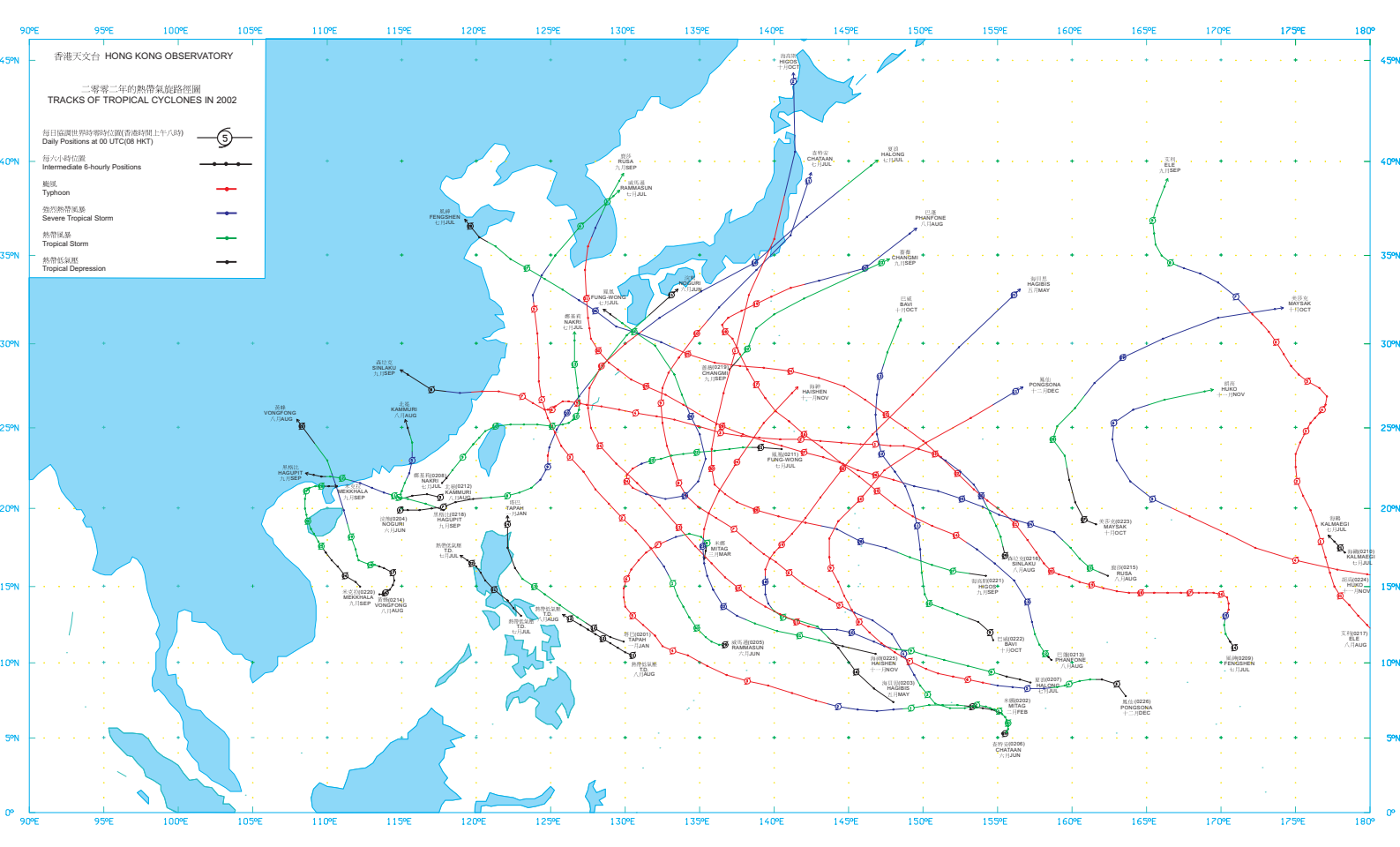
香港天文台
HONG KONG OBSERVATORY

二零零二
熱帶氣旋

TROPICAL CYCLONES IN 2002


香港天文台 HONG KONG OBSERVATORY
二零零二年的熱帶氣旋路徑圖
TRACKS OF TROPICAL CYCLONES IN 2002
每日區調世界時零時位置(香港時間上午八時)
Daily Positions at 00 UTC(08 HKT)
每六小時位置
Intermediate 6-hourly Positions
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
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°

二零零三年四月出版
Published April 2003

香港天文台編製
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551.515.2:551.506.1(512.317)

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INTRODUCTION

1.1 熱帶氣旋刊物的沿革

除了在一九四零至一九四六年有過短暫中斷外，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，年刊第二冊改稱爲《無線電探空儀觀測摘要》，而第一冊亦於一九八七年改稱爲《香港地面觀測年報》。一九九三年，該兩刊物由一本名爲《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。由於有氣象偵察機提供報告（此項服務已在一九八七年八月停辦）及氣象衛星圖片，在原本資料短缺的海洋上追蹤熱帶氣旋位置的工作比從前順利得多。因此，第三冊的覆蓋範圍東面邊界於一九八五年開始，由東經160度伸展至180度。一九八七年，第三冊改稱爲《熱帶氣旋年報》，但內容則大致上維持不變。本年報由一九九七年起以中英雙語刊出，一年後加設電腦光碟版，並在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。由一九四七至一九六七年，則載列於《氣象資料第一冊》內。在一九六一年以前，熱帶氣旋的路徑只顯示每日位置。在較早期的刊物內，熱帶氣旋的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。

爲了能盡早滿足傳媒、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。這些報告可提供給有需要的人士使用。初時，天文台只就那些曾導致天文台發出暴風或烈風信號的熱帶氣旋編寫臨時報告，但自一九六八年起，所有引致天文台發出熱帶氣旋警告信號的熱帶氣旋都有編寫臨時報告。

1.2 熱帶氣旋等級

本年報根據熱帶氣旋中心附近的最高持續地面風速，把熱帶氣旋分爲以下四個級別：

（ i ） 熱帶低氣壓（T.D.）的最高持續風速爲每小時63公里以下。
（ii） 熱帶風暴（T.S.）的最高持續風速爲每小時63至87公里。
（iii） 強烈熱帶風暴（S.T.S.）的最高持續風速爲每小時88至117公里。
（iv） 颱風（T.）的最高持續風速爲每小時118公里或以上。

除特別列明外，在本年報內提及的最高持續風速均爲10分鐘內風速的平均值；每小時平均風速爲該小時前60分鐘內的平均風速；每日雨量爲該日香港時間午夜前24小時內的總雨量。

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。但由二零零零年開始，日本氣象廳會根據一套新名單爲每個達到熱帶風暴強度的熱帶氣旋命名。表1.1是二零零二年一月一日起生效的熱帶氣旋名單。這套名單經颱風委員會通過，一共有140個名字，分別由14個國家和地區提供。這些名字除了用於爲國際航空及航海界發放的預測和警報外，亦是向國際傳媒介發放熱帶氣旋消息時採用的規範名稱。另外，日本氣象廳在一九八一年起已獲委託爲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"0201"代表在二零零二年區內第一個被日本氣象廳分類爲熱帶風暴或更強的熱帶氣旋。在本年報內，此編號會顯示在緊隨著熱帶氣旋名稱的括弧內，例如熱帶風暴塔巴(0201)。

1.4 資料來源

本年報內的地面風資料，是由天文台所操作的測風站網絡錄得的。表1.2是該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的。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。

1.5 年報內容

本年報第二節是二零零二年所有影響北太平洋西部及南海區域的熱帶氣旋的概述。

而本年報第三節是二零零二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；
(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回波圖（如適用）。

有關熱帶氣旋的各種資料及統計表載於本年報第四節內。

二零零二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，則表列於本年報的第五節內。

本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）爲準。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。香港時間爲協調世界時加八小時。

1.1 Evolution of tropical cyclone publications

Apart from a short break 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 "Summary of Radiosonde-Radiowind Ascents" and "Surface Observations in Hong Kong" in 1981 and 1987 respectively. In 1993, both of these publications were made obsolete, and since then surface and upper-air data have been included in one revised publication entitled "Summary of Meteorological Observations in Hong Kong".

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. It contained information on tropical cyclones over the western North Pacific and the South China Sea. The first issue, which contained reports on tropical cyclones occurring in 1968, was published in 1971. Tropical cyclones within the area bounded by the Equator, 45°N, 100°E and 160°E were described. With reconnaissance aircraft reports (terminated from August 1987 onwards) and satellite pictures facilitating the tracking of tropical cyclones over the otherwise data-sparse ocean, 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 19YY" 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. Before 1961, only daily positions were plotted on the tracks. The time of the daily positions varied to some extent in the older publications but remained fixed at 0000 UTC after 1944. Details of the variation 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 have been prepared since 1960 to meet the immediate needs of the press, shipping companies and others. These reports are printed and supplied on request. Initially, provisional reports were only written on those tropical cyclones for which gale or storm signals had been issued in Hong Kong. From 1968 onwards, provisional reports were prepared for all tropical cyclones that necessitated the issuing of tropical cyclone warning signals.

1.2 Classification of tropical cyclones

In this publication, tropical cyclones are classified into the following four 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 km/h or more.

Throughout this publication, maximum sustained surface winds when used without qualification refer to wind speeds averaged over a period of 10 minutes. Mean hourly 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.

1.3 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. However, with effect from 2000, the Japan Meteorological Agency will assign names from a new list to tropical cyclones attaining tropical storm strength. Table 1.1 shows the name list effective from 1 January 2002. The name list was adopted by the Typhoon Committee. It consists of a total of 140 names contributed by 14 countries and territories. Apart from being used in forecasts and warnings issued to the international aviation and shipping communities, the names will also be used officially in information on tropical cyclones issued to the international press. Besides, Japan Meteorological Agency has been delegated since 1981 with the responsibility of assigning to each tropical cyclone in the western North Pacific and the South China Sea of tropical storm strength a numerical code of four digits. For example, the first tropical cyclone of tropical storm strength or above as classified by Japan Meteorological Agency which occurred within the region in 2002 was assigned the code "0201". In this publication, the appropriate code immediately follows the name of the tropical cyclone in bracket, e.g. Tropical Storm Tapah (0201).

1.4 Data sources

Surface wind data presented in this report were obtained from a network of anemometers operated by the Hong Kong Observatory. Details of the stations are listed on Table 1.2.

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.

1.5 Content

In Section 2, an overview of all the tropical cyclones over the western North Pacific and the South China Sea in 2002 is presented.

The reports in Section 3 are individual accounts of the life history of tropical cyclones affecting Hong Kong in 2002. 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 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 imageries and radar echoes (if applicable).

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 publication, different times are used in different 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.

表 1.1　　二零零二年一月一日生效的熱帶氣旋名單

TABLE 1.1 TROPICAL CYCLONE NAME LIST EFFECTIVE FROM 1 JANUARY 2002

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	龍王 Longwang	玉兔 Yutu	風神 Fengshen	杜鵑 Dujuan	海馬 Haima
北韓	DPR Korea	鴻雁 Kirogi	桃芝 Toraji	海鷗 Kalmaegi	鳴蟬 Maemi	米雷 Meari
中國香港	HK, China	啓德 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	凱薩娜 Ketsana	洛坦 Nock-ten
中國澳門	Macau, China	珍珠 Chanchu	蝴蝶 Wutip	黃蜂 Vongfong	芭瑪 Parma	梅花 Muifa
馬來西亞	Malaysia	杰拉華 Jelawat	聖帕 Sepat	鹿莎 Rusa	茉莉 Melor	苗柏 Merbok
米克羅尼西亞	Micronesia	艾雲尼 Ewiniar	菲特 Fitow	森垃克 Sinlaku	尼伯特 Nepartak	南瑪都 Nanmadol
菲律賓	Philippines	碧利斯 Bilis	丹娜絲 Danas	黑格比 Hagupit	盧碧 Lupit	塔拉斯 Talas
南韓	RO Korea	格美 Kaemi	百合 Nari	薔薇 Changmi	蘇特 Sudal	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	桑美 Saomai	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
北韓	DPR Korea	清松 Sonamu	楊柳 Podul	鳳仙 Pongsona	蒲公英 Mindulle	尼格 Nalgae
中國香港	HK, China	珊珊 Shanshan	玲玲 Lingling	欣欣 Yanyan	婷婷 Tingting	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	象神 Xangsane	法茜 Faxai	燦鴻 Chan-hom	南川 Namtheun	麥莎 Matsa

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	畫眉 Vamei	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	雲娜 Rananim	古超 Guchol
菲律賓	Philippines	西馬侖 Cimaron	海貝思 Hagibis	伊布都 Imbudo	馬勒卡 Malakas	泰利 Talim
南韓	RO Korea	飛燕 Chebi	浣熊 Noguri	天鵝 Koni	鮸魚 Megi	彩蝶 Nabi
泰國	Thailand	榴槤 Durian	威馬遜 Rammasun	莫拉克 Morakot	暹芭 Chaba	卡努 Khanun
美國	U.S.A.	尤特 Utor	查特安 Chataan	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

表 1.2　　本年報內各風速表的位置及海拔高度

TABLE 1.2 POSITIONS AND ELEVATIONS OF VARIOUS ANEMOMETERS MENTIONED IN THIS PUBLICATION

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	
中環（天星碼頭）	Central (Star Ferry Pier)	22°17’08”	114°09’31”	17
中環廣場	Central Plaza	22°16’53”	114°10’16”	378
赤鱲角（機場）	Chek Lap Kok (Airport)	22°18’34”	113°55’19”	13
長洲	Cheung Chau	22°12’04”	114°01’36”	99
長沙灣	Cheung Sha Wan	22°20’04”	114°09’05”	30
青洲	Green Island	22°17’12”	114°06’37”	105
啓德	Kai Tak	22°18’40”	114°12’39”	16
京士柏	King’s Park	22°18’47”	114°10’13”	90
流浮山	Lau Fau Shan	22°28’14”	113°58’52”	50
北角	North Point	22°17’40”	114°11’59”	26
平洲	Ping Chau	22°32’54”	114°25’33”	39
西貢	Sai Kung	22°22’38”	114°16’18”	31
沙螺灣	Sha Lo Wan	22°17’33”	113°54’16”	71
沙田	Sha Tin	22°24’11”	114°12’31”	16
石崗	Shek Kong	22°26’02”	114°05’06”	26
天星碼頭（九龍）	Star Ferry Pier (Kowloon)	22°17’40”	114°09’58”	18
打鼓嶺	Ta Kwu Ling	22°31’50”	114°09’13”	28
大尾篤	Tai Mei Tuk	22°28’36”	114°14’06”	71
大帽山	Tai Mo Shan	22°24’40”	114°07’29”	969
塔門	Tap Mun	22°28’22”	114°21’29”	37
大老山	Tate's Cairn	22°21’34”	114°12’55”	588
鯽魚湖	Tsak Yue Wu	22°24’11”	114°19’24”	23
將軍澳	Tseung Kwan O	22°18’56”	114°15’20”	52
青衣（青柏樓）	Tsing Yi (Ching Pak House)	22°21’00”	114°06’24”	136
屯門	Tuen Mun	22°23’32”	113°58’27”	69
橫瀾島	Waglan Island	22°11’01”	114°18’02”	82
黃竹坑	Wong Chuk Hang	22°14’54”	114°10’15”	30

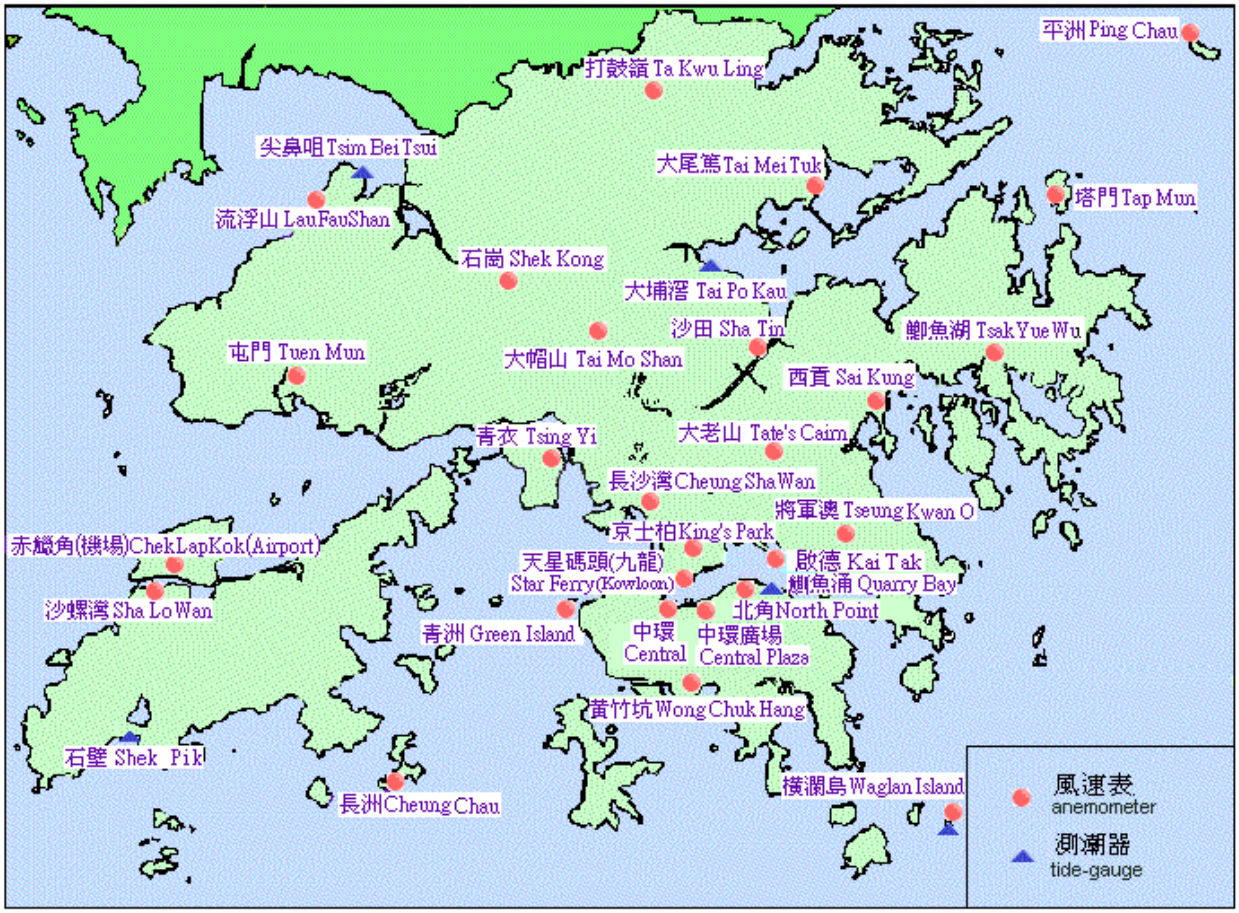

圖 1.1　　本年報內提及的測風站及潮汐測量站之分佈地點。

FIGURE 1.1　LOCATIONS OF ANEMOMETERS AND TIDE GAUGE STATIONS MENTIONED IN THIS PUBLICATION.

第二節

二零零二年熱帶氣旋概述

Section 2

TROPICAL CYCLONE OVERVIEW FOR 2002

2.1 二零零二年的熱帶氣旋回顧

2.1.1 北太平洋西部（包括南海區域）的熱帶氣旋

二零零二年共有28*個熱帶氣旋影響北太平洋西部及南海區域(即由赤道至北緯45度、東經100至180度所包括的範圍），這數目比1961-1990的30年平均數少三個，當中有16個熱帶氣旋達到颱風強度，跟正常數目一樣。

本年首個熱帶氣旋在一月形成。圖2.1是二零零二年在北太平洋西部及南海區域的熱帶氣旋及颱風出現次數之每月分佈。

於二零零二年，共有九個熱帶氣旋影響日本（包括琉球群島），南韓及菲律賓各受兩個熱帶氣旋吹襲，另有一個熱帶氣旋橫越台灣，六個登陸中國內地。

二零零二年風力最強的熱帶氣旋是風神（0209），最高風速估計約爲每小時205公里，而最低中心氣壓則約爲925百帕斯卡。另外，今年有兩個熱帶氣旋在北太平洋中部形成後向西移動，橫過國際換日線進入北太平洋西部。它們分別是艾利（0217）和胡高（0224）。

於二零零二年，所有在西北太平洋上形成的熱帶氣旋都沒有移入南海。在過去30年內，類似情形只曾在一九九七年出現。太平洋上的副熱帶高壓脊通常會在七月份向西伸延至華南，這有利西北太平洋上的熱帶氣旋向西移動進入南海（圖2.3.a）。但今年同期副熱帶高壓脊並沒有西伸至華南，使西北太平洋上引導氣流的方向比正常偏北，在該區的熱帶氣旋因此偏向北移，而不向西進入南海（圖2.3.b），這個情況相信跟厄爾尼諾現象有關。

2.1.2 香港責任範圍內的熱帶氣旋

在二零零二年的28個熱帶氣旋中，有10個影響香港責任範圍（即北緯10至30度、東經105至125度所包括的地區），比1961-1990的30年平均16.4個少百份之39（表2.1）。這10個熱帶氣旋中，有七個在香港責任範圍內形成。在二零零二年，香港天文台總共發出227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

二零零二年共有七個熱帶氣旋影響南海區域（即北緯10至25度、東經105至120度所包括的地區），當中有六個在南海形成，其餘一個則在菲律賓中部形成。

2.1.4 影響香港的熱帶氣旋

全年只有三個熱帶氣旋影響香港（圖2.2），比正常數目少約一半（表2.2）。這三個熱帶氣旋是北冕（0212）、黃蜂（0214）及黑格比（0218），它們均在南海形成。

本年九月黑格比影響香港期間，天文台發出了八號烈風或暴風信號，這亦是今年發出的最高信號。而八月的北冕和黃蜂則只需發出一號戒備信號。

2.1.5 熱帶氣旋的雨量

二零零二年各熱帶氣旋爲香港帶來的雨量(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）共爲520.8毫米，佔該年總雨量2 490.0毫米的百分之21，比正常的737.9毫米少百分之29。

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* 包括艾利(0217)和胡高(0224)這兩個在北太平洋中部形成後橫過國際換日線進入北太平洋西部的熱帶氣旋。

2.2 每月概述

這一節逐月介紹二零零二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則詳述於第三節。

一月

塔巴(0201)在一月十一日晚上於馬尼拉東南偏東約1 050公里處發展爲一個熱帶低氣壓，它向西北移動，並於次日增強爲一個熱帶風暴。一月十三日晚上，塔巴減弱爲一個熱帶低氣壓並轉向北移，掠過呂宋東北部。塔巴在一月十四日早上於呂宋海峽消散。

二月及三月

米娜(0202)在二月二十七日於關島東南約1 350公里的太平洋上發展成一個熱帶低氣壓。它向西移動，於次日增強爲一個熱帶風暴。米娜在三月一日發展爲一個強烈熱帶風暴後，翌日進一步增強爲一個颱風及轉向西北偏西推進，在三月三日掠過雅蒲島。隨後數天，它逐步轉向東北移動，風力亦加強至約每小時175公里。到了三月七日，米娜減弱爲一個強烈熱帶風暴及向東移動。受到東北季候風的影響，它在三月八日迅速減弱成一個熱帶低氣壓，並改爲向南移動，稍後於呂宋以東的太平洋上消散。

四月

二零零二年四月並無熱帶氣旋影響北太平洋西部及南海區域。

五月

海貝思(0203)在五月十五日於關島東南偏南約750公里的太平洋上發展成一個熱帶低氣壓。它向西北移動，於次日增強爲一個熱帶風暴，並在五月十七日進一步增強爲一個強烈熱帶風暴。其後它減速及轉向北移，於五月十八日達至颱風強度。海貝思在五月十九日開始向東北加速前進，而其風力亦到達頂點，估計約爲每小時165公里。到了五月二十一日早上，海貝思減弱爲一個強烈熱帶風暴，並在同日變爲一個溫帶氣旋。

六月

浣熊(0204)在六月六日於南海北部東沙島西南偏西約200公里處發展成一個熱帶低氣壓。它向東移動，於六月八日在呂宋海峽增強爲一個熱帶風暴。六月九日，浣熊轉向東北偏北移動，並迅速增強成一個颱風。同日晚上，它減弱爲一個強烈熱帶風暴，接着轉向東北加速前進。六月十一日，浣熊進一步減弱爲一個熱帶低氣壓，同日登陸日本並隨即消散。

威馬遜(0205)於六月二十九日在雅蒲島西北面約250公里處發展成一個熱帶低氣壓，同日增強爲一個熱帶風暴。它在太平洋上向西北推進並逐漸增強，於七月一日變爲一個颱風後，直趨台灣以東海域。與威馬遜相關的暴雨在台灣北部造成水浸和山泥傾瀉，航空交通亦一度受阻。七月四日，威馬遜轉向北移，橫過東海，期間上海一間在建築地盤內的臨時房屋被吹倒，造成五人死亡，44人受傷。七月五日，威馬遜減弱爲一個強烈熱帶風暴，然後改向東北移動。它於七月六日減弱爲一個熱帶風暴後在南韓西岸登陸，強風和大雨令當地很多道路和橋樑受損，共導致四人死亡。同日，威馬遜在日本海變爲一個溫帶氣旋。

查特安(0206)於六月二十九日清晨在關島東南約1 500公里的太平洋上形成爲一個熱帶低氣壓，並在同日增強爲一個熱帶風暴。查特安在往後數天大致向西北移動，並於七月五日達至颱風強度。它在七月八日改向北移，次日轉向東北，直趨日本。七月十日，它減弱爲一個強烈熱帶風暴，並在東京以南掠過，隨後沿著日本東岸移動，在七月十一日變成一個溫帶氣旋。查特安在日本引發廣泛的水浸，導致最少四人死亡及兩人失蹤。

七月

夏浪(0207)於七月七日在關島東南偏東約1 500公里的太平洋上形成爲一個熱帶低氣壓。它向西北偏西移動並於七月九日增強爲一個強烈熱帶風暴，在七月十一日夏浪進一步增強爲一個颱風及改向西北推進。七月十四日，夏浪轉向北移，橫過琉球群島。一日後，它減弱爲一個強烈熱帶風暴及轉向東北加速移動，直趨日本。夏浪在七月十六日橫掃東京，強風和暴雨令一些飛機航班被逼取消。同日晚上，夏浪在日本以東的太平洋上變爲一個溫帶氣旋。

在南海北部，娜基莉(0208)於七月八日在東沙島東北面約150公里處形成爲一個熱帶低氣壓。它向東北緩慢移動，並於次日增強爲一個熱帶風暴。它沿著台灣西岸推進，於七月十日在台北附近登陸。其後娜基莉向東移離台灣，並於七月十二日在琉球群島附近轉向北移，次日在東海變爲一個溫帶氣旋。娜基莉在台灣一共導致兩死11傷。

風神(0209)於七月十四日在威克島東南偏南約1 000公里處發展成一個熱帶低氣壓，並於次日迅速增強爲一個颱風。它在往後十天維持向西北方移動。風神是一個強勁的颱風，估計其中心風力爲每小時200公里以上。七月二十五日，風神在接近日本九州時減弱爲一個強烈熱帶風暴，期間令當地的海上及航空交通受阻。七月二十六日，風神掠過濟州並減弱爲一個熱帶風暴。風神於七月二十七日橫過黃海後在中國青島附近登陸，於次日在陸上消散，並爲北京帶來大雨。

七月二十一日清晨，海鷗(0210)在國際換日綫附近，即威克島以東約1 300公里處發展成一個熱帶低氣壓。它向西北移動，同日下午在海上消散，壽命維持不到一天。

鳳凰(0211)在七月二十一日於硫黃島西南面約150公里處形成爲一個熱帶低氣壓。它向西移動並在七月二十三日增強爲一個颱風。同日，鳳凰和風神相互作用，在藤原效應影響下，鳳凰以反時針方向環繞著風神移動。鳳凰於七月二十四日減弱爲一個強烈熱帶風暴及於次日轉向北移。七月二十六日，它進一步減弱爲一個熱帶風暴，並向西北移動。鳳凰最終於七月二十七日晚上在日本九州以西的海面上消散。

七月二十日，一個熱帶低氣壓在菲律賓中部形成，當時它位於馬尼拉東南面約250公里。在其後兩天，它向西北推進，橫過呂宋。七月二十二日，該熱帶低氣壓在進入南海後減弱爲一個低壓區。

八月

北冕(0212)於八月三日在南海北部發展成一個熱帶低氣壓，當時它的位置是在香港東南偏東約400公里，天文台隨即發出一號戒備信號。北冕初時向西移動，並於次日增強爲一個熱帶風暴。其後它減速及突然轉向東北偏北推進，直趨廣東東岸。北冕於八月五日進一步增強爲一個強烈熱帶風暴並在汕尾附近登陸。其後北冕繼續向北移動，於當晚在江西省逐漸減弱爲一個低壓區。

一個熱帶低氣壓於八月十一日在馬尼拉東南偏東約1 100公里處形成並向西北移動。八月十三日它在菲律賓以東的太平洋上減弱爲一個低壓區。

巴蓬(0213)於八月十一日在關島東南偏東約1 500公里處發展成一個熱帶低氣壓及向西北偏北移動，並於次日增強爲一個熱帶風暴。巴蓬在八月十三日進一步增強爲一個強烈熱帶風暴，翌日更達至颱風強度。它於隨後四天繼續在太平洋上向西北推進，在八月十八日突然轉向東北，在八月二十日減弱爲一個強烈熱帶風暴，同日晚上轉變爲一個溫帶氣旋。巴蓬在接近日本期間爲本州帶來大雨，令當地的火車及飛機服務受阻，它引起的大浪亦在東京以西海面導致四人失蹤。

黃蜂(0214)於八月十五日在西沙島東南偏南約280公里處發展爲一個熱帶低氣壓。最初兩天它向東北緩慢移動，在八月十七日轉向西北偏西推進，天文台亦於當晚發出一號戒備信號。黃蜂在八月十八日增強爲一個熱帶風暴後再轉向西北偏北移動。黃蜂在八月十九日加速移向廣東西部

海岸。當日下午黃蜂增強爲一個強烈熱帶風暴，隨後掠過海南島東北岸，於同日晚上在湛江附近登陸。登陸後黃蜂迅速減弱，於八月二十日在廣西消散。

八月二十三日，鹿莎(0215)在威克島西南面約600公里的太平洋上形成爲一個熱帶低氣壓。它向西北偏西移動，同日增強爲一個熱帶風暴，鹿莎於八月二十四日繼續增強爲一個強烈熱帶風暴，並於八月二十六日達到颱風強度。它在八月二十九日轉向西北移動，經過琉球群島，次日轉向北移，在八月三十一日登陸南韓。鹿莎在登陸後迅速減弱，並於九月一日在日本海變爲一個溫帶氣旋。鹿莎在南韓共導致151人死亡及33人失蹤，約17 000間房屋被毀，數以千計的汽車被洪水沖走，另有超過20 000公頃農田受淹，經濟損失估計逾40億美元。

森垃克(0216)於八月二十九日在關島東北偏東約1 200公里處發展成一個熱帶低氣壓後向西北偏北移動，並於同日增強爲一個熱帶風暴。森垃克在八月三十日增強爲一個強烈熱帶風暴及改向西北移動，於八月三十一日進一步增強爲一個颱風，並在隨後數日以偏西方向移動。森垃克在九月四日晚上橫過沖繩島，其後兩天在東海緩慢移動。它在九月七日加速趨向浙江省，同日傍晚在溫州以南約100公里處登陸。森垃克在登陸後迅速減弱爲一個強烈熱帶風暴，於次日在江西省減弱爲一個低壓區。在森垃克吹襲期間，浙江省共有26人死亡及5人失蹤，7 900間房屋倒塌，超過七百萬人及170 000公頃農作物受到影響。

颱風艾利(0217)是在北太平洋中部形成的颶風，它向西北移動越過國際換日線，於八月三十日進入西北太平洋。在其後十天，艾利蜿蜒地向西北偏北移動。它於九月七日減弱爲一個強烈熱帶風暴，並於九月八日進一步減弱爲一個熱帶風暴。艾利最後在九月九日變爲一個溫帶氣旋。

九月

黑格比(0218)於九月十日在東沙島東南約140公里處發展爲一個熱帶低氣壓，並穩定地在南海北部向西北偏西移動。它於當晚增強爲一個熱帶風暴，並在九月十一日進一步增強爲一個強烈熱帶風暴。黑格比於九月十二日在廣東西部的陽江附近登陸，之後減弱爲一個熱帶風暴及轉向西移，晚上進一步減弱爲一個熱帶低氣壓。九月十三日清晨，黑格比在廣西沿岸減弱爲一個低壓區。在黑格比吹襲期間，廣東沿岸海域有一艘船沉沒，另一艘船則與救援中心失去聯絡，最少20人在這兩次意外中失蹤。在廣東西部，與黑格比相關的強風和大雨亦對一些房屋和農田造成破壞。

薔薇(0219)在九月二十一日清晨於琉黃島西北約600公里處形成爲一個熱帶低氣壓，它向東北移動，於同日增強爲一個熱帶風暴。薔薇於九月二十三日加速移動，其後變爲一個溫帶氣旋。

米克拉(0220)於九月二十三日在南海西沙島以南約200公里處形成爲一個熱帶低氣壓，並向西北移動，它於九月二十五日增強爲一個熱帶風暴。米克拉在越過海南島西部後，於九月二十六日進入北部灣。一日後，它改向東移。米克拉於九月二十八日在雷州減弱爲一個熱帶低氣壓，隨後在廣東西岸消散。在海南島附近，有二十多艘漁船在大風中沉沒或擱淺。

海高斯(0221)於九月二十七日在關島東北偏東約1 000公里處形成爲一個熱帶低氣壓。它向西北偏西移動，於同日增強爲一個熱帶風暴。海高斯於九月二十八日清晨增強爲一個強烈熱帶風暴，並在該晚達至颱風強度。九月三十日，它轉向東北偏北移動，加速趨向日本。海高斯於十月一日在東京附近登陸後向北推進，越過日本本州北部，於十月二日清晨減弱爲一個強烈熱帶風暴，隨後在北海道西北對開海面變爲一個溫帶氣旋。海高斯在日本引致四人死亡、一人失蹤及60多人受傷，另有超過300間房屋被毀或受浸。

十月

巴威(0222)於十月九日在關島東南偏東約1 100公里處發展成一個熱帶低氣壓。它向西北偏西移動，並於同日增強爲一個熱帶風暴。其後它改向西北偏北移動，於十月十一日增強爲一個強烈熱帶風暴，一日後再轉向北移。巴威在十月十三日下午減弱爲一個熱帶風暴，並於該晚在太平洋上變爲一個溫帶氣旋。

美莎克(0223)於十月二十七日在威克島以西約550公里處形成爲一個熱帶低氣壓。它向西北偏北移動，於次日增強爲一個熱帶風暴及轉向東北加速移動，於十月二十九日進一步增強爲一個強烈熱帶風暴。十月三十日，美莎克在太平洋上變爲一個溫帶氣旋。

十一月

颱風胡高(0224)是早前在北太平洋中部形成的颶風，但它於十一月三日越過國際換日線後進入西北太平洋。胡高初時向西北偏西移動，一日後轉向西北，於十 一月五日減弱爲一個強烈熱帶風暴後再轉向北移。十一月六日，它改向東北偏東加速推進，並於當晚減弱爲一個熱帶風暴。胡高於十一月七日在太平洋上變爲一個溫帶氣旋。

十一月第二個熱帶氣旋名爲海神(0225)，於二十日在關島東南偏南約400公里處形成爲一個熱帶低氣壓。它向西北偏西移動，並於次日增強爲一個熱帶風暴。十一月二十二日，海神進一步增強爲一個強烈熱帶風暴及逐漸轉向北移。海神於十一月二十三日達至颱風強度後加速移向東北，並於二十五日清晨變爲一個溫帶氣旋。

十二月

鳳仙(0226)於十二月三日在威克島西南偏南約1 300公里處形成爲一個熱帶低氣壓。它大致向西移動，於當晚增強爲一個熱帶風暴。鳳仙於十二月五日進一步增強爲一個強烈熱帶風暴，並於次日達至颱風強度。它於十二月七日轉向西北移動，一日後掠過關島。十二月九日，鳳仙改向北移，其後轉向東北加速推進。鳳仙於十二月十一日減弱爲一個強烈熱帶風暴，隨後變爲一個溫帶氣旋。

備註：人命傷亡及財物損毀數據是根據報章報導輯錄而成。

2.1 Review of tropical cyclones in 2002

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

In 2002, 28* tropical cyclones occurred over the western North Pacific and the South China Sea (i.e. the area bounded by the Equator, 45°N, 100°E and 180°), three less than the 30-year (1961-1990) average. Throughout the year, 16 tropical cyclones attained typhoon strength, which is the same as the normal figure.

The first tropical cyclone of the year formed in January. The monthly frequencies of the occurrence of tropical cyclones and typhoons in the western North Pacific and the South China Sea in 2002 are shown in Figure 2.1.

During the year, nine tropical cyclones affected Japan (including Ryukyu Islands), two traversed South Korea, one moved over Taiwan, two hit the Philippines and six made landfall over the mainland of China.

The most intense tropical cyclone in 2002 was Fengseng (0209). Fengseng had a maximum wind speed of about 205 km/h and a minimum sea-level pressure about 925 hPa. Moreover, two tropical cyclones, Ele (0217) and Huko (0224), forming over the central North Pacific moved westwards across the International Date Line and entered the western North Pacific.

In 2002, none of the tropical cyclones forming over the northwest Pacific moved into the South China Sea. The only similar case during the last three decades occurred in 1997. Usually, the subtropical ridge over the Pacific extends westwards to southern China in July, steering the tropical cyclones over the northwest Pacific to move westwards and enter the South China Sea (Figure 2.3.a). However, in July 2002, the subtropical ridge did not extend to southern China and the steering flow over the northwest Pacific had a more northerly direction than usual. As a result, the tropical cyclones in the region were carried northwards and did not enter the South China Sea (Figure 2.3.b). This situation is believed to be related to the occurrence of El Niño.

2.1.2 Tropical cyclones in Hong Kong's area of responsibility

Amongst those 28 tropical cyclones in 2002, 10 occurred inside Hong Kong's area of responsibility (i.e. the area bounded by 10°N, 30°N, 105°E and 125°E). This was 39 % less than the 30-year (1961-90) annual average of 16.4 (Table 2.1). Seven of these 10 tropical cyclones developed within Hong Kong's area of responsibility. Altogether, 227 tropical cyclone warnings to ships and vessels were issued by the Hong Kong Observatory in 2002 (Table 4.2).

2.1.3 Tropical cyclones over the South China Sea

There were seven tropical cyclones affecting the South China Sea (i.e. the area bounded by 10°N, 25°N, 105°E and 120°E) in 2002. Six of them formed over the area and one developed over the central part of the Philippines.

2.1.4 Tropical cyclones affecting Hong Kong

Only three tropical cyclones affected Hong Kong in 2002 (Figure 2.2), about half of the normal number (Table 2.2). These three tropical cyclones were Kammuri (0212), Vongfong (0214) and Hagupit (0218). All of them formed in the South China Sea.

The highest signal issued this year was the Gale or Storm Signal No. 8 when Hagupit affected Hong Kong in September. Kammuri and Vongfong in August only necessitated the issuance of the Standby Signal No. 1 in Hong Kong.

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* two of them, namely Ele (0217) and Huko (0224), formed over the central North Pacific and moved across the International Date Line into the western North Pacific.

2.1.5 Tropical cyclone rainfall

Tropical cyclone rainfall (the total rainfall recorded at the Hong Kong Observatory from the time when a tropical cyclone is centred within 600 km of Hong Kong to 72 hours after it has dissipated or moved farther than 600 km away from Hong Kong) in 2002 was 520.8 mm. This is 29 % below the normal of 737.9 mm and accounts for some 21 % of the year's total rainfall of 2 490.0 mm.

2.2 Monthly overview

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

JANUARY

Tapah (0201) developed as a tropical depression about 1 050 km east-southeast of Manila on the night of 11 January. Tracking northwestwards, Tapah intensified into a tropical storm the next day. On the night of 13 January, it weakened into a tropical depression and turned north. After skirting the northeastern part of Luzon, Tapah dissipated over Luzon Strait on the morning of 14 January.

FEBRUARY – MARCH

Mitag (0202) developed as a tropical depression over the Pacific, about 1 350 km southeast of Guam on 27 February. Tracking mainly to the west, it intensified into a tropical storm the next day. It became a severe tropical storm on 1 March and intensified further into a typhoon one day later. Mitag then turned to west-northwest, skirting Yap on 3 March. In the next few days, Mitag gradually changed its course towards northeast and intensified to attaining a maximum sustained wind speed of about 175 km/h. On 7 March, it weakened into a severe tropical storm and moved to the east. Under the influence of northeast monsoon, Mitag weakened rapidly and became a tropical depression on 8 March. Heading south, Mitag soon dissipated over the Pacific east of Luzon.

APRIL

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

MAY

On 15 May, Hagibis (0203) developed as a tropical depression over the Pacific, about 750 km south-southeast of Guam. Tracking to the northwest, it intensified into a tropical storm the next day and strengthened further into a severe tropical storm on 17 May. Hagibis then slowed down and turned north. It attained typhoon intensity on 18 May. Hagibis began to accelerate towards the northeast on 19 May with its intensity reaching a maximum of about 165 km/h. On the morning of 21 May, it weakened into a severe tropical storm and became an extratropical cyclone the same day.

JUNE

On 6 June, Noguri (0204) developed as a tropical depression over the northern part of the South China Sea, about 200 km west-southwest of Dongsha Dao. Tracking to the east, it intensified into a tropical storm over the Luzon Strait on 8 June. On 9 June, Noguri changed its course to the north-northeast and intensified rapidly into a typhoon. Noguri weakened into a severe tropical storm that night and then accelerated towards the northeast. On 11 June, Noguri weakened further into a tropical depression and then dissipated over Japan after landfall.

On 29 June, Rammasun (0205) developed as a tropical depression at about 250 km northwest of Yap and intensified into a tropical storm on the same day. It moved northwestwards over the Pacific and

strengthened gradually into a typhoon on 1 July. It then headed towards the seas east of Taiwan. The torrential rain associated with Rammasun caused flooding and landslides in northern Taiwan. The air traffic was also temporarily affected. On 4 July, Rammasun turned north and moved across the East China Sea. In Shanghai, five persons were killed and 44 others were injured when a temporary house was blown down at a construction site. Rammasun weakened into a severe tropical storm on 5 July and changed its course to the northeast. It weakened into a tropical storm on 6 July and made landfall over the west coast of South Korea. Strong winds and heavy rain associated with Rammasun damaged many roads and bridges and left four men dead in South Korea. Rammasun became an extratropical cyclone in Sea of Japan on the same day.

On the early morning of 29 June, Chataan (0206) formed as a tropical depression over the Pacific, about 1 500 km southeast of Guam. It strengthened into a tropical storm later on the same day. Chataan moved generally to the northwest in the next few days and attained typhoon strength on 5 July. Chataan turned north on 8 July and then moved northeast towards Japan in the following day. On 10 July, it weakened into a severe tropical storm and skirted to the south of Tokyo. Chataan then moved along the east coast of Japan and became an extratropical cyclone on 11 July. In Japan, widespread flooding caused by Chataan resulted in at least four deaths and two missing.

JULY

Halong (0207) formed as a tropical depression over the Pacific, about 1 500 km east-southeast of Guam on 7 July. While tracking to the west-northwest, it intensified into a severe tropical storm on 9 July. It strengthened further into a typhoon on 11 July and headed northwest. On 14 July, it turned north and crossed Ryukyu Islands. One day later, it weakened into a severe tropical storm and accelerated to the northeast towards Japan. Halong swept over Tokyo with strong winds and heavy rain on 16 July. A number of flights were forced to cancel. Halong became an extratropical cyclone over the Pacific east of Japan that night.

Over the northern part of the South China Sea, Nakri (0208) formed at about 150 km northeast of Dongsha Dao on 8 July. It moved slowly northeastwards and strengthened into a tropical storm the next day. After traversing the west coast of Taiwan, it made landfall near Taibei on 10 July. Nakri then moved east away from Taiwan. It changed its course towards north near the Ryukyu Islands on 12 July and became an extratropical cyclone over the East China Sea the following day. In Taiwan, Nakri claimed two lives and injured 11 people.

Fengshen (0209) developed as a tropical depression at about 1 000 km south-southeast of Wake Island on 14 July. It intensified rapidly into a typhoon on 15 July, and maintained a northwest movement in the next ten days. Fengshen was an intense typhoon with maximum winds estimated to be over 200 km/h. On 25 July, Fengshen weakened into a severe tropical storm when it approached Kyushu of Japan, disrupting air and sea traffic there. On 26 July, Fengshen skirted Cheju and weakened into a tropical storm. Fengshen traversed the Yellow Sea on 27 July and then made landfall near Qingdao of China. It dissipated overland the next day and brought heavy rain to Beijing.

On the early morning of 21 July, Kalmaegi (0210) developed as a tropical depression near the International Date-line, about 1 300 km east of Wake Island. It moved northwestwards and dissipated over water in the afternoon, lasting for less than a day.

Fung-wong (0211) formed as a tropical depression about 150 km southwest of Iwo Jima on 21 July. It tracked westwards and intensified gradually into a typhoon on 23 July. On the same day, Fung-wong interacted with Fengshen. Under the Fujiwhara effect, Fung-wong began to move in anti-clockwise direction around Fengshen. Fung-wong weakened into a severe tropical storm on 24 July and turned north the following day. On 26 July, it weakened further into a tropical storm and moved northwestwards. Fung-wong finally dissipated over the seas west of Kyushu on the night of 27 July.

On 20 July, a tropical depression formed over the central part of the Philippines, about 250 km southeast of Manila. It tracked northwestwards across Luzon in the next two days. After entering the South China Sea, it weakened into an area of low pressure on 22 July.

AUGUST

Kammuri (0212) developed as a tropical depression over the northern part of the South China Sea, about 400 km east-southeast of Hong Kong on 3 August. The Standby Signal No. 1 was issued shortly after its formation. Kammuri tracked westwards and strengthened into a tropical storm the next day. It then slowed down and abruptly turned to the north-northeast towards the east coast of Guangdong. On 5 August, Kammuri intensified further into a severe tropical storm. After making landfall near Shanwei, Kammuri moved northwards and weakened gradually into an area of low pressure over Jiangxi Province that night.

A tropical depression formed at about 1 100 km east-southeast of Manila on 11 August. It moved northwestwards over the Pacific and weakened into an area of low pressure to the east of the Philippines on 13 August.

Phanfone (0213) developed as a tropical depression at about 1 500 km east-southeast of Guam on 11 August and moved to the north-northwest. It intensified into a tropical storm the next day, further into a severe tropical storm on 13 August and attained typhoon intensity on 14 August. In the next four days, Phanfone kept moving northwestwards over the Pacific. On 18 August, Phanfone turned abruptly to the northeast. It weakened into a severe tropical storm on 20 August and became an extratropical cyclone the same night. While approaching Japan, Phanfone brought heavy rain to Honshu where some train services and flights were disrupted. There were also four people missing in the rough seas west of Tokyo.

Vongfong (0214) developed as a tropical depression at about 280 km south-southeast of Xisha Dao on 15 August. It moved slowly to the northeast in the first two days and turned to the west-northwest on 17 August. The Standby Signal No. 1 was issued by the Hong Kong Observatory that night. Vongfong intensified into a tropical storm and moved towards the north-northwest on 18 August. It accelerated towards the west coast of Guangdong on 19 August and intensified into a severe tropical storm that afternoon. Vongfong skirted the northeastern coast of Hainan and then made landfall near Zhangjiang the same night. After landfall, it weakened rapidly and dissipated over Guangxi on 20 August.

On 23 August, Rusa (0215) formed as a tropical depression over the Pacific, about 600 km southwest of Wake Island. It tracked towards the west-northwest and strengthened into a tropical storm the same day. Rusa strengthened further to a severe tropical storm on 24 August, and to a typhoon on 26 August. It turned to the northwest on 29 August and moved across the Ryukyu Islands. Rusa turned north the next day and made landfall over South Korea on 31 August. Rusa weakened rapidly after landfall and became an extratropical cyclone over the Sea of Japan on the first day of September. During the passage of Rusa in South Korea, 151 people were killed and 33 others were found missing. About 17 000 houses were destroyed and thousands of cars were washed away by floods. More than 20 000 hectares of farmland were also inundated. The economic loss was estimated to be over USD 4 billion.

Sinlaku (0216) developed as a tropical depression about 1 200 km east-northeast of Guam on 29 August. It moved to the north-northwest and intensified into a tropical storm the same day. On 30 August, Sinlaku intensified further into a severe tropical storm and changed its course towards the northwest. It attained typhoon strength on 31 August and moved to the west in the next few days. It moved across Okinawa on the night of 4 September and then slowed down over the East China Sea in the next two days. Sinlaku speeded up on 7 September and headed towards Zhejiang. It made landfall in the same evening about 100 km south of Wenzhou. Sinlaku weakened into a severe tropical storm after making landfall and became an area of low pressure over Jiangxi Province on 8 September. In the fury of Sinlaku, 26 people were killed and 5 were reported missing in Zhejiang. 7 900 houses collapsed, and more than 7 million people and 170 000 hectares of crops were affected.

Typhoon Ele (0217) was a hurricane which formed over the central North Pacific. It moved northwestwards across the International Date Line and entered the western North Pacific on 30 August. While meandering towards the north-northwest in the next ten days, Ele weakened into a severe tropical storm on 7 September and became a tropical storm on 8 September. Ele eventually transformed into an extratropical cyclone on 9 September.

SEPTEMBER

Hagupit (0218) developed as a tropical depression about 140 km southeast of Dongsha Dao on 10 September and moved steadily west-northwest over the northern part of the South China Sea. It intensified rapidly into a tropical storm the same night and became a severe tropical storm on 11 September. On 12 September, Hagupit made landfall near Yangjiang in western Guangdong and weakened into a tropical storm. It then turned west and weakened further into a tropical depression that night. On the early morning of 13 September, Hagupit weakened into an area of low pressure over the coastal areas of Guangxi. Off the coast of Guangdong, one ship sank and another lost contact with the rescue centre during the passage of Hagupit, with at least 20 persons missing. The high winds and heavy rain associated with Hagupit also damaged some houses and farmlands over western Guangdong.

Changmi (0219) formed as a tropical depression about 600 km northwest of Iwo Jima on the early morning of 22 September. Tracking northeastwards, it intensified into a tropical storm the same day. Changmi accelerated and became an extratropical cyclone on 23 September.

Over the South China Sea, Mekkhala (0220) formed as a tropical depression about 200 km south of Xisha Dao on 23 September. It moved to the northwest and deepened into a tropical storm on 25 September. After traversing the western part of Hainan, Mekkhala turned north and entered Beibu Wan on 26 September. One day later, it changed course towards the east. Mekkhala weakened into a tropical depression over Leizhou on 28 September and dissipated over the coast of western Guangdong later. Around Hainan, more than 20 fishing boats sank or ran aground in high winds.

Higos (0221) formed as a tropical depression about 1 000 km east-northeast of Guam on 27 September. Tracking towards the west-northwest, Higos intensified into a tropical storm the same day. Higos strengthened into a severe tropical storm on the early morning of 28 September and attained typhoon intensity that night. It turned to the north-northeast on 30 September and then accelerated towards Japan. On 1 October, it made landfall near Tokyo and moved northwards across the northern part of Honshu. Higos weakened into a severe tropical storm on the early morning of 2 October and soon became an extratropical cyclone off the northwest coast of Hokkaido. In Japan, Higos left behind four deaths, one person missing and over 60 others injured. In addition, more than 300 houses were destroyed or inundated.

OCTOBER

Bavi (0222) developed as a tropical depression about 1 100 km east-southeast of Guam on 9 October. It moved to the west-northwest and intensified into a tropical storm the same day. Bavi then headed north-northwest and intensified into a severe tropical storm on 11 October. It turned to the north one day later. On 13 October, Bavi weakened into a tropical storm in the afternoon and eventually transformed into an extratropical cyclone over the Pacific that night.

Maysak (0223) formed as a tropical depression over the Pacific about 550 km west of Wake Island on 27 October and tracked north-northwestwards. Maysak strengthened into a tropical storm and accelerated towards the northeast the next day. It intensified further into a severe tropical storm on 29 October. Maysak became an extratropical cyclone over the Pacific on 30 October.

NOVEMBER

Typhoon Huko (0224) was originally a hurricane which formed over the central North Pacific. It moved west-northwestwards across the International Date Line and entered the western North Pacific on 3 November. One day later, it turned to the northwest. On 5 November, Huko weakened into a severe tropical storm and headed north. It accelerated towards the east-northeast on 6 November and weakened into a tropical storm the same night. Huko became an extratropical cyclone over the Pacific on 7 November.

The second tropical cyclone in November, Haishen (0225), formed as a tropical depression about 400 km south-southeast of Guam on 20 November. Tracking towards the west-northwest, Haishen intensified into a tropical storm the following day. On 22 November, it strengthened further into a severe tropical storm and turned gradually to the north. After attaining typhoon intensity on 23 November, it headed towards the northeast and speeded up. Haishen transformed into an extratropical cyclone on the early morning of 25 November.

DECEMBER

Pongsona (0226) formed as a tropical depression about 1 300 km south-southwest of Wake Island on 3 December. While tracking to the west, it intensified into a tropical storm that night. Pongsona intensified further into a severe tropical storm on 5 December and attained typhoon intensity the next day. It turned to the northwest on 7 December and skirted Guam one day later. Pongsona moved northwards on 9 December and then accelerated towards the northeast. On 11 December, Pongsona weakened into a severe tropical storm and then became an extratropical cyclone.

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

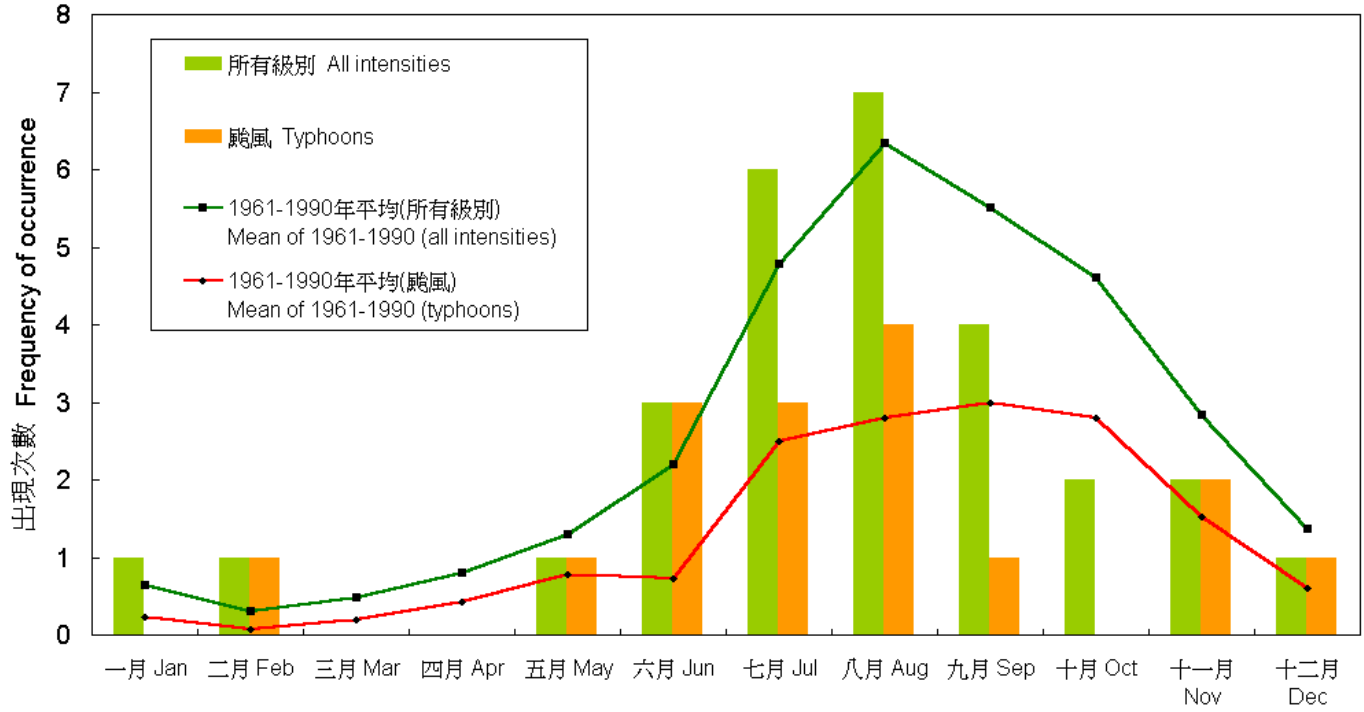

圖 2.1　二零零二年在北太平洋西部及南海區域的熱帶氣旋出現次數之每月分佈 (以熱帶氣旋在該月初次出現爲準)。

Figure 2.1 Monthly frequencies of the occurrence of tropical cyclones in the western North Pacific and the South China Sea in 2002 (based on the first occurrence of the tropical cyclone in the month).

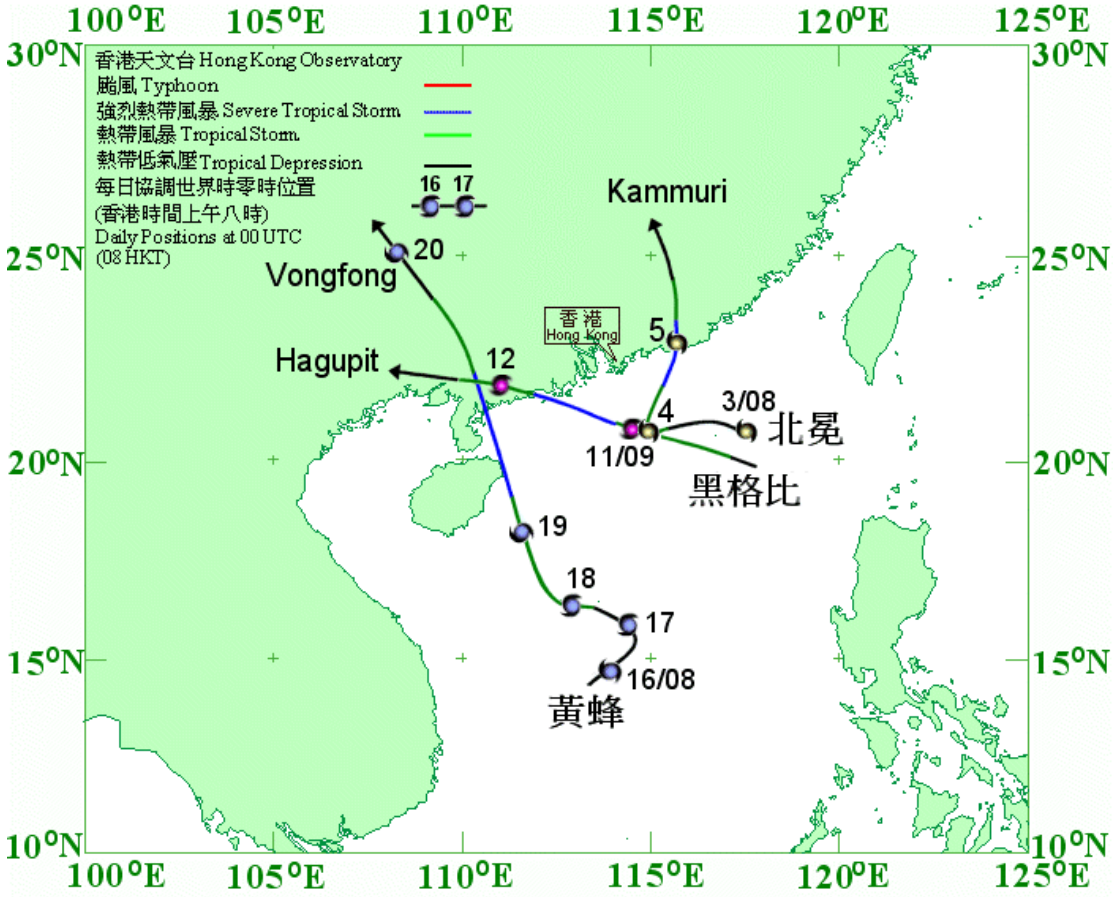

圖 2.2　二零零二年三個影響香港的熱帶氣旋的路徑圖。

Figure 2.2 Tracks of the three tropical cyclones affecting Hong Kong in 2002.

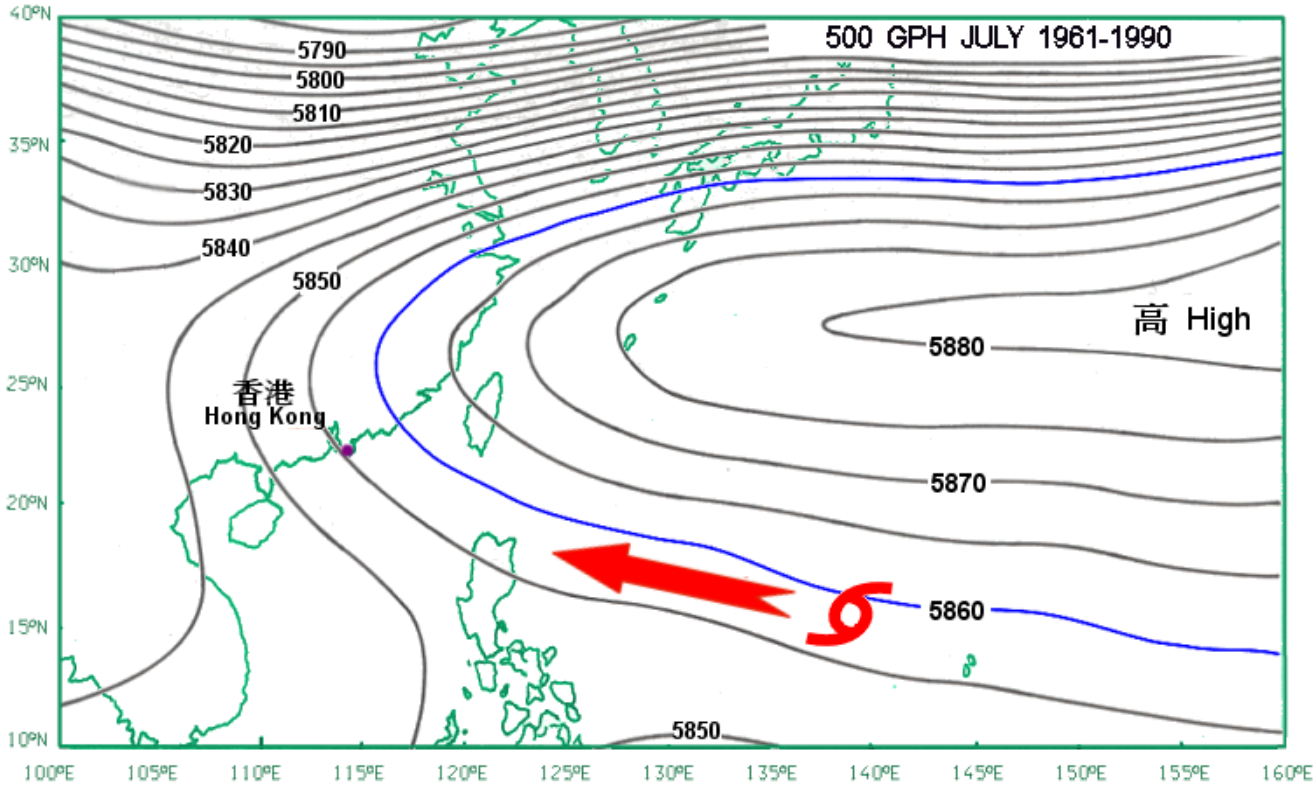

圖 2.3.a　一九六一至一九九零年七月份500百帕斯卡的平均位勢高度，紅色箭咀爲熱帶氣旋引導氣流的方向。(資料來源：美國國家海洋大氣局)

Figure 2.3.a　Mean 500 hPa geopotential height for the months of July from 1961 to 1990. The red arrow shows the direction of the steering flow for tropical cyclones. (Source: National Oceanic and Atmospheric Administration, USA)

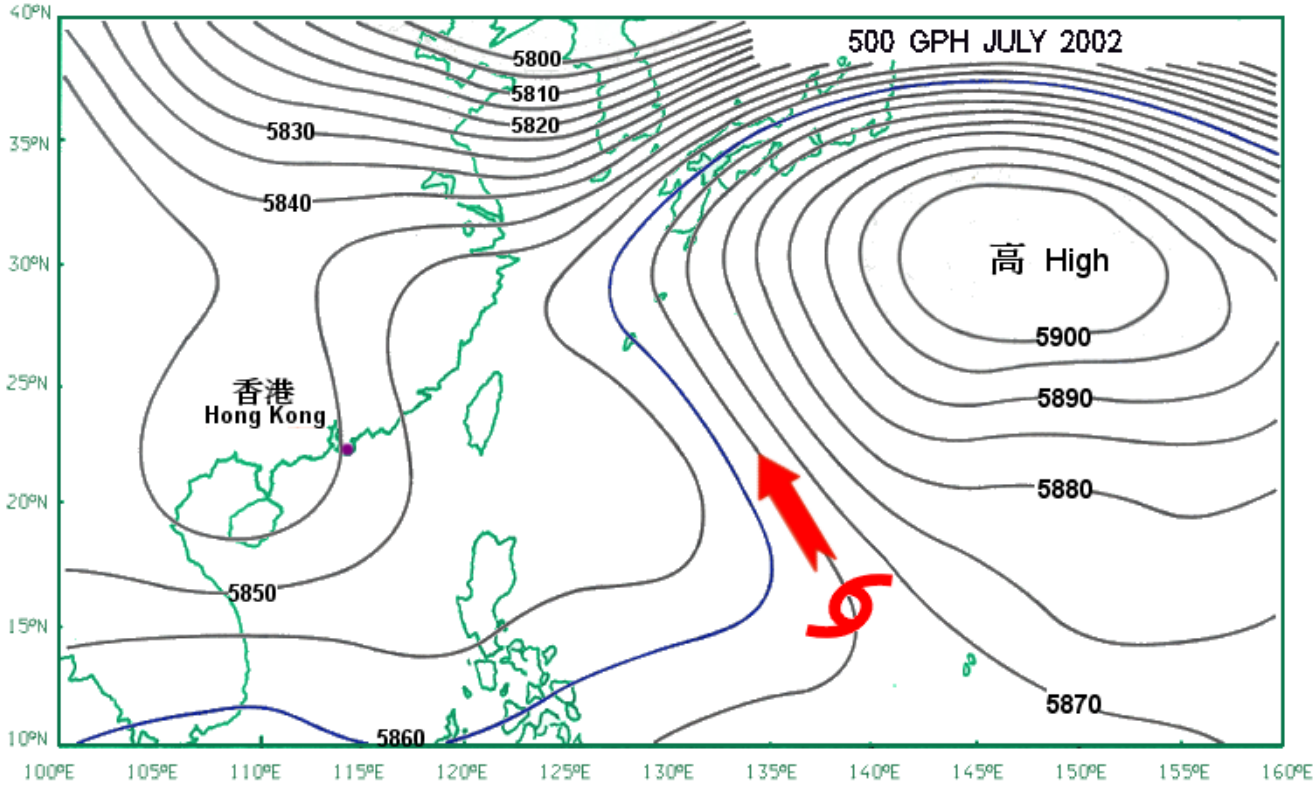

圖 2.3.b　二零零二年七月500百帕斯卡的平均位勢高度，紅色箭咀爲熱帶氣旋引導氣流的方向。(資料來源：美國國家海洋大氣局)

Figure 2.3.b　Mean 500 hPa geopotential height for July 2002. The red arrow shows the direction of the steering flow for tropical cyclones. (Source: National Oceanic and Atmospheric Administration, USA)

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爲準）

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
正常 Normal	0.2	0.0	0.1	0.1	0.8	1.6	2.8	3.2	2.7	2.3	1.8	0.6	16.4

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
正常 Normal	0.0	0.0	0.0	0.1	0.3	0.8	1.6	1.1	1.4	1.0	0.1	0.0	6.4

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.

表 2.3　　香港各熱帶氣旋警告信號之意義

TABLE 2.3　MEANING OF ALL TROPICAL CYCLONE WARNING SIGNALS IN HONG KONG

信號 Signal		顯示符號 Symbol Display	信號之意義 Meaning of the Signal
戒備 Standby	1		有一熱帶氣旋集結於香港約800公里之範圍內，稍後可能影響香港。 A tropical cyclone is centred within about 800 kilometres (km) of Hong Kong and may later affect Hong Kong.
強風 Strong Wind	3		維多利亞港內吹強風或將有強風，持續風力每小時41-62公里，陣風可能超過每小時110公里。 Strong wind is expected or blowing in the Victoria harbour, with a sustained speed of 41-62 kilometres per hour (km/h), and gusts which may exceed 110 km/h.
西北 烈風或暴風 NW'LY Gale or Storm	8 西北 NW		維多利亞港內風力已達或將達每小時63-117公里之烈風或暴風程度，由所指之方向吹襲，而陣風可能超過每小時180公里。 Gale or storm force wind is expected or blowing in the Victoria harbour, with a sustained wind speed of 63-117 km/h from the quarter indicated and gusts which may exceed 180 km/h.
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		烈風或暴風風力現正或將會顯著增強。 Gale or storm force wind is increasing or expected to increase significantly in strength.
颶風 Hurricane	10		風力已達或將達颶風程度。即持續風力每小時118公里或以上，而陣風可能超過每小時220公里。 Hurricane force wind is expected or blowing, with sustained speed reaching upwards from 118 km/h and with gusts that may exceed 220 km/h.

第三節

二零零二年影響香港的熱帶氣旋

Section 3

TROPICAL CYCLONES AFFECTING HONG KONG IN 2002

3.1 強烈熱帶風暴北冕（0212）：二零零二年八月三日至五日

北冕是本年首個令香港天文台發出警告信號的熱帶氣旋。

北冕於八月三日在南海北部發展成一個熱帶低氣壓，當時它位於香港東南偏東約400公里。北冕以每小時約15公里的速度向西移動，並於八月四日清晨增強爲一個熱帶風暴。其後它減速及突然轉向東北偏北推進，直趨廣東東岸。八月五日，北冕進一步增強爲一個強烈熱帶風暴，其中心風力約爲每小時100公里。它於同日在汕尾附近登陸後，以每小時約20公里的速度向北移動，並於該晚在江西省逐漸減弱爲一個低壓區。

北冕帶來的大雨在廣東梅州引致山洪暴發，造成10人死亡、最少15人受傷及23人失蹤 。另有數以百計的房屋受破壞，使1 500人失去家園。在廣州機場約有50班航機因大雨而延遲或取消。

在香港，一號戒備信號在八月三日上午9時50分發出，當時北冕位於香港東南偏東約390公里。受到北冕的環流影響，本港轉吹和緩偏北風及有零散驟雨。當北冕於八月四日進一步移近本港時，離岸地區及高地風勢增強，但港內的風勢則因地形屏障而維持和緩。北冕在該晚最接近香港，當時它位於香港東南偏東約130公里。天文台於八月四日下午4時50分及5時37分錄得最低瞬時海平面氣壓990.1百帕斯卡。隨著北冕移入內陸及減弱，所有熱帶氣旋警告信號在八月五日上午11時30分取消。

八月六日，與北冕殘餘相關的活躍西南風爲本港帶來大雨和雷暴，天文台在早上6時10分發出了黃色暴雨警告信號，當日在葵涌和沙田均錄得超過200毫米的雨量。

表3.1.1-3.1.3分別是北冕影響香港時各站錄得的最高風速、日雨量及最高潮汐資料。圖3.1.1-3.1.4則分別是北冕的路徑圖、香港雨量分佈圖、衛星雲圖及雷達回波圖 。

3.1 Severe Tropical Storm Kammuri (0212) : 3 - 5 August 2002

Kammuri was the first tropical cyclone that necessitated the Hong Kong Observatory to issue a warning signal this year.

Kammuri developed as a tropical depression over the northern part of the South China Sea, about 400 km east-southeast of Hong Kong on 3 August. Tracking westwards at around 15 km/h, Kammuri strengthened into a tropical storm in the early morning of 4 August. It then slowed down and abruptly turned to the north-northeast towards the east coast of Guangdong. On 5 August, Kammuri intensified further into a severe tropical storm with a maximum wind speed of about 100 km/h near the centre. After making landfall near Shanwei, Kammuri moved northwards at about 20 km/h and weakened gradually into an area of low pressure over Jiangxi Province that night.

The heavy rain brought by Kammuri triggered flash floods in Meizhou of Guangdong, which killed 10 people, injured at least 15 others and left 23 missing. Another 1 500 people were also left homeless after hundreds of houses were damaged. At the airport in Guangzhou, about 50 flights were delayed or canceled due to heavy rain.

In Hong Kong, the Standby Signal No. 1 was issued at 9.50 a.m. on 3 August when Kammuri was about 390 km to the east-southeast. Under the circulation of Kammuri, local winds became moderate northerly and there were scattered showers. As Kammuri came closer on 4 August, winds strengthened offshore and on high ground, but remained moderate in the harbour owing to sheltering by terrain. Kammuri was closest to Hong Kong that night when it was about 130 km to the east-southeast. The lowest instantaneous mean sea-level pressure of 990.1 hPa was recorded at the Hong Kong Observatory at 4.50 p.m. and 5.37 p.m. on 4 August. As Kammuri weakened after landfall, all tropical cyclone warning signals were lowered at 11.30 a.m. on 5 August.

The active southwesterly winds associated with the remnant of Kammuri brought heavy rain and thunderstorms to Hong Kong on 6 August. The Amber Rainstorm Warning Signal was issued at 6.10 a.m. and more than 200 millimetres of rainfall were recorded over Kwai Chung and Sha Tin on that day.

Information on wind, rainfall and tide during the passage of Kammuri is given in Tables 3.1.1 - 3.1.3. Figures 3.1.1 - 3.1.4 show the track of Kammuri, rainfall distribution in Hong Kong, cloud imagery and radar echoes respectively.

表 3.1.1　在北冕影響下，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 during the issuing of the tropical cyclone warning signal for Kammuri

站 (參閱圖 1.1)	Station (see Fig. 1.1)	最高陣風 Maximum Gust		日期/月份 Date/Month	時間 Time	最高每小時平均風速 Maximum Hourly Wind		日期/月份 Date/Month	時間 Time
		風向 Direction	風速(公里/時) Speed (km/h)			風向 Direction	風速(公里/時) Speed (km/h)		
中環	Central	東 E	47	3/8	18:07	東 E	19	3/8	22:00
						北 N	19	4/8	16:00
中環廣場	Central Plaza	東北偏北 NNE	99	4/8	19:23	東北偏北 NNE	56	4/8	17:00
赤鱲角 (機場)	Chek Lap Kok (Airport)	東北 NE	52	4/8	11:47	東北偏北 NNE	31	4/8	12:00
						東北偏北 NNE	31	4/8	13:00
長洲	Cheung Chau	東北偏北 NNE	70	3/8	18:35	西北偏西 WNW	38	5/8	07:00
長沙灣	Cheung Sha Wan	東北 NE	54	4/8	12:45	北 N	14	3/8	19:00
		北 N	54	4/8	15:41				
青洲	Green Island	東 E	75	3/8	18:14	東北偏東 ENE	45	4/8	11:00
啓德	Kai Tak	東北 NE	70	4/8	06:41	東北 NE	25	4/8	14:00
						西北偏西 WNW	25	5/8	07:00
京士柏	King's Park	北 N	54	4/8	08:40	北 N	23	4/8	16:00
流浮山	Lau Fau Shan	北 N	67	3/8	17:41	西北偏西 WNW	40	5/8	08:00
北角	North Point	東北偏東 ENE	62	3/8	18:03	東北偏北 NNE	31	4/8	14:00
平洲	Ping Chau	東北偏東 ENE	47	4/8	13:48	西北偏西 WNW	23	5/8	09:00
西貢	Sai Kung	東北偏北 NNE	77	4/8	14:40	北 N	40	4/8	20:00
沙螺灣	Sha Lo Wan	東北 NE	54	4/8	13:33	東北偏東 ENE	27	4/8	12:00
沙田	Sha Tin	東北偏北 NNE	51	4/8	20:19	東北偏北 NNE	19	4/8	06:00
天星碼頭 (九龍)	Star Ferry (Kowloon)	西 W	45	5/8	08:43	西 W	31	5/8	09:00
打鼓嶺	Ta Kwu Ling	- -	45	4/8	20:48	- -	20	4/8	21:00
大尾篤	Tai Mei Tuk	東北偏北 NNE	77	4/8	15:02	東北偏北 NNE	43	4/8	12:00
大帽山	Tai Mo Shan	東 E	90	3/8	19:33	東北 NE	51	4/8	11:00
塔門	Tap Mun	東北偏北 NNE	68	4/8	14:13	西北偏西 WNW	38	5/8	05:00
大老山	Tate's Cairn	北 N	99	4/8	14:47	北 N	62	4/8	17:00
鯽魚湖	Tsak Yue Wu	東北 NE	59	4/8	15:48	東北偏北 NNE	20	4/8	16:00
將軍澳	Tseung Kwan O	東北偏東 ENE	51	4/8	16:59	東北偏東 ENE	16	3/8	14:00
						西北偏北 NNW	16	4/8	24:00
青衣	Tsing Yi	東南 SE	76	3/8	18:20	北 N	30	4/8	19:00
屯門	Tuen Mun	東北偏北 NNE	56	4/8	11:42	西北 NW	16	5/8	07:00
橫瀾島	Waglan Island	東北偏北 NNE	85	4/8	14:51	東北偏北 NNE	65	4/8	15:00
黃竹坑	Wong Chuk Hang	東南偏東 ESE	62	3/8	21:56	西北 NW	20	5/8	07:00

表 3.1.2　北冕影響香港期間，香港天文台總部及其他各站所錄得的日雨量 （單位爲毫米）
Table 3.1.2 Daily rainfall amounts in millimetres recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Kammuri

站 (參閱圖 3.1.2) Station (see Fig. 3.1.2)		八月三日 3 Aug	八月四日 4 Aug	八月五日 5 Aug	八月六日 6 Aug	總雨量 Total
香港天文台 Hong Kong Observatory		13.3	19.4	6.2	43.7	82.6
H12 半山區	Mid Levels	19.5	17.5	12.0	47.5	96.5
H19 筲箕灣	Shau Kei Wan	12.5	17.5	5.5	63.5	99.0
H21 淺水灣	Repulse Bay	18.5	12.5	6.5	30.5	68.0
K04 佐敦谷	Jordan Valley	16.5	32.0	4.5	57.0	110.0
K06 蘇屋邨	So Uk Estate	45.0	12.5	6.5	133.5	197.5
N05 粉嶺	Fanling	13.5	10.0	6.5	130.0	160.0
N06 葵涌	Kwai Chung	34.0	11.0	6.0	229.0	280.0
N09 沙田	Sha Tin	23.0	16.5	6.0	224.5	270.0
N12 元朗	Yuen Long	19.0	11.0	5.0	109.0	144.0
R21 踏石角	Tap Shek Kok	22.5	5.5	2.5	134.5	165.0
R26 石崗	Shek Kong	16.5	8.5	6.5	[156.5]	[188.0]
R31 大尾篤	Tai Mei Tuk	17.5	6.5	5.0	[124.0]	[153.0]

註 :　[　] 基於不齊全的每小時雨量數據。
Note : [　] based on incomplete hourly data.

表 3.1.3　北冕影響香港期間，香港各潮汐站所錄得的最高潮位及最大風暴潮
Table 3.1.3 Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Kammuri

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/月 Date/Month	時間 Time	高度 (米) Height (m)	日/月 Date/Month	時間 Time
鰂魚涌	Quarry Bay	2.28	4/8	06:17	0.45	4/8	07:50
石壁	Shek Pik	2.31	4/8	04:56	0.49	3/8	10:57
大埔滘	Tai Po Kau	2.08	5/8	05:49	0.39	3/8	20:52
尖鼻咀	Tsim Bei Tsui	2.20	5/8	06:44	0.22	4/8	16:59
橫瀾島	Waglan Island	2.43	4/8	06:03	0.53	4/8	14:29

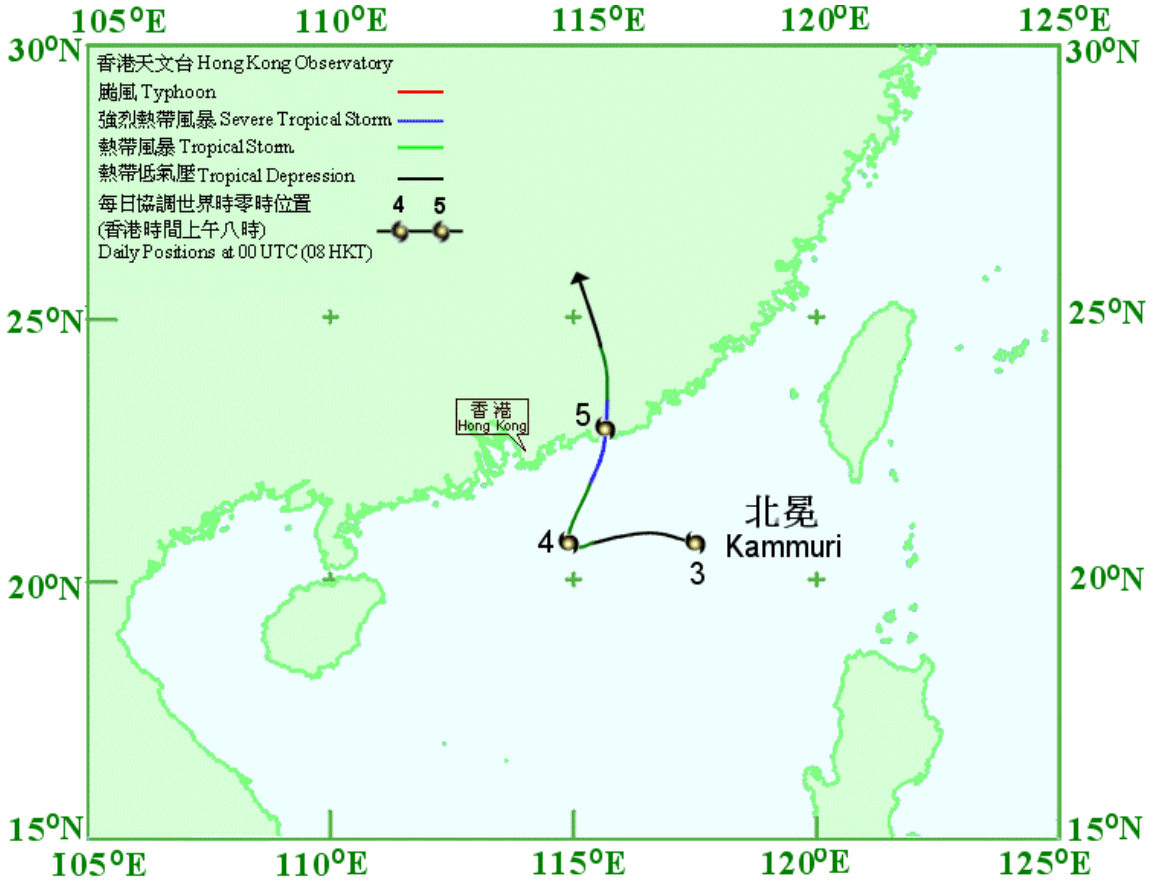

圖 3.1.1　　二零零二年八月三日至五日北冕（0212）的路徑圖。

Figure 3.1.1　　Track of Kammuri (0212) : 3 - 5 August 2002.

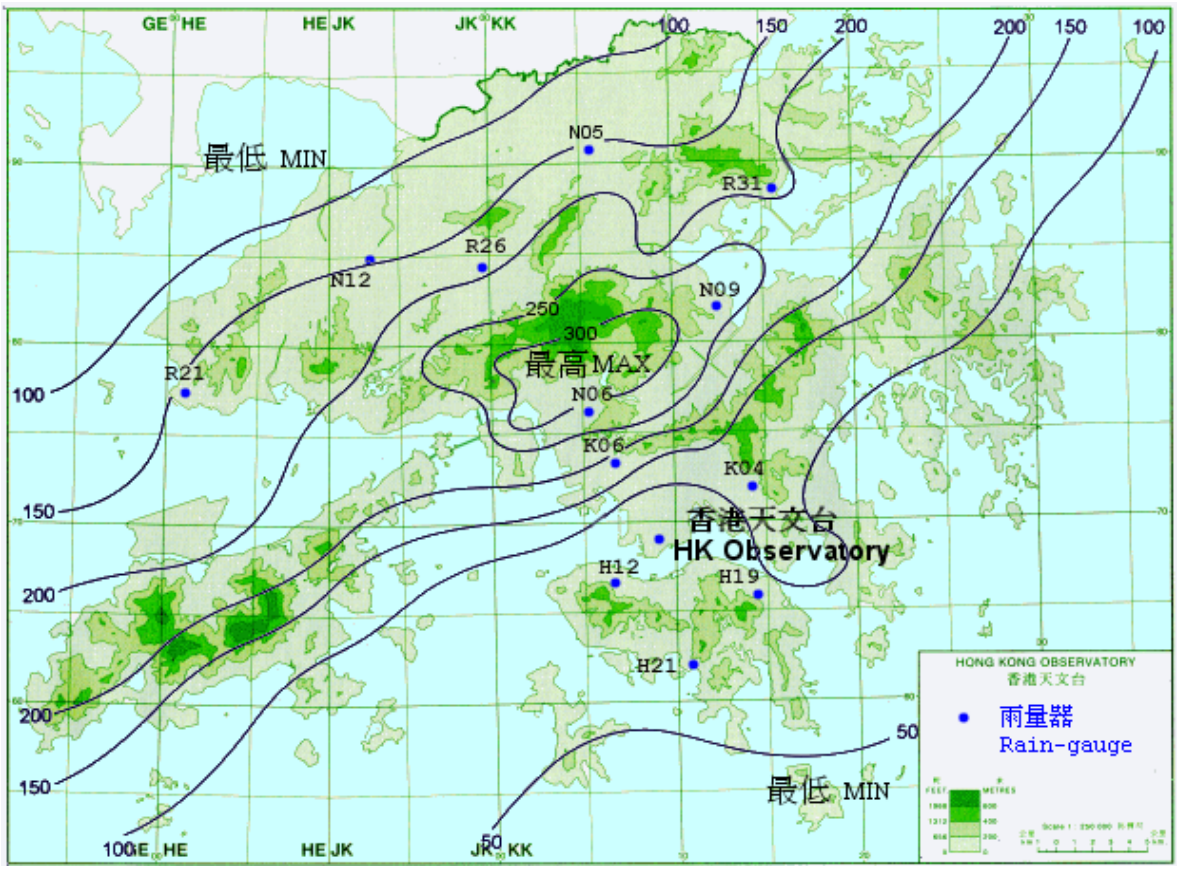

圖 3.1.2　　二零零二年八月三日至六日的雨量分佈 (等雨量線單位爲毫米)。

Figure 3.1.2　　Rainfall distribution on 3-6 August 2002 (isohyets are in millimetres).

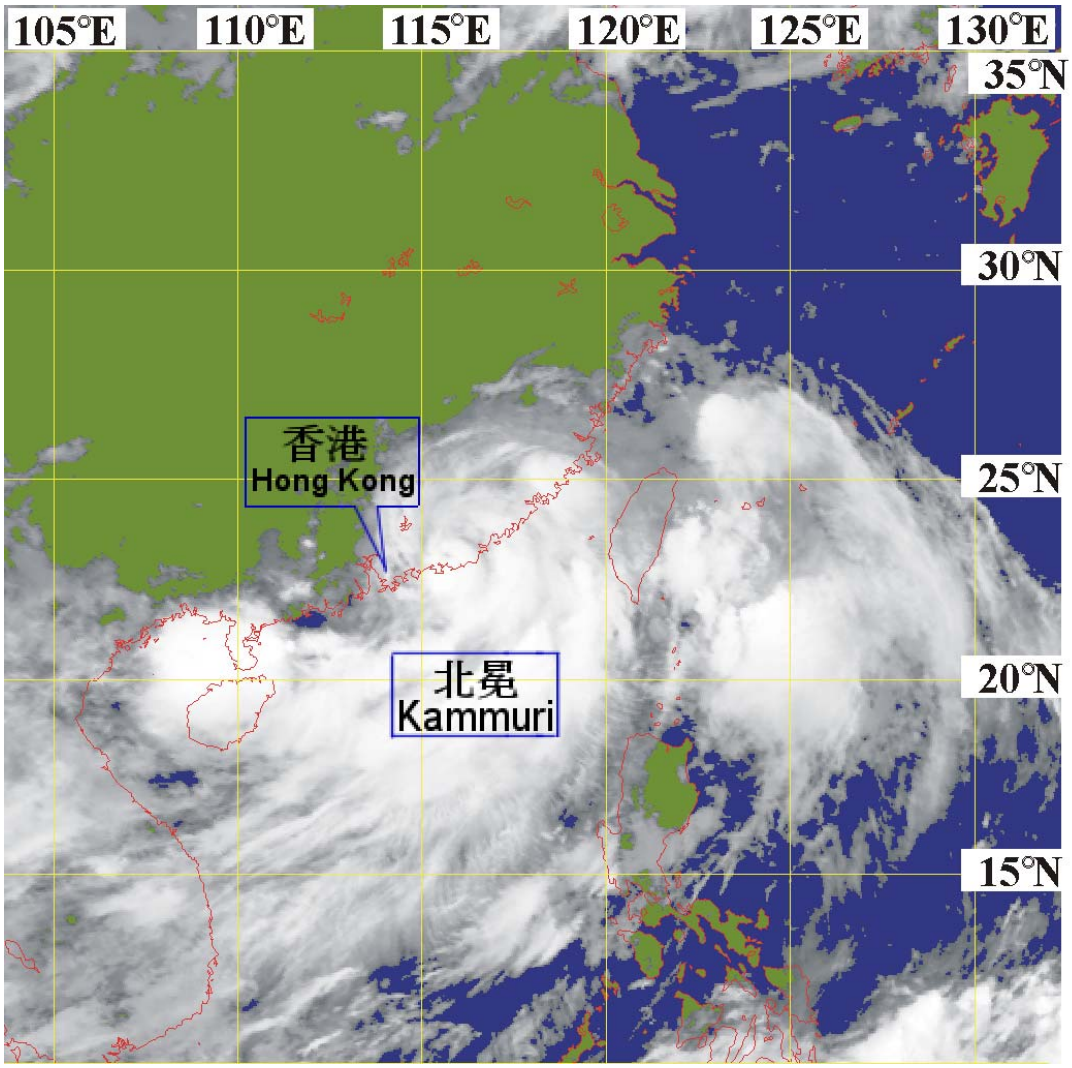

圖 3.1.3　二零零二年八月五日約上午7時30分的紅外線衛星圖片，顯示當時北冕剛在汕尾附近登陸。〔此衛星雲圖接收自日本氣象廳的地球同步氣象衛星(GMS-5)〕

Figure 3.1.3　Infra-red imagery at around 7.30 a.m. on 5 August 2002 showing that Kammuri had just made landfall near Shanwei. (The cloud imagery was originally captured by the Geostationary Meteorological Satellite (GMS-5) of Japan Meteorological Agency)

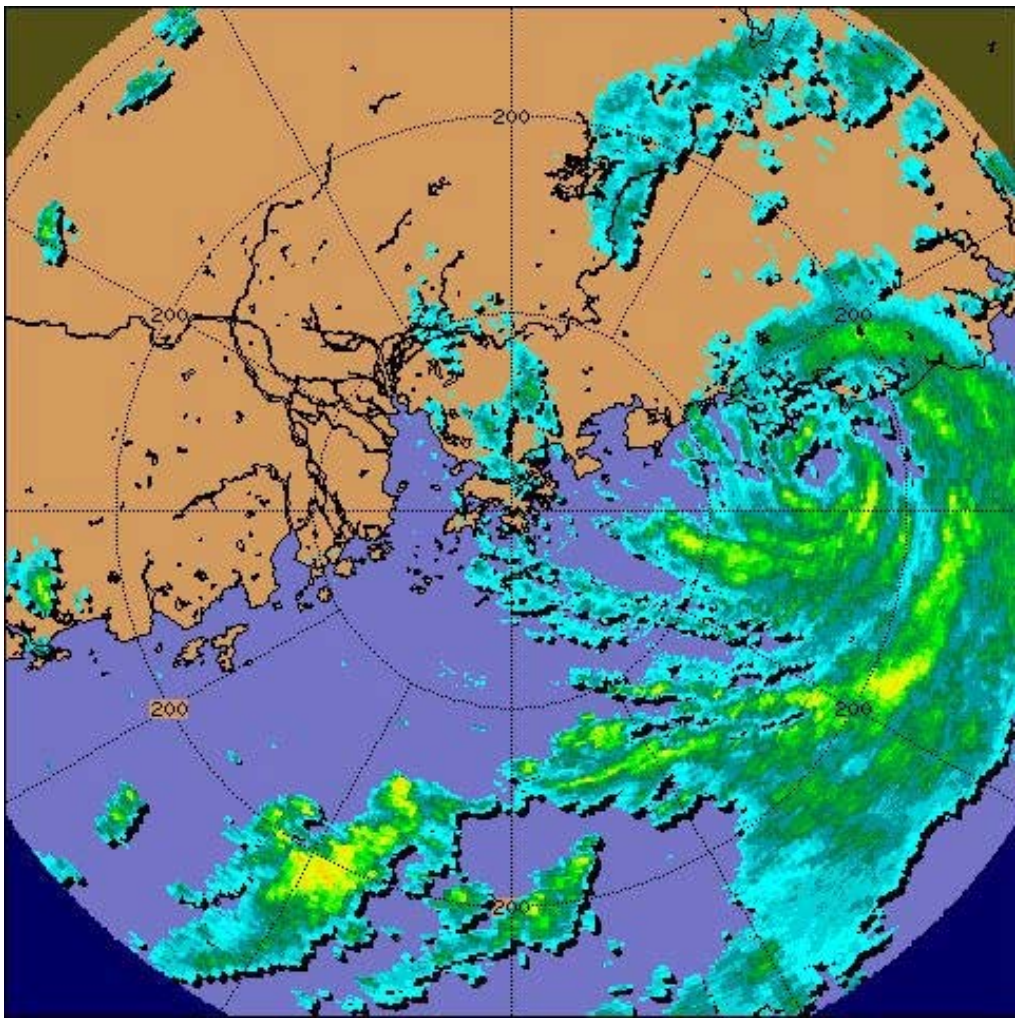

圖 3.1.4　二零零二年八月五日上午4時的雷達回波圖像，當時北冕的中心位於香港以東約150公里。

Figure 3.1.4　Radar echoes captured at 4 a.m. on 5 August 2002. At that time, the centre of Kammuri was located at about 150 km east of Hong Kong.

3.2 強烈熱帶風暴黃蜂（0214）：二零零二年八月十五至二十日

黃蜂是本年第二個令香港天文台發出警告信號的熱帶氣旋。黃蜂跟上一個影響本港的強烈熱帶風暴北冕一樣，都在南海形成。

黃蜂於八月十五日在西沙島東南偏南約280公里處發展爲一個熱帶低氣壓 ，最初兩天向東北緩慢移動，八月十七日轉向西北偏西推進。黃蜂於八月十八日增強爲一個熱帶風暴後再轉向西北偏北移動。八月十九日，黃蜂在東海的反氣旋影響下加速移向廣東西部海岸，並於當日下午增強爲一個強烈熱帶風暴，中心風力約爲每小時90公里。黃蜂掠過海南島東北岸後，於同日晚上在湛江附近登陸，其後迅速減弱，最終在廣西消散。

與黃蜂相關的大雨在中國西南部造成水浸。在廣西，山泥傾瀉及房屋倒塌導致最少八人死亡，另有數以千計居民被洪水圍困，部份地區的通訊及供電服務中斷。據報導黃蜂在廣西造成的直接經濟損失逾三億元人民幣。當黃蜂掠過海南島時，當地機場被逼關閉，來往廣東的海上交通亦要暫停。

在香港，一號戒備信號在八月十七日晚上10時45分發出，當時黃蜂位於香港南面約660公里。本港初時吹和緩至清勁的東至東北風，但其後兩天隨著黃蜂逐步增強及移近廣東西部海岸，本港轉吹東南風，離岸及高地風力達強風程度。黃蜂的外圍雨帶亦爲本港帶來零散狂風驟雨。黃蜂在八月十九日晚上最接近香港，當時它位於香港西南偏西約390公里。天文台於八月十八日下午4時左右錄得最低瞬時海平面氣壓1000.9百帕斯卡。隨著黃蜂移入內陸及減弱，一號戒備信號在八月二十日上午6時30分取消。

在黃蜂影響本港期間，一艘內河船在香港西南面約60公里處擱淺，所有船員均由政府飛行服務隊救起。在牛頭角有一人被跌下來的簷篷擦傷，另一人則在屯門被吹斷的樹枝割傷肩部，香港島及新界亦有大樹被風吹倒。

表3.2.1-3.2.3分別是黃蜂影響香港時各站錄得的最高風速、日雨量及最高潮汐資料 。圖3.2.1-3.2.3則分別是黃蜂的路徑圖、香港雨量分佈圖及衛星雲圖。

3.2 Severe Tropical Storm Vongfong (0214) : 15 – 20 August 2002

Vongfong was the second tropical cyclone that necessitated the issuance of warning signal this year. Like the previous severe tropical storm Kammuri, Vongfong also formed over the South China Sea.

Vongfong developed as a tropical depression at about 280 km south-southeast of Xisha Dao on 15 August. It moved slowly to the northeast in the first two days and turned to the west-northwest on 17 August. Vongfong intensified into a tropical storm and moved towards north-northwest on 18 August. Under the steering flow of an anticyclone over the East China Sea, Vongfong accelerated towards the west coast of Guangdong on 19 August and intensified into a severe tropical storm with a maximum wind speed of about 90 km/h near its centre that afternoon. Vongfong skirted the northeastern coast of Hainan and then made landfall near Zhangjiang the same night. It weakened rapidly after landfall and dissipated over Guangxi on 20 August.

The heavy rain brought by Vongfong triggered flooding over southwest China. In Guangxi, landslides and collapsed houses claimed at least eight lives and thousands of people were trapped by floods. Communication and power supplies of some districts were also interrupted. The reported direct economic losses in Guangxi were over 300 million RMB. In Hainan, the airport was closed and sea traffic to Guangdong was suspended during the passage of Vongfong.

In Hong Kong, the Standby Signal No. 1 was issued at 10.45 p.m. on 17 August when Vongfong was about 660 km to the south. Local winds were moderate to fresh east to northeasterlies at first. As Vongfong continued to intensify and approached the west coast of Guangdong in the next two days, local winds changed to southeasterlies with strong winds affecting offshore areas and high ground. The outer rainbands of Vongfong also brought scattered squally showers to Hong Kong. Vongfong was closest to Hong Kong on 19 August night when it was about 390 km to the west-southwest. The lowest instantaneous mean sea-level pressure of 1000.9 hPa was recorded at the Hong Kong Observatory at about 4 p.m. on 18 August. As Vongfong moved inland and weakened, the Standby Signal No. 1 was cancelled at 6.30 a.m. on 20 August.

During the passage of Vongfong, a river trade vessel ran aground at about 60 km southwest of Hong Kong. All the crew were rescued by the Government Flying Service. A person in Ngau Tau Kok was injured by a piece of falling awning and another man in Tuen Mun hurt his shoulder when hit by a broken tree branch. Some trees were also blown down in Hong Kong Island and the New Territories.

Information on wind, rainfall and tide during the passage of Vongfong is given in Tables 3.2.1-3.2.3. Figures 3.2.1-3.2.3 show the track of Vongfong, rainfall distribution in Hong Kong and cloud imagery respectively.

表 3.2.1　在黃蜂影響下，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 during the issuing of the tropical cyclone warning signal for Vongfong

站 (參閱圖 1.1)	Station (see Fig. 1.1)	最高陣風 Maximum Gust		日期/月份 Date/Month	時間 Time	最高每小時平均風速 Maximum Hourly Wind		日期/月份 Date/Month	時間 Time
		風向 Direction	風速(公里/時) Speed (km/h)			風向 Direction	風速(公里/時) Speed (km/h)		
中環	Central	東 E	58	18/8	20:09	東 E	25	18/8	21:00
中環廣場	Central Plaza	- -	90	18/8	20:06	- -	56	19/8	19:00
赤鱲角 (機場)	Chek Lap Kok (Airport)	東南 SE	75	19/8	18:25	東南 SE	43	19/8	21:00
		東南 SE	75	19/8	19:54				
長洲	Cheung Chau	東南偏東 ESE	94	18/8	16:21	東南 SE	59	20/8	03:00
長沙灣	Cheung Sha Wan	東北 NE	62	18/8	19:20	東北 NE	23	18/8	19:00
青洲	Green Island	東南偏東 ESE	92	18/8	13:19	東 E	47	18/8	12:00
啓德	Kai Tak	東南 SE	72	18/8	22:39	東南偏東 ESE	41	19/8	19:00
京士柏	King's Park	東南偏東 ESE	59	20/8	00:00	東 E	25	19/8	08:00
流浮山	Lau Fau Shan	東北偏東 ENE	63	18/8	11:57	東北偏東 ENE	30	18/8	12:00
北角	North Point	東北偏東 ENE	79	18/8	19:17	東北偏東 ENE	31	18/8	19:00
						東北偏東 ENE	31	18/8	20:00
平洲	Ping Chau	東 E	63	18/8	15:21	東 E	19	18/8	16:00
西貢	Sai Kung	東北偏東 ENE	72	18/8	11:27	東北偏東 ENE	38	18/8	19:00
沙田	Sha Tin	南 S	54	19/8	15:09	東北偏東 ENE	20	18/8	16:00
						東南 SE	20	19/8	16:00
天星碼頭 (九龍)	Star Ferry (Kowloon)	東南偏東 ESE	76	19/8	18:24	東 E	40	20/8	01:00
打鼓嶺	Ta Kwu Ling	東南偏東 ESE	56	19/8	00:01	東 E	22	19/8	14:00
大尾篤	Tai Mei Tuk	東北偏東 ENE	81	18/8	11:34	東北偏東 ENE	49	18/8	19:00
大帽山	Tai Mo Shan	東南 SE	110	18/8	22:50	東南 SE	75	18/8	21:00
塔門	Tap Mun	東南偏東 ESE	87	18/8	22:55	東南偏東 ESE	38	20/8	00:00
大老山	Tate's Cairn	東北偏東 ENE	101	18/8	22:31	東 E	59	18/8	19:00
鯽魚湖	Tsak Yue Wu	東北偏東 ENE	49	19/8	13:00	東 E	14	19/8	13:00
將軍澳	Tseung Kwan O	東南偏東 ESE	63	19/8	18:17	東南偏東 ESE	22	19/8	19:00
青衣	Tsing Yi	東南偏東 ESE	85	19/8	16:26	東南偏東 ESE	47	19/8	12:00
						東南 SE	47	19/8	17:00
屯門	Tuen Mun	東南偏南 SSE	68	19/8	21:12	東南 SE	30	19/8	18:00
橫瀾島	Waglan Island	東 E	76	18/8	18:13	東 E	56	18/8	19:00
		東 E	76	18/8	19:04				
黃竹坑	Wong Chuk Hang	東南 SE	76	18/8	19:20	東 E	30	19/8	08:00

表 3.2.2　黃蜂影響香港期間，香港天文台總部及其他各站所錄得的日雨量 （單位爲毫米）
Table 3.2.2 Daily rainfall amounts in millimetres recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Vongfong

站 (參閱圖 3.2.2) Station (see Fig. 3.2.2)	八月十七日 17 Aug	八月十八日 18 Aug	八月十九日 19 Aug	八月二十日 20 Aug	總雨量 Total
香港天文台 Hong Kong Observatory	1.0	51.6	26.8	14.6	94.0
H12　半山區　Mid Levels	0.0	74.5	24.0	26.0	124.5
H19　筲箕灣　Shau Kei Wan	0.0	50.5	25.5	16.0	92.0
H21　淺水灣　Repulse Bay	0.5	46.5	25.0	13.5	85.5
K04　佐敦谷　Jordan Valley	6.0	65.0	19.0	17.0	107.0
K06　蘇屋邨　So Uk Estate	3.0	58.5	39.0	11.0	111.5
N05　粉嶺　Fanling	0.0	48.5	26.5	24.0	99.0
N06　葵涌　Kwai Chung	0.5	69.0	46.0	17.5	133.0
N09　沙田　Sha Tin	1.5	57.0	23.5	22.5	104.5
N12　元朗　Yuen Long	0.0	50.0	38.0	25.0	113.0
N13　糧船灣　High Island	5.5	38.5	49.0	23.0	116.0
R21　踏石角　Tap Shek Kok	0.0	48.5	34.0	14.0	96.5
R31　大尾篤　Tai Mei Tuk	0.0	37.5	19.0	4.5	61.0

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

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	2.60	20/8	05:59	0.43	20/8	04:49
石壁	Shek Pik	2.74	20/8	06:02	0.48	19/8	21:44
大埔滘	Tai Po Kau	2.53	20/8	05:46	0.44	20/8	05:52
尖鼻咀	Tsim Bei Tsui	2.78	20/8	06:53	0.34	20/8	06:53
橫瀾島	Waglan Island	2.68	20/8	05:08	0.41	20/8	05:08

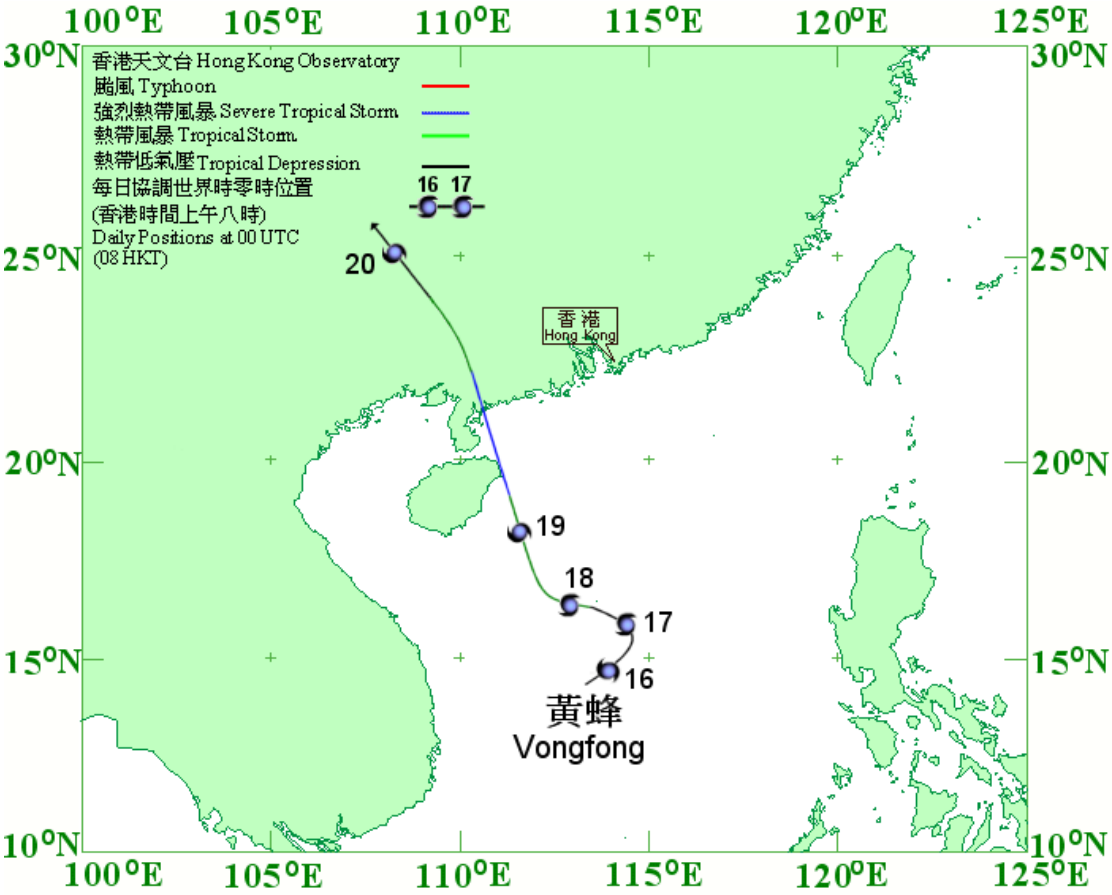

圖 3.2.1　　二零零二年八月十五至二十日黃蜂（0214）的路徑圖。

Figure 3.2.1　　Track of Vongfong (0214) : 15 - 20 August 2002.

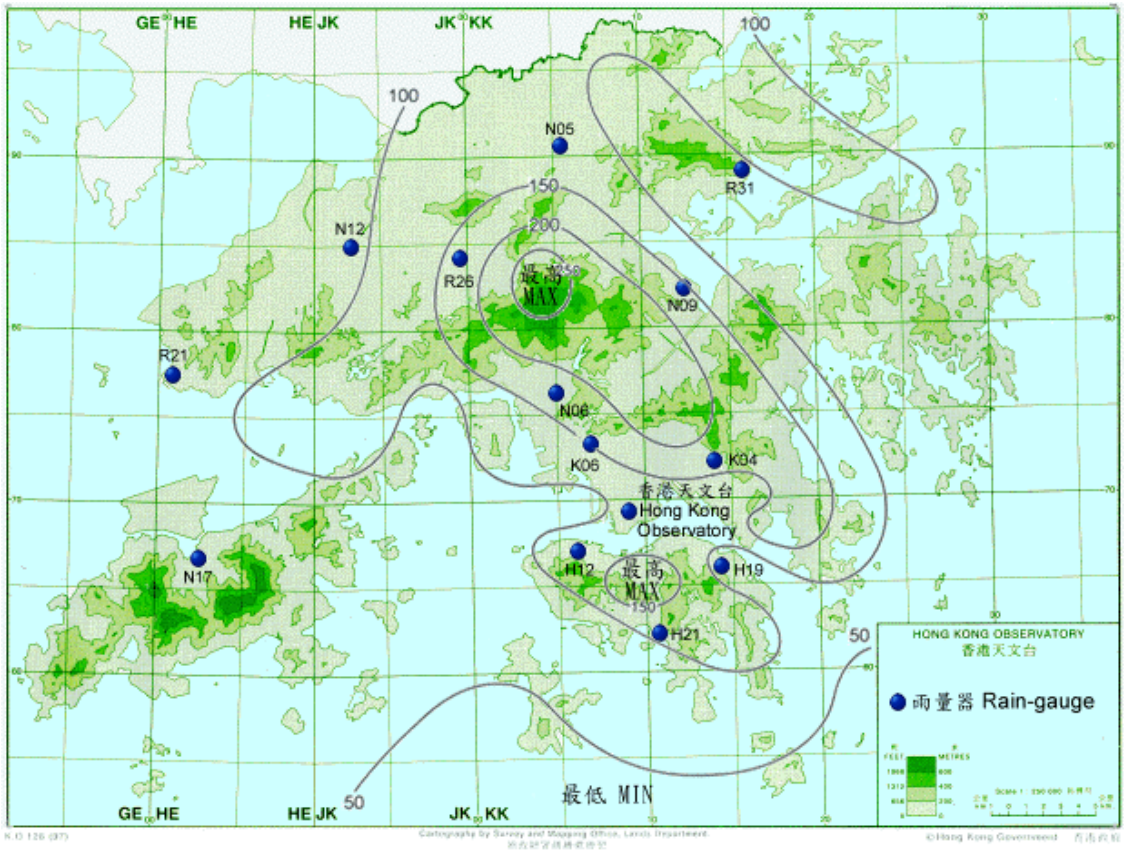

圖 3.2.2　　二零零二年八月十七至二十日的雨量分佈 (等雨量線單位爲毫米)。

Figure 3.2.2　　Rainfall distribution on 17-20 August 2002 (isohyets are in millimetres).

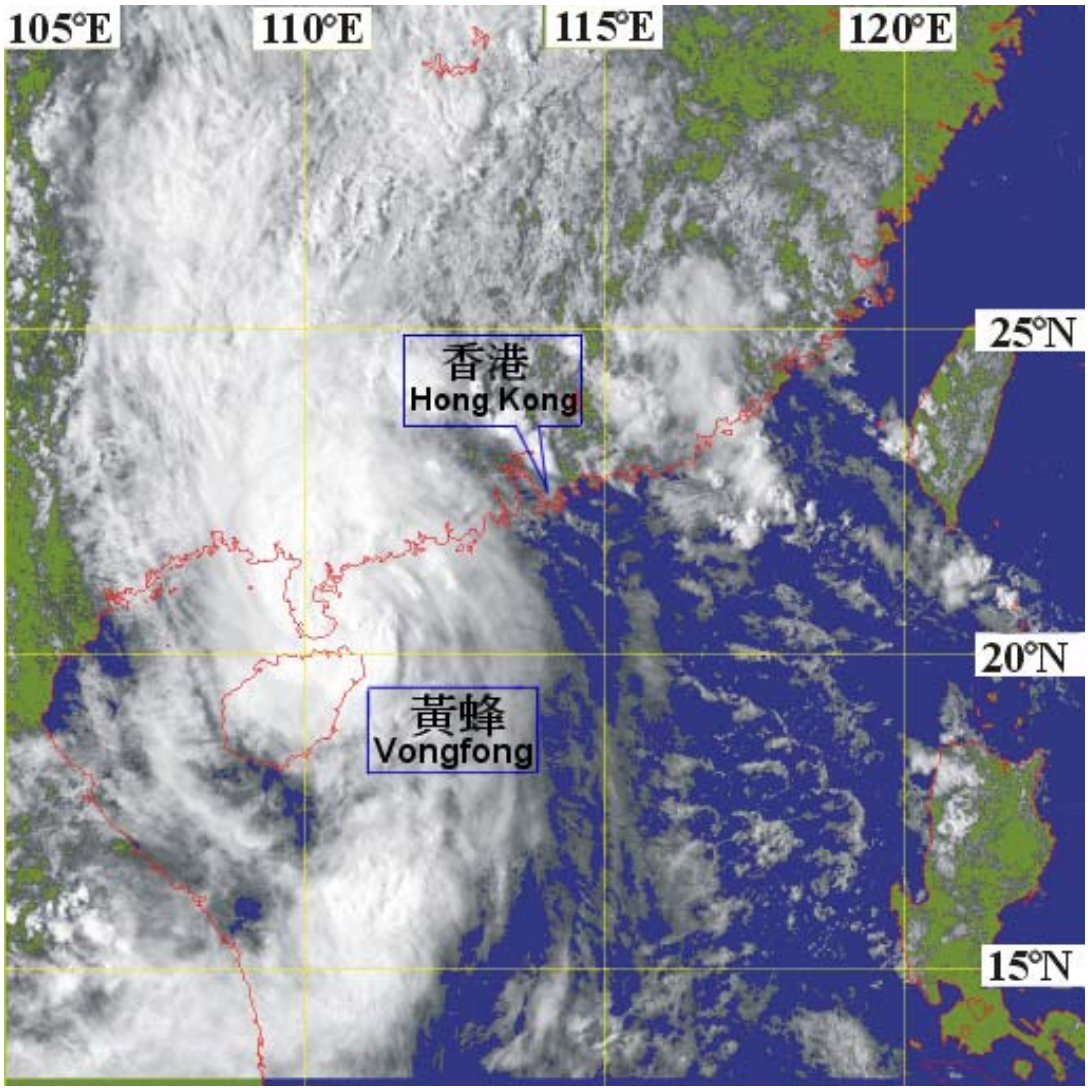

圖 3.2.3　二零零二年八月十九日約下午3時30分的可見光衛星圖片，顯示當時黃蜂位於雷州附近。〔此衛星雲圖接收自日本氣象廳的地球同步氣象衛星(GMS-5)〕

Figure 3.2.3　Visible imagery at around 3.30 p.m. on 19 August 2002 showing that Vongfong was near Leizhou. (The cloud imagery was originally captured by the Geostationary Meteorological Satellite (GMS-5) of Japan Meteorological Agency)

3.3 強烈熱帶風暴黑格比（0218）：二零零二年九月十至十三日

黑格比是本年首個令香港天文台發出八號烈風或暴風信號的熱帶氣旋。

黑格比於九月十日在東沙島東南約140公里處發展爲一個熱帶低氣壓，並穩定地在南海北部向西北偏西移動。它於當晚迅速增強爲一個熱帶風暴，並在九月十一日變爲一個強烈熱帶風暴，中心附近的最高風速約爲每小時110公里。黑格比於九月十二日在廣東西部的陽江附近登陸，之後減弱爲一個熱帶風暴及轉向西移，晚上進一步減弱爲一個熱帶低氣壓。九月十三日清晨，黑格比在廣西沿岸減弱爲一個低壓區。

在黑格比掠過廣東沿岸海域期間，有20多艘漁船或貨船遇險，這些船上共載有200多人，其中一艘船沉沒，而另一艘船則與救援中心失去聯絡，共導致最少20人失蹤。在廣東西部，與黑格比相關的強風和大雨亦對一些房屋和農田造成破壞。

隨著黑格比在香港東南約460公里處形成，天文台在九月十日下午2時40分發出一號戒備信號。在天氣方面，本港於九月十日初時吹輕微至和緩北風及有煙霞，而黑格比的外圍雨帶則由下午開始爲本港帶來狂風驟雨及雷暴。當黑格比移向廣東沿岸及繼續增強時，三號強風信號在九月十一日上午5 時40分發出，本港亦轉吹偏東強風，橫瀾島的風勢更達烈風程度。因黑格比逼近本港及在中午前增強爲一個強烈熱帶風暴，天文台在該日下午1時40分改發八號東南烈風或暴風信號。在其後數小時，離岸及高地的風勢達暴風程度，風向亦由東轉爲東南。在長洲錄得的最高持續風力約爲每小時100公里。黑格比在下午3時左右最接近香港，當時它位於香港西南偏南約150公里。在黑格比的影響下，本港部份地區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)	時間	日/月
香港天文台總部	1001.0	05:14	11/9
打鼓嶺	1001.9	05:32	11/9
橫瀾島	999.9	06:49	11/9
長洲	1000.4	05:20	11/9

隨著黑格比向西移離香港及本地的風力普遍下降，八號東南烈風或暴風信號在九月十二日清晨1時40分由三號強風信號取代。當黑格比在陽江附近登陸及減弱後，所有熱帶氣旋警告信號亦於同日早上5時40分取消。

在黑格比影響本港期間，共有32人受傷。大風亦令本港多處發生樹木和棚架倒塌，其中在中環倒下的棚架導致附近交通受阻約兩小時。另外，在本港附近水域有三艘漁船遇險，船上的37人均由政府飛行服務隊救起。本港機場有超過40班航機須要取消及多班航機出現延誤，往離島的小輪以及部份巴士線亦一度停止服務。

表3.3.1-3.3.3分別是黑格比影響香港時各站錄得的最高風速、日雨量及最高潮汐資料。圖3.3.1和3.3.2分別是黑格比的路徑圖及香港雨量分佈圖，圖3.3.3顯示長洲風速的變化情形，圖3.3.4和3.3.5是黑格比的衛星雲圖及雷達回波圖。

3.3 Severe Tropical Storm Hagupit (0218) : 10 – 13 September 2002

Hagupit was the first tropical cyclone that necessitated the issuance of the Gale or Storm Signal No. 8 this year.

Hagupit developed as a tropical depression at about 140 km southeast of Dongsha Dao on 10 September and moved steadily to the west-northwest over the northern part of the South China Sea. It intensified rapidly into a tropical storm the same night and became a severe tropical storm on 11 September. The maximum wind speed near its centre was about 110 km/h. On 12 September, Hagupit made landfall near Yangjiang of western Guangdong and weakened into a tropical storm. It then turned west and weakened further into a tropical depression that night. Hagupit weakened into an area of low pressure over the coastal areas of Guangxi on the early morning of 13 September.

During the passage of Hagupit, more than 20 fishing boats or freight vessels with over 200 people on board were in danger off the coast of Guangdong. One of the ships sank and another lost contact with the rescue centre, leaving at least 20 persons missing. The high winds and heavy rain associated with Hagupit also damaged some houses and farmlands over western Guangdong.

In Hong Kong, the Standby Signal No. 1 was issued at 2.40 p.m. on 10 September, shortly after Hagupit formed at about 460 km to the southeast. On 10 September, the weather was at first hazy with light to moderate northerly winds. In the afternoon, the outer rainbands of Hagupit began to bring squally thunderstorms and showers to Hong Kong. As Hagupit continued to intensify and moved towards the coast of Guangdong, the Strong Wind Signal No. 3 was issued at 5.40 a.m. on 11 September. Local winds strengthened from the east and reached gale force over Waglan Island on 11 September. With Hagupit edging towards Hong Kong and intensified into a severe tropical storm before noontime, the Hong Kong Observatory issued the No. 8 SOUTHEAST Gale or Storm Signal at 1.40 p.m. on 11 September. In the next few hours, winds offshore and on high ground reached storm force and wind direction changing from east to southeast. The highest sustained wind speed recorded at Cheung Chau was about 100 km/h. Hagupit was closest to Hong Kong at about 3 p.m. when it was about 150 km to the south-southwest. The lowest instantaneous mean sea-level pressures recorded at some places of Hong Kong during the passage of Hagupit were as follows:

Station	Lowest instantaneous mean sea-level pressure (hPa)	Time	Date/Month
Hong Kong Observatory Headquarters	1001.0	05:14	11/9
Ta Kwu Ling	1001.9	05:32	11/9
Waglan Island	999.9	06:49	11/9
Cheung Chau	1000.4	05:20	11/9

Following the departure of Hagupit to the west and the abatement of local winds, the No. 8 SOUTHEAST Gale or Storm Signal was replaced by the Strong Wind Signal No. 3 at 1.40 a.m. on 12 September. After Hagupit made landfall near Yangjiang and weakened, all tropical cyclone warning signals were cancelled at 5.40 a.m. the same day.

Locally, 32 persons were injured during the passage of Hagupit. In the high winds, trees and scaffolding toppled at various places over the territory. The scaffolding which collapsed in

Central blocked the nearby traffic for about two hours. Over the adjacent waters, three fishing boats were in danger and a total of 37 fishermen on board were rescued by the Government Flying Service. In the airport, over 40 flights were cancelled and many other flights were delayed. Ferry services to outlying islands and some bus routes were also suspended.

Information on wind, rainfall and tide during the passage of Hagupit is given in Tables 3.3.1 – 3.3.3. Figures 3.3.1 and 3.3.2 show the track of Hagupit and the rainfall distribution in Hong Kong respectively. The time series of the wind speed recorded at Cheung Chau is given in figure 3.3.3. Figures 3.3.4 and 3.3.5 are the satellite and radar imagery of Hagupit.

表 3.3.1　在黑格比影響下，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 during the issuing of the tropical cyclone warning signal for Hagupit

站 (參閱圖 1.1)	Station (see Fig. 1.1)	最高陣風 Maximum Gust		日期/月份	時間	最高每小時平均風速 Maximum Hourly Wind		日期/月份	時間
		風向 Direction	風速(公里/時) Speed (km/h)	Date/Month	Time	風向 Direction	風速(公里/時) Speed (km/h)	Date/Month	Time
中環	Central	東 E	85	11/9	12:53	東 E	36	11/9	13:00
中環廣場	Central Plaza	東 E	124	11/9	15:25	東 E	70	11/9	13:00
赤鱲角 (機場)	Chek Lap Kok (Airport)	東南偏東 ESE	94	11/9	15:08	東 E	56	11/9	13:00
長洲	Cheung Chau	東南偏東 ESE	144	11/9	14:32	東南偏東 ESE	92	11/9	14:00
長沙灣	Cheung Sha Wan	東北偏北 NNE	92	11/9	09:58	東北 NE	36	11/9	10:00
青洲	Green Island	東南偏東 ESE	130	11/9	11:38	東南偏東 ESE	58	11/9	10:00
啓德	Kai Tak	東南 SE	96	11/9	17:55	東 E	41	11/9	11:00
						東南偏東 ESE	41	11/9	16:00
京士柏	King's Park	東南偏東 ESE	87	11/9	16:57	東 E	38	11/9	12:00
流浮山	Lau Fau Shan	東南偏東 ESE	77	11/9	16:11	東北偏東 ENE	31	11/9	11:00
		東南 SE	77	11/9	20:29				
北角	North Point	東北偏東 ENE	87	11/9	17:53	東北偏東 ENE	43	11/9	11:00
西貢	Sai Kung	東南 SE	96	11/9	17:47	東北 NE	52	11/9	10:00
沙螺灣	Sha Lo Wan	東南偏南 SSE	130	11/9	16:55	東 E	56	11/9	13:00
沙田	Sha Tin	東北 NE	62	11/9	09:28	東北偏北 NNE	22	11/9	07:00
天星碼頭 (九龍)	Star Ferry (Kowloon)	東 E	90	11/9	10:08	東 E	47	11/9	13:00
打鼓嶺	Ta Kwu Ling	東南偏東 ESE	58	11/9	11:46	東南偏東 ESE	27	11/9	13:00
大尾篤	Tai Mei Tuk	東北偏東 ENE	96	11/9	09:24	東北偏東 ENE	65	11/9	11:00
大帽山	Tai Mo Shan	北 N	124	11/9	12:54	東南 SE	81	11/9	23:00
塔門	Tap Mun	東南偏東 ESE	87	11/9	11:38	東 E	43	11/9	10:00
大老山	Tate's Cairn	東北 NE	133	11/9	09:50	東 E	75	11/9	11:00
將軍澳	Tseung Kwan O	東南 SE	83	11/9	17:59	東北偏北 NNE	23	11/9	07:00
青衣	Tsing Yi	東南偏東 ESE	121	11/9	13:39	東南偏東 ESE	56	11/9	12:00
屯門	Tuen Mun	東南 SE	81	11/9	18:22	東南 SE	27	11/9	19:00
						東南 SE	27	12/9	05:00
橫瀾島	Waglan Island	東南偏東 ESE	112	11/9	16:41	東 E	79	11/9	10:00
黃竹坑	Wong Chuk Hang	東南 SE	104	11/9	12:55	東南偏東 ESE	41	11/9	15:00

表 3.3.2　黑格比影響香港期間，香港天文台總部及其他各站所錄得的日雨量 (單位爲毫米)
Table 3.3.2 Daily rainfall amounts in millimetres recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Hagupit

站 (參閱圖 3.3.3) Station (see Fig. 3.3.3)	九月十日 10 Sep	九月十一日 11 Sep	九月十二日 12 Sep	總雨量 Total
香港天文台 Hong Kong Observatory	49.0	39.5	17.8	106.3
H12 半山區 Mid Levels	52.5	62.0	8.5	123.0
H19 筲箕灣 Shau Kei Wan	36.5	30.0	17.5	84.0
H21 淺水灣 Repulse Bay	41.0	56.5	10.0	107.5
K04 佐敦谷 Jordan Valley	50.0	43.5	17.0	110.5
K06 蘇屋邨 So Uk Estate	39.0	47.0	11.0	97.0
N05 粉嶺 Fanling	33.0	21.0	19.0	73.0
N06 葵涌 Kwai Chung	38.0	53.0	12.5	103.5
N09 沙田 Sha Tin	44.0	49.5	11.5	105.0
N12 元朗 Yuen Long	22.0	28.5	[8.5]	[59.0]
N13 糧船灣 High Island	50.5	27.5	4.5	82.5
N17 東涌 Tung Chung	23.5	46.5	31.5	101.5
R21 踏石角 Tap Shek Kok	15.0	38.0	13.0	66.0
R26 石崗 Shek Kong	24.5	60.5	28.5	113.5
R31 大尾篤 Tai Mei Tuk	30.0	20.5	4.0	54.5

註 :　[　] 基於不齊全的每小時雨量數據。
Note : [　] based on incomplete hourly data.

表 3.3.3　黑格比影響香港期間，香港各潮汐站所錄得的最高潮位及最大風暴潮
Table 3.3.3 Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Hagupit

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	2.68	11/9	13:17	0.72	11/9	14:54
石壁 Shek Pik	2.78	11/9	14:36	0.96	11/9	14:37
大埔滘 Tai Po Kau	2.62	11/9	12:39	0.71	11/9	11:47
尖鼻咀 Tsim Bei Tsui	2.65	11/9	13:06	0.69	11/9	16:56
橫瀾島 Waglan Island	2.70	11/9	12:44	0.64	11/9	12:44

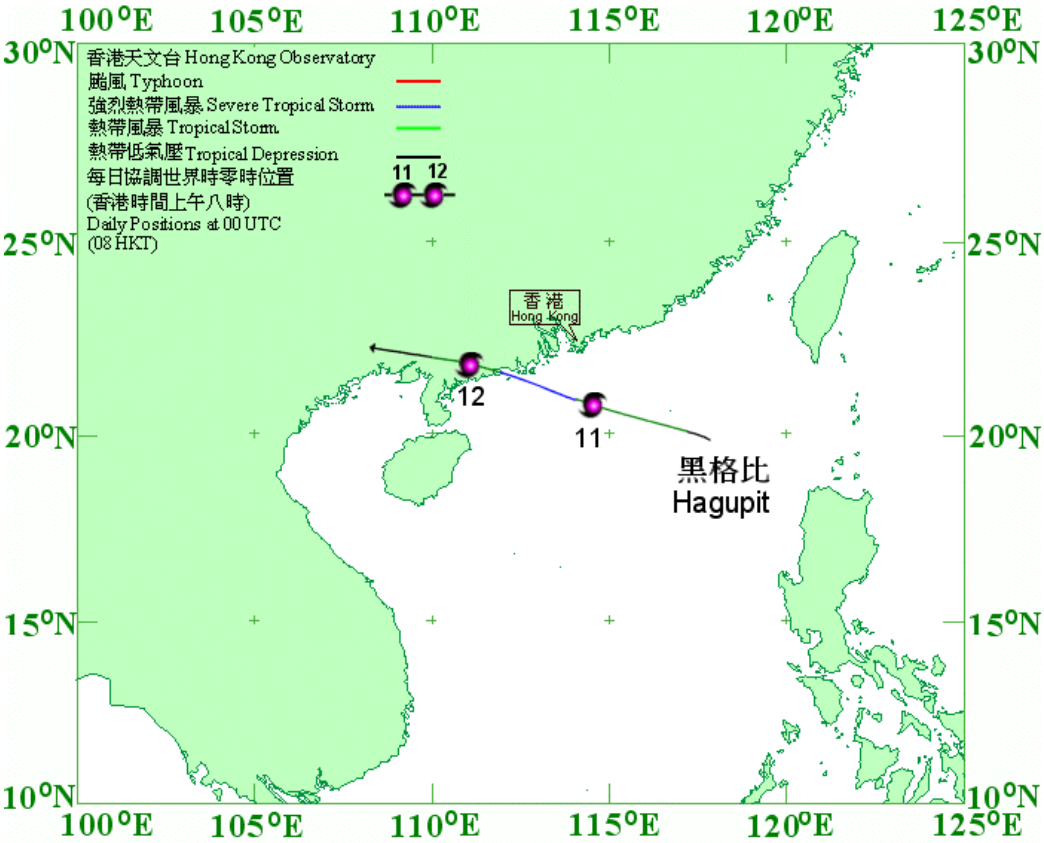

圖 3.3.1.a　　二零零二年九月十至十三日黑格比（0218）的路徑圖。

Figure 3.3.1.a　　Track of Hagupit (0218) : 10 - 13 September 2002.

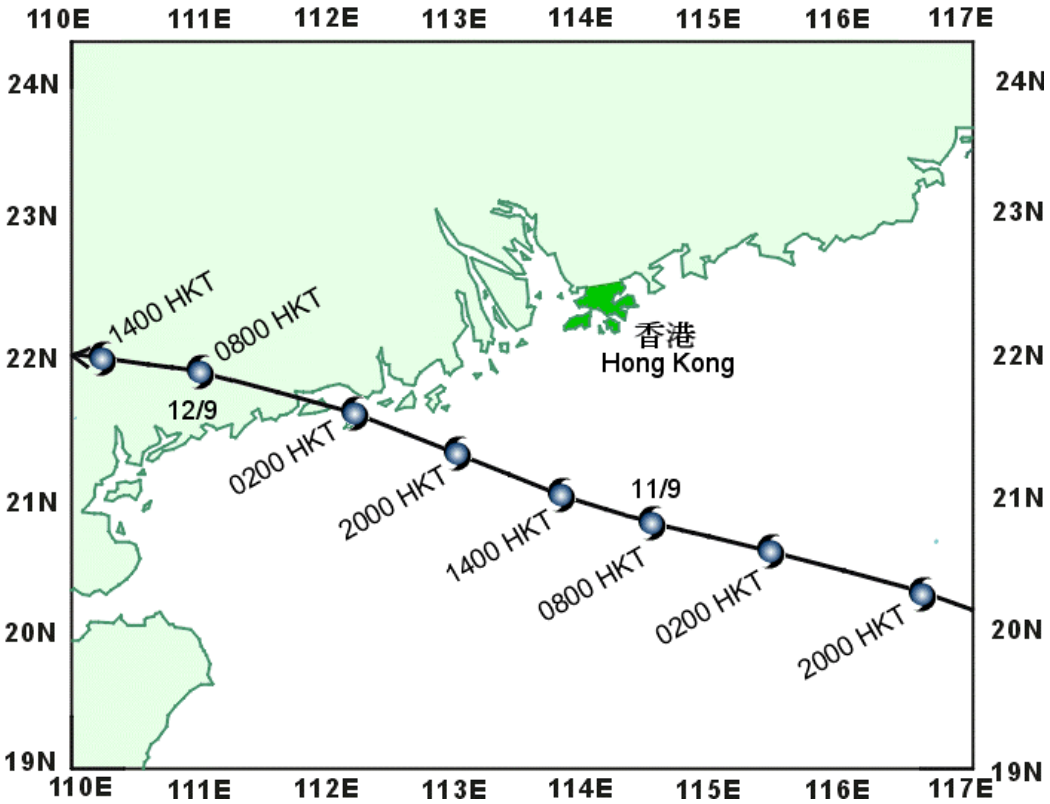

圖 3.3.1.b　　黑格比接近香港時的路徑圖。

Figure 3.3.1.b　　Track of Hagupit near Hong Kong.

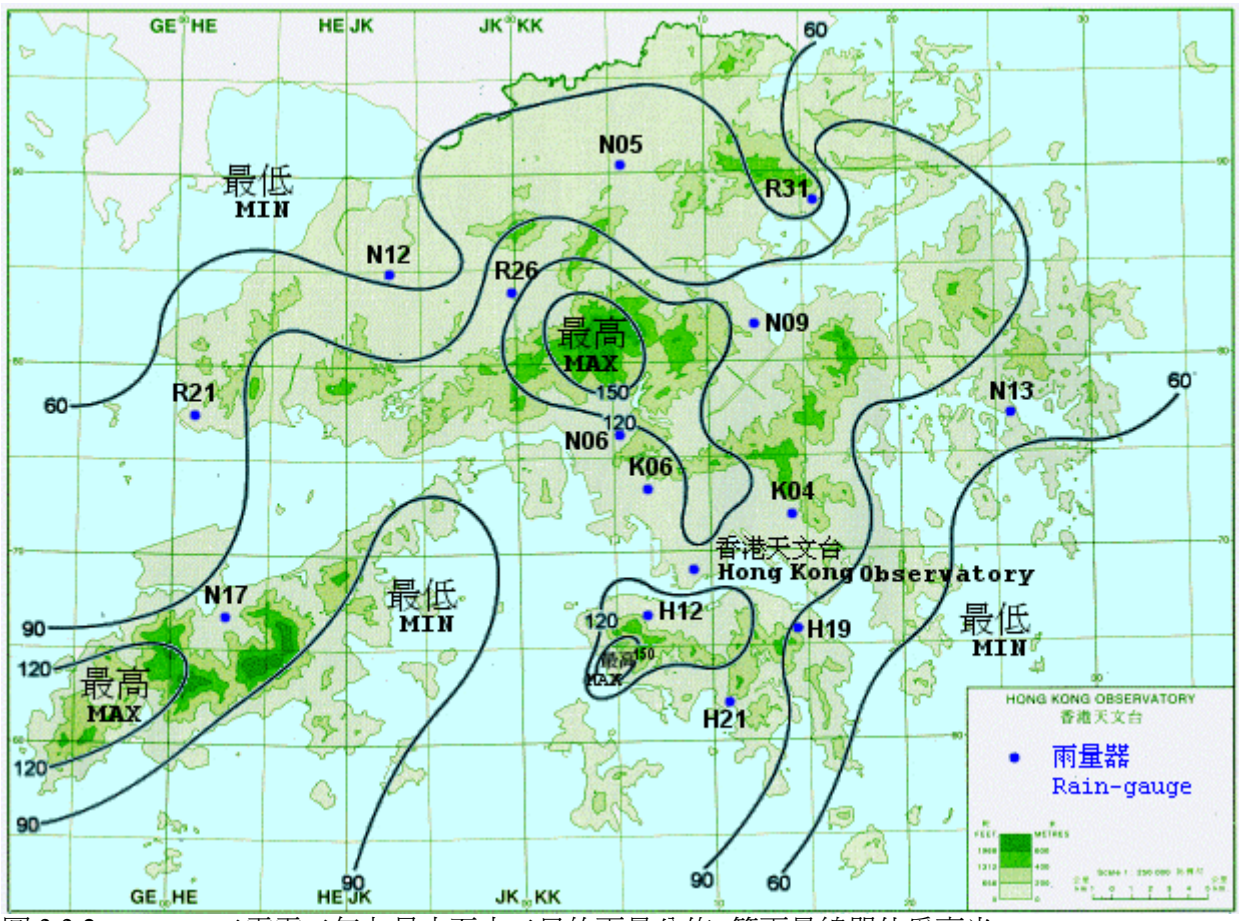

圖 3.3.2　　二零零二年九月十至十二日的雨量分佈 (等雨量線單位爲毫米)。

Figure 3.3.2　　Rainfall distribution on 10-12 September 2002 (isohyets are in millimetres).

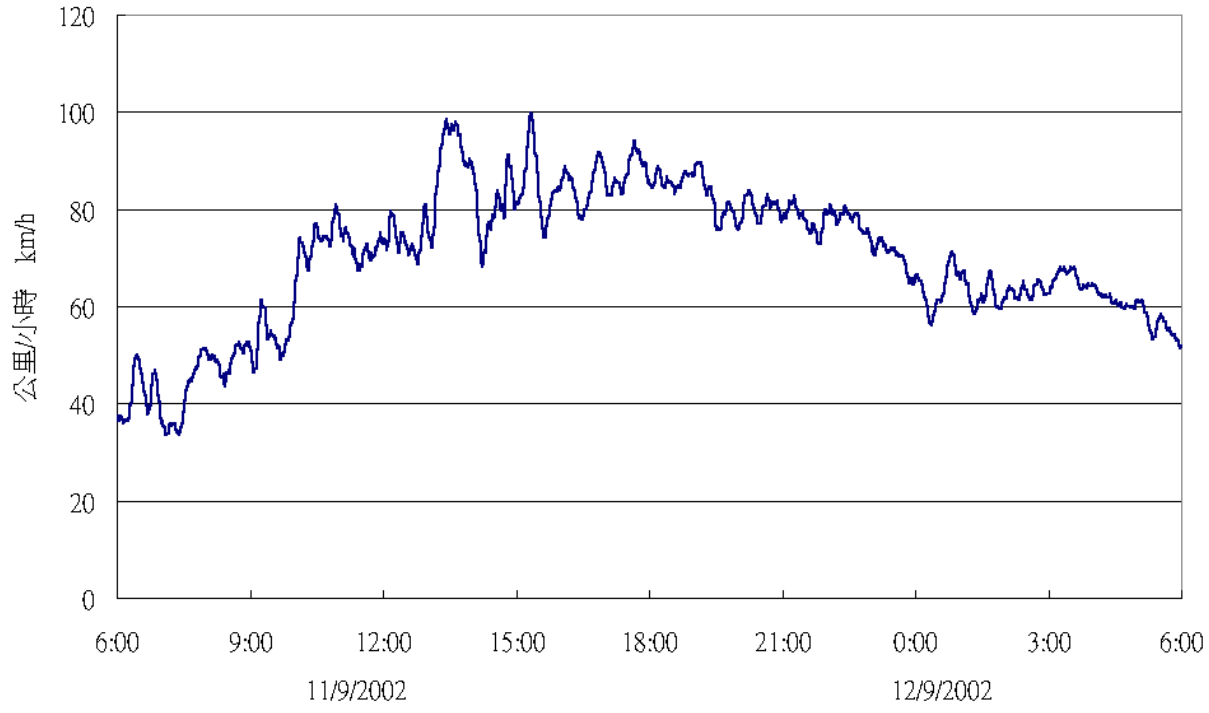

圖 3.3.3　　長洲錄得的十分鐘平均風速的變化情形。

Figure 3.3.3　　Trace of the 10-minute mean wind speed recorded at Cheung Chau.

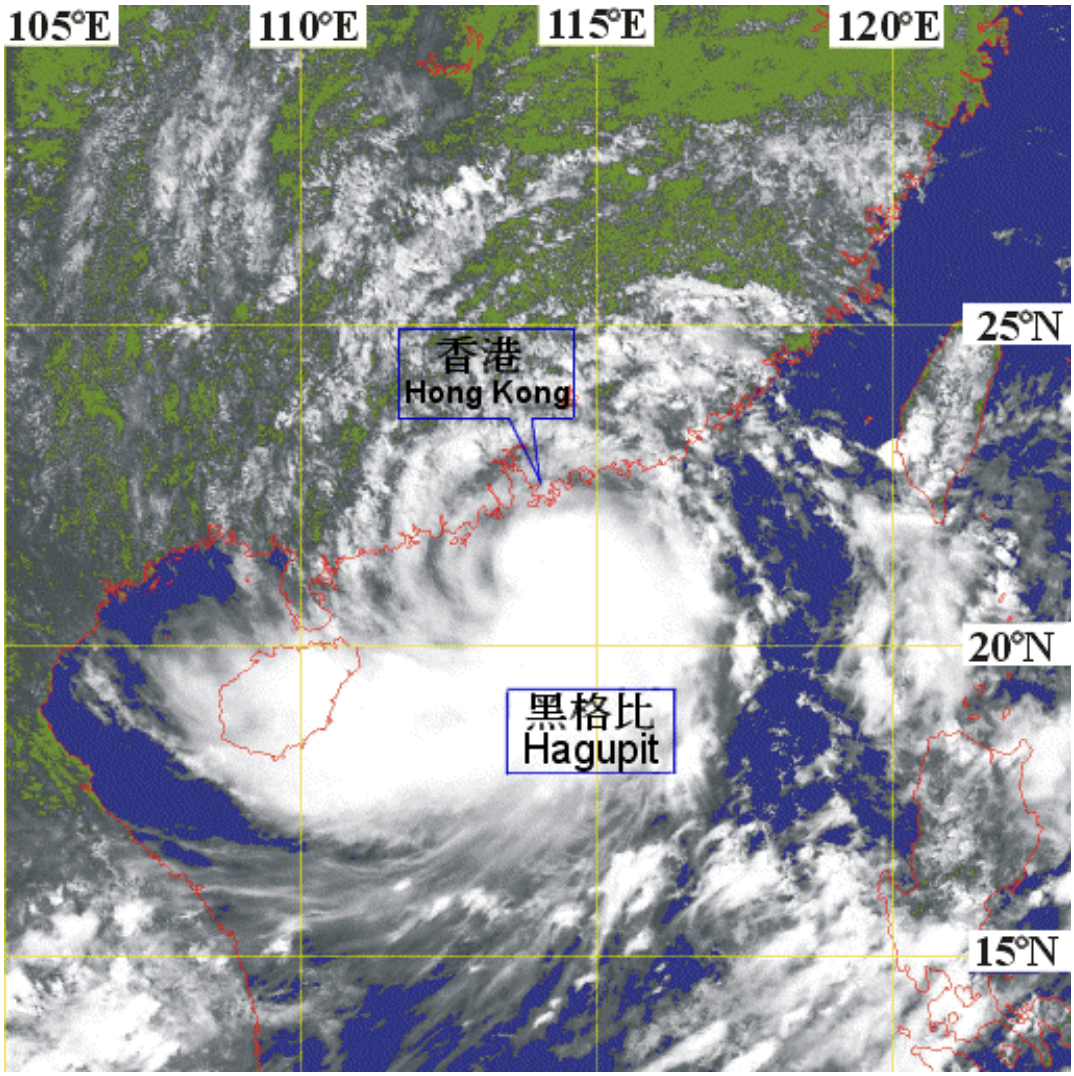

圖 3.3.4　二零零二年九月十一日約下午1時30分的可見光衛星圖片，當時黑格比爲一個強烈熱帶風暴，中心風力約每小時110公里。〔此衛星雲圖接收自日本氣象廳的地球同步氣象衛星(GMS-5)〕

Figure 3.3.4　Visible imagery at around 1.30 p.m. on 11 September 2002 when Hagupit was a severe tropical storm with a maximum intensity of about 110 km/h. (The cloud imagery was originally captured by the Geostationary Meteorological Satellite (GMS-5) of Japan Meteorological Agency)

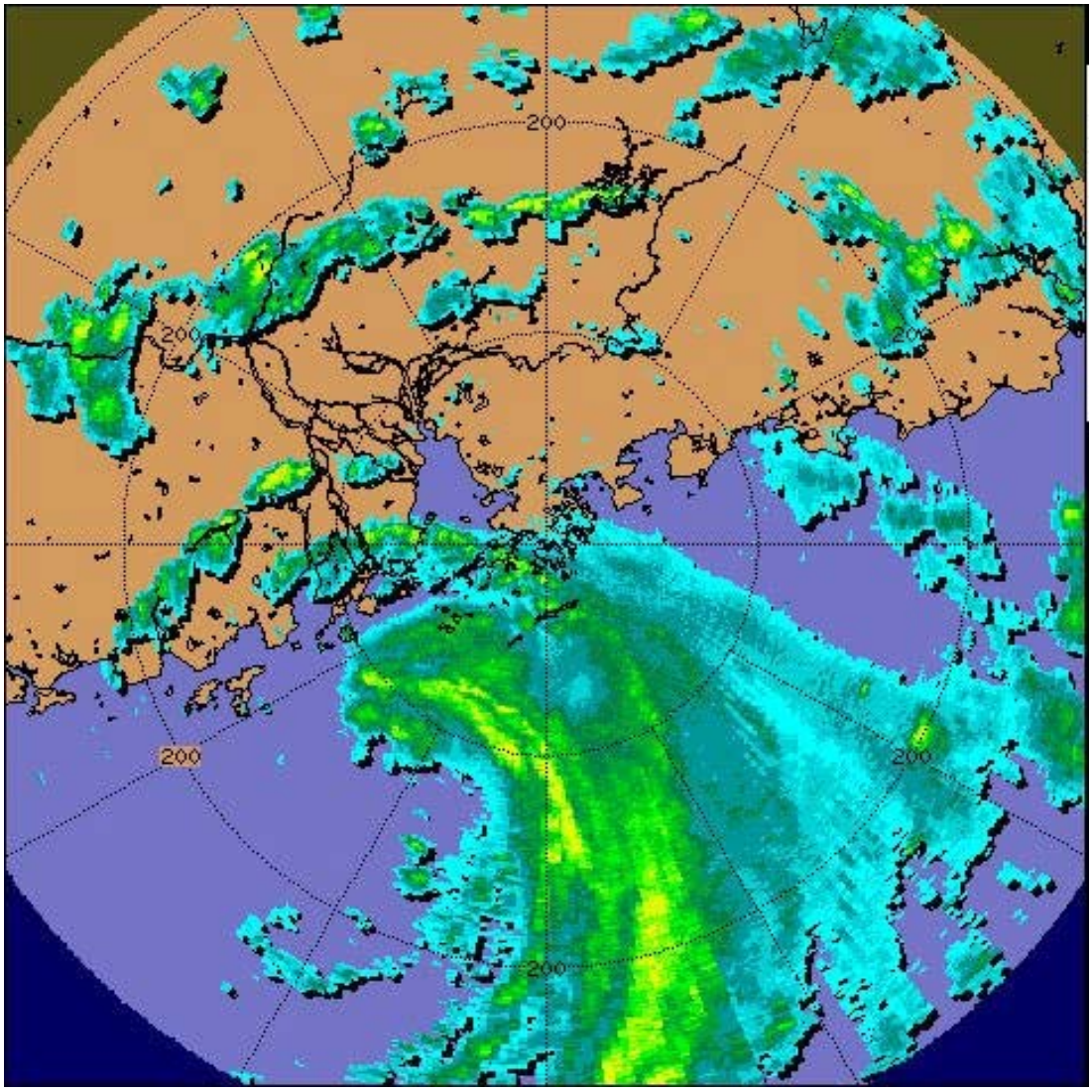

圖 3.3.5　二零零二年九月十一日下午3時的雷達回波圖像，當時黑格比的外圍雨帶正影響香港的西南部。

Figure 3.3.5　Radar echoes captured at 3 p.m. on 11 September 2002. At that time, the southwestern part of Hong Kong was being affected by the outer rainbands of Hagupit.

第四節

熱帶氣旋統計表

Section 4

TROPICAL CYCLONE STATISTICS AND TABLES

表4.1是二零零二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。表內所給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是天文台在二零零二年爲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。表內使用的時間爲協調世界時。

表4.3是二零零二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。表內使用的時間爲香港時間。

表4.4是一九五六至二零零二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是一九五六至二零零二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是一九五六至二零零二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是二零零二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、京士柏及赤鱲角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）。

表4.8.1是二零零二年位於香港600公里範圍內的熱帶氣旋及其爲本港帶來的雨量。

表4.8.2是一八八四至一九三九年以及一九四七至二零零二年間十個爲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。內容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是二零零二年間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是一九六零至二零零二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。

TABLE 4.1 is a list of tropical cyclones in 2002 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 2002, 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 2002. 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 2002 inclusive.

TABLE 4.5 gives the annual number of tropical cyclones in Hong Kong's area of responsibility between 1956 and 2002 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 1956-2002.

TABLE 4.7 is a summary of meteorological information for each tropical cyclone affecting Hong Kong in 2002. Information on the nearest approach together with an estimate of the minimum central pressure of each tropical cyclone during its closest approach, the maximum winds at King's Park and Chek Lap Kok and Waglan Island, the minimum mean sea-level pressure recorded at the Hong Kong Observatory and the maximum storm surge (the excess of the actual water level over that predicted in the Tide Tables) recorded at various tide stations in Hong Kong are included.

TABLE 4.8.1 tabulates the amount of rainfall associated with each tropical cyclone that came within 600 km of Hong Kong in 2002.

TABLE 4.8.2 highlights the 10 wettest tropical cyclones in Hong Kong for the period 1884-1939 and 1947-2002.

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 2002. 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 : 1960-2002. The information is based on reports from various government departments, public utility companies and local newspapers.

表 4.1　　二零零二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 2002

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: 變爲溫帶氣旋 Became Extratropical
			日期/月份 Date/Month	時間+ Time+	位置 Position 北緯 °N	東經 °E	風力 (公里每小時) Winds (km/h)	氣壓 (百帕斯卡) Pressure (hPa)	日期/月份 Date/Month	時間+ Time+	位置 Position 北緯 °N	東經 °E	
熱帶風暴塔巴	Tropical Storm Tapah	(0201)	11 / 1	1200	11.4	129.9	75	996	14 / 1	0000	19.0	122.1	DISP
颱風米娜	Typhoon Mitag	(0202)	27 / 2	0600	6.7	155.1	175	940	8 / 3	0600	17.3	135.4	DISP
颱風海貝思	Typhoon Hagibis	(0203)	15 / 5	1200	7.4	148.0	165	945	21 / 5	0000	32.8	156.1	XT
颱風浣熊	Typhoon Noguri	(0204)	6 / 6	0000	19.9	114.9	120	970	11 / 6	0000	32.8	133.1	DISP
颱風查特安	Typhoon Chataan	(0206)	28 / 6	1800	5.3	155.3	175	940	11 / 7	0000	39.0	142.3	XT
颱風威馬遜	Typhoon Rammasun	(0205)	29 / 6	0000	11.2	136.7	165	945	6 / 7	0600	38.2	129.2	XT
颱風夏浪	Typhoon Halong	(0207)	7 / 7	0600	8.7	157.2	165	945	16 / 7	1200	39.8	146.5	XT
熱帶風暴娜基莉	Tropical Storm Nakri	(0208)	8 / 7	0600	21.6	117.7	75	985	13 / 7	0600	30.2	126.6	XT
颱風風神	Typhoon Fengshen	(0209)	14 / 7	0000	11.0	170.9	205	925	28 / 7	0000	36.6	119.6	DISP
熱帶低氣壓	Tropical Depression		20 / 7	0600	13.1	123.0	55	1000	22 / 7	0600	16.7	119.4	DISP
熱帶低氣壓海鷗	Tropical Depression Kalmaegi	(0210)	20 / 7	1800	17.2	178.3	55	1000	21 / 7	0600	17.9	177.6	DISP
颱風鳳凰	Typhoon Fung-wong	(0211)	20 / 7	1800	23.7	140.5	120	970	27 / 7	1200	31.7	129.0	DISP
強烈熱帶風暴北冕	Severe Tropical Storm Kammuri	(0212)	3 / 8	0000	20.7	117.6	100	975	5 / 8	1200	25.0	115.4	DISP
熱帶低氣壓	Tropical Depression		11 / 8	0000	10.5	130.5	55	1000	13 / 8	0000	12.9	126.3	DISP
颱風巴蓬	Typhoon Phanfone	(0213)	11 / 8	1200	10.2	158.6	165	945	20 / 8	0600	36.2	149.1	XT
強烈熱帶風暴黃蜂	Severe Tropical Storm Vongfong	(0214)	15 / 8	1200	14.5	113.5	90	980	20 / 8	0000	25.1	108.3	DISP
颱風鹿莎	Typhoon Rusa	(0215)	22 / 8	1800	15.7	162.4	165	945	1 / 9	0600	39.0	129.6	XT
颱風森垃克	Typhoon Sinlaku	(0216)	29 / 8	0000	17.0	155.5	160	950	8 / 9	0600	28.2	115.4	DISP
颱風艾利	Typhoon Ele	(0217)	30 / 8	0600	12.5	179.8	165	945	9 / 9	1200	38.7	166.2	XT
強烈熱帶風暴黑格比	Severe Tropical Storm Hagupit	(0218)	10 / 9	0600	19.9	117.8	110	980	12 / 9	1800	22.1	109.1	DISP
熱帶風暴薔薇	Tropical Storm Changmi	(0219)	21 / 9	1800	28.5	137.0	85	985	23 / 9	0000	34.6	147.2	XT
熱帶風暴米克拉	Tropical Storm Mekkhala	(0220)	23 / 9	1200	15.0	112.2	75	992	28 / 9	0600	21.4	110.1	DISP
颱風海高斯	Typhoon Higos	(0221)	26 / 9	1800	15.7	154.2	175	940	2 /10	0000	44.0	141.3	XT
強烈熱帶風暴巴威	Severe Tropical Storm Bavi	(0222)	8 /10	1800	11.5	154.7	100	980	13 /10	1200	31.0	148.3	XT
強烈熱帶風暴美莎克	Severe Tropical Storm Maysak	(0223)	26 /10	1800	19.0	161.6	100	980	29 /10	1800	32.0	173.6	XT
颱風胡高	Typhoon Huko	(0224)	3 /11	1200	15.8	179.8	120	970	6 /11	1800	27.2	168.9	XT
颱風海神	Typhoon Haishen	(0225)	20 /11	0600	10.6	146.8	140	960	24 /11	1200	27.1	141.2	XT
颱風鳳仙	Typhoon Pongsona	(0226)	2 /12	1800	7.8	163.6	175	940	11 /12	0000	27.2	156.2	XT

+ 時間爲協調世界時

+ Times are given in UTC

表 4.2　　二零零二年爲船舶發出的熱帶氣旋警告
TABLE 4.2　TROPICAL CYCLONE WARNINGS FOR SHIPPING ISSUED IN 2002

熱帶氣旋	Tropical cyclone	發出警告的次數 No. of warnings issued	發出的日期及時間 Date and time of issue of				時段 (小時) Duration (hours)
			首次警告 First warning		末次警告 Last warning		
			日期/月份 Date/Month	時間+ Time+	日期/月份 Date/Month	時間+ Time+	
熱帶風暴塔巴	Tropical Storm Tapah	12	12 / 1	1800	14 / 1	0300	33
颱風浣熊	Typhoon Noguri	32	6 / 6	0000	9 / 6	1200	84
颱風威馬遜	Typhoon Rammasun	10	3 / 7	1800	4 / 7	1800	24
熱帶風暴娜基莉	Tropical Storm Nakri	24	8 / 7	0600	11 / 7	0000	66
熱帶低氣壓	Tropical Depression	20	20 / 7	0300	22 / 7	0900	54
* 強烈熱帶風暴北冕	* Severe Tropical Storm Kammuri	20	3 / 8	0000	5 / 8	0900	57
* 強烈熱帶風暴黃蜂	* Severe Tropical Storm Vongfong	35	15 / 8	1200	19 / 8	1800	102
颱風森垃克	Typhoon Sinlaku	15	6 / 9	0300	7 / 9	2100	42
* 強烈熱帶風暴黑格比	* Severe Tropical Storm Hagupit	20	10 / 9	0600	12 / 9	1200	54
熱帶風暴米克拉	Tropical Storm Mekkhala	39	23 / 9	1200	28 / 9	0300	111
	共 Total	227					627

* 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.

+ 時間爲協調世界時。

+ Times are given in UTC.

表 4.3　　二零零二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 2002

摘要 SUMMARY

信號 Signal	次數 No. of occasions	總時段 Total duration	
		時 h	分 min
1	3	120	25
3	2	12	0
8 西北 NW	-	-	
8 西南 SW	-	-	
8 東北 NE	-	-	
8 東南 SE	1	12	0
9	-	-	
10	-	-	
共 Total	6	144	25

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 日期/月份 Date/Month	發出 Issued 時間* Time*	取消 Cancelled 日期/月份 Date/Month	取消 Cancelled 時間* Time*
強烈熱帶風暴北冕 Severe Tropical Storm Kammuri	53	1	3 / 8	0950	5 / 8	1130
強烈熱帶風暴黃蜂 Severe Tropical Storm Vongfong	61	1	17 / 8	2245	20 / 8	0630
強烈熱帶風暴黑格比 Severe Tropical Storm Hagupit	41	1	10 / 9	1440	11 / 9	0540
		3	11 / 9	0540	11 / 9	1340
		8 東南 SE	11 / 9	1340	12 / 9	0140
		3	12 / 9	0140	12 / 9	0540

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

表 4.4　一九五六至二零零二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 : 1956-2002

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
共 Total	305	270	18	25	52	39	16	12	13059	59
平均 Mean	6.5	5.7	0.4	0.5	1.1	0.8	0.3	0.3	277	52

表 4.5 一九五六至二零零二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 : 1956-2002

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
共 Total	749	290
平均 Mean	15.9	6.2

表 4.6　　一九五六至二零零二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 : 1956-2002

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	302	43	15	161	0	4	30	277	52	570	15	36	35
三號或以上 3 or higher	203	30	39	124	15	4	30	132	23	306	35	17	15
八號或以上 8 or higher	69	15	38	66	50	2	40	22	58	100	55	0	0
8 西北 NW	18	6	14	15	45	1	30	2	23	18	0	0	0
8 西南 SW	25	5	4	10	45	2	30	2	42	16	10	0	0
8 東北 NE	52	8	11	35	35	2	35	9	3	40	20	0	0
8 東南 SE	39	7	26	21	45	0	20	6	10	31	15	0	0
九號或以上 9 or higher	17	7	19	12	25	3	0	2	39	19	25	0	0
10	12	6	34	11	0	2	30	1	41	12	10	0	0

表 4.7　　二零零二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 2002

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	大埔滘 Tai Po Kau	尖鼻咀 Tsim Bei Tsui	橫瀾島 Waglan Island
強烈熱帶風暴北冕 S.T.S. Kammuri	8	4	23	東南偏東 ESE	130	東北偏北 NNE 10	980	8	4	16:50	990.1	0.45	0.49	0.39	0.22	0.53
								8	4	17:37	990.3					
強烈熱帶風暴黃蜂 S.T.S. Vongfong	8	19	20	西南偏西 WSW	390	西北偏北 NNW 30	980	8	18	16:04 16:06 16:07	1000.9	0.43	0.48	0.44	0.34	0.41
								8	17 18	17:00 16:00	1001.1					
強烈熱帶風暴黑格比 S.T.S. Hagupit	9	11	15	西南偏南 SSW	150	西北偏西 WNW 15	980	9	11	05:14	1001.0	0.72	0.96	0.71	0.69	0.64
								9	11	05:00 06:00	1001.6					

* 香港時間（協調世界時加八小時）

* Hong Kong Time （UTC + 8 hours）

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	赤鱲角(機場) Chek Lap Kok (Airport)	橫瀾島 Waglan Island	京士柏 King's Park	赤鱲角(機場) Chek Lap Kok (Airport)	橫瀾島 Waglan Island	京士柏 King's Park	赤鱲角(機場) Chek Lap Kok (Airport)	橫瀾島 Waglan Island
強烈熱帶風暴北冕 S.T.S. Kammuri	8	北 N 25	東北偏北 NNE 34	東北偏北 NNE 65	北 N 31	東北偏北 NNE 40	東北偏北 NNE 67	北 N 54	東北 NE 52	東北偏北 NNE 85
強烈熱帶風暴黃蜂 S.T.S. Vongfong	8	東 E 25	東南 SE 45	東 E 58	東 E 31	東南 SE 49	東 E 63	東南偏東 ESE 59	東南 SE 75	東 E 76
強烈熱帶風暴黑格比 S.T.S. Hagupit	9	東 E 38	東 E 56	東 E 81	東南偏東 ESE 45	東 E 59	東 E 83	東南偏東 ESE 87	東南偏東 ESE 94	東南偏東 ESE 112

表 4.8.1　　二零零二年位於香港600公里範圍內的熱帶氣旋及其爲本港帶來的雨量

TABLE 4.8.1　RAINFALL ASSOCIATED WITH EACH TROPICAL CYCLONE THAT CAME WITHIN 600 KM OF HONG KONG IN 2002

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)
颱風浣熊 # T. Noguri #	(T_1) 6 / 6 0800 - (T_2) 7 / 6 1900	微量 Trace	-	23.5	34.4	34.4
熱帶風暴娜基莉 # T.S. Nakri #	(T_1) 8 / 7 1400 - (T_2) 9 / 7 1400	微量 Trace	9.3	9.3	9.3	9.3
強烈熱帶風暴北冕 S.T.S. Kammuri	(T_1) 3 / 8 0800 - (T_2) 5 / 8 2000	36.5	44.0	44.6	45.2	81.7
強烈熱帶風暴黃蜂 S.T.S. Vongfong	(T_1) 19 / 8 0300 - (T_2) 20 / 8 0600	30.3	11.1	11.1	11.1	41.4
強烈熱帶風暴黑格比 S.T.S. Hagupit	(T_1) 10 / 9 1400 - (T_2) 13 / 9 0200	106.3	9.2	93.4	242.4	348.7
熱帶風暴米克拉 # T.S. Mekkhala #	(T_1) 27 / 9 0700 - (T_2) 28 / 9 1400	0.3	4.9	4.9	5.0	5.3
					共 Total	520.8

* 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。

\# 該熱帶氣旋並未導致天文台需要發出熱帶氣旋警告信號。

* 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.

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

表 4.8.2　一八八四至一九三九年及一九四七至二零零二年間十個爲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, 1947-2002)

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	-	34.8 #	534.0 #	561.1 #	562.2 #	597.0
1916	6	-	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	-	446.5 #	- #	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　　一九四六至二零零二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 1946-2002

颱風名稱 Name of typhoon	當最接近天文台時 Nearest approach to the Hong Kong Observatory			最低平均海平面氣壓 (百帕斯卡) Minimum M.S.L. pressure (hPa)		最高60分鐘平均風向及風速 (公里每小時) Maximum 60-min mean wind in points and km/h							最高陣風風向及風速 (公里每小時) Maximum gust peak speed in km/h with direction in points						
	日期/月份 年份 Date/Month Year	方位 Direction	距離 (公里) Distance (km)	每小時 Hourly	瞬時 Inst.	香港天文台 Hong Kong Observatory	京士柏 King's Park	啓德機場 Kai Tak Airport	橫瀾島 Waglan Island	長洲 Cheung Chau	老山 Tate's Cairn	青洲 Green Island	香港天文台 Hong Kong Observatory	京士柏 King's Park	啓德機場 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	-	-	-

* 估計，超出風速記錄圖的上限。
estimated, exceeding upper limit of anemogram.

表 4.10　　二零零二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 2002

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	其他 Others	共 Total
強烈熱帶風暴 北冕 S.T.S. Kammuri	8	–	道路: 1 處 road: 1 site	–	–	1 宗 1 case	–	–	–	–	–	–
強烈熱帶風暴 黑格比 S.T.S. Hagupit	9	–	–	–	2	2 宗 2 cases	–	–	–	–	0.6	0.6

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　　一九六零至二零零二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 : 1960-2002

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

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
1979	1 / 7 - 6 / 7	T. Ellis	艾利斯	0	0	0	0	2	0
	26 / 7 - 30 / 7	T.S. Gordon	戈登	0	0	0	0	2	0
	28 / 7 - 3 / 8	T. Hope	荷貝	12	0	260	29	167	207
	6 / 8 - 9 / 8	T.D. -	-	0	0	0	0	3	0
	16 / 9 - 24 / 9	S.T.S. Mac	麥克	1	0	67	2	12	0
1980	5 / 7 - 12 / 7	S.T.S. Ida	艾黛	0	0	0	1	0	0
	18 / 7 - 23 / 7	T. Joe	喬伊	2	1	59	4	0	1
	20 / 7 - 28 / 7	T. Kim	甘茵	0	0	0	0	2	1
	29 /10 - 2 /11	T.S. Cary	卡里	0	0	0	0	0	2
1981	3 / 7 - 7 / 7	S.T.S. Lynn	林茵	0	0	32	0	0	3
1982	27 / 6 - 2 / 7	T.S. Tess	戴絲	0	0	16	0	1	0
	22 / 7 - 30 / 7	T. Andy	安迪	0	0	0	0	0	1
	5 / 9 - 16 / 9	T. Irving	伊文	0	0	0	0	0	2
1983	12 / 7 - 19 / 7	T. Vera	維娜	0	0	0	0	1	0
	29 / 8 - 9 / 9	T. Ellen	愛倫	10	12	333	44	135	225
	10 /10 - 14 /10	T. Joe	喬伊	0	0	58	2	0	3
	20 /10 - 26 /10	S.T.S. Lex	力士	0	0	0	0	0	1
1984	27 / 8 - 7 / 9	T. Ike	艾克	0	0	1	0	0	0
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

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
1993	21 / 6 - 28 / 6	T. Koryn	高蓮	0	0	183	0	0	2
	16 / 8 - 21 / 8	T. Tasha	泰莎	0	0	35	0	0	7
	9 / 9 - 14 / 9	T. Abe	艾貝	1	0	0	0	0	0
	15 / 9 - 17 / 9	S.T.S. Becky	貝姬	1	0	130	0	0	10
	23 / 9 - 27 / 9	T. Dot	黛蒂	0	1	48	0	1	0
	28 /10 - 5 /11	T. Ira	艾拉	2	0	30	0	1	0
1994	23 / 6 - 25 / 6	T.S. Sharon	莎朗	0	0	5	0	1	1
	25 / 8 - 29 / 8	S.T.S. Harry	夏里	1	0	2	0	0	2
1995	7 / 8 - 12 / 8	S.T.S. Helen	海倫	3	0	35	0	0	0
	25 / 8 - 1 / 9	T. Kent	肯特	0	0	5	0	0	0
	28 / 9 - 4 /10	T. Sibyl	斯寶	0	0	14	0	0	0
1996	5 / 9 - 10 / 9	T. Sally	莎莉	2	0	4	0	0	0
	18 / 9 - 23 / 9	S.T.S. Willie	威利	0	1	0	0	0	0
1997	31 / 7 - 3 / 8	T. Victor	維克托	1	0	58	0	0	0
	20 / 8 - 23 / 8	T. Zita	思蒂	0	0	3	0	0	0
1998	7 / 8 - 11 / 8	S.T.S. Penny	彭妮	1	0	1	0	0	0
	12 / 9 - 14 / 9	T.D. -	-	0	0	10	0	0	0
	15 /10 - 27 /10	T. Babs	寶絲	0	0	14	0	0	0
1999	28 / 4 - 2 / 5	T. Leo	利奧	0	0	14	0	0	0
	2 / 6 - 8 / 6	T. Maggie	瑪姬	0	0	5	0	2	0
	25 / 7 - 28 / 7	T.S. -	-	0	0	18	0	0	0
	19 / 8 - 23 / 8	T. Sam	森姆	4	0	328	0	0	0
	12 / 9 - 17 / 9	T. York	約克	2	0	500	3	*	*
	24 / 9 - 26 / 9	S.T.S. Cam	錦雯	1	0	23	0	0	0
2000	15 / 7 - 16 / 7	T.D. -	-	0	1	6	0	0	0
	27 / 8 - 1 / 9	S.T.S. Maria	瑪莉亞	2	0	0	0	0	0
	5 / 9 - 10 / 9	T. Wukong	悟空	0	0	1	0	0	1
2001	30 / 6 - 3 / 7	T. Durian	榴槤	0	0	1	0	0	0
	1 / 7 - 8 / 7	T. Utor	尤特	1	0	1	0	1	0
	23 / 7 - 26 / 7	T. Yutu	玉兔	0	0	10	0	0	0
	28 / 8 - 1 / 9	T.S. Fitow	菲特	2	0	0	0	0	0
2002	15 / 8 - 20 / 8	S.T.S. Vongfong	黃蜂	0	0	2	0	0	1
	10 / 9 - 13 / 9	S.T.S. Hagupit	黑格比	0	0	32	0	0	3

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

二零零二年熱帶氣旋的位置及強度數據

Section 5

TROPICAL CYCLONE POSITION AND INTENSITY DATA, 2002

以下是二零零二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，單位爲米每秒（1米每秒約爲1.94海里或3.6公里每小時）。熱帶氣旋的強度分爲：-

(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

Six-hourly position and intensity data are tabulated in this section for the following tropical cyclones in 2002 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

熱帶風暴塔巴(0201)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM TAPAH (0201)

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
一月 Jan	11	1200	T.D.	1002	16	11.4	129.9
		1800	T.D.	1002	16	11.7	129.0
	12	0000	T.D.	1002	16	12.3	127.9
		0600	T.S.	1000	18	13.0	126.8
		1200	T.S.	996	21	13.8	125.6
		1800	T.S.	1000	18	14.5	124.6
	13	0000	T.S.	1000	18	15.0	123.9
		0600	T.S.	1000	18	15.5	123.1
		1200	T.D.	1002	16	16.2	122.6
		1800	T.D.	1002	16	17.5	122.1
	14	0000	T.D.	1006	13	19.0	122.1
			消散 Dissipated				

颱風米娜(0202)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON MITAG (0202)

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	27	0600	T.D.	1000	16	6.7	155.1
		1200	T.D.	1000	16	6.9	154.6
		1800	T.D.	1000	16	7.0	154.0
	28	0000	T.D.	1000	16	7.1	153.3
		0600	T.S.	996	18	7.2	152.3
		1200	T.S.	996	18	7.2	151.3
		1800	T.S.	994	21	7.2	150.4
三月 Mar	1	0000	T.S.	990	23	7.0	149.2
		0600	S.T.S.	985	25	6.9	148.0
		1200	S.T.S.	985	25	6.8	146.9
		1800	S.T.S.	980	28	6.9	145.6
	2	0000	S.T.S.	975	31	7.1	144.3
		0600	T.	970	33	7.5	142.8
		1200	T.	965	36	8.0	141.2
		1800	T.	965	36	8.5	139.6
	3	0000	T.	965	36	8.8	138.2
		0600	T.	965	36	9.2	136.8
		1200	T.	965	36	9.8	135.5
		1800	T.	960	39	10.5	134.2
	4	0000	T.	955	41	10.8	133.2
		0600	T.	945	46	11.1	132.5
		1200	T.	945	46	11.8	132.0
		1800	T.	945	46	12.5	131.2
	5	0000	T.	945	46	13.1	130.5
		0600	T.	940	49	13.7	130.0
		1200	T.	940	49	14.3	129.9
		1800	T.	940	49	14.9	129.9
	6	0000	T.	940	49	15.5	130.1
		0600	T.	945	46	16.1	130.4
		1200	T.	950	43	16.7	130.9
		1800	T.	960	39	17.2	131.4
	7	0000	T.	970	33	17.7	132.2
		0600	S.T.S.	980	28	18.2	133.4
		1200	T.S.	990	23	18.4	134.3
		1800	T.S.	994	21	18.2	135.1
	8	0000	T.S.	996	18	17.8	135.5
		0600	T.D.	1000	16	17.3	135.4
			消散 Dissipated				

颱風海貝思(0203)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON HAGIBIS (0203)

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	15	1200	T.D.	1004	13	7.4	148.0
		1800	T.D.	1000	16	8.3	146.7
	16	0000	T.D.	1000	16	9.4	145.5
		0600	T.D.	1000	16	11.0	144.3
		1200	T.S.	998	18	12.4	142.9
		1800	T.S.	994	21	12.8	141.6
	17	0000	T.S.	990	23	13.0	140.6
		0600	T.S.	990	23	13.4	140.0
		1200	S.T.S.	985	25	13.9	139.6
		1800	S.T.S.	980	28	14.5	139.4
	18	0000	S.T.S.	975	31	15.3	139.4
		0600	T.	970	33	16.1	139.4
		1200	T.	970	33	16.8	139.7
		1800	T.	965	36	17.2	140.0
	19	0000	T.	955	41	17.7	140.5
		0600	T.	950	43	18.4	141.2
		1200	T.	945	46	19.4	142.1
		1800	T.	945	46	20.7	143.1
	20	0000	T.	955	41	22.5	144.6
		0600	T.	965	36	24.6	146.6
		1200	T.	970	33	27.0	149.3
		1800	S.T.S.	975	31	29.8	152.4
	21	0000	S.T.S.	980	28	32.8	156.1

變爲溫帶氣旋
Became Extratropical

颱風浣熊(0204)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON NOGURI (0204)

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	6	0000	T.D.	998	16	19.9	114.9
		0600	T.D.	998	16	19.9	115.4
		1200	T.D.	998	16	19.9	116.2
		1800	T.D.	998	16	20.0	117.0
	7	0000	T.D.	998	16	20.1	117.8
		0600	T.D.	998	16	20.4	118.6
		1200	T.D.	998	16	20.6	119.8
		1800	T.S.	996	18	20.7	121.0
	8	0000	T.S.	996	18	20.8	122.1
		0600	T.S.	994	21	21.0	122.9
		1200	T.S.	990	23	21.3	123.7
		1800	S.T.S.	985	25	21.8	124.3
	9	0000	S.T.S.	980	28	22.6	124.8
		0600	T.	970	33	23.3	124.8
		1200	S.T.S.	975	31	23.8	124.9
		1800	S.T.S.	975	31	24.9	125.4
	10	0000	S.T.S.	980	28	25.9	126.1
		0600	S.T.S.	985	25	26.9	126.9
		1200	T.S.	990	23	28.5	128.3
		1800	T.S.	994	21	30.5	130.1
	11	0000	T.D.	998	16	32.8	133.1
			消散 Dissipated				

颱風威馬遜(0205)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON RAMMASUN (0205)

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	29	0000	T.D.	1000	16	11.2	136.7
		0600	T.S.	998	18	11.2	136.3
		1200	T.S.	998	18	11.4	135.8
		1800	T.S.	994	21	11.7	135.4
	30	0000	T.S.	990	23	12.3	134.8
		0600	T.S.	990	23	13.0	134.3
		1200	T.S.	990	23	13.7	133.9
		1800	T.S.	990	23	14.4	133.5
七月 Jul	1	0000	T.S.	990	23	15.2	133.2
		0600	S.T.S.	980	28	16.3	132.6
		1200	T.	970	33	17.5	131.7
		1800	T.	965	36	18.6	130.7
	2	0000	T.	960	39	19.4	129.8
		0600	T.	955	41	20.3	128.9
		1200	T.	950	43	21.2	128.0
		1800	T.	945	46	22.3	127.2
	3	0000	T.	945	46	23.2	126.3
		0600	T.	945	46	23.9	125.7
		1200	T.	945	46	24.7	125.3
		1800	T.	945	46	25.6	124.8
	4	0000	T.	945	46	26.7	124.4
		0600	T.	950	43	27.8	124.2
		1200	T.	955	41	29.2	124.2
		1800	T.	965	36	30.6	124.1
	5	0000	T.	970	33	32.0	123.9
		0600	S.T.S.	975	31	32.8	123.8
		1200	S.T.S.	980	25	33.9	124.4
		1800	T.S.	980	23	35.0	125.3
	6	0000	T.S.	985	21	36.6	127.0
		0600	T.S.	985	21	38.2	129.2

變爲溫帶氣旋
Became Extratropical

颱風查特安(0206)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON CHATAAN (0206)

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	28	1800	T.D.	1002	13	5.3	155.3
	29	0000	T.D.	1000	16	5.3	155.5
		0600	T.S.	998	18	5.4	155.6
		1200	T.S.	994	21	5.6	155.7
		1800	T.S.	994	21	5.8	155.7
	30	0000	T.S.	990	23	6.0	155.7
		0600	T.S.	990	23	6.2	155.6
		1200	T.S.	990	23	6.4	155.5
		1800	T.S.	990	23	6.6	155.3
七月 Jul	1	0000	T.S.	990	23	6.8	155.1
		0600	T.S.	990	23	6.9	154.8
		1200	T.S.	990	23	7.0	154.5
		1800	T.S.	990	23	7.1	154.2
	2	0000	T.S.	990	23	7.2	153.6
		0600	T.S.	990	23	7.0	152.8
		1200	T.S.	990	23	7.0	151.8
		1800	T.S.	990	23	7.3	150.8
	3	0000	T.S.	990	23	7.9	150.3
		0600	T.S.	990	23	8.5	149.8
		1200	S.T.S.	985	25	9.2	149.4
		1800	S.T.S.	985	25	9.9	149.0
	4	0000	S.T.S.	985	25	10.6	148.7
		0600	S.T.S.	985	25	11.9	147.9
		1200	S.T.S.	980	28	12.8	146.6
		1800	S.T.S.	975	31	13.3	145.4
	5	0000	T.	970	33	13.8	144.4
		0600	T.	970	33	14.2	143.7
		1200	T.	965	36	14.7	142.8
		1800	T.	955	41	15.2	141.9
	6	0000	T.	955	41	15.9	141.0
		0600	T.	950	43	16.6	140.1
		1200	T.	950	43	17.1	139.3
		1800	T.	950	43	17.8	138.4
	7	0000	T.	950	43	18.7	137.3
		0600	T.	945	46	19.4	136.1
		1200	T.	940	49	20.1	134.9
		1800	T.	940	49	20.8	134.1
	8	0000	T.	940	49	21.6	133.6
		0600	T.	940	49	22.8	133.2
		1200	T.	940	49	23.9	132.8
		1800	T.	945	46	25.3	132.5
	9	0000	T.	950	43	26.5	132.4
		0600	T.	955	41	27.4	132.5
		1200	T.	965	36	28.3	132.9
		1800	T.	970	33	29.2	133.6
	10	0000	T.	970	33	30.6	134.8
		0600	S.T.S.	975	31	32.1	136.3
		1200	S.T.S.	975	31	34.2	138.8
		1800	S.T.S.	975	31	36.1	141.1
	11	0000	S.T.S.	980	28	39.0	142.3

變爲溫帶氣旋
Became Extratropical

颱風夏浪(0207)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON HALONG (0207)

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	7	0600	T.D.	1002	13	8.7	157.2
		1200	T.D.	1000	16	8.9	156.5
		1800	T.D.	1000	16	9.1	155.6
	8	0000	T.S.	998	18	9.4	154.6
		0600	T.S.	998	18	9.8	153.0
		1200	T.S.	998	18	10.2	151.4
		1800	T.S.	994	21	10.5	150.2
	9	0000	T.S.	994	21	10.8	149.2
		0600	T.S.	990	23	10.9	148.2
		1200	S.T.S.	985	25	11.1	147.4
		1800	S.T.S.	980	28	11.4	146.7
	10	0000	S.T.S.	975	31	12.0	145.2
		0600	S.T.S.	975	31	12.2	144.2
		1200	S.T.S.	975	31	12.2	143.2
		1800	T.	970	33	12.4	142.3
	11	0000	T.	965	36	12.7	141.5
		0600	T.	965	36	13.2	140.4
		1200	T.	960	39	13.7	139.4
		1800	T.	960	39	14.3	138.4
	12	0000	T.	955	41	14.9	137.6
		0600	T.	955	41	15.6	136.7
		1200	T.	950	43	16.5	135.8
		1800	T.	945	46	17.6	134.7
	13	0000	T.	945	46	18.8	133.6
		0600	T.	945	46	20.2	132.3
		1200	T.	950	43	21.6	130.8
		1800	T.	950	43	22.8	129.4
	14	0000	T.	955	41	23.9	128.3
		0600	T.	960	39	25.0	127.7
		1200	T.	960	39	26.2	127.5
		1800	T.	965	36	27.4	127.6
	15	0000	T.	970	33	28.7	128.4
		0600	T.	970	33	30.0	130.0
		1200	S.T.S.	975	31	31.5	132.3
		1800	S.T.S.	980	28	33.0	135.1
	16	0000	S.T.S.	980	28	34.6	138.7
		0600	S.T.S.	985	25	37.1	142.2
		1200	T.S.	990	23	39.8	146.5

變爲溫帶氣旋
Became Extratropical

熱帶風暴娜基莉(0208)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM NAKRI (0208)

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	8	0600	T.D.	992	16	21.6	117.7
		1200	T.D.	992	16	21.9	118.0
		1800	T.S.	988	18	22.4	118.4
	9	0000	T.S.	988	18	23.2	119.1
		0600	T.S.	985	21	24.0	119.8
		1200	T.S.	985	21	24.4	120.2
		1800	T.S.	985	21	24.8	120.6
	10	0000	T.S.	985	21	25.1	121.3
		0600	T.S.	988	18	25.2	122.3
		1200	T.S.	988	18	25.2	123.2
		1800	T.S.	988	18	25.2	124.1
	11	0000	T.S.	988	18	25.1	125.1
		0600	T.S.	988	18	25.2	125.8
		1200	T.S.	988	18	25.3	126.2
		1800	T.S.	988	18	25.5	126.5
	12	0000	T.S.	988	18	25.7	126.7
		0600	T.S.	988	18	26.1	126.9
		1200	T.S.	988	18	26.6	126.9
		1800	T.S.	988	18	27.4	126.8
	13	0000	T.S.	988	18	28.8	126.6
		0600	T.S.	988	18	30.2	126.6

變爲溫帶氣旋
Became Extratropical

颱風風神(0209)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON FENGSHEN (0209)

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	14	0000	T.D.	1000	16	11.0	170.9
		0600	T.D.	1000	16	11.4	170.6
		1200	T.S.	996	18	11.9	170.3
		1800	T.S.	992	21	12.5	170.2
	15	0000	S.T.S.	980	28	13.1	170.3
		0600	T.	965	36	13.5	170.5
		1200	T.	960	39	13.9	170.5
		1800	T.	955	41	14.3	170.4
	16	0000	T.	950	43	14.5	170.0
		0600	T.	945	46	14.6	169.5
		1200	T.	940	49	14.6	169.0
		1800	T.	935	51	14.6	168.5
	17	0000	T.	935	51	14.6	167.9
		0600	T.	935	51	14.6	167.3
		1200	T.	935	51	14.6	166.4
		1800	T.	930	54	14.6	165.5
	18	0000	T.	930	54	14.6	164.6
		0600	T.	930	54	14.6	163.8
		1200	T.	930	54	14.7	163.0
		1800	T.	925	57	14.9	162.1
	19	0000	T.	925	57	15.1	161.3
		0600	T.	925	57	15.3	160.5
		1200	T.	925	57	15.6	159.8
		1800	T.	925	57	15.8	159.1
	20	0000	T.	925	57	16.0	158.6
		0600	T.	925	57	16.5	158.1
		1200	T.	925	57	17.2	157.6
		1800	T.	925	57	18.0	157.0
	21	0000	T.	925	57	19.0	156.2
		0600	T.	925	57	19.8	155.3
		1200	T.	925	57	20.5	154.3
		1800	T.	925	57	21.2	153.4
	22	0000	T.	925	57	22.2	152.3
		0600	T.	925	57	23.2	151.2
		1200	T.	925	57	24.2	150.0
		1800	T.	930	54	25.0	148.8
	23	0000	T.	940	49	25.8	147.5
		0600	T.	945	46	26.7	146.1
		1200	T.	950	43	27.5	144.7
		1800	T.	955	41	28.0	143.0

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颱風風神(0209)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON FENGSHEN (0209)

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
(續上頁 Continued from previous page)							
七月 Jul	24	0000	T.	960	39	28.4	141.1
		0600	T.	965	36	28.6	139.3
		1200	T.	965	36	28.7	137.7
		1800	T.	970	33	28.9	136.0
	25	0000	T.	970	33	29.4	134.2
		0600	S.T.S.	975	31	30.1	132.4
		1200	S.T.S.	975	31	30.6	130.9
		1800	S.T.S.	975	31	31.0	129.4
	26	0000	S.T.S.	980	28	31.9	128.0
		0600	S.T.S.	985	25	32.5	126.9
		1200	T.S.	990	23	33.1	125.8
		1800	T.S.	992	21	33.7	124.6
	27	0000	T.S.	996	18	34.3	123.4
		0600	T.S.	996	18	34.8	122.3
		1200	T.S.	996	18	35.5	121.3
		1800	T.D.	1000	16	36.0	120.2
	28	0000	T.D.	1004	13	36.6	119.6
			消散 Dissipated				

熱帶低氣壓由七月二十日至二十二日的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF THE TROPICAL DEPRESSION OF 20 - 22 JULY

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
七月 Jul	20	0600	T.D.	1002	13	13.1	123.0
		1200	T.D.	1000	16	13.6	122.5
		1800	T.D.	1000	16	14.1	122.1
	21	0000	T.D.	1000	16	14.8	121.2
		0600	T.D.	1000	16	15.4	120.6
		1200	T.D.	1000	16	15.9	120.3
		1800	T.D.	1000	16	16.3	120.0
	22	0000	T.D.	1000	16	16.5	119.7
		0600	T.D.	1002	13	16.7	119.4
			消散 Dissipated				

熱帶低氣壓海鷗(0210)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL DEPRESSION KALMAEGI (0210)

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	1800	T.D.	1000	16	17.2	178.3
	21	0000	T.D.	1000	16	17.5	178.0
		0600	T.D.	1000	16	17.9	177.6
			消散 Dissipated				

颱風鳳凰(0211)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON FUNG-WONG (0211)

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	1800	T.D.	1000	16	23.7	140.5
	21	0000	T.D.	1000	16	23.8	139.1
		0600	T.S.	996	18	23.8	137.9
		1200	T.S.	992	21	23.7	137.0
		1800	T.S.	990	23	23.6	136.0
	22	0000	T.S.	990	23	23.5	134.8
		0600	T.S.	990	23	23.4	133.9
		1200	T.S.	990	23	23.3	133.1
		1800	T.S.	990	23	23.1	132.4
	23	0000	T.S.	990	23	23.0	131.8
		0600	S.T.S.	980	28	22.8	131.1
		1200	T.	970	33	22.5	130.5
		1800	T.	970	33	22.1	130.1
	24	0000	T.	970	33	21.7	130.1
		0600	T.	970	33	21.3	130.5
		1200	S.T.S.	975	31	20.9	131.4
		1800	S.T.S.	975	31	20.6	132.7
	25	0000	S.T.S.	980	28	20.8	134.0
		0600	S.T.S.	980	28	21.7	134.9
		1200	S.T.S.	985	25	23.1	135.4
		1800	S.T.S.	985	25	24.6	135.0
	26	0000	S.T.S.	985	25	25.7	134.4
		0600	T.S.	990	23	27.0	133.8
		1200	T.S.	990	23	28.2	133.3
		1800	T.S.	992	21	29.9	132.0
	27	0000	T.S.	996	18	30.7	130.6
		0600	T.S.	996	18	31.2	129.8
		1200	T.D.	1000	16	31.7	129.0
			消散 Dissipated				

強烈熱帶風暴北冕(0212)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM KAMMURI (0212)

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	0000	T.D.	996	13	20.7	117.6
		0600	T.D.	994	16	20.9	116.7
		1200	T.D.	994	16	20.8	115.7
		1800	T.S.	992	18	20.6	114.9
	4	0000	T.S.	990	21	20.7	114.8
		0600	T.S.	990	21	21.1	115.0
		1200	T.S.	985	23	21.6	115.2
		1800	S.T.S.	975	28	22.2	115.5
	5	0000	S.T.S.	980	25	23.0	115.7
		0600	T.S.	990	21	24.1	115.7
		1200	T.D.	992	16	25.0	115.4
			消散 Dissipated				

熱帶低氣壓由八月十一日至十三日的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF THE TROPICAL DEPRESSION OF 11 - 13 AUGUST

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
八月 Aug	11	0000	T.D.	1002	13	10.5	130.5
		0600	T.D.	1000	16	10.7	130.0
		1200	T.D.	1000	16	11.0	129.5
		1800	T.D.	1000	16	11.3	129.0
	12	0000	T.D.	1000	16	11.6	128.5
		0600	T.D.	1000	16	11.9	128.0
		1200	T.D.	1000	16	12.2	127.5
		1800	T.D.	1000	16	12.5	127.0
	13	0000	T.D.	1002	13	12.9	126.3
			消散 Dissipated				

颱風巴蓬(0213)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON PHANFONE (0213)

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	11	1200	T.D.	1002	13	10.2	158.6
		1800	T.D.	1000	16	10.4	158.4
	12	0000	T.S.	996	18	10.6	158.2
		0600	T.S.	992	21	11.2	157.8
		1200	T.S.	990	23	11.9	157.5
		1800	S.T.S.	985	25	12.7	157.3
	13	0000	S.T.S.	980	28	14.0	157.0
		0600	S.T.S.	980	28	15.4	156.1
		1200	S.T.S.	975	31	16.5	154.8
		1800	S.T.S.	975	31	17.4	153.6
	14	0000	T.	970	33	18.3	152.2
		0600	T.	965	36	18.9	150.6
		1200	T.	960	39	19.5	149.3
		1800	T.	960	39	20.2	148.1
	15	0000	T.	955	41	21.1	146.9
		0600	T.	950	43	22.0	145.7
		1200	T.	945	46	22.9	144.4
		1800	T.	945	46	23.8	143.2
	16	0000	T.	945	46	24.6	142.0
		0600	T.	945	46	25.4	141.0
		1200	T.	945	46	26.0	140.1
		1800	T.	945	46	26.8	139.4
	17	0000	T.	950	43	27.6	138.8
		0600	T.	950	43	28.5	138.2
		1200	T.	950	43	29.4	137.7
		1800	T.	950	43	30.3	137.2
	18	0000	T.	955	41	30.7	136.7
		0600	T.	955	41	31.1	136.5
		1200	T.	960	39	31.5	136.9
		1800	T.	960	39	31.9	137.8
	19	0000	T.	965	36	32.3	138.8
		0600	T.	965	36	32.7	139.8
		1200	T.	970	33	33.2	141.1
		1800	S.T.S.	975	31	33.6	143.0
	20	0000	S.T.S.	980	28	34.3	146.1
		0600	S.T.S.	985	25	36.2	149.1

變爲溫帶氣旋
Became Extratropical

強烈熱帶風暴黃蜂(0214)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM VONGFONG (0214)

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	15	1200	T.D.	992	16	14.5	113.5
		1800	T.D.	992	16	14.5	113.7
	16	0000	T.D.	992	16	14.6	113.9
		0600	T.D.	990	16	14.8	114.2
		1200	T.D.	990	16	15.1	114.4
		1800	T.D.	990	16	15.4	114.5
	17	0000	T.D.	990	16	15.9	114.4
		0600	T.D.	990	16	16.2	113.8
		1200	T.D.	990	16	16.3	113.5
		1800	T.S.	988	18	16.4	113.2
	18	0000	T.S.	988	18	16.4	112.9
		0600	T.S.	986	21	16.7	112.1
		1200	T.S.	984	23	17.0	112.0
		1800	T.S.	984	23	17.4	111.9
	19	0000	T.S.	984	23	18.2	111.6
		0600	S.T.S.	980	25	19.9	111.1
		1200	S.T.S.	980	25	21.4	110.6
		1800	T.S.	990	18	23.0	110.0
	20	0000	T.D.	998	13	25.1	108.3
			消散 Dissipated				

颱風鹿莎(0215)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON RUSA (0215)

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	22	1800	T.D.	1000	16	15.7	162.4
	23	0000	T.S.	998	18	16.2	161.2
		0600	T.S.	994	21	16.8	160.5
		1200	T.S.	990	23	17.5	159.9
		1800	S.T.S.	985	25	18.5	158.8
	24	0000	S.T.S.	985	25	19.0	157.2
		0600	S.T.S.	985	25	19.3	156.1
		1200	S.T.S.	985	25	19.6	155.1
		1800	S.T.S.	980	28	20.1	154.0
	25	0000	S.T.S.	980	28	20.6	152.6
		0600	S.T.S.	975	31	21.1	151.0
		1200	S.T.S.	975	31	21.4	149.4
		1800	T.	970	33	21.8	148.0
	26	0000	T.	965	36	22.1	146.8
		0600	T.	960	39	22.4	145.6
		1200	T.	955	41	22.8	144.6
		1800	T.	950	43	23.2	143.3
	27	0000	T.	945	46	23.5	142.0
		0600	T.	945	46	23.9	140.5
		1200	T.	950	43	24.2	139.3
		1800	T.	955	41	24.6	137.9
	28	0000	T.	955	41	25.1	136.5
		0600	T.	955	41	25.7	135.2
		1200	T.	955	41	26.4	133.9
		1800	T.	955	41	27.0	132.7
	29	0000	T.	950	43	27.5	131.4
		0600	T.	950	43	27.9	130.4
		1200	T.	950	43	28.5	129.5
		1800	T.	955	41	28.9	128.9
	30	0000	T.	955	41	29.6	128.2
		0600	T.	955	41	30.3	127.7
		1200	T.	955	41	30.9	127.6
		1800	T.	960	39	31.5	127.5
	31	0000	T.	965	36	32.6	127.4
		0600	T.	965	36	34.2	127.3
		1200	T.	970	33	35.5	127.5
		1800	S.T.S.	980	28	36.5	128.0
九月 Sep	1	0000	T.S.	990	23	37.9	128.8
		0600	T.S.	994	18	39.0	129.6

消散
Dissipated

颱風森垃克(0216)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON SINLAKU (0216)

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	29	0000	T.D.	998	16	17.0	155.5
		0600	T.S.	996	18	18.2	155.2
		1200	T.S.	994	21	18.9	154.9
		1800	T.S.	990	23	19.7	154.5
	30	0000	S.T.S.	985	25	20.8	153.9
		0600	S.T.S.	980	28	21.5	153.4
		1200	S.T.S.	980	28	22.3	152.5
		1800	S.T.S.	975	31	23.0	151.5
	31	0000	T.	965	36	23.4	150.8
		0600	T.	965	36	23.7	149.7
		1200	T.	960	39	23.9	148.7
		1800	T.	955	41	23.9	147.8
九月 Sep	1	0000	T.	955	41	24.0	146.8
		0600	T.	950	43	24.0	145.8
		1200	T.	950	43	24.1	144.5
		1800	T.	950	43	24.2	143.1
	2	0000	T.	950	43	24.3	141.8
		0600	T.	955	41	24.3	140.4
		1200	T.	955	41	24.4	139.0
		1800	T.	960	39	24.5	137.8
	3	0000	T.	960	39	24.7	136.4
		0600	T.	960	39	25.1	134.9
		1200	T.	960	39	25.5	133.3
		1800	T.	960	39	25.7	132.1
	4	0000	T.	960	39	25.9	130.7
		0600	T.	955	41	26.1	129.6
		1200	T.	955	41	26.3	128.4
		1800	T.	955	41	26.4	127.4
	5	0000	T.	950	43	26.5	126.8
		0600	T.	950	43	26.6	126.2
		1200	T.	950	43	26.6	125.8
		1800	T.	950	43	26.3	125.3
	6	0000	T.	955	41	26.1	125.1
		0600	T.	955	41	26.1	124.8
		1200	T.	955	41	26.1	124.6
		1800	T.	955	41	26.5	123.8
	7	0000	T.	955	41	26.9	123.1
		0600	T.	955	41	27.2	121.5
		1200	T.	970	33	27.2	120.4
		1800	S.T.S.	985	25	27.1	118.9
	8	0000	T.D.	998	16	27.3	117.0
		0600	T.D.	1000	13	28.2	115.4

消散
Dissipated

颱風艾利(0217)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON ELE (0217)

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	30	0600	T.	955	41	12.5	179.8
		1200	T.	950	43	13.1	179.2
		1800	T.	950	43	13.8	178.6
	31	0000	T.	950	43	14.4	178.0
		0600	T.	950	43	15.0	177.6
		1200	T.	950	43	15.9	177.3
		1800	T.	950	43	16.9	177.0
九月 Sep	1	0000	T.	950	43	17.9	176.7
		0600	T.	950	43	18.9	176.4
		1200	T.	950	43	19.9	176.0
		1800	T.	950	43	20.8	175.5
	2	0000	T.	950	43	21.7	175.1
		0600	T.	945	46	22.6	175.0
		1200	T.	945	46	23.4	175.0
		1800	T.	945	46	24.1	175.3
	3	0000	T.	945	46	24.8	175.7
		0600	T.	945	46	25.3	176.0
		1200	T.	945	46	25.6	176.3
		1800	T.	950	43	25.9	176.6
	4	0000	T.	950	43	26.1	176.8
		0600	T.	950	43	26.4	177.0
		1200	T.	955	41	26.9	177.1
		1800	T.	960	39	27.4	176.6
	5	0000	T.	965	36	27.8	175.8
		0600	T.	970	33	28.2	175.2
		1200	T.	970	33	28.7	174.7
		1800	T.	970	33	29.4	174.2
	6	0000	T.	970	33	30.1	173.7
		0600	T.	970	33	30.7	173.2
		1200	T.	970	33	31.2	172.7
		1800	T.	970	33	31.7	172.1
	7	0000	S.T.S.	975	31	32.7	171.0
		0600	S.T.S.	980	28	33.5	169.8
		1200	S.T.S.	985	25	34.0	168.6
		1800	S.T.S.	985	25	34.3	167.5
	8	0000	T.S.	990	23	34.6	166.6
		0600	T.S.	992	21	35.0	166.0
		1200	T.S.	992	21	35.6	165.6
		1800	T.S.	992	21	36.2	165.5
	9	0000	T.S.	992	21	36.9	165.4
		0600	T.S.	992	21	37.7	165.7
		1200	T.S.	996	18	38.7	166.2

變爲溫帶氣旋
Became Extratropical

強烈熱帶風暴黑格比(0218)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM HAGUPIT (0218)

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	0600	T.D.	998	16	19.9	117.8
		1200	T.S.	994	18	20.3	116.6
		1800	T.S.	992	21	20.6	115.4
	11	0000	T.S.	990	23	20.8	114.5
		0600	S.T.S.	980	31	21.0	113.8
		1200	S.T.S.	985	28	21.3	113.0
		1800	S.T.S.	988	25	21.6	112.2
	12	0000	T.S.	992	21	21.9	111.0
		0600	T.S.	996	18	22.0	110.2
		1200	T.D.	1000	16	22.0	109.6
		1800	T.D.	1002	13	22.1	109.1
			消散 Dissipated				

熱帶風暴薔薇(0219)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM CHANGMI (0219)

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	21	1800	T.D.	998	16	28.5	137.0
	22	0000	T.S.	990	21	29.7	138.2
		0600	T.S.	985	23	30.9	138.8
		1200	T.S.	985	23	31.7	140.0
		1800	T.S.	985	23	32.6	142.0
	23	0000	T.S.	985	23	34.6	147.2

變爲溫帶氣旋
Became Extratropical

熱帶風暴米克拉(0220)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM MEKKHALA (0220)

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	23	1200	T.D.	1002	13	15.0	112.2
		1800	T.D.	1002	13	15.3	111.9
	24	0000	T.D.	1002	13	15.7	111.2
		0600	T.D.	1002	13	16.3	110.7
		1200	T.D.	1002	13	16.7	110.3
		1800	T.D.	1000	16	17.2	109.9
	25	0000	T.S.	996	18	17.6	109.6
		0600	T.S.	992	21	17.9	109.4
		1200	T.S.	992	21	18.4	109.1
		1800	T.S.	992	21	18.7	108.9
	26	0000	T.S.	992	21	19.2	108.7
		0600	T.S.	992	21	19.6	108.6
		1200	T.S.	992	21	20.0	108.5
		1800	T.S.	992	21	20.6	108.5
	27	0000	T.S.	992	21	21.1	108.6
		0600	T.S.	992	21	21.2	108.7
		1200	T.S.	992	21	21.3	108.8
		1800	T.S.	996	18	21.4	109.2
	28	0000	T.S.	996	18	21.4	109.6
		0600	T.D.	1002	13	21.4	110.1
			消散 Dissipated				

颱風海高斯(0221)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON HIGOS (0221)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
九月 Sep	26	1800	T.D.	1000	16	15.7	154.2
	27	0000	T.S.	998	18	16.0	152.0
		0600	T.S.	994	21	16.4	150.6
		1200	T.S.	990	23	16.9	149.1
		1800	S.T.S.	985	25	17.5	147.5
	28	0000	S.T.S.	980	28	17.9	145.8
		0600	S.T.S.	975	31	18.7	144.2
		1200	T.	965	36	19.1	142.1
		1800	T.	955	41	19.5	140.3
	29	0000	T.	950	43	19.9	138.8
		0600	T.	945	46	20.4	137.5
		1200	T.	940	49	20.9	136.7
		1800	T.	940	49	21.5	136.0
	30	0000	T.	945	46	22.5	135.8
		0600	T.	945	46	23.7	135.8
		1200	T.	950	43	25.2	136.1
		1800	T.	955	41	27.1	136.6
十月 Oct	1	0000	T.	960	39	29.6	137.4
		0600	T.	965	36	32.8	138.3
		1200	T.	970	33	35.9	140.0
		1800	S.T.S.	975	31	40.5	141.4
	2	0000	S.T.S.	985	25	44.0	141.3

變爲溫帶氣旋
Became Extratropical

強烈熱帶風暴巴威(0222)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM BAVI (0222)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十月 Oct	8	1800	T.D.	998	16	11.5	154.7
	9	0000	T.D.	998	16	12.0	154.5
		0600	T.D.	998	16	12.7	153.7
		1200	T.S.	996	18	13.2	152.3
		1800	T.S.	992	21	13.6	151.3
	10	0000	T.S.	992	21	13.9	150.4
		0600	T.S.	992	21	14.5	150.1
		1200	T.S.	990	23	15.9	149.9
		1800	S.T.S.	985	25	17.4	149.8
	11	0000	S.T.S.	980	28	18.9	149.6
		0600	S.T.S.	980	28	20.2	149.3
		1200	S.T.S.	980	28	21.4	148.8
		1800	S.T.S.	980	28	22.3	148.1
	12	0000	S.T.S.	980	28	23.4	147.2
		0600	S.T.S.	980	28	24.6	146.9
		1200	S.T.S.	980	28	25.8	146.8
		1800	S.T.S.	985	25	27.0	146.9
	13	0000	S.T.S.	985	25	28.1	147.1
		0600	T.S.	990	23	29.5	147.6
		1200	T.S.	990	23	31.0	148.3

變爲溫帶氣旋
Became Extratropical

強烈熱帶風暴美莎克(0223)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM MAYSAK (0223)

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	26	1800	T.D.	1004	13	19.0	161.6
	27	0000	T.D.	1000	16	19.3	160.8
		0600	T.D.	1000	16	20.4	160.2
		1200	T.D.	1000	16	21.8	159.8
		1800	T.S.	996	18	23.3	159.5
	28	0000	T.S.	992	21	24.3	158.7
		0600	T.S.	990	23	25.1	159.0
		1200	T.S.	990	23	26.2	160.2
		1800	S.T.S.	985	25	27.7	161.5
	29	0000	S.T.S.	980	28	29.2	163.4
		0600	S.T.S.	980	28	30.3	166.1
		1200	S.T.S.	980	28	31.5	169.8
		1800	S.T.S.	985	25	32.0	173.6

變爲溫帶氣旋
Became Extratropical

颱風胡高(0224)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON HUKO (0224)

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	3	1200	T.	970	33	15.8	179.8
		1800	T.	970	33	16.1	177.8
	4	0000	T.	970	33	16.7	175.0
		0600	T.	970	33	17.5	172.3
		1200	T.	970	33	18.4	170.4
		1800	T.	970	33	19.5	167.9
	5	0000	S.T.S.	975	31	20.6	165.4
		0600	S.T.S.	975	31	21.7	163.9
		1200	S.T.S.	975	31	23.0	163.0
		1800	S.T.S.	980	28	24.3	162.7
	6	0000	S.T.S.	980	28	25.3	162.8
		0600	S.T.S.	985	25	26.1	164.1
		1200	T.S.	990	23	26.7	166.2
		1800	T.S.	990	23	27.2	168.9

變爲溫帶氣旋
Became Extratropical

颱風海神(0225)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON HAISHEN (0225)

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	20	0600	T.D.	1000	16	10.6	146.8
		1200	T.D.	1000	16	11.1	144.6
		1800	T.S.	996	18	11.5	143.0
	21	0000	T.S.	992	21	11.8	141.7
		0600	T.S.	992	21	12.1	140.2
		1200	T.S.	990	23	12.6	138.7
		1800	S.T.S.	985	25	13.1	137.5
	22	0000	S.T.S.	980	28	13.7	136.6
		0600	S.T.S.	980	28	14.8	135.9
		1200	S.T.S.	980	28	15.7	135.5
		1800	S.T.S.	975	31	16.5	135.3
	23	0000	S.T.S.	975	31	17.6	135.2
		0600	T.	970	33	18.7	135.3
		1200	T.	960	39	19.7	135.6
		1800	T.	960	39	21.1	136.3
	24	0000	T.	965	36	22.9	137.5
		0600	T.	970	33	25.3	139.3
		1200	T.	970	33	27.1	141.2

變爲溫帶氣旋
Became Extratropical

颱風鳳仙(0226)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON PONGSONA (0226)

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	2	1800	T.D.	1002	13	7.8	163.6
	3	0000	T.D.	1000	16	8.6	163.0
		0600	T.D.	1000	16	8.9	162.0
		1200	T.S.	996	18	8.9	161.2
		1800	T.S.	992	21	8.8	160.5
	4	0000	T.S.	992	21	8.6	159.8
		0600	T.S.	990	23	8.5	159.5
		1200	T.S.	990	23	8.4	159.0
		1800	S.T.S.	985	25	8.3	158.1
	5	0000	S.T.S.	980	28	8.3	157.0
		0600	S.T.S.	980	28	8.4	156.0
		1200	S.T.S.	975	31	8.5	155.0
		1800	T.	970	33	8.7	154.0
	6	0000	T.	970	33	8.9	153.0
		0600	T.	970	33	9.1	152.0
		1200	T.	970	33	9.3	151.0
		1800	T.	965	36	9.6	150.2
	7	0000	T.	960	39	10.1	149.1
		0600	T.	955	41	10.7	148.1
		1200	T.	950	43	11.3	147.2
		1800	T.	945	46	12.0	146.4
	8	0000	T.	945	46	12.7	145.7
		0600	T.	940	49	13.5	145.2
		1200	T.	940	49	14.4	144.7
		1800	T.	940	49	15.3	144.3
	9	0000	T.	945	46	16.2	143.8
		0600	T.	945	46	16.9	143.7
		1200	T.	945	46	18.1	143.7
		1800	T.	950	43	19.2	144.3
	10	0000	T.	955	41	20.6	145.8
		0600	T.	960	39	22.4	147.4
		1200	T.	960	39	24.1	150.2
		1800	T.	970	33	25.6	153.2
	11	0000	S.T.S.	980	28	27.2	156.2

變爲溫帶氣旋
Became Extratropical