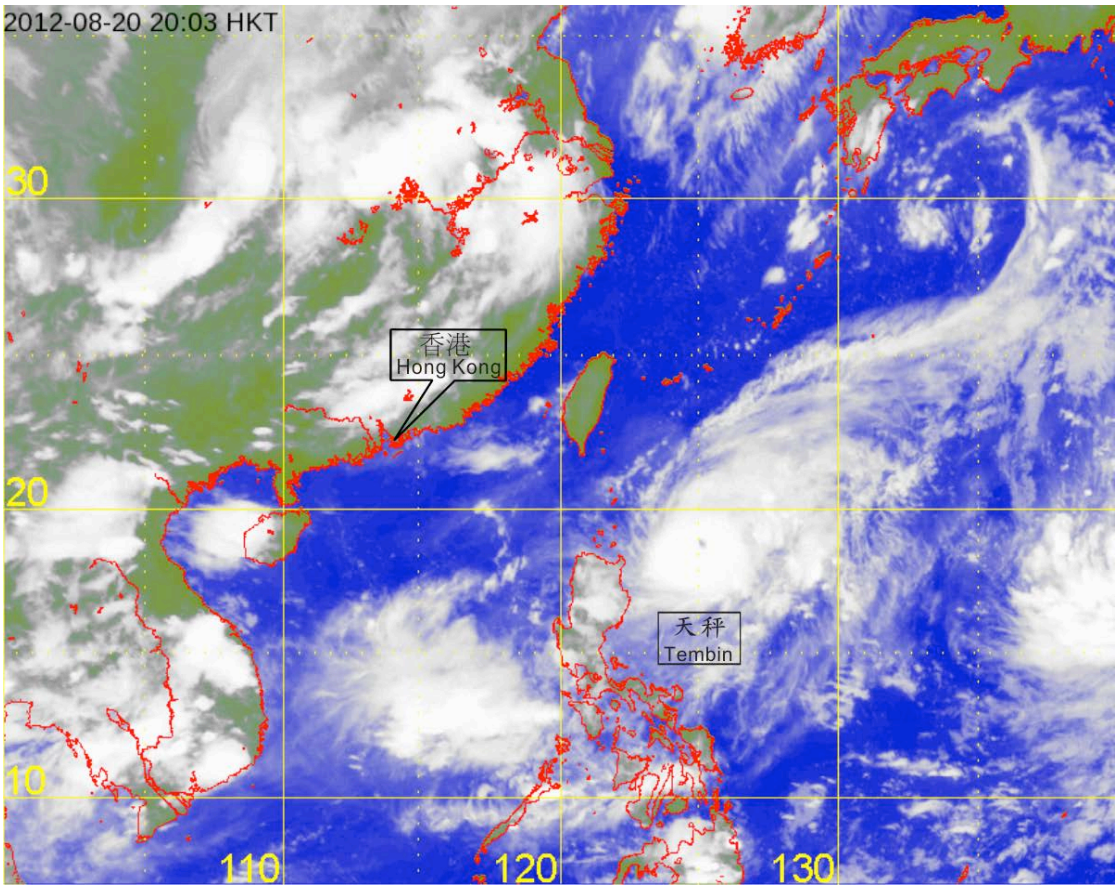


圖 3.5.2　強颱風天秤在二零一二年八月二十日下午 8 時的紅外線衛星圖片，當時天秤達到其最高強度，中心附近估計最高持續風速達到每小時 175 公里。

Figure 3.5.2　Infra-red satellite imagery of Severe Typhoon Tembin at 8 p.m. on 20 August 2012 at its peak intensity with estimated maximum sustained winds of 175 kilometres per hour near its centre.

〔此衛星圖像接收自日本氣象廳的多用途輸送衛星-2。〕

[The satellite imagery was originally captured by the Multi-functional Transport Satellite (MTSAT-2) of Japan Meteorological Agency (JMA).]

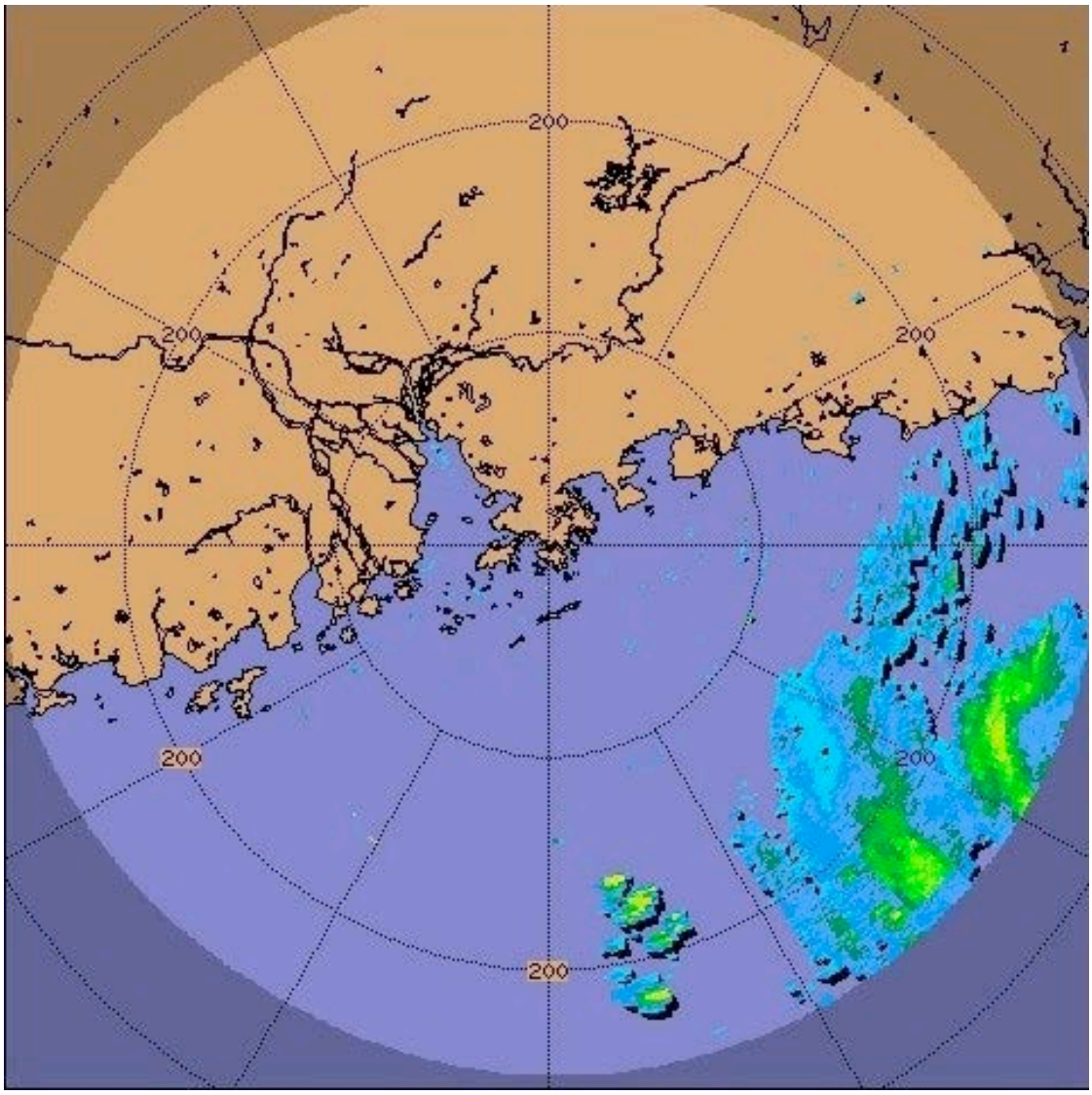


圖 3.5.3　二零一二年八月二十六日上午 1 時颱風天秤外圍雨帶的雷達回波圖像，當時天秤的中心集結在香港東南偏東約 290 公里，最為接近香港。

Figure 3.5.3　Radar echoes of the outer rainbands of Typhoon Tembin captured at 1 a.m. on 26 August 2012. The centre of Tembin was at its closest to Hong Kong at about 290 km to the east-southeast at that time.

第四節　熱帶氣旋統計表

表4.1是二零一二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是天文台在二零一二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是二零一二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是一九五六至二零一二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是一九五六至二零一二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是一九五六至二零一二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 是二零一二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是二零一二年位於香港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二零一二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是自一九四六年以來，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是二零一二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是一九六零至二零一二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。

Section 4 TROPICAL CYCLONE STATISTICS AND TABLES

TABLE 4.1 is a list of tropical cyclones in 2012 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 2012, 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 2012. 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 2012 inclusive.

TABLE 4.5 gives the annual number of tropical cyclones in Hong Kong's area of responsibility between 1956 and 2012 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 1956-2012.

TABLE 4.7 is a summary of meteorological information for each tropical cyclone affecting Hong Kong in 2012, 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 2012.

TABLE 4.8.2 highlights the 10 wettest tropical cyclones in Hong Kong for the period 1884-1939 and 1947-2012.

TABLE 4.9 provides some meteorological information for those typhoons requiring the issuing of the Hurricane Signal No. 10 in Hong Kong since 1946. 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 2012. 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: 1960-2012. The information is based on reports from various government departments, public utility companies and local newspapers.

表 4.1　　二零一二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 2012

熱帶氣旋名稱 Name of tropical cyclone	編號 Code	路徑起點 Beginning of track				最高強度 (估計) Peak intensity (estimated)		路徑終點 End of track				DISP: 消散 Dissipated XT: 變為溫帶氣旋 Became Extratropical
		日期/月份 Date/Month	時間+ Time+	位置 Position 北緯 ºN	東經 ºE	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 ºN	東經 ºE	
熱帶低氣壓	Tropical Depression	-	18 / 2	0000	9.8 112.8	55	1002	20 / 2	1800	8.6 111.0		DISP
強烈熱帶風暴帕卡	Severe Tropical Storm Pakhar	1201	28 / 3	1200	9.5 112.9	105	980	2 / 4	0600	12.5 106.0		DISP
颱風珊瑚	Typhoon Sanvu	1202	21 / 5	1800	12.3 144.6	120	970	27 / 5	1200	28.3 148.7		XT
颱風瑪娃	Typhoon Mawar	1203	1 / 6	0000	13.8 126.1	145	955	6 / 6	0000	31.4 141.3		XT
超強颱風古超	Super Typhoon Guchol	1204	11 / 6	1800	9.4 144.6	205	920	19 / 6	1800	37.3 140.7		XT
強烈熱帶風暴泰利	Severe Tropical Storm Talim	1205	17 / 6	0600	19.2 111.0	90	978	21 / 6	0000	27.2 124.2		DISP
熱帶風暴杜蘇芮	Tropical Storm Doksuri	1206	26 / 6	0000	13.7 132.8	85	988	30 / 6	0000	22.4 112.0		DISP
強烈熱帶風暴卡努	Severe Tropical Storm Khanun	1207	15 / 7	1800	21.7 141.0	90	985	19 / 7	1200	40.0 128.2		DISP
強颱風韋森特	Severe Typhoon Vicente	1208	20 / 7	0600	18.1 123.2	155	950	25 / 7	0000	22.5 106.4		DISP
颱風蘇拉	Typhoon Saola	1209	28 / 7	0000	13.9 127.5	145	955	3 / 8	1800	27.9 116.4		DISP
颱風達維	Typhoon Damrey	1210	28 / 7	1200	25.9 147.1	140	960	3 / 8	1800	38.3 118.1		DISP
強颱風海葵	Severe Typhoon Haikui	1211	2 / 8	0000	23.2 145.0	155	950	9 / 8	1800	30.7 117.3		DISP
強烈熱帶風暴鴻雁	Severe Tropical Storm Kirogi	1212	3 / 8	0600	24.0 161.8	90	990	10 / 8	0000	41.2 149.9		XT
颱風啟德	Typhoon Kai-tak	1213	12 / 8	1200	16.8 129.7	120	975	18 / 8	0600	22.3 104.1		DISP
強颱風天秤	Severe Typhoon Tembin	1214	18 / 8	1200	18.6 125.6	175	942	30 / 8	0600	36.0 128.0		XT
超強颱風布拉萬	Super Typhoon Bolaven	1215	20 / 8	0000	16.8 141.9	185	930	29 / 8	0000	44.6 127.2		XT
超強颱風三巴	Super Typhoon Sanba	1216	10 / 9	1800	9.6 134.4	220	905	17 / 9	1800	40.9 130.6		XT
超強颱風杰拉華	Super Typhoon Jelawat	1217	20 / 9	1800	13.5 131.7	220	905	1 /10	0600	44.0 149.0		XT
強烈熱帶風暴艾雲尼	Severe Tropical Storm Ewiniar	1218	24 / 9	0000	18.6 139.6	90	985	29 / 9	1800	39.2 151.1		XT
強烈熱帶風暴馬力斯	Severe Tropical Storm Maliksi	1219	30 / 9	0000	13.9 150.0	90	984	4 /10	0000	34.1 144.0		XT
強烈熱帶風暴格美	Severe Tropical Storm Gaemi	1220	1 / 10	0600	16.2 114.7	90	982	6 /10	1200	13.3 108.9		DISP
強颱風派比安	Severe Typhoon Prapiroon	1221	7 / 10	0600	17.7 137.4	165	945	19 /10	0600	32.7 145.9		XT
強烈熱帶風暴瑪莉亞	Severe Tropical Storm Maria	1222	14 / 10	0000	17.4 144.1	90	985	18 /10	1800	31.7 156.2		XT
強颱風山神	Severe Typhoon Son-tinh	1223	22 / 10	1200	9.0 131.7	155	950	29 /10	1200	21.4 108.0		DISP
熱帶低氣壓	Tropical Depression	-	14 / 11	0000	8.1 109.7	55	1002	15 /11	1200	9.7 106.9		DISP
超強颱風寶霞	Super Typhoon Bopha	1224	25 / 11	1800	3.4 156.9	210	915	9 /12	0600	18.0 119.5		DISP
熱帶風暴悟空	Tropical Storm Wukong	1225	24 / 12	0600	10.0 131.5	65	996	28 /12	0600	9.3 110.9		DISP

+ 時間為協調世界時。 + Times are given in UTC.

表 4.2　　二零一二年為船舶發出的熱帶氣旋警告
TABLE 4.2　TROPICAL CYCLONE WARNINGS FOR SHIPPING ISSUED IN 2012

熱帶氣旋	Tropical cyclone	發出警告的次數 No. of warnings issued	發出的日期及時間 Date and time of issue of				時段 (小時) Duration (hours)
			首次警告 First warning		末次警告 Last warning		
			日期/月份 Date/Month	時間+ Time+	日期/月份 Date/Month	時間+ Time+	
強烈熱帶風暴帕卡	Severe Tropical Storm Pakhar	6	1 / 4	0600	1 / 4	2100	15
颱風瑪娃	Typhoon Mawar	15	1 / 6	1200	3 / 6	0300	39
* 強烈熱帶風暴泰利	* Severe Tropical Storm Talim	33	17 / 6	0300	21 / 6	0300	96
* 熱帶風暴杜蘇芮	* Tropical Storm Doksuri	18	27 / 6	2100	30 / 6	0000	51
* 強颱風韋森特	* Severe Typhoon Vicente	37	20 / 7	0300	24 / 7	0600	99
颱風蘇拉	Typhoon Saola	38	29 / 7	1200	3 / 8	0300	111
強颱風海葵	Severe Typhoon Haikui	15	6 / 8	1200	8 / 8	0600	42
* 颱風啟德	* Typhoon Kai-tak	32	14 / 8	0600	17 / 8	2100	87
* 強颱風天秤	* Severe Typhoon Tembin	88	19 / 8	0000	29 / 8	1200	252
超強颱風杰拉華	Super Typhoon Jelawat	14	26 / 9	2100	28 / 9	1200	39
強烈熱帶風暴格美	Severe Tropical Storm Gaemi	44	1 /10	0600	6 /10	1200	126
強颱風山神	Severe Typhoon Son-tinh	45	24 /10	0900	29 /10	1800	129
超強颱風寶霞	Super Typhoon Bopha	40	5 /12	0000	9 /12	0900	105
熱帶風暴悟空	Tropical Storm Wukong	18	25 /12	1800	27 /12	2100	51
	共 Total	443					1242

* 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　　二零一二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 2012

摘要 SUMMARY

信號 Signal	次數 No. of occasions	總時段 Total duration	
		時 h	分 min
1	9	167	45
3	7	56	5
8 西北 NW	-	-	
8 西南 SW	-	-	
8 東北 NE	2	7	15
8 東南 SE	3	17	25
9	1	1	25
10	1	2	50
共 Total	23	252	45

詳情 DETAILS

熱帶氣旋 Tropical cyclone	警報發出的次數 No. of warning bulletins issued	信號 Signal	發出 Issued		取消 Cancelled	
			日期/月份 Date/Month	時間* Time*	日期/月份 Date/Month	時間* Time*
強烈熱帶風暴泰利 Severe Tropical Storm Talim	61	1 3 1	17/6 18/6 19/6	16:20 22:40 10:20	18/6 19/6 19/6	22:40 10:20 20:40
熱帶風暴杜蘇芮 Tropical Storm Doksuri	43	1 3 8 東北 NE 8 東南 SE 3 1	28/6 29/6 29/6 30/6 30/6 30/6	21:40 16:20 23:05 00:40 03:25 06:40	29/6 29/6 30/6 30/6 30/6 30/6	16:20 23:05 00:40 03:25 06:40 08:15
強颱風韋森特 Severe Typhoon Vicente	89	1 3 8 東北 NE 9 10 8 東南 SE 3 1	21/7 23/7 23/7 23/7 24/7 24/7 24/7 24/7	15:40 05:20 17:40 23:20 00:45 03:35 10:10 14:40	23/7 23/7 23/7 24/7 24/7 24/7 24/7 24/7	05:20 17:40 23:20 00:45 03:35 10:10 14:40 23:15
颱風啟德 Typhoon Kai-tak	49	1 3 8 東南 SE 3 1	15/8 16/8 16/8 17/8 17/8	20:10 13:40 22:15 06:20 15:20	16/8 16/8 17/8 17/8 17/8	13:40 22:15 06:20 15:20 16:25
強颱風天秤 Severe Typhoon Tembin	48	1	24/8	22:40	26/8	16:40

* 香港時間（協調世界時加八小時）

* Hong Kong Time （UTC + 8 hours）

表 4.4　一九五六至二零一二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 : 1956-2012

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
共 Total	375	317	23	31	60	48	20	13	15131	14
平均 Mean	6.6	5.6	0.4	0.5	1.1	0.8	0.4	0.2	265	28

表 4.5　一九五六至二零一二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 : 1956-2012

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
平均 Mean	15.6	5.9

表 4.6　　一九五六至二零一二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 : 1956-2012

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	352	42 59	161 0 (桃麗達Tilda, 1964)	4 30 (熱帶低氣壓 T.D., 2000)	265 28	570 15 (1964)	36 35 (1959)
三號或以上 3 or higher	235	29 29	124 15 (瑪麗Mary, 1960)	4 5 (熱帶低氣壓 T.D., 2006)	121 32	306 35 (1974)	15 5 (2004)
八號或以上 8 or higher	84	14 46	66 50 (瑪麗Mary, 1960)	2 40 (雲茵Wynne, 1984)	21 45	100 55 (1964)	0 0
8 西北 NW	23	5 47	15 45	1 30	2 20	18 0	0 0
8 西南 SW	31	4 49	10 45	2 0	2 37	16 10	0 0
8 東北 NE	60	7 41	35 35	1 35	8 5	40 20	0 0
8 東南 SE	48	7 20	21 45	0 20	6 11	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 32	19 25 (1964)	0 0
10	13	6 17	11 0 (約克York, 1999)	2 30 (愛麗斯Alice, 1961)	1 26	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　二零一二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 2012

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
強烈熱帶風暴泰利 Severe Tropical Storm Talim	6	19	17	東南 SE	260	東南 SE 14	978	6	19	17:23 - 17:28	992.2	0.38	0.33	0.34	0.52	0.34	0.39
										18:00	992.5						
熱帶風暴杜蘇芮 Tropical Storm Doksuri	6	30	00-01	西南 SW	70	西北偏西 WNW 34	988	6	29	19:22	997.8	0.41	0.48	0.43	0.70	0.71	0.55
										16:00	998.1						
強颱風韋森特 Severe Typhoon Vicente	7	24	01-02	西南 SW	100	西北 NW 20	950	7	24	00:53	986.0	1.11	1.47	1.19	1.47	1.51	-
										01:00	986.3						
颱風啟德 Typhoon Kai-tak	8	17	00	西南偏南 SSW	260	西北偏西 WNW 24	975	8	16	15:06 - 17:26 #	999.1	0.43	0.58	0.56	0.59	0.60	0.52
										17:00	999.2						
強颱風天秤 Severe Typhoon Tembin	8	26	01	東南偏東 ESE	290	西南偏南 SSW 13	965	8	26	16:26 - 16:28	999.6	0.34	0.27	0.37	0.41	0.29	0.49
										16:00	999.9						

* 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
強烈熱帶風暴泰利 Severe Tropical Storm Talim	6	東南偏東 ESE 20	東 E 31	東北偏東 ENE 45	東南偏東 ESE 23	東 E 36	東北偏東 ENE 49	東南偏東 ESE 49	東南偏東 ESE 47	東 E 59
熱帶風暴杜蘇芮 Tropical Storm Doksuri	6	東南偏東 ESE 34	東南偏東 ESE 49	東北 NE 85	東北偏東 ENE 38	東南偏東 ESE 52	東北偏東 ENE 88	東北偏東 ENE 76	東南偏東 ESE 75	東北偏東 ENE 104
強颱風韋森特 Severe Typhoon Vicente	7	東南偏東 ESE 56	東 E 85	東 E 108	東南偏東 ESE 63	東南偏東 ESE 96	東南 SE 113	東南偏東 ESE 110	東 E 133	東南偏東 ESE 149
颱風啟德 Typhoon Kai-tak	8	東南偏東 ESE 31	東南偏東 ESE 47	東北偏東 ENE 70	東南偏東 ESE 36	東南偏東 ESE 52	東北偏東 ENE 75	東 E 72	東南偏東 ESE 75	東南 SE 88
強颱風天秤 Severe Typhoon Tembin	8	東北偏北 NNE 19	西北偏北 NNW 31	北 N 38	東北偏北 NNE 25	西北偏北 NNW 31	北 N 40	東北偏北 / 東北 NNE / NE 40	西北偏北 NNW 36	北 N 45

表 4.8.1　　二零一二年位於香港600公里範圍內的熱帶氣旋及其為本港帶來的雨量

TABLE 4.8.1　RAINFALL ASSOCIATED WITH EACH TROPICAL CYCLONE THAT CAME WITHIN 600 KM OF HONG KONG IN 2012

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)
強烈熱帶風暴泰利 Severe Tropical Storm Talim	(T_1) 17 / 6 1400 - (T_2) 20 / 6 1700	21.2	31.1	45.3	47.2	68.4
熱帶風暴杜蘇芮 Tropical Storm Doksuri	(T_1) 29 / 6 0300 - (T_2) 30 / 6 0800	28.6	16.1	17.7	17.7	46.3
強颱風韋森特 Severe Typhoon Vicente	(T_1) 21 / 7 1300 - (T_2) 24 / 7 2200	214.3	81.8	110.8	136.5	350.8
颱風啟德 Typhoon Kai-tak	(T_1) 16 / 8 0100 - (T_2) 17 / 8 1800	15.4	0.1	0.1	0.1	15.5
強颱風天秤 Severe Typhoon Tembin	(T_1) 24 / 8 1500 - (T_2) 27 / 8 2000	微量 Trace	0.0	2.4	2.4	2.4
					共 Total	483.4

*　香港時間（協調世界時加八小時）。

T_1 - 熱帶氣旋首次出現於香港600公里範圍內的時間。

T_2 - 熱帶氣旋在香港600公里範圍內消散或離開該範圍的時間。

*　Hong Kong Time （UTC + 8 hours）.

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

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

表 4.8.2　一八八四至一九三九年及一九四七至二零一二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, 1947-2012)

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
1995	8	海倫 Helen	241.4	146.2	235.2	239.5	480.9
1904	8	熱帶氣旋 T.C.	446.5 #	0.0 #	3.7 #	26.7 #	473.2

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。

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.

表 4.9　　一九四六至二零一二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 1946-2012

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

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　　二零一二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 2012

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 Public works facilities	公用業務 Public utilities	物業單位 Property	山泥傾瀉及斜坡倒塌 Landslip and collapse of slope	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
強烈熱帶風暴泰利 Severe Tropical Storm Talim	6				1 個 unit	1 宗 case						
熱帶風暴杜蘇芮 Tropical Storm Doksuri	6		空曠地區 Open space: 2 處 sites			2 宗 cases						
強颱風韋森特 Severe Typhoon Vicente	7	農地 Farmland: 320 公頃 hectares 農作物 Crops: 1872 噸 tons	道路 Road: 3 處 sites 空曠地區 Open space: 2 處 sites 遊樂場 Playground: 4 處sites 行人道 Pedestrian pavement: 1 處 site 小徑及通道 Footpath & access road: 17 處 sites	鐵路 Railway: 3 處 sites 巴士擋風玻璃 Windscreens of bus: 7 宗 cases	5 個 units	52 宗 cases	28.860	3.900	0.272	0.624	0.028	33.684
颱風啟德 Typhoon Kai-tak	8		道路 Road: 4 處 sites		1 個 unit	4 宗 cases				0.078		0.078

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　　一九六零至二零一二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 : 1960-2012

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

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

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
1998	7 / 8 - 11 / 8	S.T.S. Penny	彭妮	1	0	1	0	0	0
	12 / 9 - 14 / 9	T.D. -	-	0	0	10	0	0	0
	15 /10 - 27 /10	T. Babs	寶絲	0	0	14	0	0	0
1999	28 / 4 - 2 / 5	T. Leo	利奧	0	0	14	0	0	0
	2 / 6 - 8 / 6	T. Maggie	瑪姬	0	0	5	0	2	0
	25 / 7 - 28 / 7	T.S. -	-	0	0	18	0	0	0
	19 / 8 - 23 / 8	T. Sam	森姆	4	0	328	0	0	0
	12 / 9 - 17 / 9	T. York	約克	2	0	500	3	*	*
	24 / 9 - 26 / 9	S.T.S. Cam	錦雯	1	0	23	0	0	0
2000	15 / 7 - 16 / 7	T.D. -	-	0	1	6	0	0	0
	27 / 8 - 1 / 9	S.T.S. Maria	瑪莉亞	2	0	0	0	0	0
	5 / 9 - 10 / 9	T. Wukong	悟空	0	0	1	0	0	1
2001	30 / 6 - 3 / 7	T. Durian	榴槤	0	0	1	0	0	0
	1 / 7 - 8 / 7	T. Utor	尤特	1	0	1	0	1	0
	23 / 7 - 26 / 7	T. Yutu	玉兔	0	0	10	0	0	0
	28 / 8 - 1 / 9	T.S. Fitow	菲特	2	0	0	0	0	0
2002	15 / 8 - 20 / 8	S.T.S. Vongfong	黃蜂	0	0	2	0	0	1
	10 / 9 - 13 / 9	S.T.S. Hagupit	黑格比	0	0	32	0	0	3
2003	16 / 7 - 23 / 7	S.T.S. Koni	天鵝	0	0	15	0	0	0
	17 / 7 - 25 / 7	T. Imbudo	伊布都	1	0	45	0	2	8
	17 / 8 - 26 / 8	T. Krovanh	科羅旺	0	0	11	0	0	2
	29 / 8 - 3 / 9	T. Dujuan	杜鵑	0	4	24	0	1	4
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

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.

第五節　二零一二年熱帶氣旋的位置及強度數據

以下是二零一二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, 2012

Six-hourly position and intensity data are tabulated in this section for the following tropical cyclones in 2012 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) SuperT. : - super typhoon

熱帶低氣壓由二月十八日至二十一日的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL DEPRESSION OF 18 - 21 FEBRUARY

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
二月 FEB	18	0000	T.D.	1006	13	9.8	112.8
		0600	T.D.	1004	16	9.8	112.7
		1200	T.D.	1004	16	9.8	112.6
		1800	T.D.	1004	16	9.8	112.5
	19	0000	T.D.	1004	16	9.7	112.5
		0600	T.D.	1004	16	9.8	112.3
		1200	T.D.	1002	16	9.8	112.2
		1800	T.D.	1002	16	9.7	112.1
	20	0000	T.D.	1004	16	9.5	111.9
		0600	T.D.	1004	16	8.9	111.6
		1200	T.D.	1004	16	8.8	111.4
		1800	T.D.	1005	16	8.6	111.0
			消散 Dissipated				

強烈熱帶風暴帕卡(1201)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM PAKHAR (1201)

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
三月 MAR	28	1200	T.D.	1004	13	9.5	112.9
		1800	T.D.	1004	13	9.4	112.7
	29	0000	T.D.	1002	16	9.4	112.5
		0600	T.S.	998	18	9.4	112.3
		1200	T.S.	996	21	9.5	112.0
		1800	T.S.	990	23	9.6	111.8
	30	0000	S.T.S.	985	25	9.7	111.5
		0600	S.T.S.	980	28	9.8	111.2
		1200	S.T.S.	980	28	9.8	110.9
		1800	S.T.S.	980	28	9.8	110.7
	31	0000	S.T.S.	980	28	9.8	110.3
		0600	S.T.S.	980	28	9.8	109.8
		1200	S.T.S.	980	28	9.8	109.4
		1800	S.T.S.	980	28	9.8	109.1
四月 APR	1	0000	S.T.S.	985	25	9.8	108.6
		0600	S.T.S.	988	25	10.0	108.0
		1200	T.S.	992	23	10.6	107.2
		1800	T.S.	998	18	11.1	106.8
	2	0000	T.D.	1000	16	12.0	106.5
		0600	T.D.	1002	13	12.5	106.0
			消散 Dissipated				

颱風珊瑚(1202)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON SANVU (1202)

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	21	1800	T.D.	1002	16	12.3	144.6
	22	0000	T.D.	1002	16	13.2	144.0
		0600	T.S.	998	18	13.9	143.3
		1200	T.S.	998	18	14.7	142.4
		1800	T.S.	995	21	15.2	141.8
	23	0000	T.S.	995	21	16.1	141.0
		0600	T.S.	992	23	16.7	140.5
		1200	S.T.S.	985	25	17.2	139.8
		1800	S.T.S.	985	25	17.8	139.6
	24	0000	S.T.S.	985	25	18.7	139.3
		0600	S.T.S.	980	28	19.7	139.1
		1200	T.	972	33	20.7	139.1
		1800	T.	972	33	21.5	139.0
	25	0000	T.	970	33	22.2	139.2
		0600	T.	970	33	23.0	139.5
		1200	T.	970	33	23.6	139.9
		1800	T.	970	33	23.9	140.4
	26	0000	T.	972	33	24.5	141.1
		0600	T.	972	33	24.8	142.0
		1200	S.T.S.	980	31	25.1	143.3
		1800	S.T.S.	985	28	25.4	144.6
	27	0000	T.S.	990	23	26.5	146.0
		0600	T.S.	990	23	27.5	147.0
		1200	T.S.	990	23	28.3	148.7
			變為溫帶氣旋 Became Extratropical				

颱風瑪娃(1203)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON MAWAR (1203)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
六月 JUN	1	0000	T.D.	1000	13	13.8	126.1
		0600	T.D.	998	16	14.9	125.4
		1200	T.S.	995	18	15.6	125.0
		1800	T.S.	992	21	16.0	124.7
	2	0000	T.S.	988	23	16.6	124.3
		0600	S.T.S.	982	25	17.2	124.2
		1200	S.T.S.	975	31	17.8	124.3
		1800	T.	970	33	18.1	124.5
	3	0000	T.	965	36	18.7	124.9
		0600	T.	965	36	19.2	125.4
		1200	T.	965	36	20.0	125.7
		1800	T.	960	39	20.9	125.9
	4	0000	T.	955	41	21.6	126.2
		0600	T.	955	41	22.6	126.7
		1200	T.	960	39	23.4	127.5
		1800	T.	960	39	24.2	128.7
	5	0000	T.	965	36	26.0	130.3
		0600	S.T.S.	975	31	27.4	132.3
		1200	S.T.S.	975	31	28.4	134.8
		1800	S.T.S.	980	28	29.8	137.6
	6	0000	S.T.S.	985	25	31.4	141.3
			變為溫帶氣旋				
			Became Extratropical				

超強颱風古超(1204)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON GUCHOL (1204)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
六月 JUN	11	1800	T.D.	1004	13	9.4	144.6
	12	0000	T.D.	1000	16	9.6	143.7
		0600	T.D.	1000	16	9.5	142.8
		1200	T.S.	996	18	9.5	142.2
		1800	T.S.	996	18	9.4	141.5
	13	0000	T.S.	992	21	9.4	140.7
		0600	T.S.	992	21	10.1	139.3
		1200	T.S.	992	21	10.8	138.0
		1800	T.S.	988	23	11.0	136.8
	14	0000	T.S.	988	23	11.0	135.2
		0600	S.T.S.	984	25	10.9	133.8
		1200	S.T.S.	984	25	10.7	132.9
		1800	S.T.S.	980	28	10.5	132.3
	15	0000	S.T.S.	975	31	10.4	131.7
		0600	T.	970	33	10.6	131.1
		1200	T.	970	33	11.2	130.8
		1800	T.	970	33	11.9	130.5
	16	0000	T.	965	36	12.8	130.2
		0600	S.T.	950	43	14.0	129.5
		1200	Super T.	935	52	14.9	128.8
		1800	Super T.	920	57	16.2	128.3
	17	0000	Super T.	920	57	17.3	127.6
		0600	Super T.	920	57	18.4	127.3
		1200	Super T.	920	57	19.7	126.9
		1800	Super T.	925	54	20.9	127.0
	18	0000	Super T.	930	52	22.3	127.3
		0600	S.T.	935	49	23.9	127.8
		1200	S.T.	945	46	25.3	128.7
		1800	T.	955	41	27.4	130.1
	19	0000	T.	960	36	29.9	131.8
		0600	T.	960	36	32.4	134.7
		1200	S.T.S.	970	31	35.1	137.6
		1800	S.T.S. 變為溫帶氣旋 Became Extratropical	985	25	37.3	140.7

強烈熱帶風暴泰利(1205)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM TALIM (1205)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
六月 JUN	17	0600	T.D.	993	16	19.2	111.0
		1200	T.D.	992	16	19.1	111.5
		1800	T.D.	992	16	19.1	111.8
	18	0000	T.S.	986	21	19.0	112.4
		0600	T.S.	982	23	19.0	112.8
		1200	T.S.	982	23	19.0	113.4
		1800	S.T.S.	978	25	19.2	114.0
	19	0000	S.T.S.	978	25	19.6	114.8
		0600	S.T.S.	978	25	20.2	115.5
		1200	S.T.S.	978	25	20.8	116.1
		1800	S.T.S.	978	25	21.6	116.9
	20	0000	T.S.	985	23	22.8	117.9
		0600	T.S.	985	23	23.9	118.9
		1200	T.S.	985	23	24.7	120.1
		1800	T.S.	990	21	25.8	121.6
	21	0000	T.D. 消散 Dissipated	998	16	27.2	124.2

熱帶風暴杜蘇芮(1206)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM DOKSURI(1206)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
六月 JUN	26	0000	T.D.	1000	13	13.7	132.8
		0600	T.D.	1000	13	13.9	131.5
		1200	T.D.	998	16	14.3	130.6
		1800	T.S.	996	18	14.7	129.4
	27	0000	T.S.	992	21	15.2	127.7
		0600	T.S.	992	21	15.8	127.1
		1200	T.S.	992	21	16.7	126.4
		1800	T.S.	992	21	17.6	125.5
	28	0000	T.S.	988	23	18.5	123.9
		0600	T.S.	988	23	19.2	122.5
		1200	T.S.	988	23	19.9	121.0
		1800	T.S.	988	23	20.3	119.6
	29	0000	T.S.	988	23	20.7	118.0
		0600	T.S.	988	23	21.1	116.3
		1200	T.S.	988	23	21.3	114.9
		1800	T.S.	992	21	21.9	113.5
	30	0000	T.D. 消散 Dissipated	998	13	22.4	112.0

強烈熱帶風暴卡努(1207)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM KHANUN (1207)

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	15	1800	T.D.	1004	13	21.7	141.0
	16	0000	T.D.	1000	16	22.6	138.0
		0600	T.D.	1000	16	24.1	136.2
		1200	T.S.	998	18	24.8	134.6
		1800	T.S.	998	18	25.6	132.8
	17	0000	T.S.	995	18	26.2	131.0
		0600	T.S.	992	21	26.8	129.7
		1200	T.S.	992	21	27.7	128.5
		1800	T.S.	988	23	28.5	127.5
	18	0000	S.T.S.	985	25	30.0	126.8
		0600	S.T.S.	985	25	31.9	126.1
		1200	T.S.	988	23	33.8	126.2
		1800	T.S.	994	18	35.8	126.5
	19	0000	T.D.	998	13	38.0	127.6
		0600	T.D.	999	13	39.5	128.0
		1200	T.D.	1000	13	40.0	128.2
			消散 Dissipated				

強颱風韋森特(1208)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON VICENTE (1208)

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	20	0600	T.D.	1000	13	18.1	123.2
		1200	T.D.	1000	13	18.5	122.7
		1800	T.D.	1000	13	18.8	121.9
	21	0000	T.D.	998	16	19.3	120.4
		0600	T.D.	998	16	19.4	118.7
		1200	T.D.	998	16	19.5	117.5
		1800	T.S.	994	18	19.5	116.5
	22	0000	T.S.	992	21	19.5	115.5
		0600	T.S.	986	23	19.4	115.2
		1200	T.S.	986	23	19.2	115.1
		1800	S.T.S.	984	25	19.2	115.1
	23	0000	S.T.S.	980	28	19.8	115.2
		0600	T.	970	33	20.5	114.8
		1200	T.	965	36	21.0	114.2
		1800	S.T.	950	43	21.7	113.4
	24	0000	T.	970	33	22.4	112.2
		0600	T.S.	986	23	22.8	110.7
		1200	T.S.	990	18	22.9	109.1
		1800	T.D.	992	13	22.7	107.3
	25	0000	T.D.	992	13	22.5	106.4
			消散 Dissipated				

颱風蘇拉(1209)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON SAOLA (1209)

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	28	0000	T.D.	1000	13	13.9	127.5
		0600	T.D.	998	16	14.7	126.9
		1200	T.S.	994	18	15.5	126.4
		1800	T.S.	992	21	16.2	125.8
	29	0000	T.S.	990	23	16.9	125.5
		0600	S.T.S.	985	25	18.0	125.2
		1200	S.T.S.	980	28	18.6	125.0
		1800	S.T.S.	980	28	19.1	124.9
	30	0000	S.T.S.	975	31	19.6	124.9
		0600	S.T.S.	975	31	20.2	124.9
		1200	T.	970	33	20.7	124.5
		1800	T.	970	33	20.9	124.2
	31	0000	T.	970	33	21.0	124.1
		0600	T.	970	33	21.3	124.1
		1200	T.	970	33	21.7	124.0
		1800	T.	970	33	22.2	123.8
八月 AUG	1	0000	T.	970	33	22.8	123.7
		0600	T.	960	39	23.4	123.4
		1200	T.	960	39	23.9	123.0
		1800	T.	955	41	24.2	122.1
	2	0000	T.	965	36	24.0	121.9
		0600	T.	970	33	24.9	122.0
		1200	T.	970	33	25.7	121.4
		1800	S.T.S.	975	31	26.2	120.7
	3	0000	S.T.S.	984	25	26.9	120.1
		0600	T.S.	990	21	27.5	118.4
		1200	T.S.	991	18	27.7	117.3
		1800	T.D.	992	16	27.9	116.4
			消散 Dissipated				

颱風達維(1210)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON DAMREY (1210)

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	28	1200	T.D.	1004	13	25.9	147.1
		1800	T.D.	1000	16	26.0	146.8
	29	0000	T.D.	1000	16	26.0	146.5
		0600	T.D.	998	16	25.9	146.0
		1200	T.D.	998	16	25.7	145.8
		1800	T.S.	995	18	25.4	145.6
	30	0000	T.S.	995	18	25.3	145.1
		0600	T.S.	995	18	25.8	144.6
		1200	T.S.	990	21	26.5	144.2
		1800	T.S.	985	23	27.7	142.8
	31	0000	T.S.	985	23	28.3	141.0
		0600	S.T.S.	982	25	28.6	138.9
		1200	S.T.S.	980	28	29.1	137.0
		1800	S.T.S.	980	28	29.6	134.9
八月 AUG	1	0000	S.T.S.	980	28	30.1	132.8
		0600	S.T.S.	975	31	30.5	130.6
		1200	S.T.S.	975	31	31.0	128.8
		1800	S.T.S.	975	31	31.8	126.8
	2	0000	T.	970	33	32.8	124.5
		0600	T.	960	39	33.8	122.2
		1200	T.	970	33	34.4	120.4
		1800	S.T.S.	980	31	34.7	119.2
	3	0000	S.T.S.	985	25	36.0	118.2
		0600	T.S.	992	21	36.9	117.7
		1200	T.S.	994	18	37.6	117.9
		1800	T.D.	998	16	38.3	118.1
			消散 Dissipated				

強颱風海葵(1211)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON HAIKUI (1211)

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	2	0000	T.D.	1000	13	23.2	145.0
		0600	T.D.	1000	13	23.3	144.4
		1200	T.D.	1000	13	23.4	143.6
		1800	T.D.	998	16	23.6	142.4
	3	0000	T.S.	995	18	23.7	141.5
		0600	T.S.	995	18	24.1	140.3
		1200	T.S.	995	18	24.5	138.6
		1800	T.S.	992	18	24.9	136.8
	4	0000	T.S.	992	18	24.9	134.4
		0600	T.S.	985	21	25.3	133.0
		1200	T.S.	985	21	26.0	131.3
		1800	T.S.	985	21	26.3	130.3
	5	0000	T.S.	980	23	26.8	129.1
		0600	T.S.	980	23	27.1	128.5
		1200	S.T.S.	978	25	27.4	127.2
		1800	S.T.S.	978	25	27.2	126.5
	6	0000	S.T.S.	975	28	27.3	126.1
		0600	S.T.S.	973	31	27.4	125.5
		1200	T.	970	33	27.4	124.8
		1800	T.	970	33	27.3	124.5
	7	0000	T.	965	36	27.3	124.1
		0600	T.	960	39	27.6	123.6
		1200	S.T.	950	43	28.1	123.0
		1800	T.	955	41	28.8	122.2
	8	0000	T.	970	36	29.3	121.5
		0600	T.	975	33	30.1	120.5
		1200	S.T.S.	982	25	30.4	119.5
		1800	T.S.	988	21	30.6	118.6
	9	0000	T.S.	991	18	30.7	118.1
		0600	T.S.	992	18	30.7	117.7
		1200	T.D.	993	16	30.7	117.5
		1800	T.D.	994	13	30.7	117.3
			消散 Dissipated				

強烈熱帶風暴鴻雁(1212)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM KIROGI (1212)

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	3	0600	T.D.	1008	13	24.0	161.8
		1200	T.D.	1008	13	23.8	162.1
		1800	T.D.	1008	13	23.6	162.4
	4	0000	T.D.	1008	13	23.7	162.7
		0600	T.D.	1006	13	23.7	162.5
		1200	T.D.	1006	13	23.6	162.1
		1800	T.D.	1006	13	23.1	161.6
	5	0000	T.D.	1006	13	22.9	161.7
		0600	T.D.	1004	16	23.3	162.3
		1200	T.D.	1004	16	24.1	162.7
		1800	T.D.	1004	16	25.1	162.5
	6	0000	T.D.	1004	16	25.9	162.5
		0600	T.D.	1002	16	26.8	162.7
		1200	T.S.	998	18	27.7	162.6
		1800	T.S.	998	18	28.4	162.3
	7	0000	T.S.	998	18	29.0	161.9
		0600	T.S.	996	21	29.7	161.4
		1200	T.S.	996	21	30.1	160.8
		1800	T.S.	994	21	30.8	160.3
	8	0000	T.S.	994	21	31.4	159.5
		0600	T.S.	994	21	31.8	158.2
		1200	T.S.	994	21	32.6	157.2
		1800	T.S.	994	21	33.4	156.1
	9	0000	T.S.	994	23	34.4	155.0
		0600	S.T.S.	990	25	36.0	154.1
		1200	T.S.	992	23	37.6	153.0
		1800	T.S.	992	23	39.3	151.5
	10	0000	T.S. 變為溫帶氣旋 Became Extratropical	994	23	41.2	149.9

颱風啟德(1213)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON KAI-TAK (1213)

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	12	1200	T.D.	1000	13	16.8	129.7
		1800	T.D.	999	13	16.9	129.3
	13	0000	T.D.	998	16	16.8	128.2
		0600	T.S.	994	18	16.8	127.6
		1200	T.S.	994	18	16.9	127.0
		1800	T.S.	990	21	17.1	126.8
	14	0000	T.S.	990	21	17.6	126.2
		0600	T.S.	990	21	17.7	125.0
		1200	T.S.	990	21	17.6	124.0
		1800	T.S.	986	23	17.4	122.9
	15	0000	T.S.	986	23	17.9	122.0
		0600	T.S.	986	23	18.6	121.0
		1200	S.T.S.	984	25	19.0	119.8
		1800	S.T.S.	982	28	19.1	118.4
	16	0000	S.T.S.	980	31	19.1	117.1
		0600	T.	975	33	19.3	115.7
		1200	T.	975	33	19.8	114.3
		1800	T.	975	33	20.2	112.9
	17	0000	T.	975	33	20.6	111.5
		0600	T.	975	33	21.0	110.0
		1200	S.T.S.	978	31	21.4	108.1
		1800	S.T.S.	980	28	21.6	106.8
	18	0000	T.S.	992	21	21.9	105.4
		0600	T.D.	997	16	22.3	104.1
			消散 Dissipated				

強颱風天秤(1214)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON TEMBIN (1214)

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	18	1200	T.D.	1000	13	18.6	125.6
		1800	T.D.	998	16	18.3	125.4
	19	0000	T.S.	995	18	17.6	125.0
		0600	T.S.	988	23	17.6	124.9
		1200	S.T.S.	985	25	17.6	124.8
		1800	S.T.S.	982	28	17.7	124.6
	20	0000	T.	970	33	17.9	124.8
		0600	S.T.	950	43	18.4	124.9
		1200	S.T.	942	49	18.9	125.1
		1800	S.T.	942	49	19.5	125.2
	21	0000	S.T.	942	49	20.2	125.3
		0600	S.T.	942	49	21.1	125.4
		1200	S.T.	945	46	21.8	125.2
		1800	S.T.	950	43	22.2	125.0
	22	0000	T.	955	41	22.4	124.7
		0600	T.	955	41	22.5	124.4
		1200	T.	955	41	22.5	124.2
		1800	T.	955	41	22.5	123.9
	23	0000	S.T.	950	43	22.6	123.7
		0600	S.T.	950	43	22.7	123.2
		1200	S.T.	950	43	22.7	122.6
		1800	S.T.	945	46	22.4	121.3
	24	0000	S.T.	950	43	22.2	120.6
		0600	T.	965	36	22.3	120.0
		1200	T.	970	33	22.4	119.6
		1800	T.	970	33	22.4	119.0
	25	0000	T.	970	33	22.3	118.4
		0600	T.	970	33	22.2	117.8
		1200	T.	970	33	21.9	117.2
		1800	T.	965	36	21.3	116.8
	26	0000	T.	960	39	21.0	116.9
		0600	T.	955	41	20.8	116.8
		1200	T.	955	41	20.7	116.9
		1800	T.	960	39	20.5	117.3
	27	0000	T.	965	36	20.4	118.1
		0600	T.	965	36	20.8	118.8
		1200	T.	965	36	21.2	119.8
		1800	T.	965	36	21.7	120.8
	28	0000	T.	970	33	22.8	121.9
		0600	T.	970	33	24.1	122.9
		1200	S.T.S.	975	31	25.2	123.5
		1800	S.T.S.	975	31	26.3	123.6
	29	0000	S.T.S.	975	31	27.5	123.8
		0600	S.T.S.	975	31	28.6	124.0
		1200	S.T.S.	975	31	30.3	124.7
		1800	S.T.S.	980	28	32.2	125.1
	30	0000	S.T.S.	985	25	33.8	126.4
		0600	T.S.	990	23	36.0	128.0
			變為溫帶氣旋 Became Extratropical				

超強颱風布拉萬(1215)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON BOLAVEN (1215)

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	20	0000	T.D.	1000	13	16.8	141.9
		0600	T.D.	998	16	17.4	141.4
		1200	T.D.	996	16	17.9	141.3
		1800	T.S.	990	21	18.1	141.2
	21	0000	S.T.S.	985	25	18.2	140.8
		0600	S.T.S.	985	25	18.4	140.5
		1200	S.T.S.	980	28	18.9	140.1
		1800	S.T.S.	975	31	19.1	139.5
	22	0000	T.	970	33	19.2	138.8
		0600	T.	970	33	19.3	138.0
		1200	T.	965	36	19.5	137.3
		1800	T.	965	36	19.6	136.5
	23	0000	T.	960	39	19.8	135.8
		0600	T.	960	39	20.0	135.3
		1200	T.	955	41	20.2	134.4
		1800	T.	955	41	20.3	133.9
	24	0000	S.T.	950	43	21.1	133.7
		0600	S.T.	950	43	21.7	133.2
		1200	S.T.	950	43	22.3	133.0
		1800	S.T.	945	46	22.9	132.7
	25	0000	S.T.	940	49	23.5	132.1
		0600	S.T.	940	49	24.2	131.3
		1200	Super T.	930	52	24.4	130.7
		1800	Super T.	930	52	24.8	130.1
	26	0000	Super T.	930	52	25.3	129.5
		0600	Super T.	930	52	26.0	128.9
		1200	S.T.	930	49	26.6	128.0
		1800	S.T.	935	49	27.5	127.4
	27	0000	S.T.	940	46	28.4	126.8
		0600	S.T.	945	43	29.9	126.0
		1200	T.	950	41	31.3	125.4
		1800	T.	955	36	33.0	125.1
	28	0000	T.	960	33	34.7	125.1
		0600	S.T.S.	965	31	36.4	124.6
		1200	S.T.S.	975	28	38.7	124.5
		1800	T.S.	980	23	41.8	125.9
	29	0000	T.S. 變為溫帶氣旋 Became Extratropical	984	21	44.6	127.2

超強颱風三巴(1216)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON SANBA (1216)

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	10	1800	T.D.	1000	13	9.6	134.4
	11	0000	T.D.	998	16	10.0	134.3
		0600	T.S.	995	18	10.6	134.0
		1200	T.S.	995	18	11.3	133.3
		1800	T.S.	992	21	11.9	132.6
	12	0000	T.S.	988	23	12.6	131.8
		0600	S.T.S.	984	25	13.1	131.0
		1200	S.T.S.	975	31	13.7	130.6
		1800	T.	970	33	14.2	130.1
	13	0000	T.	955	41	14.8	129.8
		0600	S.T.	945	46	15.6	129.5
		1200	Super T.	920	57	16.3	129.6
		1800	Super T.	905	61	17.2	129.7
	14	0000	Super T.	905	61	18.1	129.7
		0600	Super T.	905	61	19.1	129.8
		1200	Super T.	920	57	20.2	129.7
		1800	Super T.	920	57	21.4	129.5
	15	0000	Super T.	925	54	22.3	129.1
		0600	Super T.	925	54	23.4	128.8
		1200	Super T.	930	52	24.5	128.5
		1800	Super T.	930	52	25.6	128.2
	16	0000	Super T.	930	52	27.0	128.1
		0600	Super T.	930	52	28.8	128.1
		1200	S.T.	940	49	30.6	127.8
		1800	S.T.	950	43	32.2	127.9
	17	0000	T.	955	41	34.1	128.1
		0600	S.T.S.	975	31	36.2	128.6
		1200	T.S.	990	23	38.6	129.5
		1800	T.S.	990	23	40.9	130.6
			變為溫帶氣旋 Became Extratropical				

超強颱風杰拉華(1217)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON JELAWAT (1217)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
九月 SEP	20	1800	T.D.	1004	16	13.5	131.7
	21	0000	T.D.	1002	16	13.1	130.9
		0600	T.S.	992	21	12.5	130.4
		1200	T.S.	988	23	12.3	130.3
		1800	T.S.	988	23	11.9	130.1
	22	0000	S.T.S.	986	25	11.7	130.0
		0600	S.T.S.	986	25	11.7	129.8
		1200	S.T.S.	986	25	11.7	129.6
		1800	S.T.S.	974	31	11.7	129.3
	23	0000	T.	965	33	11.9	128.9
		0600	S.T.	950	43	12.2	128.8
		1200	Super T.	935	52	12.7	128.7
		1800	Super T.	935	52	13.0	128.6
	24	0000	Super T.	925	54	13.6	128.5
		0600	Super T.	925	54	14.2	128.2
		1200	Super T.	915	59	14.6	128.1
		1800	Super T.	905	61	15.2	127.9
	25	0000	Super T.	905	61	15.8	127.8
		0600	Super T.	905	61	16.4	127.4
		1200	Super T.	905	61	16.9	127.1
		1800	Super T.	905	61	17.1	126.8
	26	0000	Super T.	905	61	17.4	126.5
		0600	Super T.	905	61	18.0	126.1
		1200	Super T.	905	61	18.4	125.8
		1800	Super T.	905	61	19.1	125.3
	27	0000	Super T.	905	61	19.7	124.8
		0600	Super T.	905	61	20.3	124.3
		1200	Super T.	910	59	20.9	124.1
		1800	Super T.	920	57	21.7	123.8
	28	0000	Super T.	930	52	22.5	124.0
		0600	Super T.	930	52	23.4	124.4
		1200	S.T.	935	49	24.2	125.0
		1800	S.T.	935	49	25.2	126.1
	29	0000	S.T.	940	46	26.1	127.2
		0600	S.T.	940	46	27.0	128.5
		1200	S.T.	945	43	28.2	130.2
		1800	S.T.	945	43	29.4	132.3
	30	0000	T.	960	39	31.5	134.2
		0600	T.	965	36	33.5	135.7
		1200	T.	975	33	35.7	138.3
		1800	S.T.S.	985	28	39.1	141.0
十月 OCT	1	0000	S.T.S.	988	25	41.9	144.4
		0600	T.S. 變為溫帶氣旋 Became Extratropical	990	23	44.0	149.0

強烈熱帶風暴艾雲尼(1218)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM EWINIAR (1218)

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	24	0000	T.D.	1002	13	18.6	139.6
		0600	T.D.	1000	13	19.4	139.2
		1200	T.D.	999	16	20.3	138.8
		1800	T.D.	999	16	21.0	138.6
	25	0000	T.S.	995	18	22.0	138.5
		0600	T.S.	995	18	22.6	138.5
		1200	T.S.	992	21	23.2	138.8
		1800	T.S.	988	23	24.6	140.2
	26	0000	T.S.	988	23	25.3	141.3
		0600	S.T.S.	985	25	26.3	142.4
		1200	S.T.S.	985	25	28.1	142.6
		1800	S.T.S.	985	25	29.1	142.5
	27	0000	S.T.S.	985	25	30.4	142.2
		0600	S.T.S.	985	25	31.2	142.1
		1200	S.T.S.	985	25	31.6	141.6
		1800	S.T.S.	985	25	31.4	141.7
	28	0000	S.T.S.	985	25	31.5	142.4
		0600	S.T.S.	985	25	31.9	143.1
		1200	S.T.S.	985	25	32.6	144.2
		1800	S.T.S.	985	25	33.5	145.0
	29	0000	T.S.	992	23	34.5	145.8
		0600	T.S.	992	23	36.5	147.3
		1200	T.S.	994	21	37.8	149.1
		1800	T.S. 變為溫帶氣旋 Became Extratropical	996	21	39.2	151.1

強烈熱帶風暴馬力斯(1219)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM MALIKSI (1219)

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	30	0000	T.D.	1002	13	13.9	150.0
		0600	T.D.	1002	13	14.6	149.7
		1200	T.D.	1002	13	16.0	148.9
		1800	T.D.	998	16	16.4	147.7
十月 OCT	1	0000	T.D.	998	16	17.1	146.9
		0600	T.S.	996	18	17.9	146.1
		1200	T.S.	996	18	18.7	145.2
		1800	T.S.	996	18	19.5	144.2
	2	0000	T.S.	992	21	20.4	143.2
		0600	T.S.	992	21	20.9	142.7
		1200	T.S.	992	21	21.6	142.2
		1800	T.S.	988	23	22.7	141.5
	3	0000	T.S.	988	23	24.5	140.9
		0600	S.T.S.	984	25	25.7	141.4
		1200	S.T.S.	984	25	28.2	142.2
		1800	S.T.S.	984	25	30.8	143.2
	4	0000	S.T.S. 變為溫帶氣旋 Became Extratropical	984	25	34.1	144.0

強烈熱帶風暴格美(1220)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM GAEMI(1220)

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	1	0600	T.D.	1004	13	16.2	114.7
		1200	T.D.	998	16	16.6	114.8
		1800	T.D.	998	16	16.8	115.0
	2	0000	T.D.	998	16	16.6	115.2
		0600	T.S.	990	21	16.2	115.7
		1200	T.S.	990	21	15.7	116.5
		1800	T.S.	990	21	15.5	116.9
	3	0000	T.S.	988	23	15.4	117.3
		0600	S.T.S.	982	25	15.4	117.7
		1200	S.T.S.	982	25	15.3	118.0
		1800	S.T.S.	982	25	15.2	118.2
	4	0000	T.S.	988	23	15.0	118.4
		0600	T.S.	988	23	14.9	118.2
		1200	T.S.	988	23	14.6	117.9
		1800	T.S.	990	21	14.5	117.4
	5	0000	T.S.	988	23	14.6	116.6
		0600	T.S.	988	23	14.6	115.7
		1200	T.S.	988	23	14.6	114.6
		1800	T.S.	990	21	14.2	113.1
	6	0000	T.S.	990	21	13.7	111.8
		0600	T.S.	990	21	13.1	110.4
		1200	T.D. 消散 Dissipated	998	16	13.3	108.9

強颱風派比安(1221)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON PRAPIROON(1221)

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	7	0600	T.D.	1000	13	17.7	137.4
		1200	T.D.	998	16	17.8	136.6
		1800	T.S.	992	21	17.9	136.0
	8	0000	S.T.S.	985	25	18.0	135.5
		0600	S.T.S.	980	28	18.0	135.0
		1200	S.T.S.	975	31	18.4	133.8
		1800	T.	970	33	18.1	133.3
	9	0000	T.	970	33	17.9	132.6
		0600	T.	970	33	17.7	132.2
		1200	T.	970	33	17.9	132.0
		1800	T.	965	36	18.2	131.7
	10	0000	T.	965	36	18.3	130.8
		0600	T.	955	41	18.6	130.4
		1200	S.T.	950	43	18.6	129.9
		1800	S.T.	950	43	18.8	129.4
	11	0000	S.T.	950	43	19.1	129.0
		0600	S.T.	950	43	19.4	128.6
		1200	S.T.	945	46	19.4	128.4
		1800	S.T.	945	46	19.6	128.5
	12	0000	S.T.	945	46	19.6	128.6
		0600	S.T.	945	46	20.0	128.9
		1200	S.T.	945	46	20.2	129.3
		1800	S.T.	950	43	20.5	129.5
	13	0000	T.	955	41	20.8	129.7
		0600	T.	955	41	21.1	129.9
		1200	T.	955	41	21.4	129.9
		1800	T.	960	39	21.6	130.4
	14	0000	T.	960	39	21.9	130.8
		0600	T.	960	39	22.2	130.9
		1200	T.	960	39	22.5	131.3
		1800	T.	960	39	22.7	131.5
	15	0000	T.	960	39	22.7	131.2
		0600	T.	960	39	22.6	131.1
		1200	T.	965	36	22.4	131.0
		1800	T.	965	36	22.2	130.5
	16	0000	T.	970	33	21.8	130.0
		0600	T.	970	33	21.6	129.4
		1200	S.T.S.	975	31	22.2	128.9
		1800	S.T.S.	980	28	22.5	128.6
	17	0000	S.T.S.	980	28	23.2	128.4
		0600	S.T.S.	980	28	24.2	128.7
		1200	S.T.S.	982	25	25.0	129.5
		1800	S.T.S.	982	25	25.9	130.4
	18	0000	S.T.S.	982	25	27.2	132.2
		0600	S.T.S.	982	25	28.7	134.1
		1200	S.T.S.	982	25	30.3	136.4
		1800	S.T.S.	982	25	31.2	139.6
	19	0000	S.T.S.	982	25	32.5	142.5
		0600	S.T.S. 變為溫帶氣旋 Became Extratropical	982	25	32.7	145.9

強烈熱帶風暴瑪莉亞(1222)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM MARIA(1222)

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	0000	T.D.	1000	13	17.4	144.1
		0600	T.D.	998	16	17.5	143.6
		1200	T.S.	995	18	17.7	142.9
		1800	T.S.	995	18	18.1	142.3
	15	0000	T.S.	992	21	19.2	141.4
		0600	T.S.	988	23	20.9	141.3
		1200	T.S.	988	23	22.7	141.1
		1800	S.T.S.	985	25	24.3	140.9
	16	0000	S.T.S.	985	25	25.5	140.7
		0600	S.T.S.	985	25	26.8	141.0
		1200	S.T.S.	985	25	27.4	141.3
		1800	S.T.S.	985	25	28.3	142.2
	17	0000	S.T.S.	985	25	28.7	143.5
		0600	S.T.S.	985	25	29.4	144.8
		1200	S.T.S.	985	25	30.1	146.3
		1800	T.S.	988	23	31.0	148.5
	18	0000	T.S.	988	23	31.4	150.5
		0600	T.S.	992	21	32.0	152.8
		1200	T.S.	992	21	31.9	154.9
		1800	T.S.	995	18	31.7	156.2
			變為溫帶氣旋 Became Extratropical				

強颱風山神(1223)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON SON-TINH(1223)

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	22	1200	T.D.	1002	13	9.0	131.7
		1800	T.D.	1002	13	9.0	131.0
	23	0000	T.D.	1000	16	8.6	130.0
		0600	T.D.	1000	16	8.5	128.6
		1200	T.D.	1000	16	8.5	127.8
		1800	T.D.	1000	16	8.8	127.3
	24	0000	T.S.	995	18	9.5	126.4
		0600	T.S.	995	18	10.6	125.2
		1200	T.S.	995	18	11.4	124.1
		1800	T.S.	990	21	11.9	122.6
	25	0000	T.S.	988	23	12.8	120.8
		0600	T.S.	988	23	13.8	119.4
		1200	T.S.	988	23	14.3	117.7
		1800	T.S.	988	23	14.5	116.8
	26	0000	S.T.S.	984	25	14.6	115.7
		0600	S.T.S.	975	31	14.9	114.5
		1200	S.T.S.	975	31	15.4	113.5
		1800	S.T.S.	975	31	16.1	112.2
	27	0000	T.	970	33	16.6	110.9
		0600	T.	965	36	16.9	109.6
		1200	S.T.	950	43	17.5	108.8
		1800	S.T.	950	43	18.1	107.8
	28	0000	T.	955	41	18.4	107.4
		0600	T.	960	39	19.1	107.0
		1200	T.	960	39	20.0	106.7
		1800	T.	965	36	20.5	106.6
	29	0000	S.T.S.	980	28	21.0	107.0
		0600	T.S.	990	21	21.3	107.6
		1200	T.D.	1000	13	21.4	108.0
			消散 Dissipated				

熱帶低氣壓由十一月十四日至十五日的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL DEPRESSION OF 14 - 15 NOVEMBER

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	14	0000	T.D.	1002	16	8.1	109.7
		0600	T.D.	1002	16	8.3	108.9
		1200	T.D.	1002	16	8.5	108.2
		1800	T.D.	1002	16	8.9	107.6
	15	0000	T.D.	1004	13	9.1	107.3
		0600	T.D.	1004	13	9.3	107.1
		1200	T.D.	1004	13	9.7	106.9
			消散 Dissipated				

超強颱風寶霞(1224)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON BOPHA (1224)

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	25	1800	T.D.	1004	13	3.4	156.9
	26	0000	T.D.	1006	13	3.7	156.7
		0600	T.D.	1004	13	3.9	156.6
		1200	T.D.	1003	16	4.0	156.4
		1800	T.S.	1002	18	4.1	156.3
	27	0000	T.S.	1002	18	4.3	156.2
		0600	T.S.	1002	18	4.4	155.8
		1200	T.S.	1002	18	4.4	155.5
		1800	T.S.	995	21	4.6	155.1
	28	0000	T.S.	995	21	4.7	154.3
		0600	T.S.	995	21	4.8	153.1
		1200	T.S.	995	21	4.6	151.7
		1800	T.S.	992	21	4.2	150.8
	29	0000	T.S.	992	21	4.0	150.0
		0600	T.S.	992	21	3.8	149.2
		1200	T.S.	992	21	3.5	148.3
		1800	T.S.	986	23	3.6	147.1
	30	0000	S.T.S.	982	25	3.7	146.4
		0600	S.T.S.	978	28	3.8	145.3
		1200	S.T.S.	975	31	4.0	144.2
		1800	T.	964	36	4.4	142.9
十二月 DEC	1	0000	S.T.	950	43	4.7	142.0
		0600	S.T.	945	46	5.1	141.1
		1200	Super T.	935	52	5.5	139.9
		1800	Super T.	920	57	5.8	138.7
	2	0000	Super T.	915	59	6.2	137.6
		0600	Super T.	915	59	6.4	136.0
		1200	Super T.	915	59	6.5	134.5
		1800	Super T.	925	57	6.6	133.3
	3	0000	Super T.	925	57	6.8	131.7
		0600	Super T.	925	57	7.0	130.4
		1200	Super T.	915	59	7.4	128.8
		1800	Super T.	915	59	7.6	127.2
	4	0000	Super T.	930	52	7.8	125.9
		0600	S.T.	945	46	8.7	124.1
		1200	T.	955	41	9.3	123.0
		1800	T.	955	41	9.6	121.1
	5	0000	T.	965	36	10.0	119.8
		0600	T.	965	36	10.6	118.9
		1200	T.	965	36	11.2	118.0
		1800	T.	970	33	11.6	117.3
	6	0000	T.	970	33	11.9	117.0
		0600	T.	970	33	12.3	116.6
		1200	T.	970	33	12.7	116.3
		1800	T.	970	33	13.0	116.0

超強颱風寶霞(1224)的每六小時位置及強度（續）
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON BOPHA (1224) (CON'T)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十二月 DEC	7	0000	T.	970	33	13.9	115.6
		0600	T.	955	41	14.6	115.8
		1200	S.T.	944	46	15.4	116.0
		1800	S.T.	944	46	16.2	116.2
	8	0000	S.T.	950	43	16.8	116.9
		0600	S.T.	950	43	17.4	118.0
		1200	T.	965	36	17.6	118.6
		1800	T.S.	990	23	18.0	119.1
	9	0000	T.D.	998	16	18.2	119.3
		0600	T.D.	1000	13	18.0	119.5
			消散 Dissipated				

熱帶風暴悟空(1225)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM WUKONG (1225)

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	24	0600	T.D.	1002	13	10.0	131.5
		1200	T.D.	1002	13	10.1	130.6
		1800	T.D.	1002	13	10.1	129.7
	25	0000	T.D.	998	16	10.2	128.5
		0600	T.S.	996	18	10.3	127.2
		1200	T.S.	996	18	10.3	126.1
		1800	T.S.	996	18	10.6	124.8
	26	0000	T.S.	996	18	11.3	123.2
		0600	T.S.	996	18	11.5	122.0
		1200	T.S.	998	18	11.5	120.7
		1800	T.D.	1000	16	10.8	119.3
	27	0000	T.D.	1000	16	10.4	117.4
		0600	T.D.	1002	13	10.1	115.9
		1200	T.D.	1002	13	10.1	114.7
		1800	T.D.	1002	13	10.0	113.6
	28	0000	T.D.	1002	13	9.7	112.6
		0600	T.D.	1003	13	9.3	110.9
			消散 Dissipated				