香港天文台 HONG KONG OBSERVATORY

二零零七年的熱帶氣旋路徑圖
TRACKS OF TROPICAL CYCLONES IN 2007

每日協調世界時零時位置(香港時間上午八時),
符號中央數目字代表該月的日子
Daily Positions at 00 UTC(08 HKT),
the number in the symbol represents
the date of the month

每六小時位置
Intermediate 6-hourly Positions

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

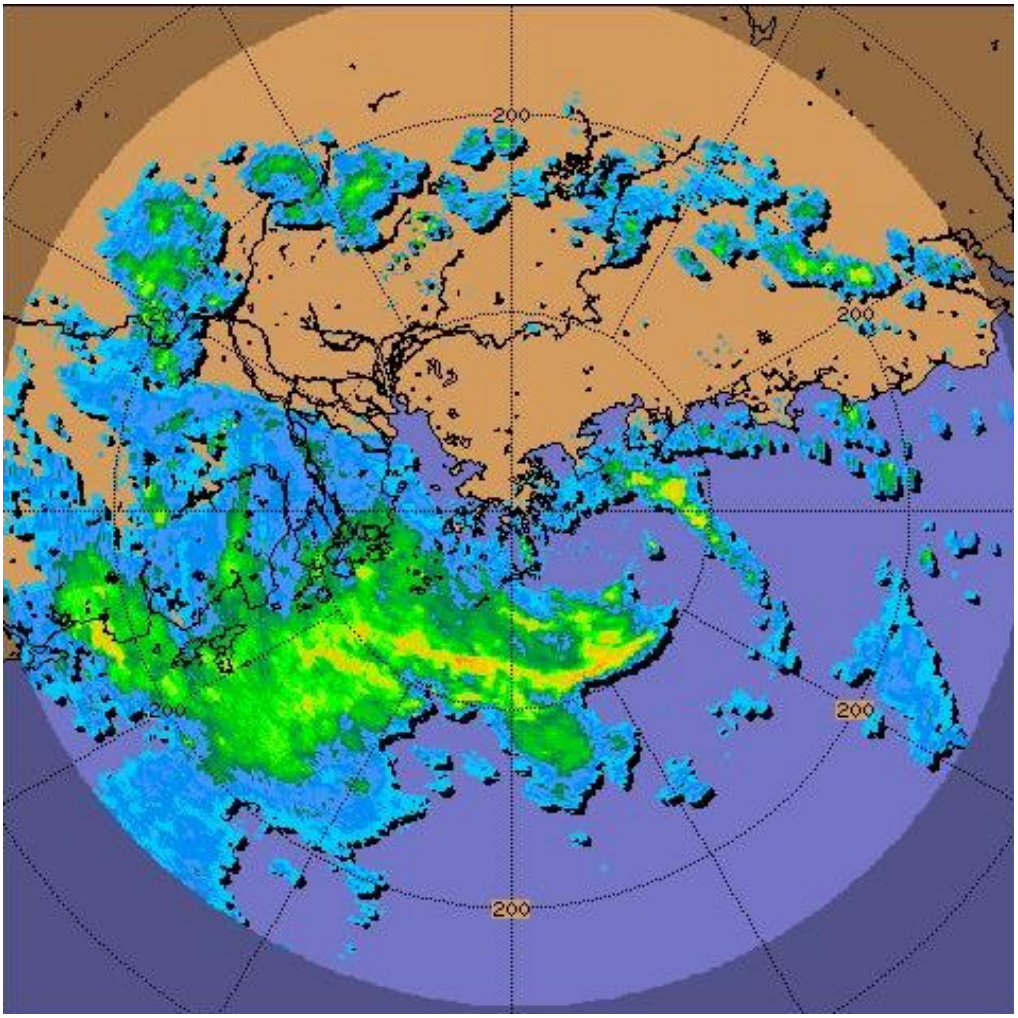
菲特 FITOW 九月SEP
天兔 USAGI 八月AUG
丹娜絲 DANAS 九月SEP
百合 NARI 九月SEP
韋帕 WIPHA 九月SEP
法茜 FAXAI 十月OCT
萬宜 MAN-YI 七月JUL
劍魚 KAJIKI 十月OCT
楊柳 PODUL 十月OCT
玲玲 LINGLING 十月OCT
海燕 HAIYAN 十月OCT
玉兔 YUTU 五月MAY
塔巴 TAPAH 十一月NOV
康妮 KONG-REY 四月APR
羅莎 KROSA 十月OCT
聖帕 SEPAT 八月AUG
潮蝶 WUTIP 八月AUG
桃芝 TORAJI 七月JUL
帕布 PABUK 八月AUG
范斯高 FRANCISCO 九月SEP
利奇馬 LEKIMA 十月OCT
米娜 MITAG 十一月NOV
海貝思 HAGIBIS 十一月NOV
琵琶 PEIPAH 十一月NOV
熱帶風暴 T.S. 八月AUG
海燕(0716) HAIYAN 十月OCT
玲玲(0718) LINGLING 十月OCT
丹娜絲(0710) DANAS 九月SEP
楊柳(0717) PODUL 十月OCT
百合(0711) NARI 九月SEP
塔巴(0722) TAPAH 十一月NOV
帕布(0706) PABUK 八月AUG
法茜(0720) FAXAI 十月OCT
韋帕(0712) WIPHA 九月SEP
羅莎(0715) KROSA 十月OCT
琵琶(0721) PEIPAH 十一月NOV
潮蝶(0707) WUTIP 八月AUG
聖帕(0708) SEPAT 八月AUG
劍魚(0719) KAJIKI 十月OCT
天兔(0705) USAGI 七月JUL
菲特(0709) FITOW 八月AUG
桃芝(0703) TORAJI 七月JUL
范斯高(0713) FRANCISCO 九月SEP
利奇馬(0714) LEKIMA 九月SEP
海貝思(0724) HAGIBIS 十一月NOV
米娜(0723) MITAG 十一月NOV
玉兔(0702) YUTU 五月MAY
萬宜(0704) MAN-YI 七月JUL
康妮(0701) KONG-REY 三月MAR
熱帶風暴 T.S. 八月AUG
熱帶風暴 T.S. 八月AUG

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

香港天文台
HONG KONG OBSERVATORY

二零零七熱帶氣旋

TROPICAL CYCLONES IN 2007



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

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封面
熱帶風暴帕布在二零零七年八月九日上午二時三十分的雷達回波圖像。
Cover
Radar image of Tropical Storm Pabuk as at 2:30 a.m. on 9 August 2007.

目錄

CONTENTS

圖

FIGURES

表

TABLES

第一節　引言

1.1 熱帶氣旋刊物的沿革

除了在一九四零至一九四六年有過短暫中斷外，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烈風或暴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是二零零七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"0701"代表在二零零七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，例如颱風康妮(0701)。

1.4 資料來源

本年報內的海平面氣壓及地面風資料，是由天文台所操作的氣象站及測風站網絡錄得的。表1.2及1.3分別是該些網絡內各站的位置及海拔高度。

熱帶氣旋產生的最大風暴潮是由裝置在香港多處的潮汐測量器量度的。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

本年報第二節是二零零七年所有影響北太平洋西部及南海區域的熱帶氣旋的概述。

而本年報第三節是二零零七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平均海平面氣壓；
(e)香港天文台及其他地方錄得的每日總雨量；
(f)香港各潮汐測量站錄得的最高潮位及最大風暴潮；及
(g)氣象衛星雲圖及雷達回波圖。

有關熱帶氣旋的各種資料及統計表載於本年報第四節內。

二零零七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。

1.6 香港的熱帶氣旋警告系統

表 1.4 是香港熱帶氣旋警告信號的意義。

由二零零七年開始，發出 3 號和 8 號信號的參考範圍由維港擴展至由八個涵蓋全港並接近海平面的參考測風站組成的網絡(請參閱圖 1.1)。

揀選這些測風站，是基於它們處於較爲空曠的位置及地理上的分佈，當中包括自然山脈分隔的考慮。這個參考測風站網絡應可概括地反映全港的風勢。

當參考網絡中半數或以上的測風站錄得或預料錄得的持續風速達到有關的風速限值，且風勢可能持續時，則會發出 3 號或 8 號信號。3 號信號風速範圍爲每小時 41 至 62 公里，而 8 號信號則爲每小時 63 至 117 公里。

Section 1 INTRODUCTION

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 2007. 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 2007 was assigned the code "0701". In this publication, the appropriate code immediately follows the name of the tropical cyclone in bracket, e.g. Typhoon Kong-rey (0701).

1.4 Data sources

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

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

1.5 Content

In Section 2, an overview of all the tropical cyclones over the western North Pacific and the South China Sea in 2007 is presented.

The reports in Section 3 are individual accounts of the life history of tropical cyclones affecting Hong Kong in 2007. They include the following information :-

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

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.

1.6 Hong Kong’s Tropical Cyclone Warning System

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

Starting from 2007, the reference for the issue of No.3 and No.8 signals has been expanded from the Victoria Harbour to a network of eight near-sea level reference anemometers covering the whole of Hong Kong as depicted in Figure 1.1.

The reference anemometers were selected on account of their good exposure and geographical distribution, taking into account the natural separation by Hong Kong's mountain ranges. Together, they provide a broad picture of the wind condition in Hong Kong.

The No.3 or No.8 signal, as the case may be, will be issued when half or more anemometers in the reference network register or are expected to register sustained strong winds or gale/storm force winds and the wind condition is expected to persist. The wind speed range of the No.3 signal is 41-62 km/h and that of the No.8 signal is 63-117 km/h.

表 1.1　　二零零七年一月一日起生效的熱帶氣旋名單
TABLE 1.1　Tropical cyclone name list effective from 1 January 2007

來源	Contributed by	I	II	III	IV	V
		名字 Name	名字 Name	名字 Name	名字 Name	名字 Name
柬埔寨	Cambodia	達維 Damrey	康妮 Kong-rey	娜基莉 Nakri	科羅旺 Krovanh	莎莉嘉 Sarika
中國	China	海葵 Haikui	玉兔 Yutu	風神 Fengshen	杜鵑 Dujuan	海馬 Haima
朝鮮	DPR Korea	鴻雁 Kirogi	桃芝 Toraji	海鷗 Kalmaegi	彩虹 Mujigae	米雷 Meari
中國香港	Hong Kong, China	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	鸚鵡 Nuri	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
韓國	RO Korea	格美 Kaemi	百合 Nari	薔薇 Changmi	銀河 Mirinae	奧鹿 Noru
泰國	Thailand	派比安 Prapiroon	韋帕 Wipha	米克拉 Mekkhala	妮妲 Nida	玫瑰 Kulap
美國	U.S.A.	瑪莉亞 Maria	范斯高 Francisco	海高斯 Higos	奧麥斯 Omais	洛克 Roke
越南	Viet Nam	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
朝鮮	DPR Korea	清松 Sonamu	楊柳 Podul	紅霞 Noul	蒲公英 Mindulle	尼格 Nalgae
中國香港	Hong Kong, China	珊珊 Shanshan	玲玲 Lingling	白海豚 Dolphin	獅子山 Lionrock	榕樹 Banyan
日本	Japan	摩羯 Yagi	劍魚 Kajiki	鯨魚 Kujira	圓規 Kompasu	天鷹 Washi
老撾	Lao PDR	象神 Xangsane	法茜 Faxai	燦鴻 Chan-hom	南川 Namtheun	帕卡 Pakhar

表 1.1 (續)
TABLE 1.1 (cont'd)

來源	Contributed by	I	II	III	IV	V
		名字 Name	名字 Name	名字 Name	名字 Name	名字 Name
中國澳門	Macau, China	貝碧嘉 Bebinca	琵琶 Peipah	蓮花 Linfa	瑪瑙 Malou	珊瑚 Sanvu
馬來西亞	Malaysia	溫比亞 Rumbia	塔巴 Tapah	浪卡 Nangka	莫蘭蒂 Meranti	瑪娃 Mawar
米克羅尼西亞	Micronesia	蘇力 Soulik	米娜 Mitag	蘇廸羅 Soudelor	凡亞比 Fanapi	古超 Guchol
菲律賓	Philippines	西馬侖 Cimaron	海貝思 Hagibis	莫拉菲 Molave	馬勒卡 Malakas	泰利 Talim
韓國	RO Korea	飛燕 Chebi	浣熊 Neoguri	天鵝 Koni	鮎魚 Megi	杜蘇芮 Doksuri
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	麥德姆 Matmo	艾濤 Etau	艾利 Aere	韋森特 Vicente
越南	Viet Nam	潭美 Trami	夏浪 Halong	環高 Vamco	桑達 Songda	蘇拉 Saola

表 1.2 本年報內各氣壓表的位置及海拔高度
TABLE 1.2 Positions and elevations of various barometers mentioned in this publication

站 Station		位置 Position		氣壓表的海拔高度(米) Elevation of barometer above M.S.L. (m)
		北緯 Latitude N	東經 Longitude E	
香港天文台總部	Hong Kong Observatory Headquarters	22°18’07”	114°10’27”	40
香港國際機場	Hong Kong International Airport	22°18’34”	113°55’19”	8
橫瀾島	Waglan Island	22°10’56”	114°18’12”	60

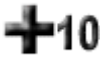
表 1.3　　本年報內各風速表的位置及海拔高度

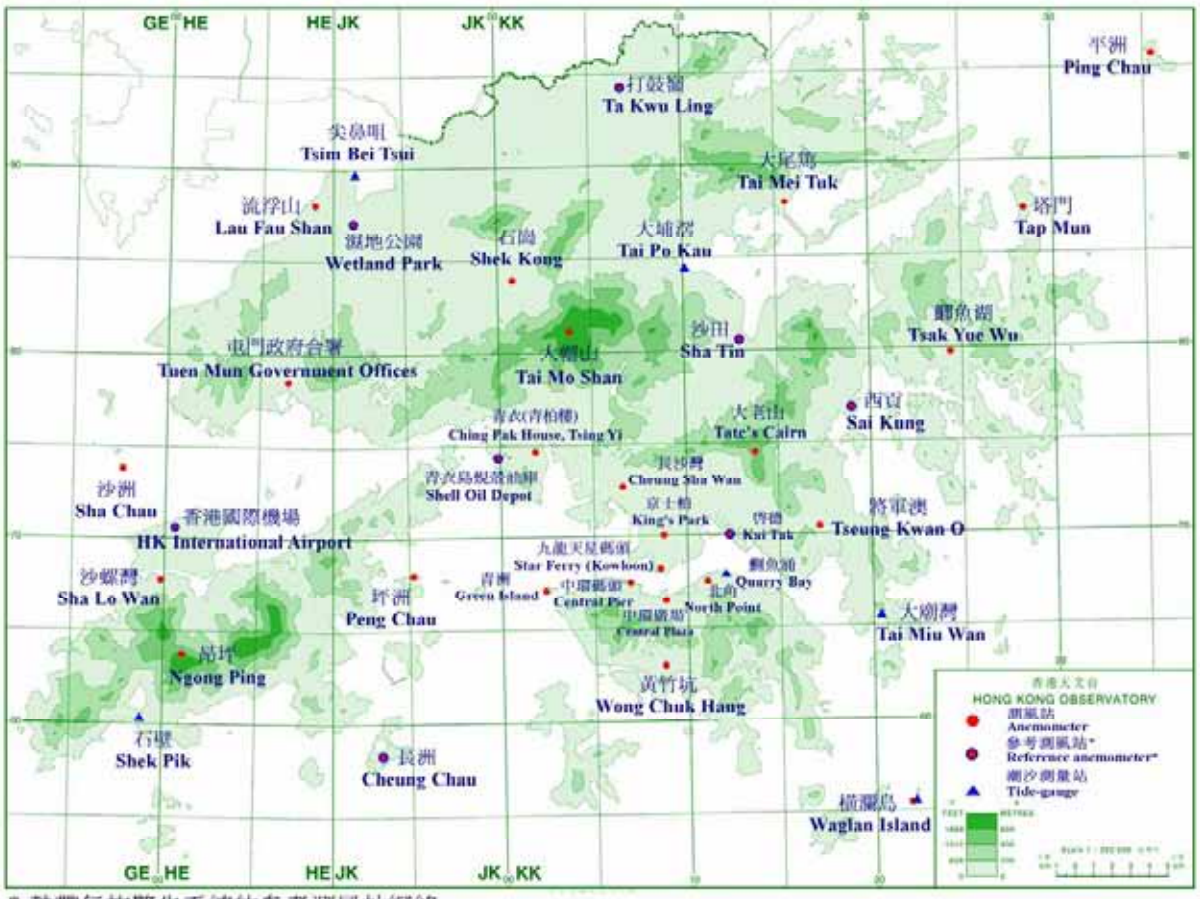
TABLE 1.3　Positions and elevations of various anemometers mentioned in this publication

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	
中環碼頭	Central Pier	22°17’20”	114°09’21”	30
中環廣場	Central Plaza	22°16’53”	114°10’16”	378
長洲	Cheung Chau	22°12’04”	114°01’36”	98
長沙灣	Cheung Sha Wan	22°20’04”	114°09’05”	30
青洲	Green Island	22°17’06”	114°06’46”	107
香港國際機場	Hong Kong International Airport	22°18’34”	113°55’19”	14
啓德	Kai Tak	22°18’35”	114°12’48”	16
京士柏	King’s Park	22°18’43”	114°10’22”	90
流浮山	Lau Fau Shan	22°28’08”	113°59’01”	50
昂坪	Ngong Ping	22°15’30”	113°54’46”	603
北角	North Point	22°17’40”	114°11’59”	26
坪洲	Peng Chau	22°17’28”	114°02’36”	47
平洲	Ping Chau	22°32’48”	114°25’42”	39
西貢	Sai Kung	22°22’32”	114°16’28”	31
沙洲	Sha Chau	22°20’45”	113°53’28”	31
沙螺灣	Sha Lo Wan	22°17’33”	113°54’16”	71
沙田	Sha Tin	22°24’09”	114°12’36”	16
石崗	Shek Kong	22°26’11”	114°05’05”	26
九龍天星碼頭	Star Ferry (Kowloon)	22°17’35”	114°10’07”	18
打鼓嶺	Ta Kwu Ling	22°31’43”	114°09’24”	28
大尾篤	Tai Mei Tuk	22°28’31”	114°14’15”	71
大帽山	Tai Mo Shan	22°24’38”	114°07’28”	966
塔門	Tap Mun	22°28’17”	114°21’39”	35
大老山	Tate's Cairn	22°21’28”	114°13’04”	587
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）	Ching Pak House, Tsing Yi	22°20’53”	114°06’33”	136
青衣島蜆殼油庫	Shell Oil Depot	22°20’54”	114°05’02”	43
屯門政府合署	Tuen Mun Government Offices	22°23’32”	113°58’27”	69
橫瀾島	Waglan Island	22°10’56”	114°18’12”	83
濕地公園	Wetland Park	22°28’00”	114°00’32”	15
黃竹坑	Wong Chuk Hang	22°14’54”	114°10’15”	30

表 1.4　　香港熱帶氣旋警告信號的意義

TABLE 1.4　MEANING OF TROPICAL CYCLONE WARNING SIGNALS IN HONG KONG

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



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

圖 1.1　　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　　二零零七年熱帶氣旋概述

2.1　二零零七年的熱帶氣旋回顧

2.1.1　北太平洋西部（包括南海區域）的熱帶氣旋

二零零七年共有25個熱帶氣旋影響北太平洋西部及南海區域（即由赤道至北緯45度、東經100至180度所包括的範圍）。除了2004年，過去十年（1998-2007年）在該海域的熱帶氣旋數目都少於1961-1990年的30年平均數31個。此外，全年有13個熱帶氣旋達到颱風強度，比正常數目少三個。

二零零七年一月至七月期間在北太平洋西部及南海區域上只有五個熱帶氣旋形成，是1961-1990年同期的平均數目的一半。其餘的20個熱帶氣旋在八月至十一月形成。

本年首個熱帶氣旋在三月形成。圖2.1是二零零七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。

二零零七年內有八個熱帶氣旋吹襲中國，五個影響台灣，五個影響日本（包括琉球群島），一個登陸韓國，另有四個橫過菲律賓及兩個登陸越南。

二零零七年風力最強的熱帶氣旋是聖帕（0708），最高風速估計約為每小時205公里，而最低中心氣壓則約為920百帕斯卡，當時聖帕位於台灣東南的北太平洋西部上。

帕布（0706）是二零零七年路徑最特別的熱帶氣旋。香港天文台在8月9日取消與帕布相關的熱帶氣旋警告信號後，需要於8月10日再度發出。

2.1.2　香港責任範圍內的熱帶氣旋

在二零零七年的25個熱帶氣旋中，有12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），較1961-1990年的30年平均16.4個少（表2.1）。這12個熱帶氣旋中，有五個在香港責任範圍內形成。在二零零七年，香港天文台總共發出351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

二零零七年共有八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），當中有三個在南海形成，其餘五個從北太平洋西部進入南海。

2.1.4　影響香港的熱帶氣旋

二零零七年有兩個熱帶氣旋影響香港（圖2.2），分別為強烈熱帶風暴帕布（0706）及熱帶風暴范斯高（0713），遠少於正常的六至七個（表2.2）。較正常少熱帶氣旋影響香港的主要原因是由於七月、九月及十月北太平洋西部及南海的副熱帶高壓脊較正常強，抑制了該區的對流活動。

在二零零七年八月的帕布影響香港期間，天文台需要發出自二零零四年熱帶風暴圓規影響香港後首個八號烈風或暴風信號，這亦是二零零七年發出的最高信號。而九月的范斯高則導致天文台發出一號戒備信號。

2.1.5 熱帶氣旋的雨量

二零零七年各熱帶氣旋為香港帶來的雨量（即該熱帶氣旋在出現於香港600公里範圍內至其消散或離開香港600公里範圍之後72小時期間，天文台錄得的雨量）共為287.5毫米，約佔該年總雨量1 706.9毫米的百分之17，比正常的737.9毫米少約百分之61。

八月八日至十一日影響香港的強烈熱帶風暴帕布為香港帶來154.5毫米的雨量，是二零零七年為香港帶來最多雨量的熱帶氣旋。

2.2 每月概述

這一節逐月介紹二零零七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。

一月及二月

二零零七年一月及二月並無熱帶氣旋影響北太平洋西部及南海區域。

三月

康妮(0701)於三月卅一日在關島東南偏東1 470 公里的北太平洋西部上發展成為一個熱帶低氣壓，並向西北偏西移動。康妮於四月一日增強為熱帶風暴及向西北移動。它於四月二日增強為強烈熱帶風暴，翌日進一步增強為颱風。康妮於四月四日清晨轉向北移動，當日下午轉向東北移動及減弱為強烈熱帶風暴。康妮於四月五日進一步減弱為熱帶風暴，並於該日下午在日本東南的北太平洋西部上變成溫帶氣旋。

四月

二零零七年四月並無熱帶氣旋在北太平洋西部及南海區域形成。

五月

玉兔(0702)於五月十六日在關島以南約540 公里的北太平洋西部上發展成為一個熱帶低氣壓，並向西移動。玉兔於五月十七日晚上增強為熱帶風暴及向西北移動，十八日下午進一步增強為強烈熱帶風暴。玉兔於翌日再增強成為颱風及轉向北移動。它於五月二十日轉向東北移動，然後於五月二十二日減弱為強烈熱帶風暴。玉兔於五月二十三日清晨進一步減弱為熱帶風暴，並於當日早上在東京東南偏東的北太平洋西部上變成溫帶氣旋。

六月

二零零七年六月並無熱帶氣旋影響北太平洋西部及南海區域。

七月

桃芝（0703）於七月四日早上在海口以南約180 公里的南海上發展成為一個熱帶低氣壓，並大致向西北移動。桃芝於當日下午橫過海南島，七月五日早上進入北部灣，然後增強為熱帶風暴。桃芝於七月五日傍晚在廣西沿岸東興市附近登陸，並於七月六日清晨在內陸減弱為一低壓區。桃芝為廣西部份地區帶來大雨，逾6 700 公頃農作物受災，倒塌房屋378 間，損壞房屋946 間，直接經濟損失超過7 300 萬人民幣。

萬宜（0704）於七月七日在雅蒲島東南偏東約1 250 公里的北太平洋西部上發展成為一個熱帶低氣壓，並大致向西北移動。它於七月九日增強為熱帶風暴，翌日再增強為強烈熱帶風暴，七月十一日進一步增強為颱風。萬宜於七月十二日轉向西北偏北移動，七月十三日再轉向北移動並於當日早上在沖繩島以西約30 公里掠過，令該處海平面氣壓下降至942 百帕斯卡以下。萬宜於七月十四日轉向東北移動及在日本九州登陸，然後於當日晚上轉向東北偏東移動，掠過日本四國南部。萬宜於七月十五日早上減弱為強烈熱帶風暴，並掠過日本南部海域，然後於傍晚再減弱為熱帶風暴。它於七月十六日在日本以東變成一個溫帶氣旋。根據報章報導，萬宜是自1951 年以來在七月影響日本最強的颱風。受到萬宜影響，日本有暴雨、水浸及山泥傾瀉，最少有五人死亡，80 人受傷，超過四萬人要撤離家園。另外，十五間房屋被毀壞及1 500 間被水淹浸。萬宜亦造成沖繩島及九州分別約有十三萬四千及74 萬戶民居停電，數百班航班取消，火車停駛。較早時，一艘中國貨輪於七月十一日在關島西北約600 公里的北太平洋西部遇到巨浪及暴風而沉沒，有九名船員失蹤。

天兔（0705）於七月二十八日在硫黃島東南偏東約1 440 公里的北太平洋西部上發展成為一個熱帶低氣壓，並大致向西移動。它於七月二十九日增強為熱帶風暴，翌日再增強為強烈熱帶風暴及轉向西北移動。天兔於七月三十一日進一步增強為颱風。它於八月二日在日本九州東部登陸，然後於當日傍晚減弱為強烈熱帶風暴。它於八月三日清晨轉向北移動，橫過日本本州西部。天兔於當日早上進一步減弱為熱帶風暴及轉向東北移動，翌日下午在日本北海道附近變成溫帶氣旋。受到天兔的影響，日本最少有五人受傷，約9 700 戶沒有電力供應。

八月

一個熱帶低氣壓於八月三日清晨在西沙東南偏南約480 公里的南海中部上形成，並大致向西北偏西移動。它於翌日早上增強為熱帶風暴，八月五日轉向西北偏北移動，掠過越南海岸。該熱帶風暴於八月六日減弱為熱帶低氣壓，然後於八月七日在北部灣以南進一步減弱為一個低壓區。

帕布（0706）於八月五日在沖繩島東南約 1 220 公里的北太平洋西部上發展成為一個熱帶低氣壓，並大致向西北偏西移動。它於當日傍晚增強為熱帶風暴，翌日再增強為強烈熱帶風暴。帕布於八月八日清晨橫過台灣南端，當日下午減弱為熱帶風暴。它於八月九日早上橫過香港以南海域及減弱為熱帶低氣壓。帕布於八月十日轉向東北移動及增強為熱帶風暴。它於下午橫過香港西部，但在傍晚突然轉向西移動及在中山登陸，並減弱為熱帶低氣壓。帕布於八月十一日在內陸減弱為一個低壓區。

蝴蝶（0707）於八月七日在馬尼拉以東約840公里的北太平洋西部上發展成為一個熱帶低氣壓。蝴蝶向西北移動，並於翌日增強為熱帶風暴。它於八月九日早上減弱為熱帶低氣壓及橫過台灣，當日在台灣減弱為一個低壓區。

聖帕（0708）於八月十二日在馬尼拉以東約 1 600 公里的北太平洋西部上發展成為一個熱帶低氣壓，並大致向西南偏西移動。聖帕於翌日首先增強為熱帶風暴，然後再增強為強烈熱帶風暴。它於八月十四日增強為颱風，並於八月十五日轉向西北移動。聖帕於八月十八日橫過台灣及台灣海峽，然後於八月十九日早上在福建泉州市登陸並減弱為熱帶風暴。它於當晚減弱為熱帶低氣壓，最後於八月二十日在中國東南部進一步減弱為一個低壓區。聖帕在台灣造成一人死亡、24人受傷，三十萬家庭沒有電力供應，漁農業損失達二億港元。福建及浙江共有14人死亡、一人失蹤及超過60人受傷，房屋倒塌超過3 300間，經濟損失超過19億人民幣。圖 2.3 是聖帕的衛星雲圖。

菲特（0709）於八月二十八日在關島東北偏東約 1 090 公里的北太平洋西部上發展成為一個熱帶低氣壓，初時向東北偏北移動。菲特於翌日首先增強為熱帶風暴，然後再增強為強烈熱帶風暴。菲特於八月三十日轉向北移動及進一步增強為颱風。它於八月三十一日轉向西北移動，然後於九月一日再轉向西移動。菲特於九月三日減弱為強烈熱帶風暴，但於九月五日再度增強為颱風。它於九月六日轉向北移動及橫過日本本州東部後於九月七日減弱為強烈熱帶風暴。菲特於當日傍晚進一步減弱為熱帶風暴，然後於九月八日清晨在日本北海道附近變成一個溫帶氣旋。

九月

丹娜絲（0710）於九月六日在硫黃島以東約 1 920 公里的北太平洋西部上發展成為一個熱帶低氣壓，並大致向西北移動。它於翌日增強為熱帶風暴，然後於九月九日轉向西北偏北移動。丹娜絲於九月十日進一步增強為強烈熱帶風暴，並轉向東北移動。丹娜絲於九月十一日轉向東移動，並在日本以東的北太平洋西部上變成一個溫帶氣旋。

百合（0711）於九月十三日在沖繩島東南約 910 公里的北太平洋西部上發展成為一個熱帶低氣壓，並向西北移動。它於當日下午增強為熱帶風暴，然後於傍晚增強為強烈熱帶風暴。百合於九月十四日進一步增強為颱風，並於當日傍晚在沖繩島西南掠過。它於九月十五日轉向北移動，翌日傍晚橫過韓國東南部及減弱為強烈熱帶風暴。百合於九月十七日轉向東北移動，並在日本海變成一個溫帶氣旋。百合為韓國帶來暴雨，水浸及山泥傾瀉，造成最少13人死亡，七人失蹤。濟州有三十艘船沉沒或受損，五萬多個家庭停電。

韋帕（0712）於九月十五日在沖繩島東南約 940 公里的北太平洋西部上發展成為一個熱帶低氣壓，並向西北偏西移動。它於翌日首先增強為熱帶風暴，然後再增強為強烈熱帶風暴。韋帕於九月十七日進一步增強為颱風。它於九月十八日轉向西北移動及當日傍晚在台灣以北掠過。韋帕在台灣造成一人死亡及另一人受傷，八千個家庭供電被切斷。韋帕於九月十九日清晨在浙江蒼南市附近登陸。它於當日早上減弱為強烈熱帶風暴及轉向北移動，並於當日下午進一步減弱為熱帶風暴。韋帕於九月二十日在黃海變成一個溫帶氣旋。韋帕在浙江、福建及江蘇造成嚴重破壞，最少有五人死亡、三人受傷，緊急轉移安置 268 萬多人，倒塌房屋 9 600 餘間、損壞房屋 42 000 間，因災直接經濟損失66億多元人民幣。圖2.4 顯示韋帕的衛星圖像。

范斯高（0713）於九月二十二日在香港東南偏東約700公里的南海上發展成為一個熱帶低氣壓，並向西移動。范斯高於九月二十三日下午增強為熱帶風暴。它於九月二十四日清晨在香港西南偏南約290公里掠過後於當日下午在海南島登陸。范斯高於當晚減弱為熱帶低氣壓，翌日橫過北部灣，然後於九月二十六日清晨在越南北部沿岸登陸並減弱為一個低壓區。

利奇馬（0714）於九月二十九日在馬尼拉東北約 250 公里的北太平洋西部上發展成為一個熱帶低氣壓，並向西移動。利奇馬於當日傍晚進入南海，翌日轉向西南偏西移動及增強為熱帶風暴。它於十月一日在南海中部增強為強烈熱帶風暴及轉向西北移動。受到東北季候風和利奇馬的共同影響，華南沿岸海域風浪頗大。利奇馬於十月二日晚上在海南島三亞附近登陸後橫過海南島南部海域及於翌日下午在北部灣增強為颱風。利奇馬於當日傍晚在越南海岸登陸後減弱為強烈熱帶風暴。它於十月四日清晨繼續減弱為熱帶風暴，下午再減弱為熱帶低氣壓，隨後在內陸消散。受到利奇馬的影響，海南島直接經濟損失達 5 億 4 百萬元人民幣， 225 000人需要從低窪地帶撤離。利奇馬在越南引致水浸及山泥傾瀉，造成至少 67 人喪生，超過七萬所房屋被浸或倒塌。

十月

北太平洋西部及南海區域在二零零七年十月出現了七個熱帶氣旋，其中四個熱帶氣旋只影響東經140度以東的北太平洋西部。

羅莎（0715）於十月一日在台北東南約 1 260 公里的北太平洋西部上發展成為一個熱帶低氣壓及幾乎停留不動。它於翌日增強為熱帶風暴。羅莎於十月三日首先增強為強烈熱帶風暴，然後再增強為颱風，並開始向西北移動。它於十月六日晚上橫過台灣北部，造成五人死亡、兩人失蹤、56人受傷，超過二百萬家庭停電。羅莎於十月七日上午橫過台灣海峽後於當日下午在浙江蒼南市及福建福鼎市之間的中國東南沿岸登陸，並減弱為強烈熱帶風暴及移動緩慢。它於十月八日清晨減弱為熱帶風暴，然後轉向東北移動及於下午進一步減弱為熱帶低氣壓。羅莎於當晚在東海變成溫帶氣旋。羅莎為浙江帶來暴雨及水浸，有七百多萬人受災，51個鄉鎮停電，直接經濟損失達75億元人民幣。圖 2.5 顯示利奇馬及羅莎的衛星圖片。

海燕（0716）於十月四日在威克島東北偏北約 1 050 公里的北太平洋西部上發展成為一個熱帶低氣壓及向東移動。它於翌日增強為熱帶風暴及轉向北移動。海燕於十月六日轉向西北移動及減弱為熱帶低氣壓。它於十月七日在海上消散。

楊柳（0717）於十月四日在硫黃島東南偏東約 660 公里的北太平洋西部上發展為一個熱帶低氣壓及大致向東北移動。它於翌日增強為熱帶風暴。楊柳於十月六日在日本以東的北太平洋西部上變成溫帶氣旋。

玲玲（0718）於十月十一日在威克島東北偏東約 950 公里的北太平洋西部上發展成為一個熱帶低氣壓及大致向西北移動。它於翌日增強為熱帶風暴。玲玲於十月十四日清晨減弱為一個熱帶低氣壓及轉向北移動。它於當日下午再度增強為熱帶風暴及轉向東北移動。玲玲於十月十五日首先減弱為一個熱帶低氣壓，然後在國際換日綫附近的北太平洋西部上變成溫帶氣旋。

劍魚（0719）於十月十八日在關島東北偏北約 460 公里的北太平洋西部上發展成為一個熱帶低氣壓及大致向西北移動。它於翌日下午增強為熱帶風暴，然後於十月二十日清晨增強為強烈熱帶風暴。劍魚於十月二十日早上進一步增強為颱風及轉向北移動。它於翌日加速向東北移動。劍魚於十月二十二日首先減弱為強烈熱帶風暴，然後在北太平洋西部上變成溫帶氣旋。

法茜（0720）於十月二十五日在沖繩島東南約 1 110 公里的北太平洋西部上發展成為一個熱帶低氣壓及向西北移動。它於翌日增強為熱帶風暴，並轉向北移動。法茜於十月二十七日再增強為強烈熱帶風暴及於傍晚在日本以東掠過。它於當日晚上在日本以東的北太平洋西部上變成溫帶氣旋。

十一月

琵琶（0721）於十一月三日在馬尼拉東北偏北約 890 公里的北太平洋西部上發展成為一個熱帶低氣壓並向西南偏西移動。它於十一月四日清晨增強為熱帶風暴，當日下午再增強為強烈熱帶風暴。琵琶於當日晚上向西北偏西移動橫過菲律賓後於十一月五日早上進入南海及移動速度減慢。它於當日晚上轉向西北移動及於翌日增強為颱風。在琵琶與東北季候風的共同影響下，　南海北部風勢頗大。琵琶於十一月七日轉向西南移動。它於當日下午首先減弱為強烈熱帶風暴，然後於傍晚再減弱為熱帶風暴。琵琶於十一月九日早上減弱為熱帶低氣壓後於當日傍晚在越南沿岸海域消散。琵琶導致菲律賓有七人死亡，60 萬人沒有電力供應。

塔巴（0722）於十一月十一日在硫黃島以南約 480 公里的北太平洋西部上發展成為一個熱帶低氣壓，並大致向東北移動。它於十一月十二日增強為熱帶風暴。塔巴於十一月十三日清晨減弱為熱帶低氣壓，然後於當日早上在硫黃島東北偏東的北太平洋西部上變成溫帶氣旋。

米娜（0723）於十一月二十日在馬尼拉以東約 1 810 公里的北太平洋西部上發展成為一個熱帶低氣壓並大致向西北偏西移動。它於翌日早上增強為熱帶風暴。米娜於十一月二十二日首先增強為強烈熱帶風暴，然後再增強為颱風，並轉向西移動。它於十一月二十三日傍晚轉向西北移動。米娜於十一月二十六日橫過呂宋後於當日在呂宋海峽轉向西北偏北移動。它於十一月二十七日轉向東移動，強度逐步減弱，首先於早上減弱為強烈熱帶風暴，其後於下午繼續減弱為熱帶風暴，再於晚上減弱為熱帶低氣壓。米娜於十一月二十八日在北太平洋西部上減弱為一低壓區。米娜導致菲律賓有八人死亡、兩人失蹤、約 1 000 公頃稻田被水淹沒。

海貝思（0724）於十一月二十日在南沙以東約510公里的南海中部發展成為一個熱帶低氣壓並向西移動。它於十一月二十一日早上增強為熱帶風暴，翌日清晨再增強為強烈熱帶風暴。海貝思於十一月二十三日減慢移動速度，然後於翌日轉向東移動。它於十一月二十五日減弱為熱帶風暴。海貝思於十一月二十七日向東北偏東移動橫過菲律賓中部後於十一月二十八日清晨減弱為熱帶低氣壓，然後在當日日間在北太平洋西部上減弱為一低壓區。受到海貝思的影響，菲律賓有14人死亡。一艘菲律賓漁船在南海沉沒，有25名船員失蹤。圖2.6顯示海貝思及米娜的衛星圖片。

十二月

二零零七年十二月並無熱帶氣旋影響北太平洋西部及南海區域。

備註：人命傷亡及財物損毀數據是根據報章報導輯錄而成。

Section 2 TROPICAL CYCLONE OVERVIEW FOR 2007

2.1 Review of tropical cyclones in 2007

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

In 2007, 25 tropical cyclones affected the western North Pacific and the South China Sea (i.e. the area bounded by the Equator, 45°N, 100°E and 180°). In the past 10 years (1998-2007), with the exception of 2004, the annual number of tropical cyclones in this ocean basin has been less than the 30-year (1961-1990) average of 31. Throughout the year, 13 tropical cyclones attained typhoon strength, three less than the normal figure.

Only five tropical cyclones occurred in the western North Pacific and South China Sea from January to July, about half of the mean total number of tropical cyclones for the same period in 1961-1990. The rest of the 20 tropical cyclones formed between August and November.

The first tropical cyclone of the year formed in March. The monthly frequencies of the occurrence of tropical cyclones in the western North Pacific and the South China Sea in 2007 are shown in Figure 2.1.

During the year, eight tropical cyclones hit mainland China, five affected Taiwan, five affected Japan (including Ryukyu Islands), one made landfall over Republic Of Korea, four traversed the Philippines, another two made landfall over Vietnam.

The most intense tropical cyclone in 2007 was Sepat (0708). Sepat had an estimated maximum wind speed of about 205 km/h and a minimum sea-level pressure of about 920 hPa when it was located over the western North Pacific to the southeast of Taiwan.

Pabuk (0706) was the tropical cyclone with the most peculiar track in 2007. In Hong Kong, the Hong Kong Observatory had to re-issue the tropical cyclone warning signals for Pabuk on 10 August after all signals had been cancelled on 9 August.

2.1.2 Tropical cyclones in Hong Kong's area of responsibility

Amongst those 25 tropical cyclones in 2007, 12 occurred inside Hong Kong's area of responsibility (i.e. the area bounded by 10°N, 30°N, 105°E and 125°E), less than the 30-year (1961-1990) annual average of 16.4 (Table 2.1). Five of these 12 tropical cyclones developed within Hong Kong's area of responsibility. Altogether, 351 tropical cyclone warnings to ships and vessels were issued by the Hong Kong Observatory in 2007 (Table 4.2).

2.1.3 Tropical cyclones over the South China Sea

There were 8 tropical cyclones affecting the South China Sea (i.e. the area bounded by 10°N, 25°N, 105°E and 120°E) in 2007. Three of them formed over the area. Five moved into the area from the western North Pacific.

2.1.4 Tropical cyclones affecting Hong Kong

Two tropical cyclones, namely Severe Tropical Storm Pabuk (0706) and Tropical Storm Francisco (0713), affected Hong Kong in 2007 (Figure 2.2), much less than the normal

number of 6 to 7. The fewer number of tropical cyclones affecting Hong Kong were mainly due to the stronger-than-normal sub-tropical ridge of high pressure over the western North Pacific and the South China Sea in July, September and October, thus suppressing the convection over the areas.

Pabuk, which affected Hong Kong in August, necessitated the issuance of the first Number 8 Gale or Storm Signal since the passage of Tropical Storm Kompasu in 2004, and was also the highest signal issued in 2007. Francisco in September only necessitated the issuance of the Standby Signal No. 1 in Hong Kong.

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 2007 was 287.5 mm. This is 61% below the normal of 737.9 mm and accounts for some 17% of the year's total rainfall of 1 706.9 mm.

Pabuk which affected Hong Kong on 8-11 August brought 154.5 mm of rainfall to Hong Kong, which was the tropical cyclone bringing the most rainfall to Hong Kong in 2007.

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 AND FEBRUARY

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

MARCH

Kong-rey (0701) formed as a tropical depression over the western North Pacific about 1470 km east-southeast of Guam on 31 March and moved west-northwestwards. Kong-rey intensified into a tropical storm on 1 April and moved northwestwards. It intensified into a severe tropical storm on 2 April and further into a typhoon on the next day. Kong-rey turned to move northwards on the early morning of 4 April. It then turned to the northeast and weakened into a severe tropical storm that afternoon. Kong-rey weakened further into a tropical storm on 5 April and became an extratropical cyclone over the western North Pacific to the southeast of Japan that afternoon.

APRIL

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

MAY

Yutu (0702) formed as a tropical depression over the western North Pacific about 540 km south of Guam on 16 May and moved westwards. It intensified into a tropical storm and turned to a northwesterly track on the night of 17 May. Yutu continued to intensify into a severe tropical storm on the afternoon of 18 May. It further intensified into a typhoon the next day and turned to move northwards. Yutu took on a northeasterly track on 20 May and then weakened into a severe tropical storm on 22 May. It weakened further into a tropical storm on the early morning of 23 May and became an extra-tropical cyclone over the western North Pacific to the east-southeast of Tokyo that morning.

JUNE

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

JULY

Toraji (0703) developed as a tropical depression over the South China Sea about 180 km south of Haikou on the morning of 4 July and moved generally northwestwards. Toraji crossed Hainan that afternoon. It entered Beibu Wan on the morning of 5 July and then intensified into a tropical storm. Toraji made landfall near Dongxing at the coast of Guangxi that evening and weakened into an area of low pressure on the early morning of 6 July. Toraji brought heavy rain to parts of Guangxi. More than 6 700 hectares of farmland were affected and 378 houses collapsed, with another 946 houses damaged. The direct economic losses exceeded RMB$73 million.

Man-yi (0704) developed as a tropical depression over the western North Pacific about 1 250 km east-southeast of Yap on 7 July and moved generally northwestwards. It intensified into a tropical storm on 9 July, a severe tropical storm the next day and further into a typhoon on 11 July. Man-yi turned to a north-northwesterly track on 12 July. It turned further northwards on 13 July and passed about 30 km west of Okinawa that morning, where the mean sea level pressure fell below 942 hPa. Man-yi turned to move northeast on 14 July and made landfall over Kyushu, Japan. It then turned to move east-northeast that night and skirted southern Shikoku. Man-yi weakened into a severe tropical storm on the morning of 15 July. It skirted the coastal waters to the south of Japan and weakened further into a tropical storm in the evening. Man-yi became an extratropical cyclone to the east of Japan on 16 July. According to press reports, Man-yi was the strongest typhoon on record to hit Japan in July since 1951. It brought torrential rain, flooding and landslides to Japan where at least 5 people were killed and 80 injured. More than 40 000 people had been evacuated. Fifteen houses were destroyed and about 1 500 flooded. Man-yi also cut off electricity supply to around 134 000 and 740 000 households respectively in Okinawa and Kyushu. Hundreds of flights were cancelled and train services were disrupted. Earlier, a Chinese freighter sank in high seas and storm force winds on 11 July when it was about 600 km northwest of Guam. Nine seamen were reported missing.

Usagi (0705) developed as a tropical depression over the western North Pacific about 1 440 km southeast of Iwo Jima on 28 July and moved generally westwards. It developed

into a tropical storm on 29 July and then a severe tropical storm the next day when it turned to a northwesterly track. Usagi intensified further into a typhoon on 31 July. It made landfall over eastern Kyushu, Japan on 2 August and weakened into a severe tropical storm that evening. Usagi turned northwards to cross the western part of Honshu, Japan on the early morning of 3 August. It weakened further into a tropical storm that morning and turned to move northeastwards. It became an extra-tropical cyclone on the afternoon of 4 August near Hokkaido, Japan. In the fury of Usagi, at least five people were injured and about 9 700 homes were without power supply in Japan.

AUGUST

A tropical depression formed over the central part of the South China Sea about 480 km south-southeast of Xisha on the early morning of 3 August and moved generally west-northwestwards. It intensified into a tropical storm the next morning and took on a north-northwesterly track on 5 August, skirting the coast of Vietnam. It weakened into a tropical depression on 6 August and further into an area of low pressure south of Beibu Wan on 7 August.

Pabuk (0706) formed as a tropical depression over the western North Pacific about 1 220 km southeast of Okinawa on 5 August and moved generally west-northwestwards. It intensified into a tropical storm that evening and became a severe tropical storm the next day. Pabuk crossed the southern tip of Taiwan on the early morning of 8 August, and weakened into a tropical storm that afternoon. Pabuk skirted the seas south of Hong Kong on 9 August and weakened into a tropical depression. It turned northeastwards and intensified into a tropical storm on 10 August. Pabuk crossed the western part of Hong Kong that afternoon but turned abruptly westwards to make landfall in Zhongshan that evening and weakened into a tropical depression. It weakened into an area of low pressure inland on 11 August.

Wutip (0707) formed as a tropical depression over the western North Pacific about 840 km east of Manila on 7 August. Wutip moved northwestwards and intensified into a tropical storm the next day. It weakened into a tropical depression and crossed Taiwan on the morning of 9 August. Wutip weakened further into an area of low pressure over Taiwan that day.

Sepat (0708) formed as a tropical depression over the western North Pacific about 1 600 km east of Manila on 12 August and moved generally west-southwestwards. It intensified first into a tropical storm and then a severe tropical storm the next day. Sepat became a typhoon on 14 August and changed to a northwesterly track on 15 August. After crossing Taiwan and the Taiwan Strait on 18 August, Sepat made landfall near Quanzhou City, Fujian on the morning of 19 August and weakened into a tropical storm. It weakened into a tropical depression that night and further into an area of low pressure over southeastern China on 20 August. During the passage of Sepat over Taiwan, one person was killed and 24 people injured, electricity supply to more than 300 000 households were disrupted and the damage to fisheries and agriculture amounted to about HK$200 million. In Fuijan and Zhejiang, a total of 14 people were killed, one person was missing and over 60 people injured. Over 3 300 houses collapsed and the economic losses exceeded RMB$1 900 million. Figure 2.3 shows the satellite image of Sepat.

Fitow (0709) formed as a tropical depression over the western Pacific about 1 090 km east-northeast of Guam on 28 August and moved north-northeastwards initially. It

intensified first into a tropical storm and then a severe tropical storm the next day. Fitow turned to a northerly track and intensified further into a typhoon on 30 August. It changed to a northwesterly track on 31 August and further to a westerly track on 1 September. It weakened into a severe tropical storm on 3 September but re-intensified into a typhoon on 5 September. After turning north and crossing the eastern part of Honshu, Japan on 6 September, Fitow weakened into a severe tropical storm on 7 September. Fitow weakened further into a tropical storm that evening, and then became an extra-tropical cyclone near Hokkaido, Japan on the early morning of 8 September.

SEPTEMBER

Danas (0710) formed as a tropical depression over the western North Pacific about 1 920 km east of Iwo Jima on 6 September and moved generally northwestwards. It intensified into a tropical storm the next day and turned to move north-northwestwards on 9 September. Danas intensified further into a severe tropical storm on 10 September and changed to move northeastwards. It turned to move east and became an extra-tropical cyclone over the western North Pacific to the east of Japan on 11 September.

Nari (0711) developed as a tropical depression over the western North Pacific about 910 km southeast of Okinawa on 13 September and moved generally northwestwards. Nari intensified into a tropical storm that afternoon and then a severe tropical storm that evening. It intensified further into a typhoon on 14 September, passing to the southwest of Okinawa that evening. Nari turned to move north on 15 September. It crossed the southeastern part of Korea and weakened into a severe tropical storm the next evening. Nari turned to move northeastwards and became an extratropical cyclone over the Sea of Japan on 17 September. Nari brought heavy rain to Korea, causing floods and landslides. At least 13 people were killed and 7 others missing. In Jeju, over 30 vessels sank or were wrecked. Electricity supply to over 50 000 households was interrupted.

Wipha (0712) developed as a tropical depression over the western North Pacific about 940 km southeast of Okinawa on 15 September and moved west-northwestwards. It intensified first into a tropical storm and then a severe tropical storm the next day. Wipha intensified further into a typhoon on 17 September. It turned to move northwest on 18 September and passed to the north of Taiwan that evening. Under the fury of Wipha, one person was killed in Taiwan while another injured. Electricity supply to about 8 000 families was interrupted. Wipha made landfall near Cangnan, Zhejiang on the early morning of 19 September. It weakened into a severe tropical storm and turned to move northwards that morning, and weakened further into a tropical storm that afternoon. Wipha became an extratropical cyclone over the Yellow Sea on 20 September. Wipha brought severe damage to Zhejiang, Fujian and Jiangsu. At least 5 persons were killed and 3 others injured. Over 2.68 million people had to be evacuated. Over 9 600 houses collapsed and another 42 000 houses were damaged. The direct economic losses amounted to 6.6 billion yuan. A satellite image of Wipha is shown in Figure 2.4.

Francisco (0713) developed as a tropical depression over the South China Sea about 700 km east-southeast of Hong Kong on 22 September and moved westwards. It intensified into a tropical storm on the afternoon of 23 September. After passing about 290 km to the south-southwest of Hong Kong on the early morning of 24 September, Francisco made landfall over Hainan that afternoon. Francisco weakened into a tropical depression that night and crossed Beibu Wan the next day. It made landfall and weakened into an area

of low pressure over the coastal regions of northern Vietnam on the early morning of 26 September.

Lekima (0714) developed as a tropical depression over the western North Pacific about 250 km northeast of Manila on 29 September. It moved westwards and entered the South China Sea that evening. Lekima changed to move west-southwestwards and intensified into a tropical storm on 30 September. Lekima intensified into a severe tropical storm on 1 October over the central part of the South China Sea and turned to move northwestwards. Under the combined effect of the northeast monsoon and Lekima, windy conditions and rough seas affected the south China coastal waters. Lekima made landfall near Sanya, Hainan on the night of 2 October and skirted the coastal waters of the southern part of Hainan. It intensified into a typhoon over Beibu Wan on the afternoon of 3 October. After making landfall over the coast of Vietnam coast that evening, Lekima weakened into a severe tropical storm. It continued to weaken into a tropical storm on the early morning of 4 October and then a tropical depression that afternoon. Lekima dissipated inland afterwards. In the fury of Lekima, more than 225 000 people had to be evacuated from low-lying areas and the direct economic losses amounted to 504 million yuan in Hainan. Lekima brought floods and landslides to Vietnam where at least 67 people were killed, over 70 000 houses were flooded or collapsed.

OCTOBER

Seven tropical cyclones occurred over the western North Pacific and South China Sea in October 2007. Amongst them, four of the tropical cyclones only affected the western North Pacific east of longitude 140°E.

Krosa (0715) developed as a tropical depression over the western North Pacific about 1 260 km southeast of Taibei on 1 October and was almost stationary. It intensified into a tropical storm the next day. Krosa intensified first into a severe tropical storm and then into a typhoon on 3 October, and started to move northwestwards. It crossed the northern part of Taiwan on the night of 6 October. In the fury of Krosa, 5 people were killed, 2 missing and 56 people were injured in Taiwan. Electricity supplies to more than 2 million households were disrupted. Krosa crossed the Taiwan Strait on the morning of 7 October. It made landfall over the coast of southeast China between Cangnan, Zhejiang and Fuding, Fujian that afternoon and then weakened into a severe tropical storm and became slow moving. Krosa weakened into a tropical storm on the early morning of 8 October and then turned to move northeastwards. It weakened further into a tropical depression that afternoon and became an extratropical cyclone over the East China Sea that night. Krosa brought heavy rain and flooding to Zhejiang where some seven million people were affected, electricity supply to 51 villages and towns was disrupted and the economic losses amounted to 7.5 billion yuan. Figure 2.5 shows the satellite image of Lekima and Krosa.

Haiyan (0716) developed as a tropical depression over the western North Pacific about 1050 km north-northeast of Wake Island on 4 October and moved eastwards. It intensified into a tropical storm the next day and turned to move northwards. Haiyan turned to a northwest track on 6 October and weakened into a tropical depression. It dissipated over the sea on 7 October.

Podul (0717) formed as a tropical depression over the western North Pacific about 660 km east-southeast of Iwo Jima on 4 October and moved generally northeastwards. It

intensified into a tropical storm the next day. Podul became an extratropical cyclone over the western North Pacific east of Japan on 6 October.

Lingling (0718) formed as a tropical depression over the western North Pacific about 950 km east-northeast of Wake Island on 11 October and moved generally northwestwards. It intensified into a tropical storm the next day. Lingling weakened into a tropical depression on the early morning of 14 October and turned to move northwards. It intensified into a tropical storm again that afternoon and then turned to move northeastwards. Lingling weakened first into a tropical depression on 15 October and became an extratropical cyclone over the western North Pacific near the International Date Line.

Kajiki (0719) formed as a tropical depression over the western North Pacific about 460 km north-northeast of Guam on 18 October and moved generally northwestwards. It intensified into a tropical storm on the following afternoon and a severe tropical storm on the early morning of 20 October. Kajiki intensified further into a typhoon on the morning of 20 October and turned to move northwards. It accelerated towards northeast the following day. Kajiki weakened into a severe tropical storm on 22 October and then became an extratropical cyclone over the western North Pacific.

Faxai (0720) developed as a tropical depression over the western North Pacific about 1 110 km southeast of Okinawa on 25 October and moved northwestwards. It intensified into a tropical storm on the following day and turned to move northwards. Faxai intensified further into a severe tropical storm on 27 October and passed to the east of Japan that evening. It became an extratropical cyclone over the western North Pacific to the east of Japan that night.

NOVEMBER

Peipah (0721) formed as a tropical depression over the western North Pacific about 890 km east-northeast of Manila on 3 November and moved west-southwestwards. It intensified into a tropical storm on the early morning of 4 November and then a severe tropical storm that afternoon. After crossing Luzon on a west-northwest track that night, Peipah entered the South China Sea on the morning of 5 November and slowed down. It turned northwestwards that night and then intensified into a typhoon the next day. Under the combined effect of Peipah and the northeast monsoon, it was rather windy over the northern part of the South China Sea. Peipah turned to move southwestwards on 7 November. It weakened into a severe tropical storm that afternoon and then into a tropical storm that evening. After weakening into a tropical depression on the morning of 9 November, Peipah dissipated over the coastal waters of Vietnam that evening. Peipah caused seven deaths in the Philippines and left 600 000 people without electricity there.

Tapah (0722) formed as a tropical depression over the western North Pacific about 480 km south of Iwo Jima on 11 November and moved generally northeastwards. It intensified into a tropical storm on 12 November. Tapah weakened into a tropical depression on the early morning of 13 November and then became an extra-tropical cyclone over the western North Pacific to the east-northeast of Iwo Jima that morning.

Mitag (0723) formed as a tropical depression over the western North Pacific about 1 810 km east of Manila on 20 November and moved generally west-northwestwards. It intensified into a tropical storm the next morning. Mitag intensified first into a severe tropical storm and then a typhoon on 22 November and move westwards. It turned to move northwest

on the evening of 23 November. After crossing Luzon on 26 November, Mitag turned to move north-northwest over the Luzon Strait that day. Mitag turned to move east on 27 November. It weakened gradually on that day into a severe tropical storm in the morning, a tropical storm that afternoon, and then a tropical depression that night. Mitag weakened into an area of low pressure over the western North Pacific on 28 November. In the Philippines, eight people were killed and two reported missing. Around 1 000 hectares of rice crops were flooded.

Hagibis (0724) formed as a tropical depression over the central part of the South China Sea about 510 km east of Nansha on 20 November and moved westwards. It intensified into a tropical storm on the morning of 21 November and then into a severe tropical storm on the early morning of 22 November. Hagibis slowed down on 23 November and turned to move eastwards the next day. It weakened into a tropical storm on 25 November. After crossing the central Philippines on 27 November on an east-northeasterly track, Hagibis weakened into a tropical depression on the early morning of 28 November and then into an area of low pressure over the western North Pacific that day. In the Philippines, 14 people were killed under the influence of Hagibis. A Philippine fishing boat capsized in the South China Sea and 25 crewmen were missing. Figure 2.6 shows the satellite image of Mitag and Hagibis.

DECEMBER

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

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

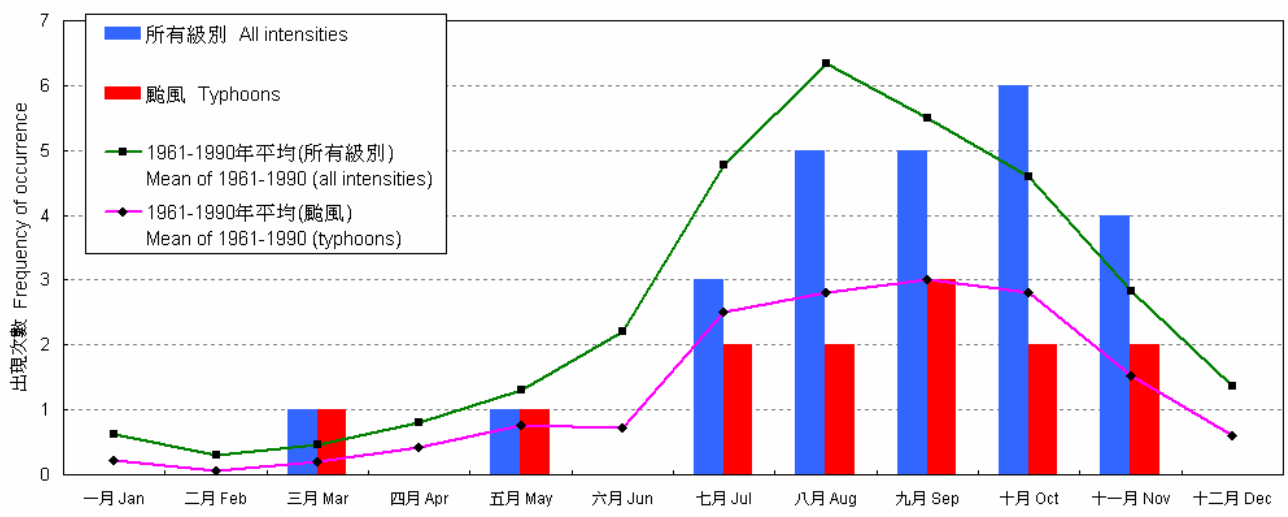


圖 2.1　二零零七年在北太平洋西部及南海區域的熱帶氣旋出現次數之每月分佈 (以熱帶氣旋在該月初次出現爲準)。

Figure 2.1 Monthly frequencies of the occurrence of tropical cyclones in the western North Pacific and the South China Sea in 2007 (based on the first occurrence of the tropical cyclone in the month).

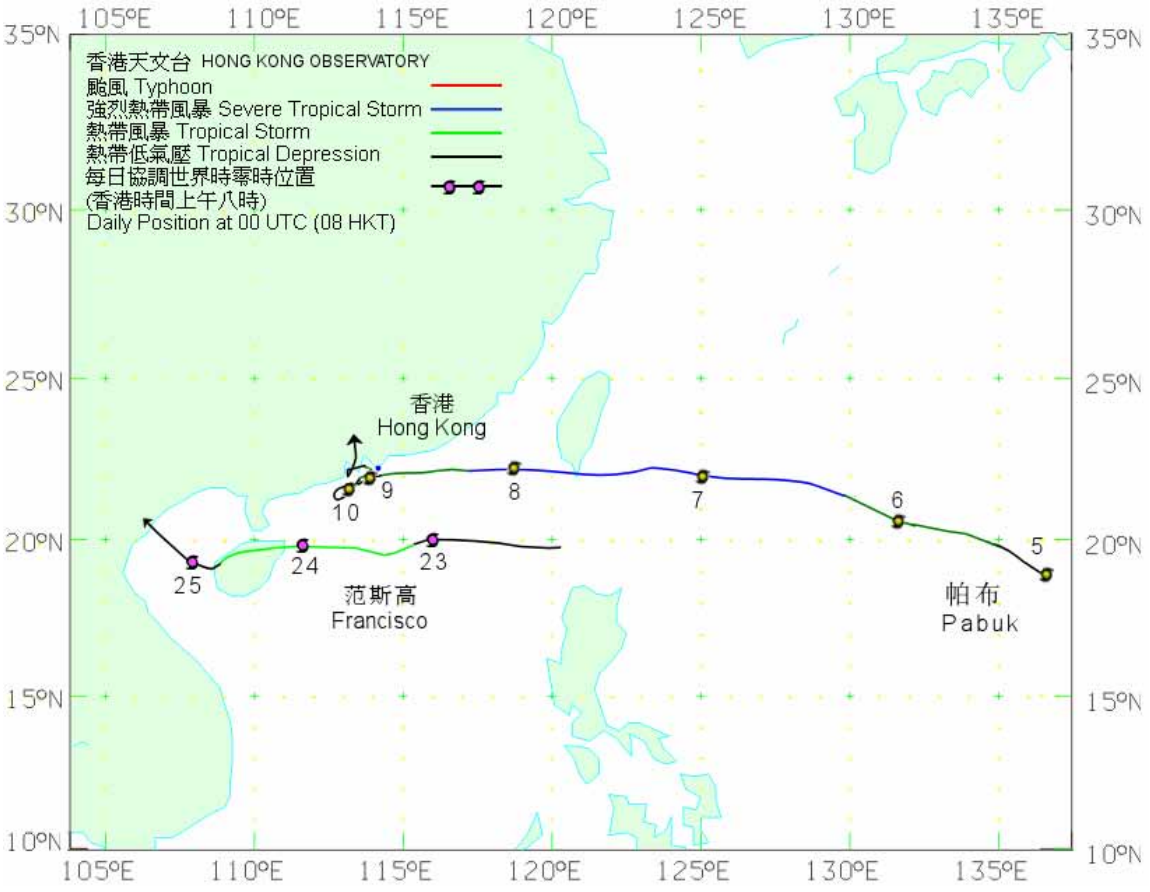


圖 2.2　二零零七年兩個影響香港的熱帶氣旋的路徑圖。

Figure 2.2　Tracks of the two tropical cyclones affecting Hong Kong in 2007.

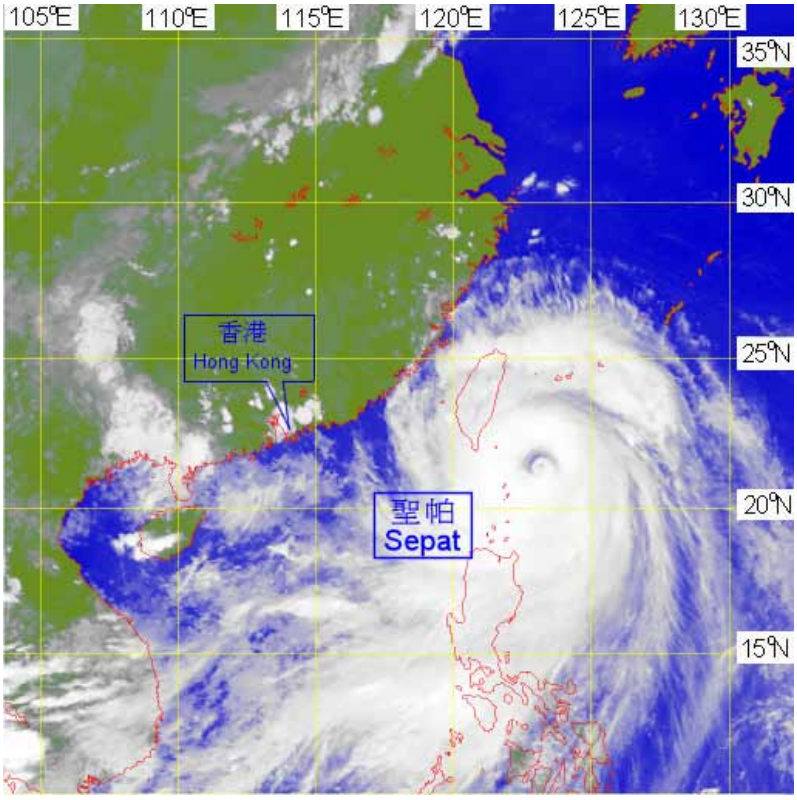


圖 2.3　颱風聖帕在二零零七年八月十七日約下午5時的紅外線衛星圖片。

Figure 2.3　Satellite infra-red imagery at around 5 p.m. on 17 August 2007 of Typhoon Sepat.

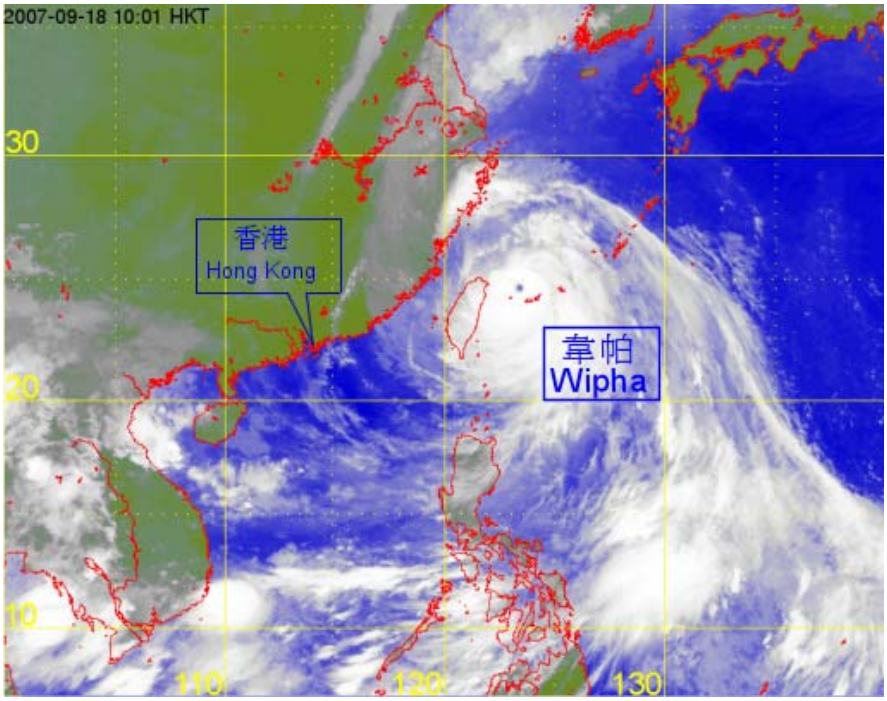


圖 2.4　颱風韋帕在二零零七年九月十八日約上午10時的紅外線衛星圖片。

Figure 2.4　Satellite infra-red imagery at around 10 a.m. on 18 September 2007 of Typhoon Wipha.

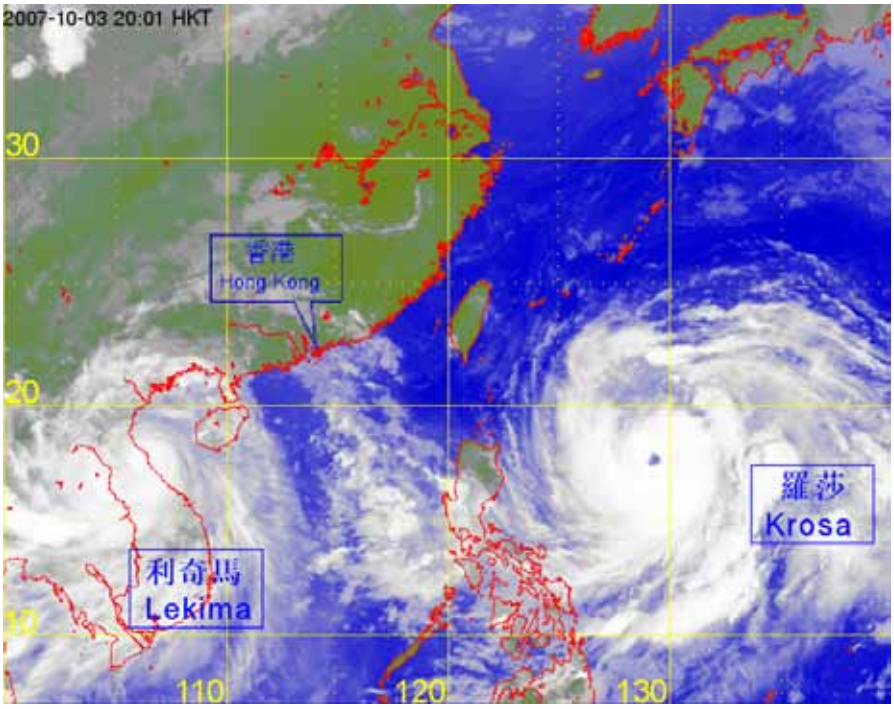


圖 2.5 颱風利奇馬及颱風羅莎在二零零七年十月三日約下午8 時的紅外線衛星圖片。

Figure 2.5 Satellite infra-red imagery at around 8 p.m. on 3 October 2007 of Typhoon Lekima and Typhoon Krosa.

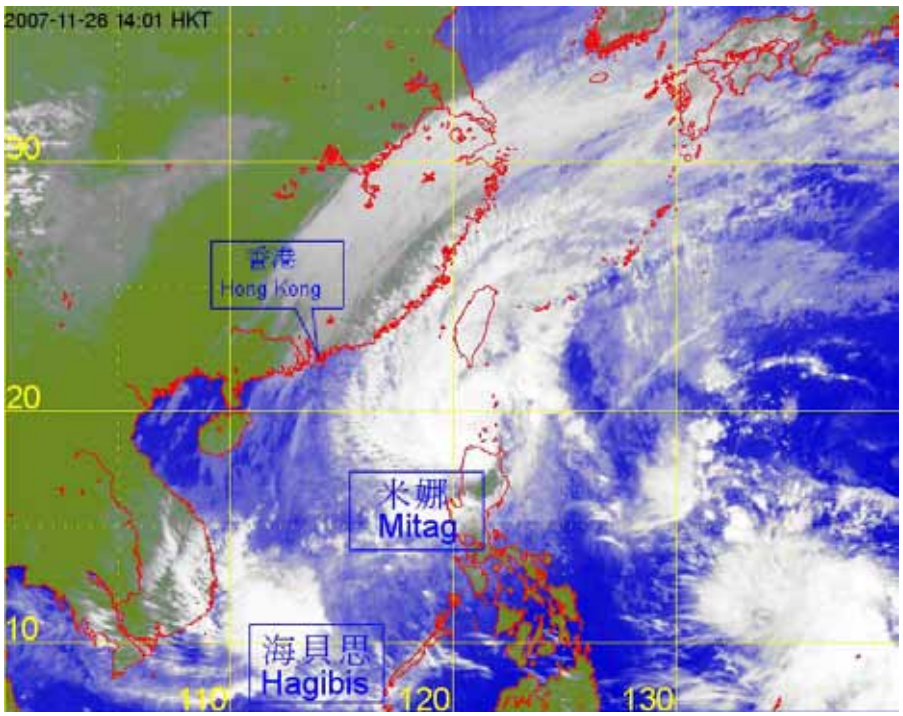


圖 2.6 熱帶風暴海貝思及颱風米娜在二零零七年十一月二十六日約下午2 時的紅外線衛星圖片。

Figure 2.6 Satellite infra-red imagery at around 2 p.m. on 26 November 2007 of Tropical Storm Hagibis and Typhoon Mitag.

〔圖像 2.3至2.6 接收自日本氣象廳的多用途輸送衛星-1R (MTSAT-1R)。〕

[The imageries in Fig. 2.3 to 2.6 were originally captured by Multi-functional Transport Satellite-1R (MTSAT-1R) of Japan Meteorological Agency (JMA).]

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

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
2003				1	1	2	2	3	1	1	1		12
2004			1		1	3	2	2	2	1	2	1	15
2005			1				2	3	4	3	2		15
2006					1	1	3	3	4	1	2	1	16
2007							1	4	3	1	3		12
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
2003							2	1	1				4
2004						1	1	1					3
2005								1	2				3
2006					1	1		3	1	1			7
2007								1	1				2
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.

第三節　二零零七年影響香港的熱帶氣旋

3.1　強烈熱帶風暴帕布(0706)：二零零七年八月五日至十一日

帕布是二零零七年香港首個需要發出熱帶氣旋警告信號的熱帶氣旋。它亦是自二零零四年熱帶風暴圓規影響香港以來首次需要發出八號烈風或暴風信號的熱帶氣旋。帕布接近香港期間途徑飄忽不定，天文台需要在取消所有熱帶氣旋警告信號之後再次發出警告。上一次類似的情況是二零零零年的強烈熱帶風暴瑪莉亞。

帕布於八月五日早上在沖繩島東南約 1 220 公里的北太平洋西部上發展成爲一個熱帶低氣壓，並大致向西北偏西移動。它於當日傍晚增強爲熱帶風暴，翌日進一步增強爲強烈熱帶風暴。帕布於八月七日轉向西移動。它於八月八日清晨橫過台灣南端及進入南海東北部。受到位於北太平洋西部的熱帶風暴蝴蝶影響，當日下午帕布向西移動的速度減慢，並減弱爲熱帶風暴。

在帕布橫過呂宋海峽期間，台灣有三千戶家庭供電受影響。帕布中心以南的強雨帶亦在菲律賓引致山泥傾瀉，共有 11 人喪生。

帕布於八月九日早上橫過香港以南海域及進一步減弱爲熱帶低氣壓。帕布於當日下午轉向西南移動。當晚帕布在接近上川島處以逆時針方向打圈，然後開始向東北移動，直趨珠江口。帕布於八月十日早上加速向香港移動，並再度增強爲熱帶風暴。它於當日下午橫過香港西部及后海灣。帕布於傍晚突然轉向西移動，並在廣東中山登陸。它於晚上減弱爲熱帶低氣壓及在中山以西打圈。帕布於八月十一日早上在香港西北約80公里處減弱爲一個低壓區。

香港天文台於八月八日上午 5 時 40 分首次發出一號戒備信號，當時帕布位於香港以東約 550 公里。帕布的外圍雨帶於當日傍晚爲香港帶來狂風驟雨及雷暴。隨著帕布移近香港，天文台於八月九日上午 2 時 40 分發出三號強風信號，當時帕布位於天文台之東南偏東約 90 公里。當日清晨香港普遍受強風影響及有狂風驟雨，香港南部地區及高地短暫時間吹烈風。隨著帕布移離香港，天文台在八月九日上午 11 時 15 分取消所有熱帶氣旋警告信號。

由於帕布於八月十日早上突然改變移動途徑並趨向香港，天文台於當日上午 7 時 50 分再次發出一號戒備信號，當時帕布位於香港西南約 110 公里。鑑於帕布移動速度加快及增強爲熱帶風暴，天文台在當日下午 12 時 40 分發出三號強風信號。隨後，天文台在當日下午 2 時 30 分發出八號西南烈風或暴風信號。帕布亦在下午 2 時 30 分左右最接近香港天文台總部，當時它位於天文台西北偏西約 30 公里處，橫過本港西部。香港的風勢在下午及傍晚顯著增強，西部地區及離岸海域受到烈風影響。隨着帕布減弱爲熱帶低氣壓及移離香港，天文台在當日下午 9 時 40 分改發三號強風信號，取代八號西南烈風或暴風信號。隨後香港風勢進一步緩和，天文台於八月十一日上午 1 時 40 分改發一號戒備信號。所有熱帶氣旋警告信號於當日上午 8 時 30 分取消。八月十日至十一日早上期間香港有狂風驟雨。

在帕布影響香港期間，各站錄得的最低瞬時海平面氣壓如下：-

站	最低瞬時海平面氣壓	日期/月份	時間
香港天文台總部	990.8 百帕斯卡	11/8	上午4時43分至45分
香港國際機場	988.7 百帕斯卡	10/8	下午1時51分至54分
橫瀾島	988.3 百帕斯卡	9/8	上午4時11分，12分，14分及15分

帕布影響香港期間，在青山公路天橋下有棚架倒塌，兩名正在維修的工人墮海，其中一人溺斃，另一人受傷。香港各區總共有16人被高空墮物擊中受傷，並有33宗塌樹報告。有兩航班需要轉飛往其它地方。

表 3.1.1-3.1.3 分別是帕布影響香港期間各站錄得的最高風速、日雨量及最高潮汐資料。圖 3.1.1-3.1.6 分別爲帕布的路徑圖、雨量分佈圖、帕布的衛星及雷達圖像、香港國際機場錄得的氣壓變化及香港各區風向及風力分佈圖。

Section 3 TROPICAL CYCLONES AFFECTING HONG KONG IN 2007

3.1 Severe Tropical Storm Pabuk (0706) : 5 - 11 August 2007

Pabuk was the first tropical cyclone to necessitate the issuance of tropical cyclone warning signals in Hong Kong in 2007. It was the first No. 8 Gale or Storm Signal issued since the passage of Tropical Storm Kompasu in 2004. The track of Pabuk near Hong Kong was erratic. The Hong Kong Observatory had to issue tropical cyclone warning signals on two separate occasions. The last time this had happened was in 2000 when Severe Tropical Storm Maria affected Hong Kong.

Pabuk formed as a tropical depression over the western North Pacific about 1 220 km southeast of Okinawa on the morning of 5 August and moved generally west-northwestwards. It intensified into a tropical storm that evening and further into a severe tropical storm the next day. Pabuk changed to a westerly track on 7 August. On the early morning of 8 August, it crossed the southern tip of Taiwan and entered the northeastern part of the South China Sea. While maintaining a westerly track, Pabuk slowed down and weakened into a tropical storm in the afternoon under the influence of Tropical Storm Wutip over the western North Pacific.

When Pabuk moved across the Luzon Strait, electricity supply to 3 000 families in Taiwan were cut off. Heavy rain south of Pabuk also brought landslides to the Philippines and resulted in 11 deaths.

Pabuk skirted the seas south of Hong Kong on the morning of 9 August and weakened further into a tropical depression. It changed to a southwesterly course that afternoon. After executing an anticlockwise loop just off Shangchuan Dao, Pabuk started to move northeast towards the Pearl River Estuary that night. On the morning of 10 August, Pabuk accelerated towards Hong Kong and intensified into a tropical storm again. It traversed the western part of Hong Kong and Deep Bay that afternoon but abruptly turned westwards and made landfall over Zhongshan, Guangdong in the evening. It weakened into a tropical

depression and performed another looping motion to the west of Zhongshan that night. Pabuk weakened into an area of low pressure about 80 km northwest of Hong Kong on the morning of 11 August.

In Hong Kong, the Standby Signal No. 1 was first issued at 5.40 a.m. on 8 August when Pabuk was about 550 km to the east of Hong Kong. The outer rainbands of Pabuk brought squally showers and thunderstorms to Hong Kong on the evening of 8 August. With Pabuk coming closer to Hong Kong, the Strong Wind Signal No. 3 was issued at 2.40 a.m. on 9 August when Pabuk was about 90 km east-southeast of the Observatory. Locally, winds were generally strong with squally showers and brief periods of gales over the southern part of Hong Kong and on high grounds on the early morning of 9 August. As Pabuk moved away from Hong Kong, all signals were cancelled at 11.15 a.m. on 9 August.

As Pabuk suddenly changed its direction of movement and edged towards Hong Kong on the morning of 10 August, the Standby Signal No. 1 was issued again at 7.50 a.m. when Pabuk was about 110 km to the southwest. As Pabuk picked up speed and intensified into a tropical storm, the No. 3 Strong Wind Signal was issued at 12.40 p.m. that day, followed by the No. 8 Southwest Gale or Storm Signal at 2.30 p.m. Pabuk was closest to the Hong Kong Observatory Headquarters at around 2.30 p.m. when it was crossing the western part of Hong Kong about 30 km to the west-northwest. Winds over Hong Kong strengthened significantly with gales affecting the western part of Hong Kong and offshore waters during the afternoon and evening. When Pabuk weakened into a tropical depression and moved away from Hong Kong, the No. 8 Southwest Gale or Storm Signal was replaced by the No. 3 Strong Wind Signal at 9.40 p.m. This was followed by the No. 1 Signal at 1.40 a.m. on 11 August as local winds moderated further. All signals were cancelled at 8.30 a.m. that morning. Squally showers affected Hong Kong on 10 August and early on 11 August.

During the passage of Pabuk, the lowest instantaneous mean sea-level pressures recorded at some selected stations were as follows :-

Station	Lowest instantaneous mean sea-level pressure	Date/Month	Time
Hong Kong Observatory Headquarters	990.8 hPa	11/8	4.43 to 4.45 a.m.
Hong Kong International Airport	988.7 hPa	10/8	1.51 to 1.54 p.m.
Waglan Island	988.3 hPa	9/8	4.11, 4.12, 4.14 and 4.15 a.m.

In Hong Kong, two men fell into the sea after a section of scaffolding they were erecting under a flyover in Castle Peak Road collapsed. One of them was drowned and the other injured. There were 16 other injured from fallen objects in various parts of Hong Kong. A total of 33 reports of fallen trees were received. Two aircraft were diverted.

Information on maximum wind, daily rainfall and maximum sea level during the passage of Pabuk is given in Tables 3.1.1 – 3.1.3. Figures 3.1.1 – 3.1.6 show the track of Pabuk, rainfall distribution, satellite and radar imageries of Pabuk, pressure recorded at the Hong Kong International Airport and wind distribution in Hong Kong respectively.

表 3.1.1　在帕布影響下，本港各站在熱帶氣旋警告信號生效時所錄得的最高陣風、最高每小時平均風速及風向

Table 3.1.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when tropical cyclone warning signals for Pabuk were in force

(a) 第一次影響香港期間 [二零零七年八月八日至九日]
First passage [8 – 9 August 2007]

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)		
中環碼頭	Central Pier	東北偏東	ENE	68	9/8	0447	東北偏東	ENE	36	9/8	0600
中環廣場	Central Plaza	東北偏北	NNE	113	9/8	0425	東北偏北	NNE	75	9/8	0500
長洲	Cheung Chau	北	N	112	9/8	0456	東北偏北	NNE	67	9/8	0600
長沙灣	Cheung Sha Wan	東北	NE	67	9/8	0443	東北偏北	NNE	23	9/8	0500
香港國際機場	Hong Kong International Airport	東北偏北	NNE	67	9/8	0502	東北偏北	NNE	47	9/8	0600
啓德	Kai Tak	東北偏東	ENE	76	9/8	0451	東北	NE	34	9/8	0500
京士柏	King's Park	東北偏東	ENE	68	9/8	0503	東北偏北	NNE	30	9/8	0500
流浮山	Lau Fau Shan	東北偏北	NNE	54	9/8	0508	東北	NE	31	9/8	0600
昂坪	Ngong Ping	東北	NE	103	9/8	0545	東北偏東	ENE	70	9/8	0600
北角	North Point	東北	NE	76	9/8	0438	東北偏東	ENE	45	9/8	0500
坪洲	Peng chau	東北偏北	NNE	79	9/8	0457	東北	NE	51	9/8	0600
平洲	Ping Chau	東	E	58	9/8	0455	東	E	19	9/8	0500
西貢	Sai Kung	東北偏北	NNE	72	9/8	0334	東北偏北	NNE	40	9/8	0400
							東北	NE	40	9/8	0500
沙螺灣	Sha Lo Wan	東北偏北	NNE	58	9/8	0506	東北	NE	34	9/8	0700
沙洲	Sha Chau	西北偏北	NNW	79	9/8	0344	西北偏北	NNW	51	9/8	0400
沙田	Sha Tin	東北偏北	NNE	54	9/8	0438	東北偏北	NNE	23	9/8	0500
九龍天星碼頭	Star Ferry (Kowloon)	東北偏東	ENE	58	9/8	0439	西	W	25	9/8	0100
打鼓嶺	Ta Kwu Ling	東北偏北	NNE	52	9/8	0417	東北	NE	22	9/8	0600
大尾篤	Tai Mei Tuk	東北偏東	ENE	85	9/8	0546	東北偏東	ENE	56	9/8	0600
大帽山	Tai Mo Shan	東北偏東	ENE	103	9/8	0444	東北偏東	ENE	70	9/8	0500
塔門	Tap Mun	東北偏東	ENE	70	9/8	0411	東北偏東	ENE	38	9/8	0500
大老山	Tate's Cairn	東北	NE	118	9/8	0355	東北	NE	75	9/8	0500
鯽魚湖	Tsak Yue Wu	東北偏北	NNE	45	8/8	1638	東北偏北	NNE	19	9/8	0400
將軍澳	Tseung Kwan O	東北	NE	63	9/8	0430	東北偏北	NNE	30	9/8	0500
青衣(青柏樓)	Ching Pak House, Tsing Yi	東北	NE	70	9/8	0508	東北	NE	40	9/8	0600
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	北	N	49	9/8	0250	西北偏北	NNW	19	9/8	0300
屯門政府合署	Tuen Mun Government Offices	西北偏西	WNW	47	8/8	1632	北	N	14	9/8	0700
		西北偏西	WNW	47	8/8	1633					
橫瀾島	Waglan Island	東北偏北	NNE	108	9/8	0413	東北	NE	79	9/8	0500
濕地公園	Wetland Park	東北	NE	43	9/8	0555	東北偏北	NNE	23	9/8	0600
黃竹坑	Wong Chuk Hang	東	E	88	9/8	0447	東南偏東	ESE	31	9/8	0600

(b) 第二次影響香港期間 [二零零七年八月十日至十一日]

Second passage [10 – 11 August 2007]

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)		
中環碼頭	Central Pier	西	W	72	10/8	1748	東	E	25	10/8	0900
中環廣場	Central Plaza	西南偏南	SSW	96	10/8	1744	南	S	58	11/8	0300
長洲	Cheung Chau	西南偏南	SSW	121	10/8	1254	西南偏南	SSW	85	10/8	1400
長沙灣	Cheung Sha Wan	西南偏南	SSW	70	10/8	1318	西南	SW	27	10/8	1900
香港國際機場	Hong Kong International Airport	西南	SW	76	10/8	1913	西南	SW	54	10/8	2000
啓德	Kai Tak	西南	SW	67	10/8	1902	東南偏東	ESE	30	10/8	0900
京士柏	King's Park	西南偏南	SSW	67	10/8	1755	南	S	25	10/8	1400
流浮山	Lau Fau Shan	西南偏南	SSW	65	10/8	1953	南	S	31	10/8	2100
昂坪	Ngong Ping	西南偏西	WSW	122	10/8	1916	西南偏西	WSW	85	10/8	2000
北角	North Point	西	W	68	10/8	1903	東	E	22	10/8	0900
坪洲	Peng chau	西南偏南	SSW	81	10/8	1314	東南偏南	SSE	31	11/8	0100
平洲	Ping Chau	東南	SE	56	11/8	0146	東南偏南	SSE	14	11/8	0300
西貢	Sai Kung	東南偏南	SSE	72	11/8	0107	東南偏南	SSE	43	11/8	0100
沙螺灣	Sha Lo Wan	西南	SW	83	10/8	1934	西南	SW	40	10/8	2000
沙洲	Sha Chau	西南偏南	SSW	83	10/8	1748	西南	SW	54	10/8	2000
沙田	Sha Tin	西南偏南	SSW	58	10/8	1803	西南偏南	SSW	30	10/8	1900
		西南偏南	SSW	58	10/8	1823					
九龍天星碼頭	Star Ferry (Kowloon)	西南偏西	WSW	79	10/8	1746	東	E	25	10/8	0900
打鼓嶺	Ta Kwu Ling	東北偏東	ENE	45	10/8	1242	南	S	20	10/8	2300
大尾篤	Tai Mei Tuk	東	E	70	10/8	0811	東	E	45	10/8	0900
大帽山	Tai Mo Shan	南	S	92	10/8	1323	西南偏南	SSW	56	10/8	2100
塔門	Tap Mun	東南偏東	ESE	63	10/8	0853	東南偏東	ESE	31	10/8	0800
大老山	Tate's Cairn	南	S	88	10/8	1210	南	S	51	11/8	0100
鯽魚湖	Tsak Yue Wu	西南	SW	41	10/8	1622	東	E	14	10/8	0900
將軍澳	Tseung Kwan O	西南偏南	SSW	56	10/8	1414	西南偏南	SSW	19	10/8	1300
青衣(青柏樓)	Ching Pak House, Tsing Yi	南	S	94	10/8	1330	南	S	58	10/8	1400
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南偏南	SSE	63	10/8	1323	東南偏南	SSE	36	10/8	1400
屯門政府合署	Tuen Mun Government Offices	東南偏南	SSE	63	10/8	2233	東南偏南	SSE	31	10/8	2300
橫瀾島	Waglan Island	西南	SW	101	10/8	1723	西南	SW	77	10/8	1800
濕地公園	Wetland Park	南	S	47	10/8	1936	東南	SE	23	11/8	0100
黃竹坑	Wong Chuk Hang	西北	NW	63	10/8	1744	東	E	20	10/8	1400

表 3.1.2　　帕布影響香港期間，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 Pabuk

站 (參閱圖3.1.2) Station (see Fig. 3.1.2)	八月八日 8 Aug	八月九日 9 Aug	八月十日 10 Aug	八月十一日 11 Aug	總雨量 Total
香港天文台 Hong Kong Observatory	17.9	33.6	57.8	39.9	149.2
長洲 Cheung Chau (CCH)	28.0	34.5	29.5	27.0	119.0
香港國際機場 Hong Kong International Airport (HKA)	36.4	17.1	30.1	29.2	112.8
H19 筲箕灣 Shau Kei Wan	16.0	37.0	74.5	43.5	171.0
H21 淺水灣 Repulse Bay	22.0	33.5	47.5	37.5	140.5
K04 佐敦谷 Jordan Valley	9.5	[56.5]	64.5	[41.5]	[172.0]
K06 蘇屋邨 So Uk Estate	14.5	37.5	50.0	48.5	150.5
N05 粉嶺　Fanling	33.0	45.5	44.0	36.5	159.0
N06 葵涌　Kwai Chung	15.0	41.5	56.5	57.0	170.0
N12 元朗　Yuen Long	22.0	52.5	21.5	33.5	129.5
N13 糧船灣 High Island	20.5	50.5	68.0	24.5	163.5
N17 東涌　Tung Chung	30.0	[33.0]	53.5	47.0	[163.5]
R21 踏石角 Tap Shek Kok	26.5	21.0	19.0	[33.5]	[100.0]
R31 大尾篤 Tai Mei Tuk	28.0	60.5	40.5	[21.5]	[150.5]

註 :　　[　] 基於不齊全的每小時雨量數據。

Note :　　[　] based on incomplete hourly data.

表 3.1.3　　帕布影響香港期間，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 Pabuk

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
第一次影響香港期間 First passage							
鰂魚涌	Quarry Bay	2.43	9/8	0535	0.31	9/8	1102
石壁	Shek Pik	2.64	9/8	0514	0.34	9/8	0747
大廟灣	Tai Miu Wan	2.43	9/8	0504	0.26	9/8	0504
尖鼻咀	Tsim Bei Tsui	2.51	9/8	0513	0.28	8/8	2354
橫瀾島	Waglan Island	2.75	9/8	0454	0.45	9/8	0451
第二次影響香港期間 Second passage							
鰂魚涌	Quarry Bay	2.37	11/8	0803	0.33	10/8	1305
石壁	Shek Pik	2.62	11/8	0749	0.35	10/8	1150
大廟灣	Tai Miu Wan	2.33	11/8	0548	0.14	10/8	1235
尖鼻咀	Tsim Bei Tsui	2.73	11/8	0830	0.33	10/8	2347
橫瀾島	Waglan Island	2.64	11/8	0616	0.34	10/8	1133

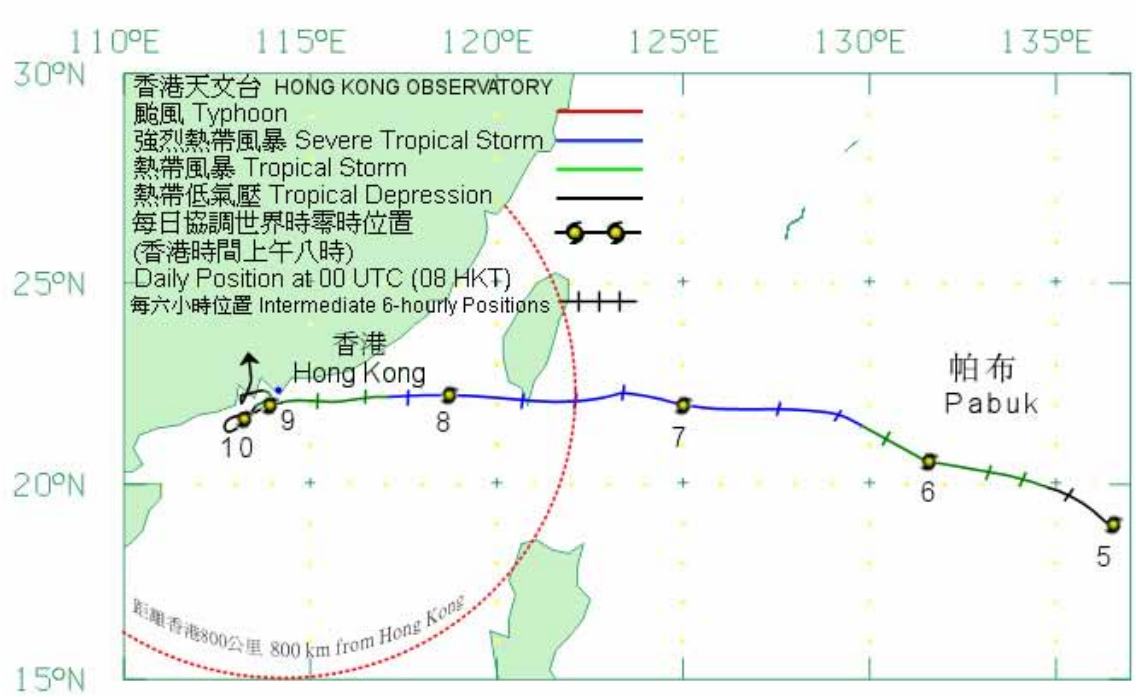


圖 3.1.1a　　帕布（0706）在二零零七年八月五日至十一日的路徑圖。
Figure 3.1.1a　　Track of Pabuk (0706) on 5 - 11 August 2007.

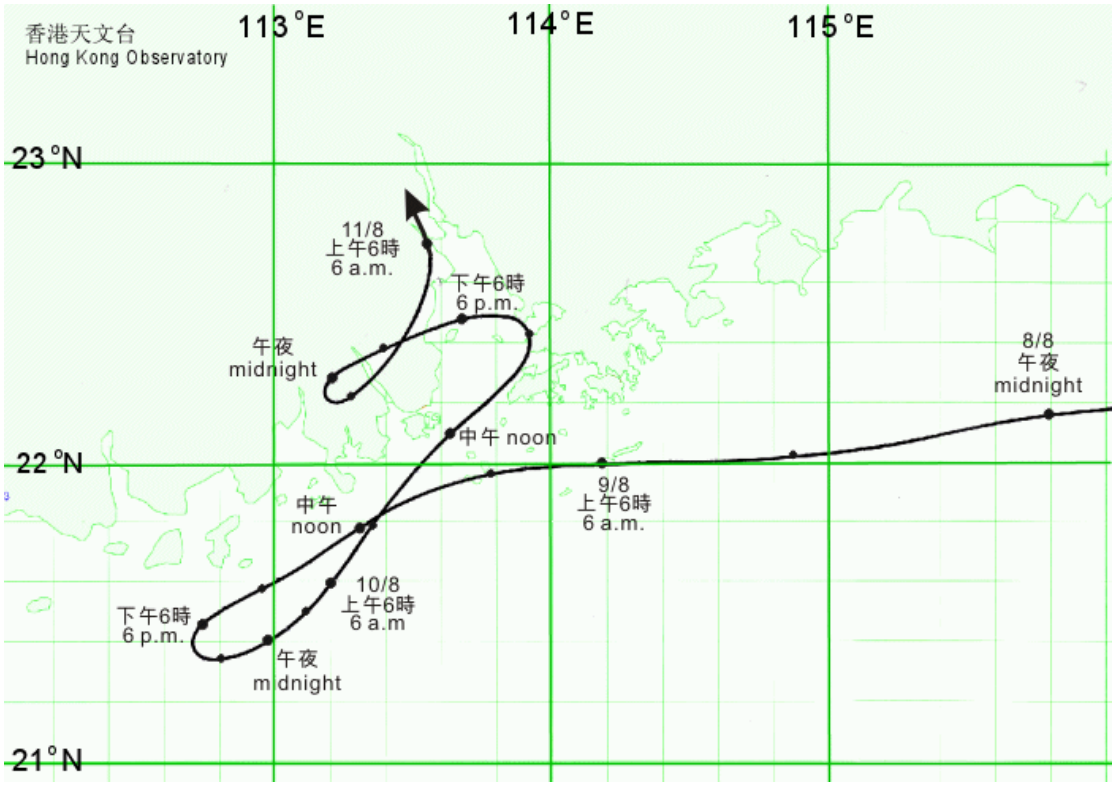


圖 3.1.1b　　帕布（0706）接近香港時的路徑圖 (所有時間均爲香港時間)。
Figure 3.1.1b　　Track of Pabuk (0706) near Hong Kong (All times in Hong Kong Time).

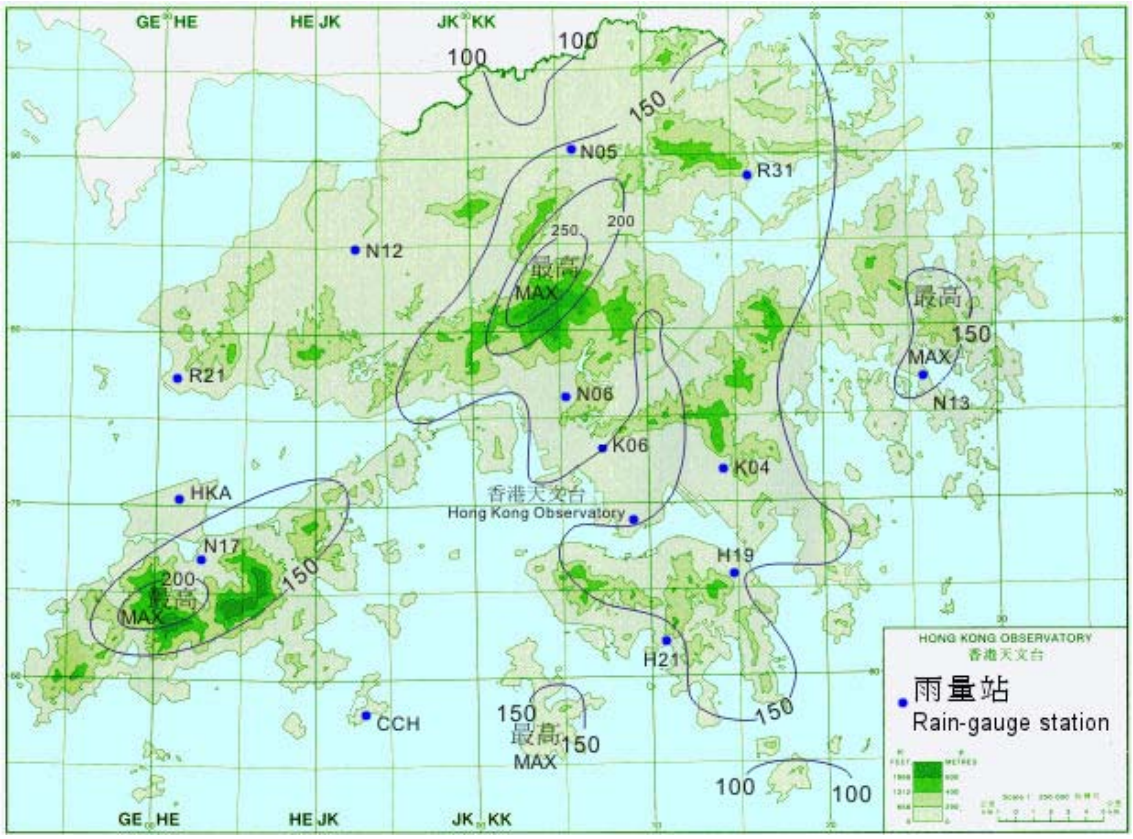
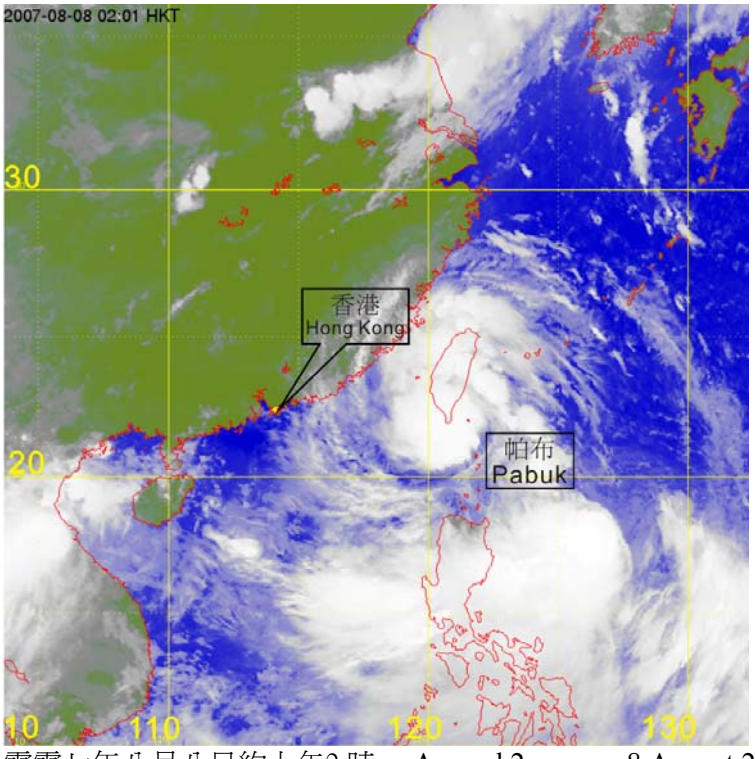


圖 3.1.2　　二零零七年八月八日至十一日的雨量分佈(等雨量線單位爲毫米)。

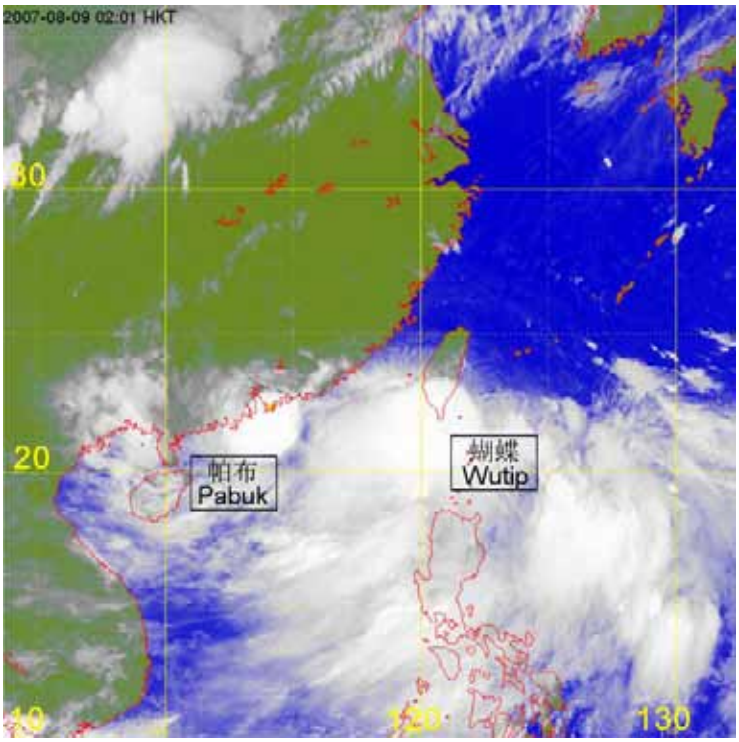
Figure 3.1.2　　Rainfall distribution on 8 - 11 August 2007 (isohyets are in millimetres).



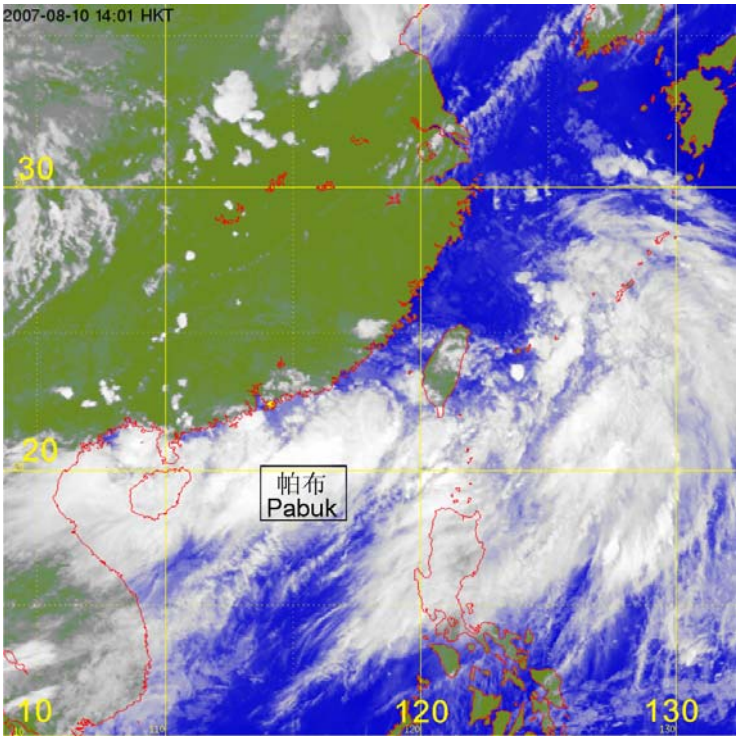
(a)　二零零七年八月八日約上午2 時。 Around 2 a.m. on 8 August 2007.

圖 3.1.3　　帕布的紅外線衛星圖片。

Figure 3.1.3　　Satellite infra-red imagery of Pabuk.



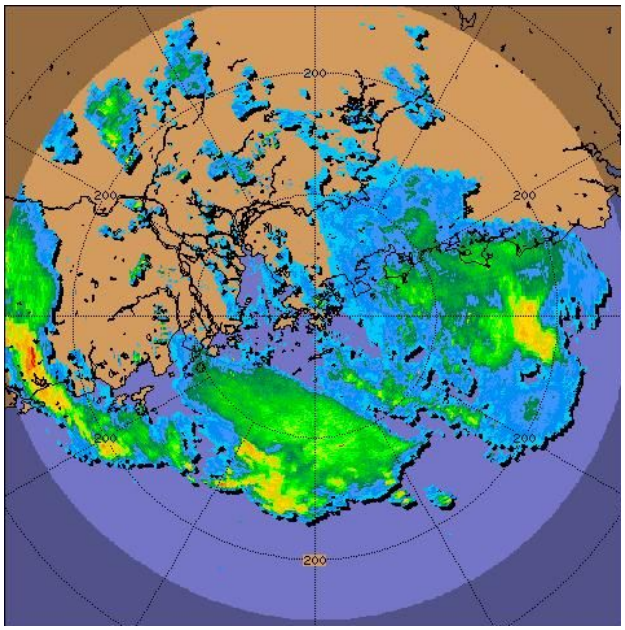
(b) 二零零七年八月九日約上午2 時。 Around 2 a.m. on 9 August 2007.



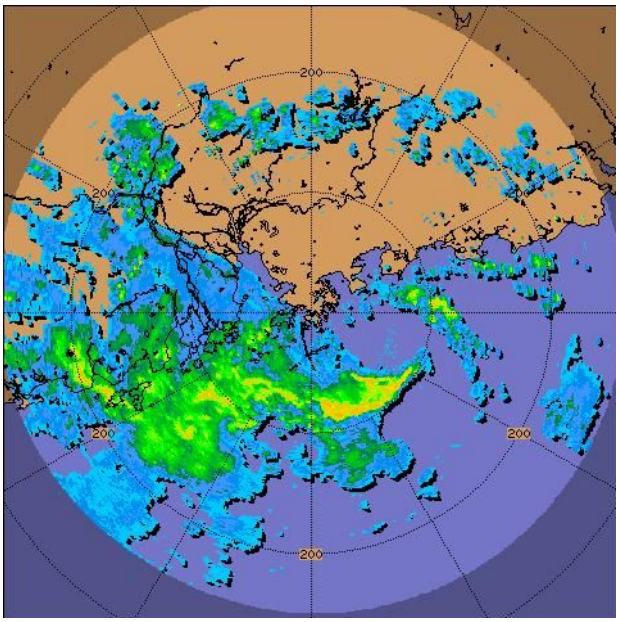
(c) 二零零七年八月十日約下午2 時。 Around 2 p.m. on 10 August 2007.

圖 3.1.3 (續) 帕布的紅外線衛星圖片。〔衛星圖像接收自日本氣象廳的多用途輸送衛星-1R (MTSAT-1R)。〕

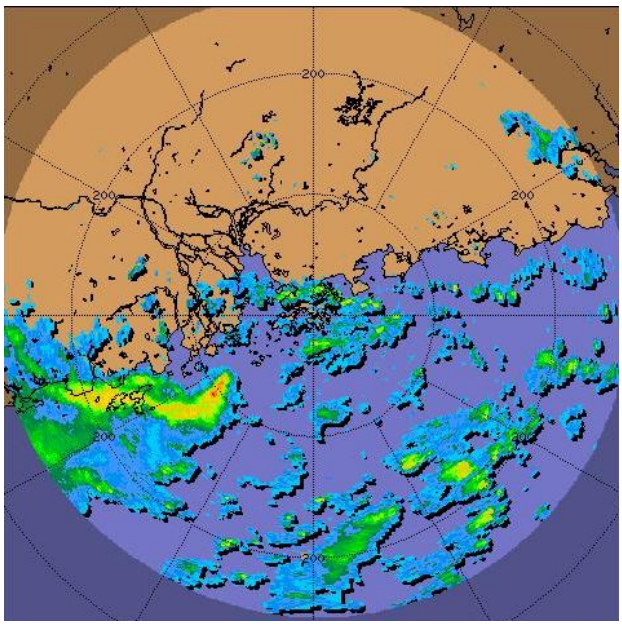
Figure 3.1.3 (cont'd) Satellite infra-red imagery of Pabuk. [The satellite imageries were originally captured by Multi-functional Transport Satellite-1R (MTSAT-1R) of Japan Meteorological Agency (JMA).]



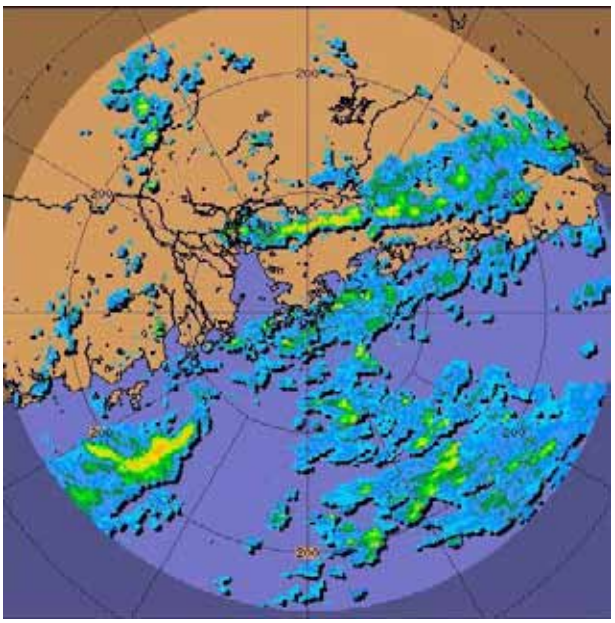
(a) 二零零七年八月八日下午8 時
8 p.m. on 8 August 2007



(b) 二零零七年八月九日上午2 時
2 a.m. on 9 August 2007

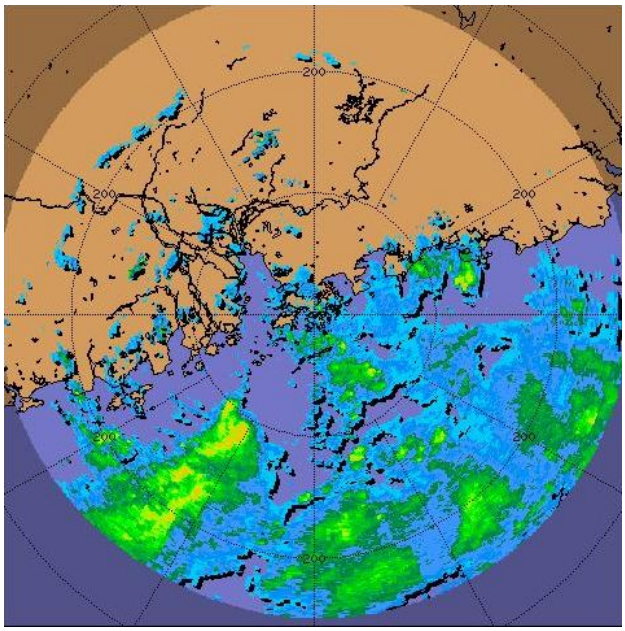


(c) 二零零七年八月九日上午8 時
8 a.m. on 9 August 2007

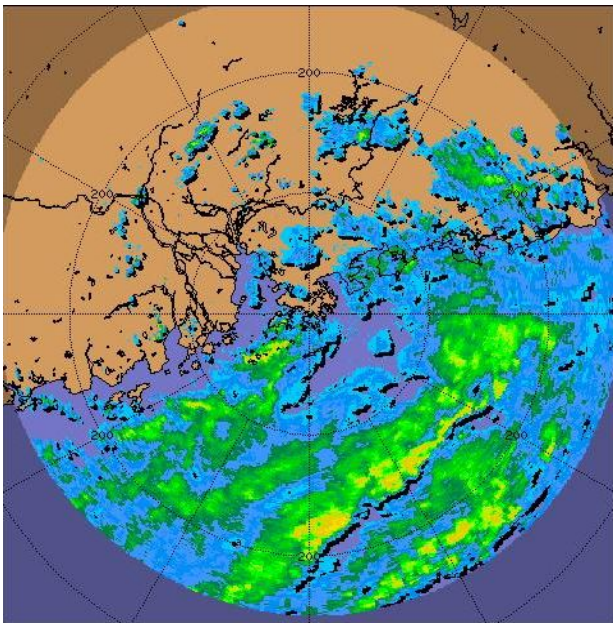


(d) 二零零七年八月九日下午2 時
2 p.m. on 9 August 2007

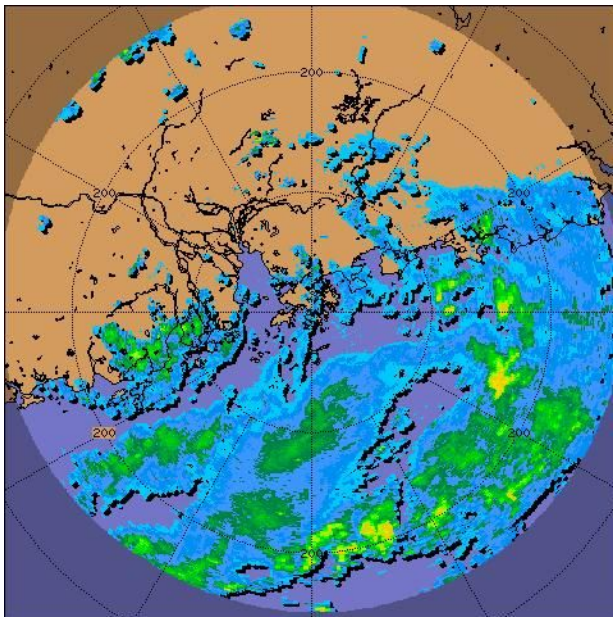
圖 3.1.4　　帕布的雷達回波圖像。
Fig. 3.1.4　　Radar echoes of Pabuk.



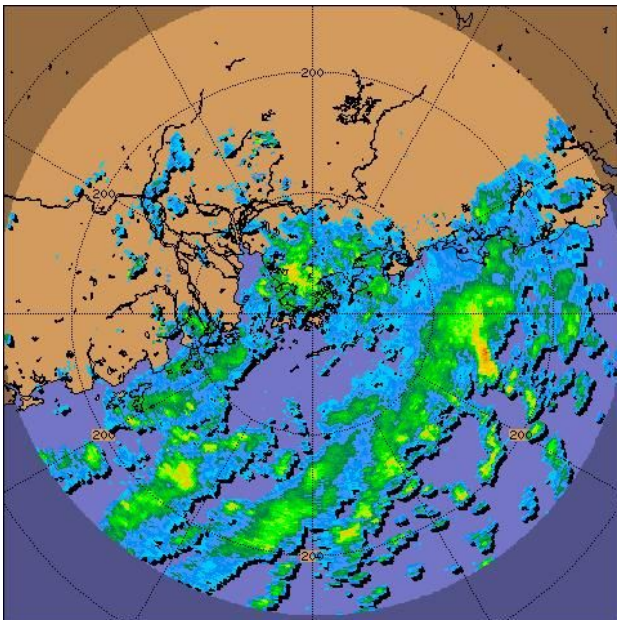
(e) 二零零七年八月十日上午8 時
8 a.m. on 10 August 2007



(f) 二零零七年八月十日下午2 時
2 p.m. on 10 August 2007



(g) 二零零七年八月十日下午8 時
8 p.m. on 10 August 2007



(h) 二零零七年八月十一日上午2 時
2 a.m. on 11 August 2007

圖 3.1.4 (續) 帕布的雷達回波圖像。
Fig. 3.1.4 (cont'd) Radar echoes of Pabuk.

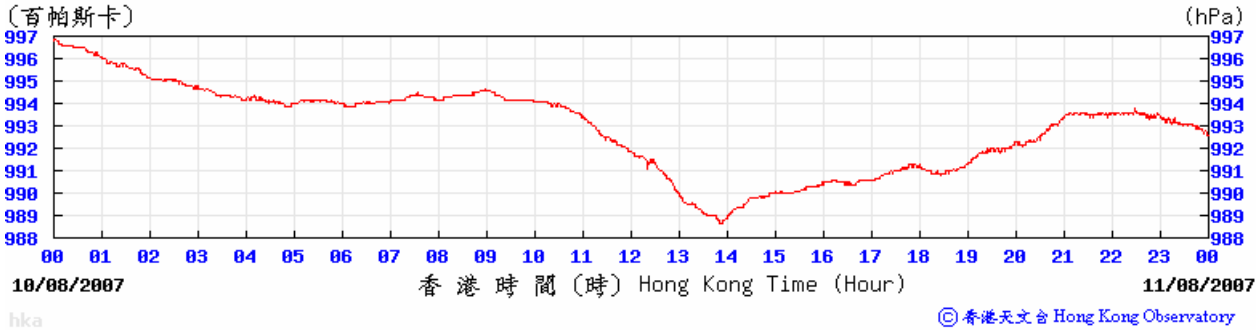


圖 3.1.5　香港國際機場在二零零七年八月十日錄得的海平面氣壓變化。

Figure 3.1.5　Trace of mean sea level pressure recorded at the Hong Kong International Airport on 10 August 2007.

圖 3.1.6　二零零七年八月十日下午 2 時香港各區風向及風力分佈圖。

Figure 3.1.6　Wind distribution around Hong Kong as at 2 p.m. on 10 August 2007.

3.2 熱帶風暴范斯高 (0713): 二零零七年九月二十二日至二十六日

范斯高於九月二十二日下午在香港東南偏東約700公里的南海上發展成爲一個熱帶低氣壓。它向西移動，並於九月二十三日下午在香港東南偏南約300公里處增強爲熱帶風暴。范斯高於九月二十四日清晨在香港西南偏南掠過後於當日下午在海南島東北部文昌市附近登陸及於當日晚上在海南島上減弱爲熱帶低氣壓。它於翌日橫過北部灣，然後於九月二十六日清晨在越南北部沿岸登陸並減弱爲一個低壓區。一艘漁船於九月二十四日在海南島海口市附近遇到風浪沉沒，有五名船員失蹤。

香港天文台於九月二十三日清晨2時40分發出一號戒備信號，當時范斯高位於香港東南約400公里。在范斯高及東北季候風的共同影響下，香港多雲有雨，離岸海域及高地吹強風。香港天文台總部於當日下午3時51分至4時12分間斷地錄得最低瞬時海平面氣壓1000.5百帕斯卡，當時范斯高位於香港東南偏南約300公里。范斯高在九月二十四日上午2時最接近香港，當時范斯高位於香港西南偏南約290公里。當日清晨香港轉吹東風，離岸繼續吹強風，高地風勢間中達烈風程度，早上有狂風驟雨及局部地區有雷暴。隨著范斯高遠離香港及本港風勢緩和，所有熱帶氣旋警告信號在當日上午11時15分取消。

范斯高影響香港期間，秀茂坪及深水埗分別有棚架倒榻及招牌搖搖欲墜。九龍塘有一棵大樹倒下，擊中一部行駛中的的士。這些事件中無人受傷。

表3.2.1-3.2.3 分別是范斯高影響香港期間各站錄得的最高風速、日雨量及最高潮汐資料。圖3.2.1-3.2.4 分別爲范斯高的路徑圖、雨量分佈圖、范斯高的衛星及雷達圖像。

3.2 Tropical Storm Francisco (0713): 22 - 26 September 2007

Francisco formed as a tropical depression over the South China Sea about 700 km east-southeast of Hong Kong on the afternoon of 22 September. It moved westwards and intensified into a tropical storm on the afternoon of 23 September when it was about 300 km south-southeast of Hong Kong. After passing to the south-southwest of Hong Kong on the early morning of 24 September, Francisco made landfall near Wenchang on the northeastern part of Hainan in the afternoon. It weakened into a tropical depression over Hainan that night and crossed Beibu Wan the next day. Francisco made landfall and weakened into an area of low pressure over the coastal regions of northern Vietnam on the early morning of 26 September. A fishing boat sank near Haikou, Hainan in rough seas on 24 September. Five crewmen were missing.

In Hong Kong, the Standby Signal No. 1 was issued at 2.40 a.m. on 23 September when Francisco was about 400 km southeast of Hong Kong. Under the combined influence of Francisco and the northeast monsoon, it was cloudy and rainy with strong winds over offshore waters and on high grounds that day. The lowest instantaneous mean sea-level pressure of 1000.5 hPa was recorded at the Hong Kong Observatory Headquarters intermittently between 3.51 p.m. and 4.12 p.m. on 23 September, when Francisco was about 300 km south-southeast of Hong Kong. Francisco was closest to Hong Kong at about 2 a.m. on 24 September when it was about 290 km to the south-southwest. The winds in Hong Kong turned to the east on the early morning of 24 September and remained strong offshore, occasionally reaching gale force on high grounds. Squally showers and isolated thunderstorms affected the territory that

morning. With Francisco moving away from Hong Kong and local winds moderating, all signals were cancelled at 11.15 a.m. that day.

In Hong Kong, there were reports of collapse of scaffoldings and sign boards being blown loose in Sau Mau Ping and Sham Shui Po respectively. A large tree fell in Kowloon Tong and damaged a taxi on the way. No injuries were reported during the incidents.

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

表 3.2.1　在范斯高影響下，本港各站在熱帶氣旋警告信號生效時所錄得的最高陣風、最高每小時平均風速及風向

Table 3.2.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when tropical cyclone warning signals for Francisco were in force

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)		
中環碼頭	Central Pier	東北偏東	ENE	62	24/9	0321	東	E	41	24/9	0400
		東北偏東	ENE	62	24/9	0330					
中環廣場	Central Plaza	東北	NE	88	24/9	0301	東北偏東	ENE	62	24/9	0300
							東北偏東	ENE	62	24/9	0400
長洲	Cheung Chau	東南偏東	ESE	96	24/9	0738	東	E	54	24/9	0800
長沙灣	Cheung Sha Wan	東北偏北	NNE	54	24/9	0207	東北偏東	ENE	19	24/9	0800
香港國際機場	Hong Kong International Airport	東南	SE	67	24/9	0815	東北	NE	36	23/9	2300
青洲	Green Island	東北偏東	ENE	90	24/9	0255	東北偏東	ENE	54	24/9	0400
啓德	Kai Tak	東北偏北	NNE	67	23/9	0514	北	N	30	23/9	0600
京士柏	King's Park	東北偏東	ENE	59	23/9	2143	東北偏東	ENE	23	23/9	2300
							東北偏東	ENE	23	24/9	0000
流浮山	Lau Fau Shan	東北偏東	ENE	49	24/9	0808	北	N	31	23/9	1600
昂坪	Ngong Ping	東北偏東	ENE	137	24/9	0414	東	E	90	24/9	0500
北角	North Point	東	E	72	24/9	0257	東北偏東	ENE	31	24/9	0100
							東	E	31	24/9	0800
坪洲	Peng Chau	東南偏東	ESE	76	24/9	0814	東	E	45	24/9	0400
平洲	Ping Chau	東	E	47	24/9	0346	東	E	14	24/9	0400
西貢	Sai Kung	東北	NE	72	24/9	0309	東北偏東	ENE	38	24/9	0400
沙螺灣	Sha Lo Wan	東南	SE	65	24/9	0814	東	E	31	24/9	0500
沙洲	Sha Chau	東南偏南	SSE	75	24/9	0821	東南	SE	38	24/9	0900
沙田	Sha Tin	東北	NE	52	24/9	0148	東北偏東	ENE	20	24/9	0300
石崗	Shek Kong	東	E	54	24/9	0716	東	E	25	24/9	0800
九龍天星碼頭	Star Ferry (Kowloon)	東	E	56	24/9	0707	東	E	30	24/9	0800
打鼓嶺	Ta Kwu Ling	東北偏北	NNE	45	23/9	1025	北	N	23	23/9	1700
		東北偏北	NNE	45	23/9	1606					
大尾篤	Tai Mei Tuk	東北偏北	NNE	81	23/9	2113	東北偏東	ENE	45	24/9	0800
		北	N	81	23/9	2117					
大帽山	Tai Mo Shan	東	E	96	24/9	0734	東	E	68	24/9	0800
塔門	Tap Mun	東南	SE	56	24/9	0901	東北偏東	ENE	31	24/9	0300
大老山	Tate's Cairn	東北	NE	108	23/9	2055	東北	NE	76	23/9	2100
鯽魚湖	Tsak Yue Wu	東北偏北	NNE	51	23/9	0929	東北偏北	NNE	23	23/9	0300
將軍澳	Tseung Kwan O	東南	SE	58	24/9	0816	東北偏北	NNE	16	24/9	0000
							東北偏東	ENE	16	24/9	0200
青衣(青柏樓)	Ching Pak House, Tsing Yi	東	E	70	24/9	0722	東北偏東	ENE	36	24/9	0400
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南偏東	ESE	51	24/9	0820	東南	SE	16	24/9	0900
屯門政府合署	**Tuen Mun Government Offices**	東南偏東	ESE	43	24/9	0823	東北偏北	NNE	14	23/9	2000
橫瀾島	Waglan Island	東北偏東	ENE	90	24/9	0237	東北偏東	ENE	68	23/9	2300
濕地公園	Wetland Park	東	E	43	24/9	0759	東	E	20	24/9	0900
黃竹坑	Wong Chuk Hang	東南	SE	75	24/9	0800	東	E	31	24/9	0400

表 3.2.2　范斯高影響香港期間，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 Francisco

站 (參閱圖 3.2.2) Station (see Fig. 3.2.2)	九月二十三日 23 Sep	九月二十四日 24 Sep	總雨量 Total
香港天文台 Hong Kong Observatory	12.5	60.1	72.6
香港國際機場 Hong Kong International Airport (HKA)	7.3	62.7	70.0
H12 半山區 Mid Levels	16.5	91.0	107.5
H19 筲箕灣 Shau Kei Wan	20.5	58.5	79.0
H21 淺水灣 Repulse Bay	19.5	[124.0]	[143.5]
K04 佐敦谷 Jordan Valley	[15.0]	61.5	[76.5]
K06 蘇屋邨 So Uk Estate	13.5	54.0	67.5
N05 粉嶺　Fanling	3.5	55.0	58.5
N06 葵涌　Kwai Chung	9.0	[49.5]	[58.5]
N09 沙田　Sha Tin	17.5	69.5	87.0
N12 元朗　Yuen Long	8.0	[49.0]	[57.0]
N13 糧船灣 High Island	14.0	58.5	72.5
N17 東涌　Tung Chung	16.0	64.5	80.5
N26 長洲　Cheung Chau	13.0	81.5	94.5
R21 踏石角 Tap Shek Kok	4.0	[42.0]	[46.0]
R26 石崗　Shek Kong	13.0	[64.0]	[77.0]
R31 大尾篤 Tai Mei Tuk	13.5	[43.5]	[57.0]

註 :　[　] 基於不齊全的每小時雨量數據。

Note :　[　] based on incomplete hourly data.

表 3.2.3　范斯高影響香港期間，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 Francisco

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	2.47	24/9	0658	0.32	23/9	1305
石壁	Shek Pik	2.62	24/9	0647	0.35	23/9	2144
大廟灣	Tai Miu Wan	2.46	24/9	0628	0.34	24/9	0253
大埔滘	Tai Po Kau	2.56	24/9	0743	0.47	24/9	1002
尖鼻咀	Tsim Bei Tsui	2.84	24/9	0731	0.39	24/9	0430
橫瀾島	Waglan Island	2.71	24/9	0638	0.50	23/9	2012