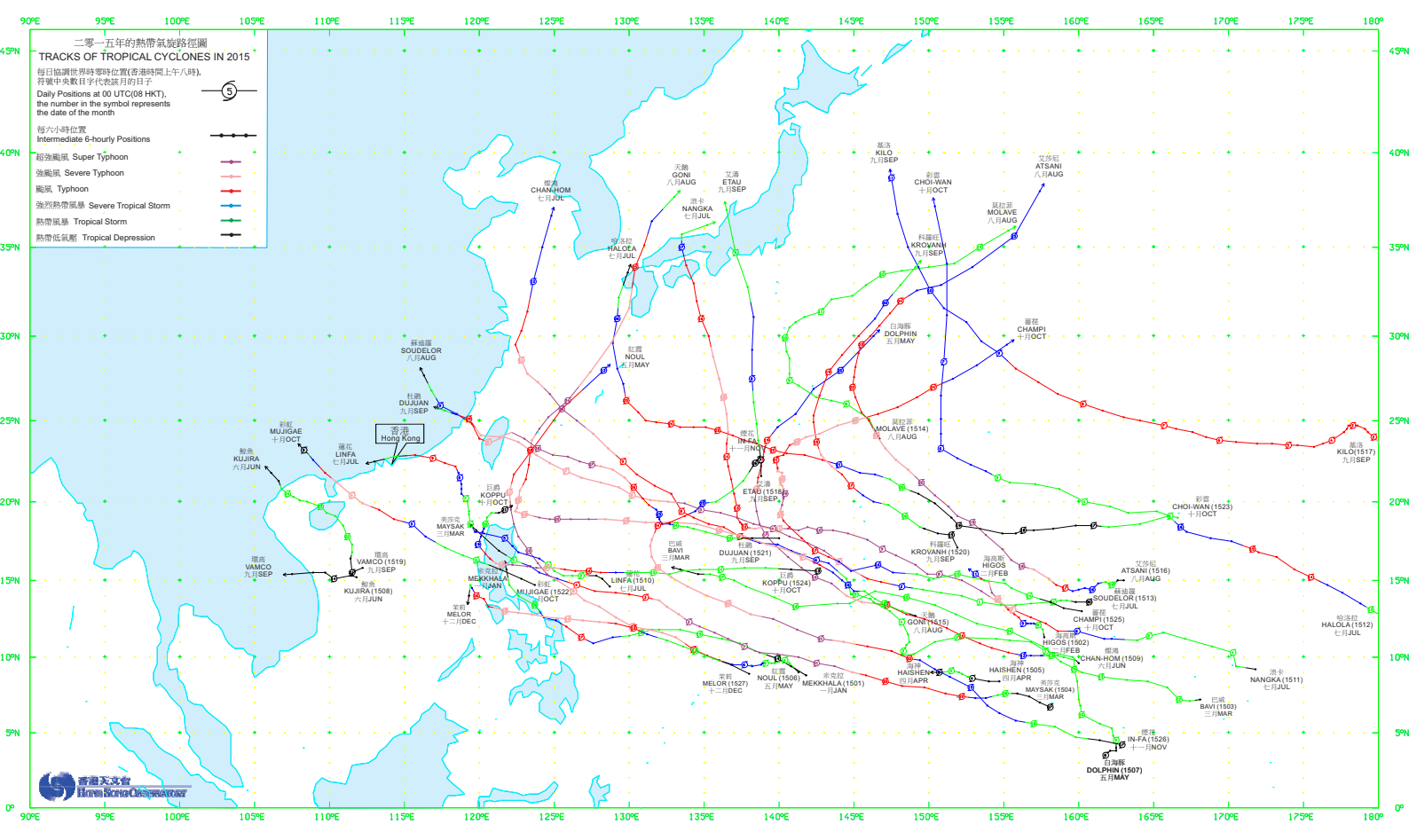
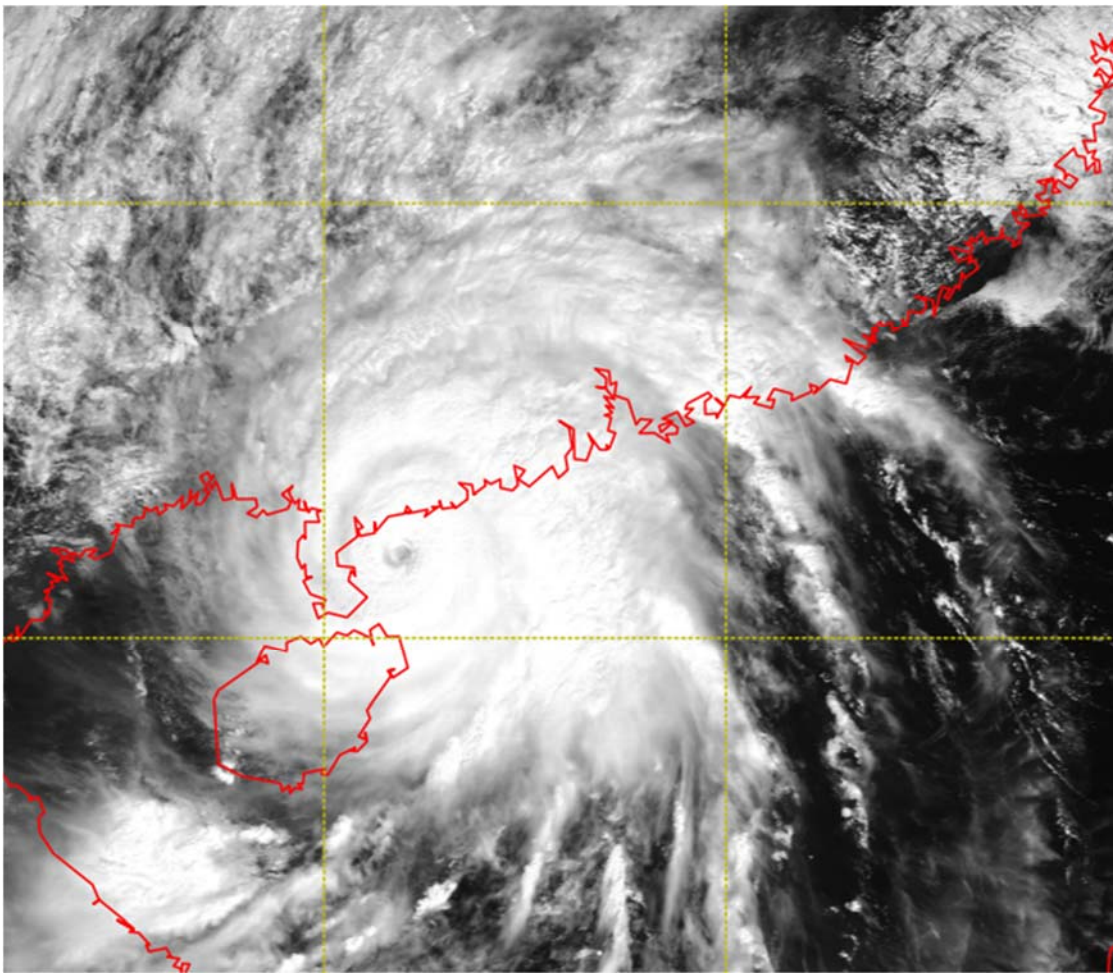

二零一五年的熱帶氣旋路徑圖
TRACKS OF TROPICAL CYCLONES IN 2015
每日協調世界時零時位置(香港時間上午八時),
符號中央數目字代表該月的日子
Daily Positions at 00 UTC(08 HKT),
the number in the symbol represents
the date of the month
每六小時位置
Intermediate 6-hourly Positions
超強颱風 Super Typhoon
強颱風 Severe Typhoon
颱風 Typhoon
強烈熱帶風暴 Severe Tropical Storm
熱帶風暴 Tropical Storm
熱帶低氣壓 Tropical Depression
香港
Hong Kong
KILO (1517)
九月SEP
ATSANI
八月AUG
CHOI-WAN (1523)
十月OCT
CHAMPI
十月OCT
DOLPHIN
五月MAY
MOLAVE (1514)
八月AUG
KROVANH
九月SEP
CHOI-WAN
十月OCT
MOLAVE
八月AUG
ETAU (1518)
九月SEP
IN-FA
十一月NOV
KROVANH (1520)
九月SEP
ATSANI (1516)
八月AUG
SOUDELOR (1513)
七月JUL
CHAMPI (1525)
十月OCT
HIGOS (1502)
二月FEB
CHAN-HOM (1509)
六月JUN
NANGKA (1511)
七月JUL
HAISHEN (1505)
四月APR
MAYSAK (1504)
三月MAR
BAVI (1503)
三月MAR
IN-FA (1526)
十一月NOV
DOLPHIN (1507)
五月MAY
NOUL (1506)
五月MAY
MEKHKALA (1501)
一月JAN
MELOR (1527)
十二月DEC
DUJUAN (1521)
九月SEP
BAVI
三月MAR
KOPPU (1524)
十月OCT
GONI (1515)
八月AUG
LINFA (1510)
七月JUL
MUJIGAE (1522)
十月OCT
VAMCO (1519)
九月SEP
KUJIRA (1508)
六月JUN
MEKHKALA
一月JAN
MELOR
十二月DEC
HALOLA (1512)
七月JUL
香港天文台
Hong Kong Observatory

香港天文台
HONG KONG OBSERVATORY

二零一五年熱帶氣旋

TROPICAL CYCLONES IN 2015



二零一六年九月出版
Published September 2016

香港天文台編製
香港九龍彌敦道134A

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

551.515.2:551.506.1(512.317)

封面
強颱風彩虹於二零一五年十月四日上午十一時的可見光衛星圖像。
〔此衛星圖像接收自日本氣象廳的向日葵8號衛星。〕

Cover
Visible satellite image of Severe Typhoon Mujigae captured at 11:00 a.m. on 4 October 2015.
[The image was captured by Himawari-8 (H-8) of Japan Meteorological Agency (JMA).]

目錄

CONTENTS

圖

FIGURE

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

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

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

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

1.2 熱帶氣旋等級

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

（i）　熱帶低氣壓（T.D.）的最高持續風速為每小時63公里以下。
（ii）　熱帶風暴（T.S.）的最高持續風速為每小時63至87公里。
（iii）　強烈熱帶風暴（S.T.S.）的最高持續風速為每小時88至117公里。
（iv）　颱風#（T.）的最高持續風速為每小時118至149公里。

（v） 強颱風*（S.T.）的最高持續風速為每小時150至184公里。
（vi） 超強颱風*（SuperT.）的最高持續風速為每小時185公里或以上。

1.3 熱帶氣旋命名

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

另外，日本氣象廳在一九八一年起已獲委託為每個在北太平洋西部及南海區域出現而達到熱帶風暴強度的熱帶氣旋編配一個四位數字編號。例如編號“1501”代表在二零一五年區內第一個被日本氣象廳分類為熱帶風暴或更強的熱帶氣旋。在年報內，此編號會顯示在熱帶氣旋名稱後的括弧內，例如颱風米克拉（1501）。

1.4 資料來源

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

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

年報內的雨量資料來自天文台氣象站和雨量站網絡及土力工程處的雨量站。

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

1.5 年報內容

年報第二節是二零一五年所有影響北太平洋西部及南海區域的熱帶氣旋的概述。

年報第三節是二零一五年影響香港的熱帶氣旋的個別詳細報告，內容包括：

（i） 該熱帶氣旋對香港造成的影響；
（ii） 發出熱帶氣旋警告信號的過程；

二零零九年以前颱風的最高持續風速為每小時118公里或以上。
* 二零零九年新增等級

（iii） 香港各地錄得的最高陣風風速及最高每小時平均風速；
（iv） 香港天文台錄得的最低平均海平面氣壓；
（v） 香港天文台及其他地方錄得的每日總雨量；
（vi） 香港各潮汐測量站錄得的最高潮位及最大風暴潮；及
（vii） 氣象衛星雲圖及雷達圖像。

有關熱帶氣旋的各種資料及統計表載於年報第四節內。

二零一五年每個熱帶氣旋的每六小時位置，連同當時的最低中心氣壓及最高持續風速，則表列於年報第五節內。

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

1.6 香港的熱帶氣旋警告系統

表 1.4 是香港熱帶氣旋警告信號的定義。

由二零零七年開始，發出 3 號和 8 號信號的參考範圍由維多利亞港擴展至由八個涵蓋全港並接近海平面的參考測風站組成的網絡(圖 1.1 顯示 2015 年所採用的八個參考測風站)。這些測風站處於較為空曠的位置，地理上的考慮也包括山脈地勢的自然分隔，可概括地反映全港的風勢。

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

Section 1 INTRODUCTION

1.1 Evolution of tropical cyclone publications

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

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

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

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

1.2 Classification of tropical cyclones

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

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

1.3 Naming of tropical cyclones

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

Besides, since 1981, Japan Meteorological Agency has been delegated with the responsibility of assigning to each tropical cyclone in the western North Pacific and the South China Sea attaining tropical storm intensity a numerical code of four digits. For example, the first tropical cyclone of tropical storm intensity or above, as classified by Japan Meteorological Agency, within the region in 2015 was assigned the code "1501". In this report, the associated code immediately follows the name of the tropical cyclone in bracket, e.g. Typhoon Mekkhala (1501).

1.4 Data sources

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

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

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

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

* New categories adopted since 2009

Throughout this report, maximum sustained surface winds when used without qualification refer to wind speeds averaged over a period of 10 minutes. Hourly mean winds are winds

averaged over a 60-minute interval ending on the hour. Daily rainfall amounts are computed over a 24-hour period ending at midnight Hong Kong Time.

1.5 Content

In Section 2, an overview of all the tropical cyclones over the western North Pacific and the South China Sea in 2015 is presented.

The reports in Section 3 are individual accounts of the life history of tropical cyclones affecting Hong Kong in 2015. They include the following information:-

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

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

Six-hourly positions together with the corresponding estimated minimum central pressures and maximum sustained surface winds for individual tropical cyclones in 2015 are tabulated in Section 5.

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

1.6 Hong Kong’s Tropical Cyclone Warning System

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

Starting from 2007, the reference for the issuance of No.3 and No.8 signals has been expanded from the Victoria Harbour to a network of eight near-sea level reference anemometers covering the whole of Hong Kong. The eight reference anemometers adopted in 2015 are depicted in Figure 1.1. The reference anemometers have good exposure and geographical distribution, taking into account the physical separation created by Hong Kong’s natural terrain. Together, they are used to represent the overall wind condition in Hong Kong.

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

表 1.1　　二零一五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 2015

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

表 1.1 (續)
TABLE 1.1 (cont'd)

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

註：在二零一五年，西北太平洋和南海的熱帶氣旋名單上，新增了五個新名字「木恩」、「白鹿」、「雲雀」、「百里嘉」和「蘭恩」，分別取代舊有名字「菲特」、「海燕」、「清松」、「尤特」和「韋森特」。

Note: In 2015, five new names "Mun", "Bailu","Jongdari","Barijat" and "Lan" have been adopted for tropical cyclones in the western North Pacific and South China Sea, replacing "Fitow", "Haiyan", "Sonamu", "Utor" and "Vicente" respectively.

表 1.2 年報內各氣壓表的海拔高度及所處氣象站的位置
TABLE 1.2 Elevations of various barometers and positions of weather stations mentioned in this annual report

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

表 1.3　　年報內各風速表的海拔高度及所處氣象站的位置

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

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

所指風速表在北跑道近中間位置

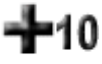
Refer to the wind sensor at the middle of the north runway

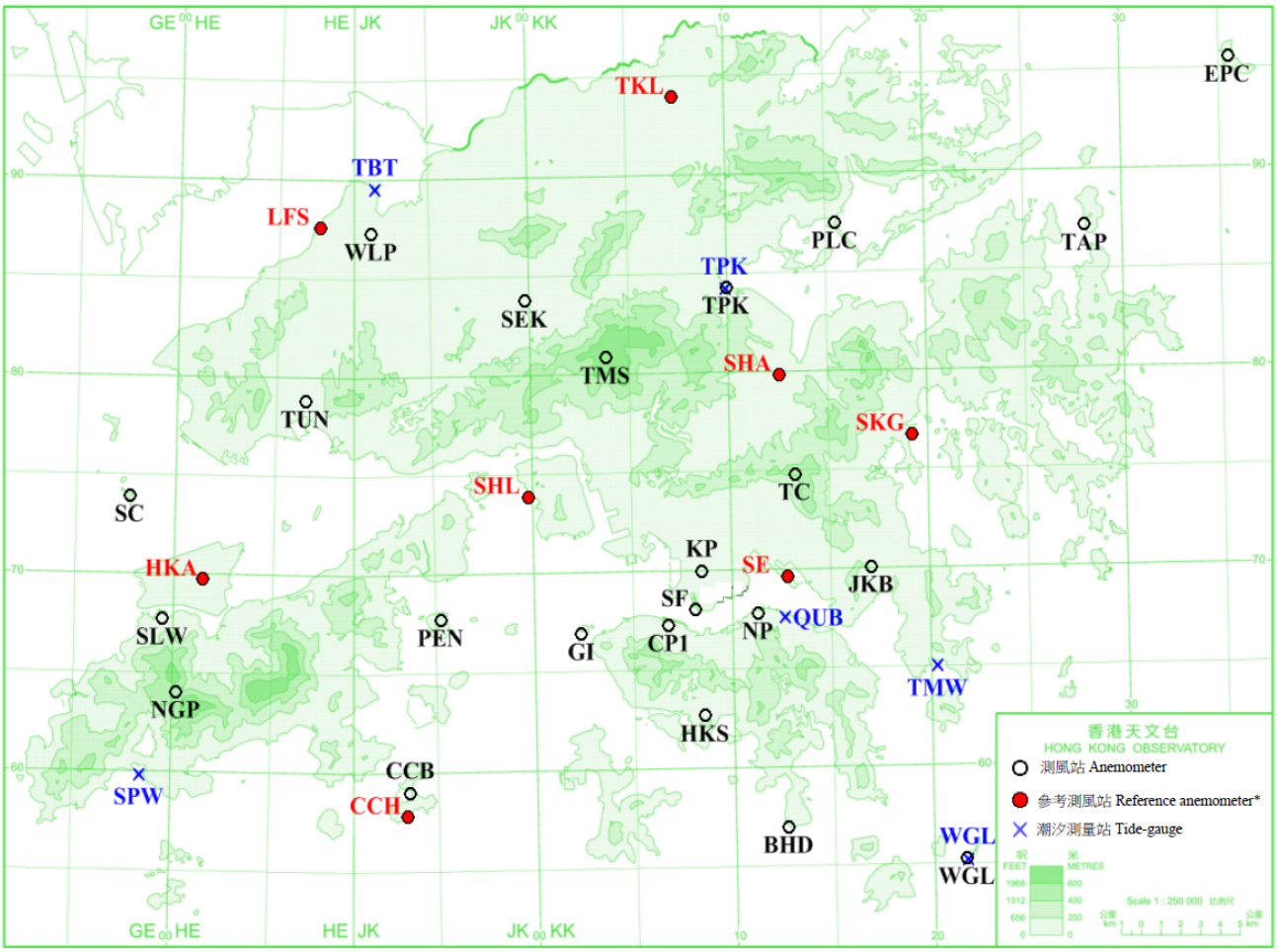
* 參考測風站

* Reference anemometer

表 1.4　　二零一五年香港熱帶氣旋警告信號的意義

TABLE 1.4　MEANING OF TROPICAL CYCLONE WARNING SIGNALS IN HONG KONG IN 2015

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



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

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

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

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

潮汐測量站 Tide-gauge	
QUB	鰂魚涌 Quarry Bay
SPW	石壁 Shek Pik
TBT	尖鼻咀 Tsim Bei Tsui
TMW	大廟灣 Tai Miu Wan
TPK	大埔滘 Tai Po Kau
WGL	橫瀾島 Waglan Island

圖 1.1　年報內提及的測風站及潮汐測量站之分佈地點。

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

第二節　二零一五年熱帶氣旋概述

2.1　二零一五年的熱帶氣旋回顧

2.1.1　北太平洋西部（包括南海區域）的熱帶氣旋

二零一五年有27個熱帶氣旋影響北太平洋西部及南海區域（即由赤道至北緯45度、東經100至180度所包括的範圍），少於1961-2010年約30個的長期年平均數目。全年有20個熱帶氣旋達到颱風或以上強度，多於1961-2010年約15個的長期年平均數目，其中有13個熱帶氣旋更達到超強颱風程度(中心附近最高持續風速達到每小時185公里或以上)，較長期年平均數約五個多出約八個，亦是自一九六一年有完整記錄以來出現最多超強颱風的年份。

二零一五年超強颱風數目偏多，部分原因與厄爾尼諾現象有關。受厄爾尼諾影響，赤道太平洋中部及東部的海面溫度較正常高，引致太平洋上空的大氣環流出現異常，令熱帶氣旋的生成位置較正常偏東。圖2.1顯示的2015年熱帶氣旋生成位置分佈，大部分熱帶氣旋都在東經140度以東生成，明顯較長期平均偏東，包括所有13個超強颱風和兩個橫過國際換日線的風暴。由於西北太平洋的熱帶氣旋一般會向西至西北方向移動，較東的生成位置會增加它們逗留在海洋上的時間，如果在較高的海面溫度和適合的大氣條件配合下，它們發展為超強颱風的機會亦隨之增加。

圖2.2是二零一五年在北太平洋西部及南海區域熱帶氣旋數目之逐月分佈。年內每個月均有熱帶氣旋形成。

二零一五年內有五個熱帶氣旋在中國大陸登陸，其中一個在香港300公里內的華南沿岸登陸。兩個熱帶氣旋橫過台灣，四個登陸日本，六個橫過菲律賓及兩個登陸越南。八月的超強颱風蘇迪羅(1513)（圖2.4）是二零一五年北太平洋西部及南海區域最強的熱帶氣旋，其中心附近最高持續風速估計為每小時240公里，而最低海平面氣壓為905百帕斯卡（表4.1）。

2.1.2　香港責任範圍內的熱帶氣旋

在二零一五年的27個熱帶氣旋中，有13個出現在香港責任範圍（即北緯10至30度、東經105至125度），較1961-2010年約16個的長期年平均數目少（表2.1），當中有三個在香港責任範圍內形成。年內，香港天文台總共發出316個供船舶使用的熱帶氣旋警告（表4.2）。

2.1.3　南海區域內的熱帶氣旋

二零一五年共有九個熱帶氣旋影響南海區域（即北緯10至25度、東經105至120度），較1961-2010年約12個的長期年平均數目為少，當中只有兩個在南海上形成。

2.1.4 影響香港的熱帶氣旋

二零一五年香港的颱風季節始於六月二十一日，當天隨著熱帶風暴鯨魚(1508)向北移動並靠近華南沿岸，天文台發出一號戒備信號。十月五日熱帶風暴彩虹(1522)遠離香港，天文台發出強烈季候風信號取代一號戒備信號，二零一五年颱風季節隨即結束。

年內共有三個熱帶氣旋影響香港（圖2.3），少於1961-2010年約六個的長期年平均數目(表2.2)。這三個熱帶氣旋分別為六月的熱帶風暴鯨魚(1508)、七月的颱風蓮花(1510)及十月的強颱風彩虹(1522)。天文台在蓮花影響香港期間曾發出八號烈風或暴風信號，是年內發出的最高熱帶氣旋警告信號。彩虹吹襲期間天文台曾發出三號強風信號。鯨魚則只需發出一號戒備信號。

二零一五年的八月和九月，天文台均毋需發出熱帶氣旋警告信號，這是一九四六年以來從未出現過的情況。主要原因是熱帶氣旋較少由西北太平洋進入南海及南海較少熱帶氣旋生成。受厄爾尼諾影響，赤道西北太平洋中部和東部水溫持續偏暖，導致熱帶氣旋的生成位置較正常偏東，增加熱帶氣旋在橫過西北太平洋時轉向較北方向移動的機會，引致進入南海的熱帶氣旋數目較少。另外，八月和九月在南海一帶的西南氣流偏弱，導致該區的水汽輸送和輻合效應偏弱，不利熱帶氣旋在南海生成。

2.1.5 熱帶氣旋的雨量

二零一五年熱帶氣旋為香港帶來的雨量（即由熱帶氣旋出現於香港600公里範圍內至其消散或離開香港600公里範圍之後72小時期間天文台總部錄得的雨量）共為346.6毫米（表4.8.1），約佔年內總雨量1874.5毫米的百分之18.5，比1961-2010年長期年平均值的728.8毫米少約52%。

強颱風彩虹(1522)為天文台總部帶來156.6毫米的雨量(表4.8.1)，是年內雨量最多的熱帶氣旋。

2.2 每月概述

這一節逐月介紹二零一五年北太平洋西部及南海區域的熱帶氣旋概況。影響香港的各熱帶氣旋及傷亡報告則詳述於第三節。

一月

熱帶低氣壓米克拉(1501)於一月十三日晚上在雅蒲島以東約420公里的北太平洋西部上形成，向西北偏西移動，翌日增強為熱帶風暴。一月十五及十六日米克拉轉向西至西南偏西方向移動，並繼續增強，一月十七日早上在馬尼拉東南偏東約730公里處增強為颱風，達到其最高強度，中心附近最高持續風速估計為每小時120公里。其後米克拉採取西北路徑移動橫過菲律賓，並逐漸減弱，最後於一月十九日早上在呂宋東岸沿海區域減弱為一個低壓區。

二月

熱帶低氣壓海高斯(1502)於二月七日晚上在關島以東約1 420公里的北太平洋西部上形成，初時移動緩慢，翌日早上發展為熱帶風暴。隨後兩天海高斯大致向西北方向移動及繼續增強，於二月十日下午發展為超強颱風，並達到其最高強度，中心附近最高持續風速估計為每小時185公里。隨後海高斯迅速減弱，最後於二月十一日下午在北太平洋西部上消散。

三月至四月

熱帶低氣壓巴威(1503)於三月十一日晚上在關島之東南偏東約2 640公里的北太平洋西部上形成，向西至西北偏西方向移動，翌日早上發展為熱帶風暴。隨後兩天巴威略為增強，於三月十四日下午達到其最高強度，中心附近最高持續風速估計為每小時85公里。翌日巴威掠過關島後開始減弱，最後於三月十八日早上在菲律賓以東的北太平洋西部上減弱為一個低壓區。

熱帶低氣壓美莎克(1504)於三月二十七日早上在關島之東南偏東約1 640公里的北太平洋西部上形成，向偏西方向移動。隨後四天美莎克逐漸增強，於三月三十一日清晨發展為超強颱風，並於當晚達到其最高強度，中心附近最高持續風速估計為每小時230公里。隨後數天美莎克採取西北偏西路徑移向呂宋，於四月五日橫過呂宋，晚間進入南海，並迅速減弱，翌日上午在南海東北部減弱為一個低壓區。

根據報章報導，美莎克在米克羅尼西亞聯邦造成嚴重破壞，最少有九人死亡，數千人緊急疏散。

熱帶低氣壓海神(1505)於四月三日晚上在關島之東南偏東約1 220公里的北太平洋西部上形成，大致向偏西方向移動，翌日下午增強為熱帶風暴。海神於當晚達到其最高強度，中心附近最高持續風速估計為每小時75公里。隨後兩天海神移動緩慢，並逐漸減弱，最後於四月六日下午在關島東南的北太平洋西部上消散。

五月

熱帶低氣壓紅霞(1506)於五月三日晚上在雅蒲島之東約360公里的北太平洋西部上形成，翌日早上發展為熱帶風暴，向偏西方向緩慢移動。紅霞於五月六日掠過雅蒲島後繼續增強，採取西北偏西路徑移向呂宋以東的海域。五月九日晚上紅霞發展為超強颱風，翌日早上達到其最高強度，中心附近最高持續風速估計為每小時220公里。紅霞於五月十日晚上橫過呂宋東北部附近海域後，逐漸轉向東北方向移動並開始減弱，最後於五月十二日早上橫掃琉球群島後演變為一股溫帶氣旋。

熱帶低氣壓白海豚(1507)於五月八日早上在關島之東南偏東約2 170公里的北太平洋西部上形成，隨後三天大致向偏北方向移動。白海豚於五月十一日開始轉向西北偏西方向移動並逐漸增強。它於五月十五日掠過關島，翌日增強為超強颱風及達到其最高強度，中心附近最高持續風速估計為每小時205公里。隨後三天白海豚轉向東北方向移動，並逐漸減弱，最後於五月二十日下午在硫黃島東北的海域演變為一股溫帶氣旋。

六月至八月

熱帶低氣壓鯨魚(1508)於六月二十日下午在西沙之西南偏南約190公里的南海中部上形成，初時移動緩慢，翌日開始向偏北方向移動，當晚增強為熱帶風暴。六月二十二日傍晚鯨魚在海南島東部沿岸登陸，橫過海南島期間略為減弱，翌日早上進入北部灣後重新組織及增強，於六月二十四日早上達到其最高強度，中心附近最高持續風速估計為每小時85公里。鯨魚向西北移動橫過北部灣，同日下午在越南北部沿岸登陸，並逐漸減弱，最後於六月二十五日早上在越南北部消散。

根據報章報導，鯨魚對海南島海陸空交通造成嚴重影響。而鯨魚吹襲越南期間造成最少七人死亡，四人失蹤。

熱帶低氣壓燦鴻(1509)於六月三十日晚上在關島之東南偏東約1 710公里的北太平洋西部上形成，翌日早上發展為熱帶風暴，向偏西方向移動。受燦鴻以西的一個低壓區影響，燦鴻於七月二日至三日曾出現不規則的移動路徑。其後燦鴻大致向西北方向移動，並逐漸增強。燦鴻於七月十日橫過琉球群島，發展為超強颱風並達到其最高強度，中心附近最高持續風速估計為每小時195公里。翌日燦鴻轉向偏北方向移動，掠過浙江沿岸海域，並逐漸減弱，最後於七月十二日在朝鮮半島西岸附近演變為一股溫帶氣旋。

根據報章報導，燦鴻掠過浙江期間，造成最少一人死亡，近200萬人受災，直接經濟損失估計接近60億元人民幣。燦鴻在沖繩島亦引致最少27人受傷，逾四萬戶停電。

熱帶低氣壓蓮花(1510)於七月二日下午在馬尼拉以東約830公里的北太平洋西部形成，大致向偏西方向移動，翌日上午增強為熱帶風暴。七月四日蓮花轉向西北方向移向呂宋北部，並發展為強烈熱帶風暴。蓮花於七月五日橫過呂宋北部並進入南海，翌日減弱為熱帶風暴。由於引導氣流較弱，蓮花於七月六日至七日緩慢地向偏北方向漂移，並再次增強為強烈熱帶風暴。七月八日下午蓮花開始採取較為偏西的路徑逐漸靠近廣東東部沿岸，當晚增強為颱風，翌日上午達到其最高強度，中心附近最高持續風速估計為每小時140公里。蓮花於正午時分在廣東省陸豐市附近登陸，下午繼續採取偏西路徑橫越廣東沿岸地區及移向珠江口。受北面較乾燥的空氣影響，蓮花迅速減弱為熱帶低氣壓。最後於七月十日早上在廣東西部減弱為一個低壓區。

根據報章報導，蓮花吹襲廣東東部期間，最少有70萬人受災，6 700多間房屋受損，海陸空交通癱瘓，多個地區停電。

熱帶低氣壓浪卡(1511)於七月三日晚上在馬歇爾群島以北約240公里的北太平洋西部上形成，大致向西至西北偏西方向移動，並逐漸增強。七月七日晚上浪卡增強為超強颱風，兩日後達到其最高強度，中心附近最高持續風速估計為每小時220公里。浪卡於七月十二日減弱為颱風，並開始採取偏北路徑移向日本以南海域。七月十四日浪卡再度增強為強颱風，翌日晚上逐漸減弱。七月十六日橫過日本西部後，浪卡當晚在日本海演變為一股溫帶氣旋。

根據報章報導，浪卡吹襲日本期間，導致最少五人死亡及數十人受傷。

強烈熱帶風暴哈洛拉(1512)在北太平洋中部上空形成，於七月十三日橫過國際換日線進入北太平洋西部，大致向西北偏西方向移動，翌日增強為颱風。隨後哈洛拉開始減弱，並採取偏西路徑移動，於七月十七日曾一度降至熱帶低氣壓強度。隨後數天哈洛拉恢復向西北偏西方向移動，並於七月二十日再度增強，七月二十三日早上達到其最高強度，中心附近最高持續風速估計為每小時145公里。哈洛拉於七月二十五日轉向偏北方向移動，掠過琉球群島並逐漸減弱，最後於七月二十六日在日本九州附近減弱為一個低壓區。

根據報章報導，哈洛拉為琉球群島北部奄美大島及日本西南部帶來大雨，觸發山泥傾瀉，多間房屋水浸。

熱帶低氣壓蘇迪羅(1513)於七月三十日早上在關島以東約1 720公里的北太平洋西部上形成，隨後三天向西至西北偏西方向移動，並逐漸增強。蘇迪羅於八月三日下午發展為超強颱風，翌日上午達到其最高強度，中心附近最高持續風速估計為每小時240公里。隨後三天蘇迪羅逐漸減弱為強颱風，並繼續採取西北偏西路徑移向台灣。蘇迪羅於八月八日上午橫過台灣後減弱為颱風，當晚在福建沿岸登陸，最後於八月十日上午在江西減弱為一個低壓區。

根據報章報導，蘇迪羅吹襲台灣期間，造成至少六人死亡、四人失蹤、超過四百萬戶停電。蘇迪羅亦導致福建、浙江、江西、安徽四省21人死亡、五人失蹤、近340萬人受災。

熱帶低氣壓莫拉菲(1514)於八月七日下午在硫黃島以東約550公里的北太平洋西部上形成，大致向西北方向移動。莫拉菲於八月八日清晨增強為熱帶風暴，翌日下午達到其最高強度，中心附近最高持續風速估計為每小時85公里。莫拉菲於八月十日略為減弱，翌日再度增強並逐漸轉向東北方向移動。最後於八月十三日晚上在日本以東的北太平洋西部上演變為一股溫帶氣旋。

熱帶低氣壓天鵝(1515)於八月十四日下午在關島以東約470公里的北太平洋西部上形成，隨後五天向西至西北偏西方向移動，並逐漸增強。天鵝於八月十九日晚上發展為超強颱風，達到其最高強度，中心附近最高持續風速估計為每小時195公里。天鵝於八月二十一日上午在呂宋海峽開始採取偏北路徑移向台灣以東海域，並減弱為強颱風。它於八月二十三日晚上在沖繩島之西南偏西約420公里處再度增強為超強颱風。其後天鵝轉向東北方向移動掠過琉球群島一帶，並逐漸減弱。天鵝於八月二十五日橫過日本九州，翌日在日本海上演變為一股溫帶氣旋。

根據報章報導，天鵝影響菲律賓期間，造成至少26人死亡、15人失蹤。天鵝在沖繩島亦造成至少八人受傷、超過兩萬戶停電。天鵝橫掃日本九州期間，造成至少70人受傷、60萬人疏散、近50萬戶停電。

熱帶低氣壓艾莎尼(1516)於八月十四日下午在硫黃島之東南偏東約2 510公里的北太平洋西部上形成，初時移動緩慢，並逐漸增強。艾莎尼於八月十七日開始向西北方向移動，並發展為超強颱風，兩日後達到其最高強度，中心附近最高持續風速估計為每小時220公里。艾莎尼於八月二十一日掠過硫黃島以東的海域後，開始轉向東北方向移動，並逐漸減弱，最後於八月二十五日在日本以東的北太平洋西部上演變為一股溫帶氣旋。

九月

基洛(1517)在北太平洋中部上空形成，於九月二日以強颱風強度橫過國際換日線進入北太平洋西部，當時中心附近最高持續風速估計為每小時155公里。其後基洛稍為減弱為颱風和大致向西北偏西方向移動。基洛於九月九日進一步減弱為強烈熱帶風暴，並開始轉向西北方向移動，最後於九月十一日清晨在日本以東海域演變為一股溫帶氣旋。

熱帶低氣壓艾濤(1518)於九月七日早上在硫黃島西南約440公里的北太平洋西部上形成，採取偏北路徑移向日本以南海域，並逐漸增強。艾濤於九月八日上午發展為強烈熱帶風暴，並達到其最高強度，中心附近最高持續風速估計為每小時90公里。艾濤於九月九日上午橫過日本本州，並逐漸減弱，當日下午在日本海上演變為一股溫帶氣旋。

根據報章報導，艾濤橫掃日本期間帶來暴雨及水災，造成至少三人死亡、26人失蹤和近30人受傷，超過十萬人需要撤離家園。

熱帶低氣壓環高(1519)於九月十三日下午在西沙以南約120公里的南海中部上形成，大致向偏西方向移動，於九月十四日早上達到其最高強度，中心附近最高持續風速估計為每小時55公里。環高當晚在越南中部沿岸登陸，翌日清晨在老撾減弱為一個低壓區。

熱帶低氣壓科羅旺(1520)於九月十五日清晨在硫黃島之西北偏北約1 390公里的北太平洋西部上形成，向西北方向移動，並逐漸增強。科羅旺於九月十七日晚上發展為強颱風，達到其最高強度，中心附近最高持續風速估計為每小時155公里。翌日科羅旺向北移動掠過硫黃島以東的海域，並進一步轉向東北方向移動和逐漸減弱，最後於九月二十一日清晨在日本以東的北太平洋西部上演變為一股溫帶氣旋。

熱帶低氣壓杜鵑(1521)於九月二十二日晚上在台北之東南偏東約2 080公里的北太平洋西部上形成，大致採取西北至西北偏西路徑移向台灣，並逐漸增強。杜鵑於九月二十七日發展為超強颱風，達到其最高強度，中心附近最高持續風速估計為每小時210公里。杜鵑於九月二十八日晚上橫過台灣，翌日上午減弱為颱風，在福建沿岸登陸，最後於九月二十九日晚上在江西減弱為一個低壓區。

根據報章報導，杜鵑在台灣造成嚴重破壞，至少三人死亡，超過300人受傷，逾 220萬戶停電。在杜鵑吹襲期間，廈門沿岸出現大規模海水倒灌，福建和浙江有逾40萬人需要疏散。

十月

熱帶低氣壓彩虹(1522)於十月一日下午在馬尼拉以東約290公里的菲律賓以東海域上形成，採取西北偏西路徑移向呂宋。翌日早上彩虹進入南海並增強為熱帶風暴。其後兩天彩虹穩定地向西北偏西方向移動，靠近廣東西部，並繼續增強。彩虹於十月四日凌晨發展為強颱風，正午前達到其最高強度，中心附近最高持續風速估計為每小時175公里。彩虹當日下午在廣東湛江附近登陸並逐漸減弱，最後於十月五日下午在廣西減弱為一個低壓區。

根據報章報導，彩虹吹襲廣東及廣西期間，兩省最少有460萬人受災，8 500多間房屋受損，直接經濟損失超過120億元人民幣。在彩虹的環流影響下，佛山順德及廣州番禺受龍捲風吹襲，多間房屋損毀，車輛被吹翻，至少六人死亡及超過200人受傷。

熱帶低氣壓彩雲(1523)於十月二日晚上在硫黃島以東約2 690公里的北太平洋西部上形成，向西北偏西方向移動，並逐漸增強。彩雲於十月五日下午發展為強烈熱帶風暴，翌日轉向偏北方向移動，並達到其最高強度，中心附近最高持續風速估計為每小時110公里。彩雲於十月八日清晨在日本以東的北太平洋西部上演變為一股溫帶氣旋。

熱帶低氣壓巨爵(1524)於十月十三日上午在馬尼拉以東約 2 320公里的北太平洋西部上形成，向偏西方向移動，並逐漸增強。巨爵於十月十七日下午發展為超強颱風，當晚達到其最高強度，中心附近最高持續風速估計為每小時205公里。巨爵於十月十八日橫過呂宋，並減弱為颱風。隨後兩天巨爵緩慢地向偏北方向沿著呂宋西岸移動，並繼續減弱，最後於十月二十一日在呂宋海峽減弱為一個低壓區。

根據報章報導，巨爵為菲律賓北部帶來豪雨及洪水，造成最少16人死亡，逾18萬人撤離家園。

熱帶低氣壓薔琵(1525)於十月十三日下午在關島以東約1 660公里的北太平洋西部上形成，大致向西北偏西方向移動，並逐漸增強。薔琵於十月十七日清晨發展為颱風，並逐漸採取偏北路徑移向硫黃島一帶。薔琵於十月十八日晚上進一步發展為超強颱風，並達到其最高強度，中心附近最高持續風速估計為每小時195公里。隨後三天薔琵稍為減弱為颱風，並開始轉向東北偏東方向移動。薔琵於十月二十二日再度增強為強颱風，掠過硫黃島以南

的海域。隨後薔琵加速向東北偏東方向移動，並逐漸減弱，最後於十月二十五日早上在硫黃島東北偏東的北太平洋西部上演變為一股溫帶氣旋。

十一月

熱帶低氣壓煙花(1526)於十一月十七日上午在關島之東南偏東約2 240公里的北太平洋西部上形成，大致向西北偏西方向移動，並逐漸增強。煙花於十一月二十一日早上在關島之西南約340公里的海域上發展為超強颱風，並達到其最高強度，中心附近最高持續風速估計為每小時185公里。兩日後煙花緩慢移動及開始轉向，其後移向東北並減弱，最後於十一月二十六日在硫黃島西南的北太平洋西部上演變為一股溫帶氣旋。

十二月

熱帶低氣壓茉莉(1527)於十二月十一日下午在雅蒲島以南約70公里的北太平洋西部上形成，向西北偏西方向移動，翌日早上發展為熱帶風暴，並繼續增強，於十二月十三日晚上演變為強颱風，翌日早上茉莉達到其最高強度，中心附近最高持續風速估計為每小時175公里。隨後一兩天茉莉橫過菲律賓中部及進入南海，移動減慢並轉弱，十二月十七日清晨在南海海面上消散。

根據報章報導，茉莉吹襲菲律賓期間帶來暴雨及水災，造成至少11人死亡，逾70萬人需要疏散。

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 2015

2.1 Review of tropical cyclones in 2015

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

In 2015, a total of 27 tropical cyclones occurred over the western North Pacific (WNP) and the South China Sea (SCS) bounded by the Equator, 45°N, 100°E and 180°, less than the long-term (1961-2010) average figure of around 30. During the year, 20 of the tropical cyclones attained typhoon intensity or above, more than the long-term average (1961–2010) of about 15, with 13 of them reaching super typhoon intensity (maximum 10-minute wind speed of 185 km/h or above near the centre), more than the long-term (1961–2010) average of about five by eight, and making it the most active year for super typhoons since comprehensive record began in 1961.

The high number of super typhoons in 2015 is partly attributed to the El Niño event. The above-normal sea surface temperature over the central and eastern equatorial Pacific resulted in abnormal atmospheric circulation over the Pacific and in turn displaced the breeding ground of tropical cyclones further east. As shown in Figure 2.1, the tropical cyclone genesis positions in 2015 were mostly to the east of 140°E, including all 13 super typhoons and two crossing the dateline and entering WNP. Moving typically west to northwestwards after formation, tropical cyclones starting further east will stay over the oceans longer during their lifespan, thereby increasing the chance for them to develop into super typhoons under relatively high sea surface temperature and favourable atmospheric conditions.

Figure 2.2 shows the monthly frequencies of the occurrence of tropical cyclones in WNP and SCS in 2015. Tropical cyclone genesis occurred in the region every month throughout 2015.

During the year, five tropical cyclones made landfall over mainland China, with one of them crossing the south China coast within 300 km of Hong Kong. Two tropical cyclones crossed Taiwan, four made landfall over Japan, six traversed the Philippines and two made landfall over Vietnam. With an estimated maximum sustained wind speed of 240 km/h and a minimum sea-level pressure of 905 hPa near its centre (Table 4.1), Super Typhoon Soudelor (1513) in August (Figure 2.4) was the most intense tropical cyclone in 2015 over the western North Pacific and the South China Sea.

2.1.2 Tropical cyclones in Hong Kong's area of responsibility

Amongst the 27 tropical cyclones in 2015, 13 of them occurred inside Hong Kong's area of responsibility (i.e. the area bounded by 10°N, 30°N, 105°E and 125°E), less than the long-term annual average figure of around 16 (Table 2.1). Two of them developed within Hong Kong's area of responsibility. Altogether, 316 tropical cyclone warnings to ships and vessels were issued by the Hong Kong Observatory in 2015 (Table 4.2).

2.1.3 Tropical cyclones over the South China Sea

Nine tropical cyclones affected SCS bounded by 10°N, 25°N, 105°E and 120°E in 2015, less than the long-term annual average of around 12. Only two of them formed within SCS.

2.1.4 Tropical cyclones affecting Hong Kong

In 2015, the typhoon season in Hong Kong started on 21 June when Tropical Storm Kujira (1508) moved northwards and edged towards the south China coast, necessitating the issuance of the Standby Signal No. 1. The typhoon season ended on 5 October when Tropical Storm Mujigae (1522) moved away from Hong Kong and the Standby Signal No. 1 was replaced by the Strong Monsoon Signal.

Three tropical cyclones affected Hong Kong during 2015 (Figure 2.3), less than the long-term (1961-2010) average of about six in a year (Table 2.2). They were Tropical Storm Kujira (1508) in June, Typhoon Linfa (1510) in July, and Severe Typhoon Mujigae (1522) in October. The No. 8 Gale or Storm Signal was issued during the passage of Linfa, the highest tropical cyclone warning signal issued in 2015. The Strong Wind Signal No. 3 was issued during the passage of Mujigae. Kujira only necessitated the issuance of Standby Signal No. 1 in Hong Kong.

In 2015, no tropical cyclone warning signal was issued in August and September, the first time since 1946. This was mainly attributed to less tropical cyclones entering SCS from the WNP and less tropical cyclones forming within SCS. Under the influence of the El Niño, above-normal sea surface temperatures over the central and eastern equatorial Pacific displaced the breeding ground of tropical cyclones further east. This increased the chance for tropical cyclones to recurve and turn northwards when moving across WNP, resulting in less tropical cyclone entering SCS. Less tropical cyclones forming in SCS in August and September 2015 was mainly due to the weaker-than-normal southwesterly airstream over the region, leading to less moisture transport and weaker convergence in SCS and hindering the formation of tropical cyclones.

2.1.5 Tropical cyclone rainfall

Tropical cyclone rainfall (total rainfall recorded at the Hong Kong Observatory Headquarters from the time when a tropical cyclone comes within 600 km of Hong Kong to 72 hours after it has dissipated or moved more than 600 km away from Hong Kong) in 2015 was 346.6 mm (Table 4.8.1). This accounted for approximately 18.5 % of the year's total rainfall of 1874.5 mm and was about 52 % below the 1961-2010 long-term average of 728.8 mm.

Severe Typhoon Mujigae (1522) brought 156.6 mm of rainfall to the Hong Kong Observatory Headquarters (Table 4.8.1) and was the wettest tropical cyclone in 2015.

2.2 Monthly overview

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

JANUARY

Mekkhala (1501) formed as a tropical depression over the western North Pacific about 420 km east of Yap on the night of 13 January. Moving west-northwestwards, it developed into a tropical storm the next day. Mekkhala turned west to west-southwestwards on 15 and 16 January and continued to intensify, becoming a typhoon about 730 km east-southeast of Manila on the morning of 17 January and reaching peak intensity with an estimated sustained wind of 120 km/h near its centre. Mekkhala subsequently took on a northwesterly track across the Philippines and

weakened gradually. It finally degenerated into an area of low pressure over the coastal waters off the east coast of Luzon on the morning of 19 January.

FEBRUARY

Higos (1502) formed as a tropical depression over the western North Pacific about 1 420 km east of Guam on the night of 7 February. It moved slowly at first and developed into a tropical storm the next morning. Higos moved generally northwestwards and continued to intensify in the next two days. It developed into a super typhoon on the afternoon of 10 February, reaching peak intensity with an estimated sustained wind of 185 km/h near its centre. Higos weakened rapidly thereafter and dissipated over the western North Pacific on the afternoon of 11 February.

MARCH TO APRIL

Bavi (1503) formed as a tropical depression over the western North Pacific about 2 640 km east-southeast of Guam on the night of 11 March. Moving west to west-northwestwards, it developed into a tropical storm the next morning. Bavi slightly intensified in the following two days, reaching its peak intensity on the afternoon of 14 March with an estimated sustained wind of 85 km/h near its centre. After skirting past Guam the next day, Bavi started to weaken. It finally degenerated into an area of low pressure over the western North Pacific east of the Philippines on the morning of 18 March.

Maysak (1504) formed as a tropical depression over the western North Pacific about 1 640 km east-southeast of Guam on the morning of 27 March. Moving generally westwards, Maysak intensified gradually in the next four days. It developed into a super typhoon in the early hours of 31 March and reached its peak intensity that night with an estimated sustained wind of 230 km/h near its centre. Maysak moved west-northwestwards towards Luzon in the following days, crossing Luzon on 5 April and entering the South China Sea that night. It weakened rapidly and degenerated into an area of low pressure over the northeastern part of the South China Sea the next morning.

According to press reports, Maysak wreaked havoc in the Federated States of Micronesia. At least nine people were killed and several thousand people had to be evacuated.

Haishen (1505) formed as a tropical depression over the western North Pacific about 1 220 km east-southeast of Guam on the night of 3 April. Moving generally westwards, it intensified into a tropical storm the following afternoon. Haishen reached its peak intensity that night with an estimated sustained wind of 75 km/h near its centre. It became slow-moving and weakened gradually in the next couple of days. Haishen eventually dissipated over the western North Pacific southeast of Guam on the afternoon of 6 April.

MAY

Noul (1506) formed as a tropical depression over the western North Pacific about 360 km east of Yap on the night of 3 May. It developed into a tropical storm the following morning and moved slowly westwards. Skirting past Yap on 6 May, Noul took on a west-northwesterly track towards the seas east of Luzon and continued to intensify. It developed into a super typhoon on the night of 9 May and reached its peak intensity the following morning with an estimated sustained wind of 220 km/h near its centre. After moving across the seas near the northeastern part of Luzon on the night of 10 May, Noul gradually turned northeastwards and started to weaken. It finally became an extratropical cyclone after sweeping past the Ryukyu Islands on the morning of 12 May.

Dolphin (1507) formed as a tropical depression over the western North Pacific about 2 170 km east-southeast of Guam on the morning of 8 May and generally moved northwards in the

following three days. Dolphin started to turn west-northwestwards on 11 May and intensified gradually. It skirted past Guam on 15 May and became a super typhoon the following day, reaching its peak intensity with an estimated sustained wind of 205 km/h near its centre. It turned northeastwards and weakened gradually in the next three days. Dolphin eventually evolved into an extratropical cyclone over the sea areas northeast of Iwo Jima on the afternoon of 20 May.

JUNE TO AUGUST

Kujira (1508) formed as a tropical depression over the central part of the South China Sea about 190 km south-southwest of Xisha on the afternoon of 20 June. Moving slowly at first, it started to track generally northwards the next day and intensified into a tropical storm that night. It made landfall over the east coast of Hainan Island on the evening of 22 June and weakened slightly while crossing Hainan Island. Kujira re-organized and re-intensified after entering Beibu Wan the next morning. It reached its peak intensity with an estimated sustained wind of 85 km/h near its centre on the morning of 24 June. Moving northwestwards across Beibu Wan, Kujira made landfall over the coast of northern Vietnam in the afternoon and weakened gradually, before finally dissipating over northern Vietnam on the morning of 25 June.

According to press reports, Kujira severely disrupted air, sea and land transportation in Hainan Island. In Vietnam, at least seven people were killed and four were reported missing during the passage of Kujira.

Chan-hom (1509) formed as a tropical depression over the western North Pacific about 1 710 km east-southeast of Guam on the night of 30 June. It developed into a tropical storm the following morning and moved westwards. Under the influence of an area of low pressure west of Chan-hom, Chan-hom moved erratically on 2 - 3 July. It subsequently tracked generally northwestwards and intensified gradually, sweeping across the Ryukyu Islands and developing into a super typhoon on 10 July with a peak intensity of estimated sustained winds up to 195 km/h near its centre. Turning northwards the next day, Chan-hom skirted past the coastal waters of Zhejiang and weakened gradually. Chan-hom finally evolved into an extratropical cyclone near the west coast of the Korea Peninsula on 12 July.

According to press reports, at least one person was killed and about two million people were affected in Zhejiang during the passage of Chan-hom, with direct economic loss estimated to be around RMB 6 billion. In Okinawa, at least 27 people were injured and more than 40 000 households were without power supply.

Linfa (1510) formed as a tropical depression over the western North Pacific about 830 km east of Manila on the afternoon of 2 July. It moved generally westwards and intensified into a tropical storm the next morning. Moving northwestwards, Linfa headed towards the northern part of Luzon and developed into a severe tropical storm on 4 July. Linfa moved across the northern part of Luzon on 5 July and entered the South China Sea. It weakened into a tropical storm the next day. With a weaker steering flow, Linfa drifted northwards slowly on 6 - 7 July and re-intensified into a severe tropical storm. It started to take on a more westerly track and edged closer to the coast of eastern Guangdong on the afternoon of 8 July. Linfa intensified into a typhoon that night, reaching its peak intensity the next morning with an estimated sustained wind of 140 km/h near its centre. It made landfall near Lufeng in Guangdong around noon and continued to track westwards across the coastal areas of Guangdong towards the Pearl River Estuary in the afternoon. Affected by relatively dry air from the north, Linfa weakened rapidly into a tropical depression. It finally degenerated into an area of low pressure over western Guangdong on the morning of 10 July.

According to press reports, at least 700 000 people were affected and 6 700 houses were damaged in eastern Guangdong during the passage of Linfa. Transportation services were suspended and there was power outage in many places.

Nangka (1511) formed as a tropical depression over the western North Pacific about 240 km north of Marshall Islands on the night of 3 July. It moved generally west to west-northwestwards and intensified gradually. Nangka developed into a super typhoon on the night of 7 July and reached its peak intensity two days later with an estimated sustained wind of 220 km/h near its centre. Nangka weakened into a typhoon on 12 July and started to turn north towards the sea areas south of Japan. It re-intensified into a severe typhoon on 14 July and weakened gradually the following day. Nangka moved across the western part of Japan on 16 July and evolved into an extratropical cyclone over the Sea of Japan during the night.

According to press reports, Nangka left at least five people dead and several dozen injured in Japan.

Originating from the central part of the North Pacific, Severe Tropical Storm Halola (1512) crossed the International Date Line and entered the western North Pacific on 13 July. Moving generally west-northwestwards, it intensified into a typhoon the next day. Halola started to weaken afterwards and took on a more westerly track, at one stage degenerating into a tropical depression on 17 July. Halola resumed a west-northwesterly track the next few days and re-intensified on 20 July, reaching peak intensity on the morning of 23 July with an estimated sustained wind of 145 km/h near its centre. Turning northwards on 25 July, Halola skirted past the Ryukyu Islands and weakened gradually. It finally degenerated into an area of low pressure near Kyushu, Japan on 26 July.

According to press reports, heavy rain brought by Halola flooded many houses and triggered landslides on the island of Amami Oshima in the northern part of the Ryukyu Islands and over the southwestern part of Japan.

Soudelor (1513) formed as a tropical depression over the western North Pacific about 1 720 km east of Guam on the morning of 30 July. It moved west to west-northwestwards and intensified gradually in the next three days. Soudelor developed into a super typhoon on the afternoon of 3 August and reached its peak intensity the next morning with an estimated sustained wind of 240 km/h near its centre. It continued to track west-northwestwards towards Taiwan and gradually weakened into a severe typhoon in the next three days. After crossing Taiwan on the morning of 8 August, Soudelor weakened into a typhoon and made landfall over the coast of Fujian that night. It finally degenerated into an area of low pressure over Jiangxi on the morning of 10 August.

According to press reports, at least six persons were killed, four were missing and more than 4 million households were without power supply in Taiwan during the passage of Soudelor. In Fujian, Zhejiang, Jiangxi and Anhui, 21 people were killed, five were missing and about 3.4 million were affected in the fury of Soudelor.

Molave (1514) formed as a tropical depression over the western North Pacific about 550 km east of Iwo Jima on the afternoon of 7 August and moved generally northwestwards. Molave intensified into a tropical storm in the early hours of 8 August and reached its peak intensity the next afternoon with an estimated sustained wind of 85 km/h near its centre. It weakened slightly on 10 August and re-intensified the next day and turned to move in a northeast direction. It finally evolved into an extratropical cyclone over the western North Pacific east of Japan on the night of 13 August.

Goni (1515) formed as a tropical depression over the western North Pacific about 470 km east of Guam on the afternoon of 14 August. Moving west to west-northwestwards, it intensified gradually in the next five days. Goni developed into a super typhoon on the night of 19 August, reaching its peak intensity with an estimated sustained wind of 195 km/h near its centre. Weakening into a severe typhoon, it started to turn northwards over Luzon Strait on the morning of 21 August and moved towards the seas east of Taiwan. Goni re-intensified into a super typhoon about 420 km west-southwest of Okinawa on the night of 23 August. It then turned to a northeasterly course, skirting past the vicinity of Ryukyu Islands and weakening gradually. Goni moved across Kyushu of Japan on 25 August and evolved into an extratropical cyclone over the Sea of Japan the next day.

According to press reports, during the passage of Goni, at least 26 people were killed and 15 were missing in the Philippines. Goni also wreaked havoc in Okinawa, resulting in at least eight death and over 20 000 households without power supply. In Kyushu of Japan, at least 70 persons were injured, more than 600 000 people had to be evacuated, near 500 000 households were without power supply in the fury of Goni.

Atsani (1516) formed as a tropical depression over the western North Pacific about 2 510 km east-southeast of Iwo Jima on the afternoon of 14 August. Moving slowly at first, Atsani intensified gradually. It started to take on a northwestly course on 17 August and developed into a super typhoon. Atsani reached its peak intensity on 19 August with an estimated sustained wind of 220 km/h near its centre. Skirting past the sea areas east of Iwo Jima on 21 August, Atsani started to turn northeastwards and weakened gradually. It finally evolved into an extratropical cyclone over the western North Pacific east of Japan on 25 August.

SEPTEMBER

Kilo (1517) originated from the central North Pacific and crossed the International Date Line into the western North Pacific as a severe typhoon with an estimated sustained wind of 155 km/h near its centre on 2 September. Kilo subsequently weakened slightly into a typhoon and moved generally west-northwestwards. Kilo weakened further into a severe tropical storm on 9 September and started to track northwestwards. It finally evolved into an extratropical cyclone over the sea areas east of Japan in the early morning of 11 September.

Etau (1518) formed as a tropical depression over the western North Pacific about 440 km southwest of Iwo Jima on the morning of 7 September. It moved northwards towards the seas south of Japan and intensified gradually. Etau developed into a severe tropical storm on the morning of 8 September and reached its peak intensity with an estimated sustained wind of 90 km/h near its centre. It moved across Honshu, Japan on the morning of 9 September and weakened gradually. Etau finally evolved into an extratropical cyclone over the Sea of Japan that afternoon.

According to press reports, Etau triggered heavy rain and flooding in Japan during its passage. At least three persons were killed, 26 were missing, about 30 were injured and over 100 000 people had to be evacuated.

Vamco (1519) formed as a tropical depression over the central part of the South China Sea about 120 km south of Xisha on the afternoon of 13 September and tracked generally westwards. It reached its peak intensity on the morning of 14 September with an estimated sustained wind of 55 km/h near its centre. Vamco made landfall over the coast of central Vietnam that night and degenerated into an area of low pressure over Lao PDR early next morning.

Krovanh (1520) formed as a tropical depression over the western North Pacific about 1 390 km north-northwest of Iwo Jima in the early hours of 15 September. It tracked northwestwards and intensified gradually, becoming a severe typhoon and reaching its peak

intensity on the night of 17 September with an estimated sustained wind of 155 km/h near its centre. Krovanh moved northwards and skirted past the sea areas east of Iwo Jima on 18 September. It then turned further to the northeast and weakened gradually, before finally evolving into an extratropical cyclone over the western North Pacific east of Japan in the early morning on 21 September.

Dujuan (1521) formed as a tropical depression over the western North Pacific about 2 080 km east-southeast of Taibei on the night of 22 September. It moved generally to the northwest or west-northwest towards Taiwan and intensified gradually. Dujuan developed into a super typhoon on 27 September, reaching its peak intensity with an estimated sustained wind of 210 km/h near its centre. It moved across Taiwan on the night of 28 September and weakened into a typhoon before making landfall over the coast of Fujian the next morning. Dujuan finally degenerated into an area of low pressure over Jiangxi on the night of 29 September.

According to press reports, Dujuan caused extensive damage in Taiwan, resulting in at least three deaths, over 300 injuries and more than 2.2 million households without electricity supply. There was widespread backflow of sea water along the coast of Xiamen. More than 400 000 people had to be evacuated in Fujian and Zhejiang during the passage of Dujuan.

OCTOBER

Mujigae (1522) formed as a tropical depression over the sea areas east of the Philippines about 290 km east of Manila on the afternoon of 1 October and tracked west-northwestwards in the direction of Luzon. Mujigae entered the South China Sea the next morning and intensified into a tropical storm. Moving west-northwestwards steadily, it edged closer to western Guangdong and continued to intensify in the next two days. Mujigae developed into a severe typhoon in the small hours of 4 October, reaching its peak intensity before noon with an estimated sustained wind of 175 km/h near its centre. It made landfall near Zhanjiang in Guangdong that afternoon and weakened gradually. Mujigae finally degenerated into an area of low pressure on the afternoon of 5 October over Guangxi.

According to press reports, at least 4.6 million people were affected and 8 500 houses were damaged in Guangdong and Guangxi during the passage of Mujigae, with direct economic loss amounting to over 12 billion RMB. Under the influence of the circulation of Mujigae, Shunde district in Foshan and Panyu district in Guangzhou were affected by tornadoes, resulting in at least six deaths and over 200 injuries. Houses were damaged and vehicles were overturned.

Choi-wan (1523) formed as a tropical depression over the western North Pacific about 2 690 km east of Iwo Jima on the night of 2 October. It moved west-northwestwards and intensified gradually. Choi-wan developed into a severe tropical storm on the afternoon of 5 October. Turning northwards the next day, it reached its peak intensity with an estimated sustained wind of 110 km/h near its centre. Choi-wan finally evolved into an extratropical cyclone over the western North Pacific east of Japan on the early morning of 8 October.

Koppu (1524) formed as a tropical depression over the western North Pacific about 2 320 km east of Manila on the morning of 13 October. It moved westwards and intensified gradually. Koppu developed into a super typhoon on the afternoon of 17 October and reached its peak intensity that night with an estimated sustained wind of 205 km/h near its centre. Koppu moved across Luzon on 18 October and weakened into a typhoon. It moved slowly northwards along the western coast of Luzon in the next two days and continued to weaken. Koppu finally degenerated into an area of low pressure near the Luzon Strait on 21 October.

According to press reports, Koppu brought torrential rain and flood to the northern part of the Philippines during its passage. At least 16 people were killed and more than 180 000 people had to be evacuated.

Champi (1525) formed as a tropical depression over the western North Pacific about 1 660 km east of Guam on the afternoon of 13 October. It moved generally west-northwestwards and intensified gradually. Champi developed into a typhoon in the early hours of 17 October and gradually took on a northward course towards the vicinity of Iwo Jima. It further intensified into a super typhoon on the night of 18 October, reaching its peak intensity with an estimated sustained wind of 195 km/h near its centre. Champi slightly weakened into a typhoon in the next three days and started to turn east-northeastwards. It intensified again into a severe typhoon and skirted past the seas south of Iwo Jima on 22 October. Champi then speeded up on an east-northeasterly track and weakened gradually, before finally evolved into an extratropical cyclone over the western North Pacific east-northeast of Iwo Jima on the morning of 25 October.

NOVEMBER

In-fa (1526) formed as a tropical depression over the western North Pacific about 2 240 km east-southeast of Guam on the morning of 17 November. It generally moved west-northwestwards and intensified gradually. In-fa developed into a super typhoon over the sea areas about 340 km southwest of Guam on the morning of 21 November, reaching its peak intensity with an estimated sustained wind of 185 km/h near its centre. It became slow-moving two days later and started to recurve. In-fa subsequently moved to the northeast and weakened, before finally evolving into an extratropical cyclone over the western North Pacific southwest of Iwo Jima on 26 November.

DECEMBER

Melor (1527) formed as a tropical depression over the western North Pacific about 70 km south of Yap on the afternoon of 11 December. Moving west-northwestwards, it became a tropical storm the next morning and continued to intensify, developing into a severe typhoon on the night of 13 December and reaching its peak intensity the following morning with an estimated sustained wind of 175 km/h near its centre. It then moved across the central part of the Philippines and entered the South China Sea in the next couple of days, decelerating and weakening in the process. It finally dissipated over the South China Sea in the early hours of 17 December.

According to press reports, Melor brought heavy rain and flooding to the Philippines during its passage. At least 11 persons were killed and over 700 000 people had to be evacuated.

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

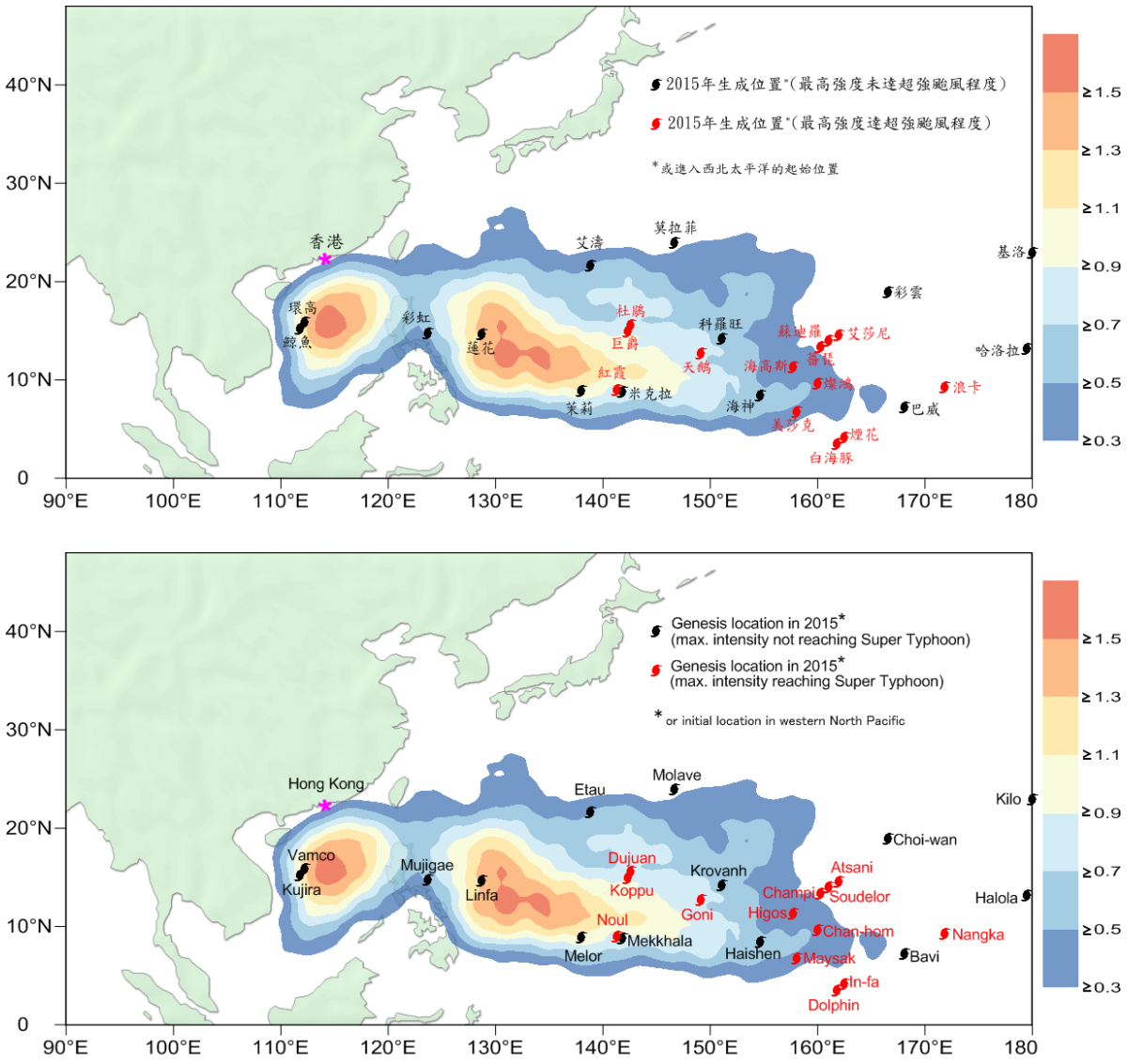


圖 2.1　　2015 年熱帶氣旋生成位置圖，背景顏色陰影為長期年平均 (1961 至 2010 年) 熱帶氣旋生成數目分佈。

Figure 2.1 Tropical cyclone genesis position in 2015. The shaded area in the background corresponds to the long-term average (1961-2010) of tropical cyclone genesis distribution.

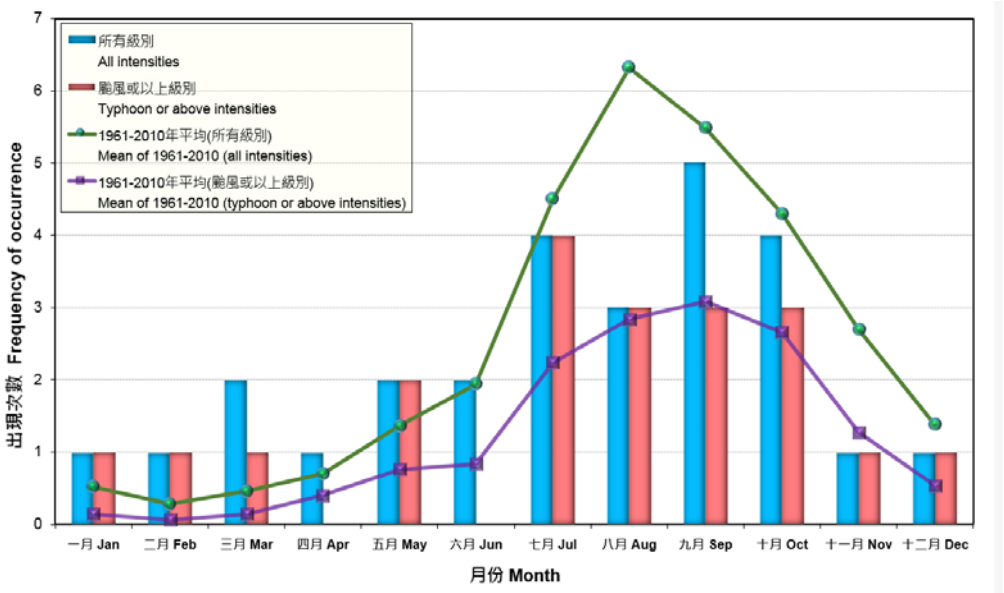


圖 2.2　二零一五年在北太平洋西部及南海區域的熱帶氣旋出現次數之每月分佈 (以熱帶氣旋在該月初次出現為準，假如一熱帶氣旋在九月形成並在十月首次增強為颱風或以上級別，它在「所有級別」及「颱風或以上級別」的統計數字將分別計算在九月及十月份內)。

Figure 2.2　Monthly frequencies of the occurrence of tropical cyclones in the western North Pacific and the South China Sea in 2015 (based on the first occurrence of the tropical cyclone in the month; for example if a tropical cyclone forms in September and first intensifies into typhoon or above intensities in October, its related statistics for "all intensities" and "typhoon or above intensities" will be counted in September and October respectively).

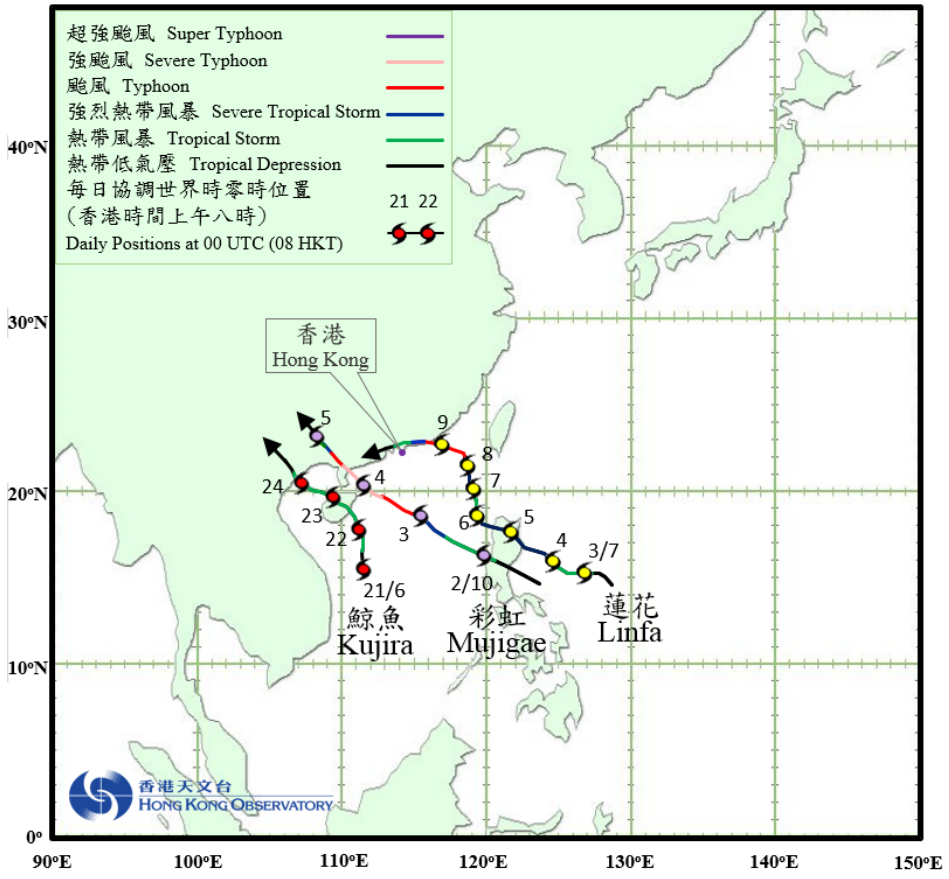


圖 2.3　二零一五年三個影響香港的熱帶氣旋的路徑圖。

Figure 2.3　Tracks of the three tropical cyclones affecting Hong Kong in 2015.

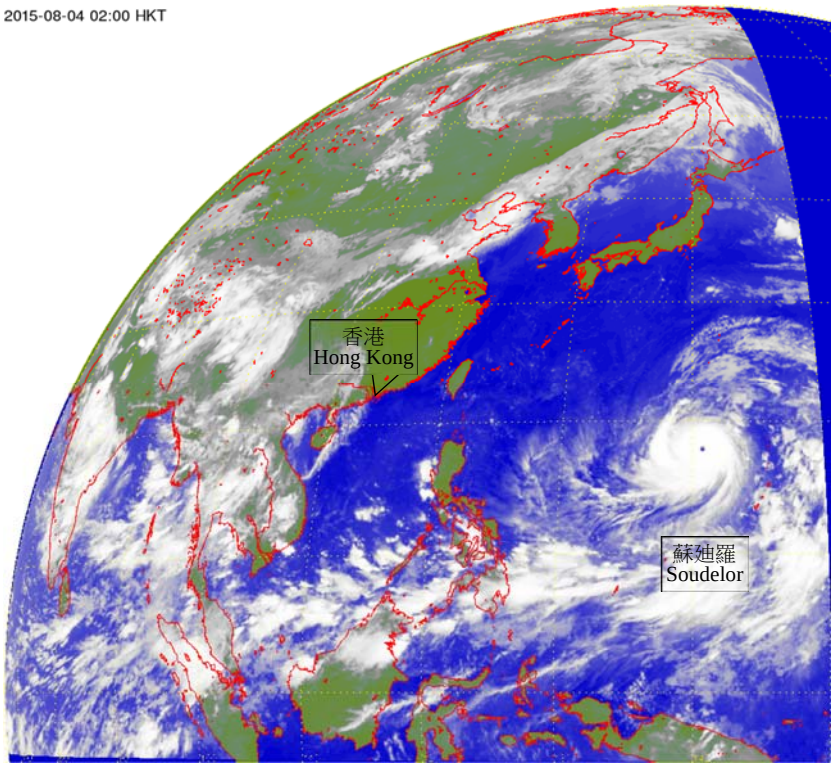


圖 2.4　二零一五年八月四日上午2時超強颱風蘇廸羅(1513)的紅外線衛星圖片。當時蘇廸羅位於馬尼拉之東北偏東約2 130公里的北太平洋西部上，最高風速估計為每小時240公里，而最低中心氣壓為905百帕斯卡。

Figure 2.4　Infra-red satellite imagery of Super Typhoon Soudelor (1513) at peak intensity at 2 a.m. on 4 August 2015. Soudelor was centred over the western North Pacific about 2 130 km east-northeast of Manila with an estimated maximum sustained wind of 240 km/h and a minimum sea-level pressure of 905 hPa at that time.

〔此衛星圖像接收自日本氣象廳的向日葵8號衛星。〕

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

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

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

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

表 2.2　　影響香港的熱帶氣旋之每月分佈
TABLE 2.2　MONTHLY DISTRIBUTION OF TROPICAL CYCLONES AFFECTING HONG KONG

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

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

第三節　二零一五年影響香港的熱帶氣旋

3.1　熱帶風暴鯨魚(1508)：二零一五年六月二十日至二十五日

鯨魚是香港天文台在二零一五年首個需要發出熱帶氣旋警告信號的熱帶氣旋。

熱帶低氣壓鯨魚於六月二十日下午在西沙之西南偏南約190公里的南海中部上形成，初時移動緩慢，翌日開始向偏北方向移動，當晚增強為熱帶風暴。六月二十二日傍晚鯨魚在海南島東部沿岸登陸，橫過海南島期間略為減弱，翌日早上進入北部灣後重新組織及增強，達到其最高強度，中心附近最高持續風速估計為每小時85公里。鯨魚向西北移動橫過北部灣，於六月二十四日下午在越南北部沿岸登陸，並逐漸減弱，最後於六月二十五日早上在越南北部消散。

隨著鯨魚靠近華南沿岸，香港天文台於六月二十一日下午9時40分發出一號戒備信號，當時鯨魚位於香港之西南偏南約660公里。六月二十二日本港普遍吹和緩至清勁東至東南風。天文台總部於六月二十二日下午4時04分錄得最低瞬時海平面氣壓1001.7百帕斯卡，當時鯨魚最接近香港，在本港西南約510公里附近掠過。隨著鯨魚移向北部灣及逐漸遠離本港，天文台於六月二十三日上午7時40分取消所有熱帶氣旋警告信號。

鯨魚影響香港期間，尖鼻咀錄得最高潮位(海圖基準面以上) 2.35米，而大埔滘則錄得最大風暴潮(天文潮高度以上) 0.31米。

在鯨魚的外圍雨帶影響下，六月二十一日本港天氣漸轉多雲，有零散驟雨及狂風雷暴。鯨魚的外圍雨帶隨後兩天繼續影響香港。六月二十一日至二十三日本港普遍錄得超過80毫米雨量，港島、新界南部及大嶼山部分地區更錄得超過140毫米。

鯨魚並沒有在香港造成嚴重破壞。根據報章報導，鯨魚對海南島海陸空交通造成嚴重影響。而鯨魚吹襲越南期間造成最少七人死亡，四人失蹤。

表3.1.1 – 3.1.3 分別是鯨魚影響香港期間各站錄得的最高風速、香港的日雨量及最高潮位資料。圖3.1.1 – 3.1.4 分別為鯨魚的路徑圖、本港的雨量分佈圖、鯨魚的衛星及相關雷達圖像。

Section 3 TROPICAL CYCLONES AFFECTING HONG KONG IN 2015

3.1 Tropical Storm Kujira (1508): 20 – 25 June 2015

Kujira was the first tropical cyclone necessitating the issuance of tropical cyclone warning signal by the Hong Kong Observatory in 2015.

Kujira formed as a tropical depression over the central part of the South China Sea about 190 km south-southwest of Xisha on the afternoon of 20 June. Moving slowly at first, it started to track generally northwards the next day and intensified into a tropical storm that night. It made landfall over the east coast of Hainan Island on the evening of 22 June and weakened slightly while crossing Hainan Island. Kujira re-organized and re-intensified after entering Beibu Wan the next morning, reaching peak intensity with an estimated sustained wind of 85 km/h near its centre. Moving northwestwards across Beibu Wan, Kujira made landfall over the coast of northern Vietnam on the afternoon of 24 June and weakened gradually, before finally dissipating over northern Vietnam on the morning of 25 June.

As Kujira edged towards the south China coast, the Standby Signal No. 1 was issued at 9:40 p.m. on 21 June when Kujira was about 660 km south-southwest of the territory. Local winds were generally moderate to fresh east to southeasterlies on 22 June. At the Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 1001.7 hPa was recorded at 4:04 p.m. on 22 June when Kujira came closest to the territory, passing about 510 km to the southwest. As Kujira moved towards Beibu Wan and departed gradually from Hong Kong, all tropical cyclone warning signals were cancelled at 7:40 a.m. on 23 June.

Under the influence of Kujira, a maximum sea level (above chart datum) of 2.35 m was recorded at Tsim Bei Tsui, while a maximum storm surge of 0.31 m (above astronomical tide) was recorded at Tai Po Kau.

Under the influence of the outer rainbands of Kujira, the weather in Hong Kong became cloudy with scattered showers and squally thunderstorms on 21 June. The outer rainbands of Kujira continued to affect the territory in the following two days. More than 80 millimetres of rainfall were generally recorded over the territory from 21 to 23 June, and rainfall amount even exceeded 140 millimetres over Hong Kong Island, the southern part of the New Territories and parts of Lantau Island.

Kujira did not cause any significant damage in Hong Kong. According to press reports, Kujira severely disrupted air, sea and land transportation in Hainan Island. In Vietnam, at least seven people were killed and four were reported missing during the passage of Kujira.

Information on the maximum wind, daily rainfall and maximum sea level reached in Hong Kong during the passage of Kujira is given in Tables 3.1.1 - 3.1.3 respectively. Figures 3.1.1 - 3.1.4 show respectively the track of Kujira, the rainfall distribution for Hong Kong, a satellite imagery and a related radar imagery of Kujira.

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

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

站（參閱圖 1.1） Station (See Fig. 1.1)		最高陣風 Maximum Gust					最高每小時平均風速 Maximum Hourly Mean Wind				
		風向 Direction		風速（公里/時） Speed (km/h)	日期/月份 Date/ Month	時間 Time	風向 Direction		風速（公里/時） Speed (km/h)	日期/月份 Date/ Month	時間 Time
黃麻角(赤柱)	Bluff Head (Stanley)	東南	SE	56	21/6	23:57	東南	SE	31	23/6	02:00
中環碼頭	Central Pier	東	E	38	22/6	22:03	東	E	23	22/6	22:00
長洲	Cheung Chau	東南偏東	ESE	67	23/6	01:57	東南	SE	43	23/6	03:00
長洲泳灘	Cheung Chau Beach	東	E	65	23/6	01:49	東	E	36	23/6	02:00
青洲	Green Island	東南偏東	ESE	56	23/6	02:00	東北	NE	30	21/6	22:00
香港國際機場	Hong Kong International Airport	東南偏東	ESE	52	23/6	02:08	東南偏東	ESE	30	23/6	03:00
		東南偏東	ESE	52	23/6	02:09					
啟德	Kai Tak	東南偏東	ESE	47	23/6	01:49	東南偏東	ESE	23	23/6	02:00
		東南偏東	ESE	47	23/6	01:50					
京士柏	King's Park	東南偏東	ESE	41	22/6	23:23	東南偏東	ESE	16	23/6	00:00
流浮山	Lau Fau Shan	東南偏南	SSE	51	22/6	16:51	東南偏南	SSE	20	22/6	17:00
昂坪	Ngong Ping	東	E	90	23/6	00:48	東	E	56	22/6	23:00
北角	North Point	東	E	36	22/6	18:53	東	E	19	22/6	22:00
							東	E	19	22/6	23:00
坪洲	Peng Chau	東	E	58	22/6	00:26	東	E	27	21/6	23:00
平洲	Ping Chau	東南	SE	34	23/6	02:57	東	E	7	22/6	01:00
西貢	Sai Kung	東南偏南	SSE	58	23/6	01:40	東南偏南	SSE	23	23/6	02:00
沙洲	Sha Chau	南	S	56	22/6	15:31	東南	SE	34	23/6	03:00
沙螺灣	Sha Lo Wan	東	E	51	23/6	02:11	東南偏東	ESE	22	23/6	01:00
沙田	Sha Tin	東南	SE	36	22/6	12:08	東南	SE	14	22/6	15:00
九龍天星碼頭	Star Ferry (Kowloon)	東	E	54	23/6	01:31	東	E	25	23/6	02:00
打鼓嶺	Ta Kwu Ling	東	E	31	23/6	00:07	東	E	12	23/6	01:00
大美督	Tai Mei Tuk	東北偏東	ENE	45	22/6	01:45	東北偏東	ENE	25	22/6	01:00
							東	E	25	23/6	00:00
大埔滘	Tai Po Kau	東南	SE	38	23/6	01:59	東	E	22	23/6	00:00
塔門	Tap Mun	東南	SE	49	23/6	03:03	東南	SE	22	23/6	04:00
大老山	Tate's Cairn	東南偏南	SSE	67	21/6	21:46	東南偏東	ESE	34	23/6	00:00
將軍澳	Tseung Kwan O	東	E	40	23/6	01:37	東南偏東	ESE	12	22/6	15:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南偏南	SSE	40	22/6	16:26	東南	SE	19	22/6	12:00
屯門政府合署	Tuen Mun Government Offices	東南偏南	SSE	43	22/6	15:39	東南偏南	SSE	14	22/6	16:00
		東南偏南	SSE	43	22/6	15:40					
		東南偏南	SSE	43	22/6	16:35					
橫瀾島	Waglan Island	東南	SE	67	23/6	01:04	東南偏南	SSE	38	23/6	02:00
濕地公園	Wetland Park	南	S	31	22/6	16:50	南	S	13	22/6	17:00
黃竹坑	Wong Chuk Hang	東南	SE	58	22/6	00:07	東	E	16	22/6	23:00
		東	E	58	22/6	11:12					

石崗、大帽山 – 沒有資料　Shek Kong, Tai Mo Shan - data not available

表 3.1.2　鯨魚影響香港期間，香港天文台總部及其他各站所錄得的日雨量
Table 3.1.2　Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Kujira

站 (參閱圖 3.1.2) Station (See Fig. 3.1.2)			六月二十一日 21 Jun	六月二十二日 22 Jun	六月二十三日 23 Jun	總雨量 (毫米) Total (mm)
香港天文台 Hong Kong Observatory			51.0	18.1	51.3	120.4
香港國際機場 Hong Kong International Airport (HKA)			19.8	52.7	18.7	91.2
長洲 Cheung Chau (CCH)			56.5	11.5	25.5	93.5
H23	香港仔	Aberdeen	35.5	37.5	56.5	129.5
N05	粉嶺	Fanling	30.5	7.0	37.0	74.5
N13	糧船灣	High Island	52.0	4.0	22.5	78.5
K04	佐敦谷	Jordan Valley	74.5	20.5	73.5	168.5
N06	葵涌	Kwai Chung	60.5	28.0	55.5	144.0
H12	半山區	Mid Levels	59.5	31.5	59.5	150.5
N09	沙田	Sha Tin	50.0	8.5	65.0	123.5
H19	筲箕灣	Shau Kei Wan	67.0	13.5	89.0	169.5
SEK	石崗	Shek Kong	37.5	29.0	35.0	101.5
K06	蘇屋邨	So Uk Estate	55.0	28.0	57.0	140.0
R31	大美督	Tai Mei Tuk	20.0	7.5	51.0	78.5
R21	踏石角	Tap Shek Kok	25.5	17.5	22.5	65.5
N17	東涌	Tung Chung	30.5	43.5	34.0	108.0
R27	元朗	Yuen Long	24.5	16.0	29.0	69.5

表 3.1.3　鯨魚影響香港期間，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 Kujira

站 (參閱圖 1.1) Station (See Fig. 1.1)		最高潮位 (海圖基準面以上) Maximum sea level (above chart datum)			最大風暴潮 (天文潮高度以上) Maximum storm surge (above astronomical tide)		
		高度(米) Height (m)	日期/月份 Date/Month	時間 Time	高度(米) Height (m)	日期/月份 Date/Month	時間 Time
鰂魚涌	Quarry Bay	2.07	22/6	10:27	0.24	22/6	10:16
大廟灣	Tai Miu Wan	1.98	22/6	10:41	0.20	22/6	10:14
大埔滘	Tai Po Kau	2.07	22/6	10:14	0.31	22/6	17:45
尖鼻咀	Tsim Bei Tsui	2.35	22/6	12:48	0.18	23/6	05:04
橫瀾島	Waglan Island	2.20	22/6	10:31	0.29	22/6	10:10

石壁 - 沒有資料 Shek Pik - Data not available

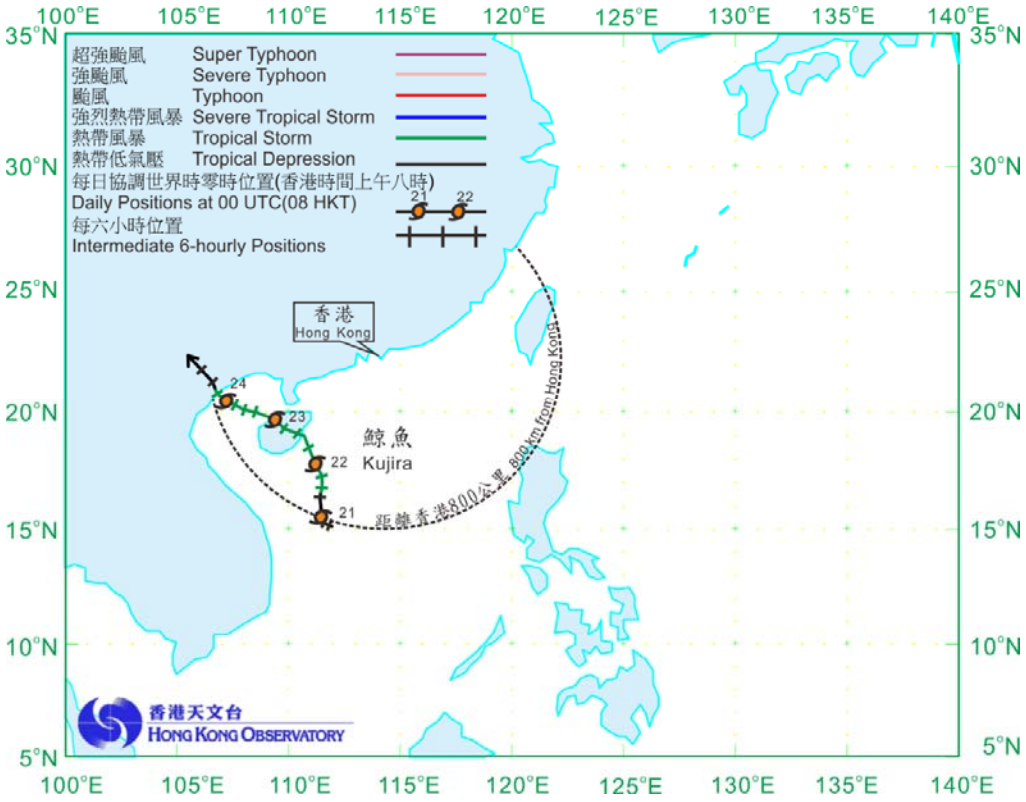


圖 3.1.1 二零一五年六月二十日至二十五日鯨魚(1508)的路徑圖。
Figure 3.1.1 Track of Kujira (1508): 20 – 25 June 2015.

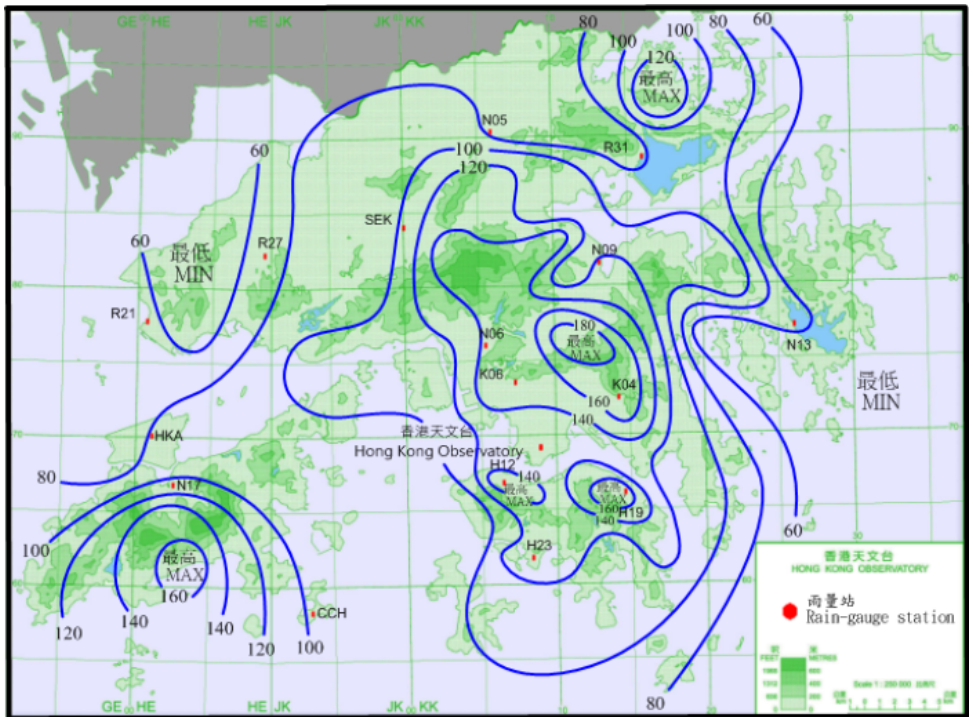


圖 3.1.2 二零一五年六月二十一日至二十三日的雨量分佈(等雨量線單位為毫米)。
Figure 3.1.2 Rainfall distribution on 21 – 23 June 2015 (isohyets are in millimetres).

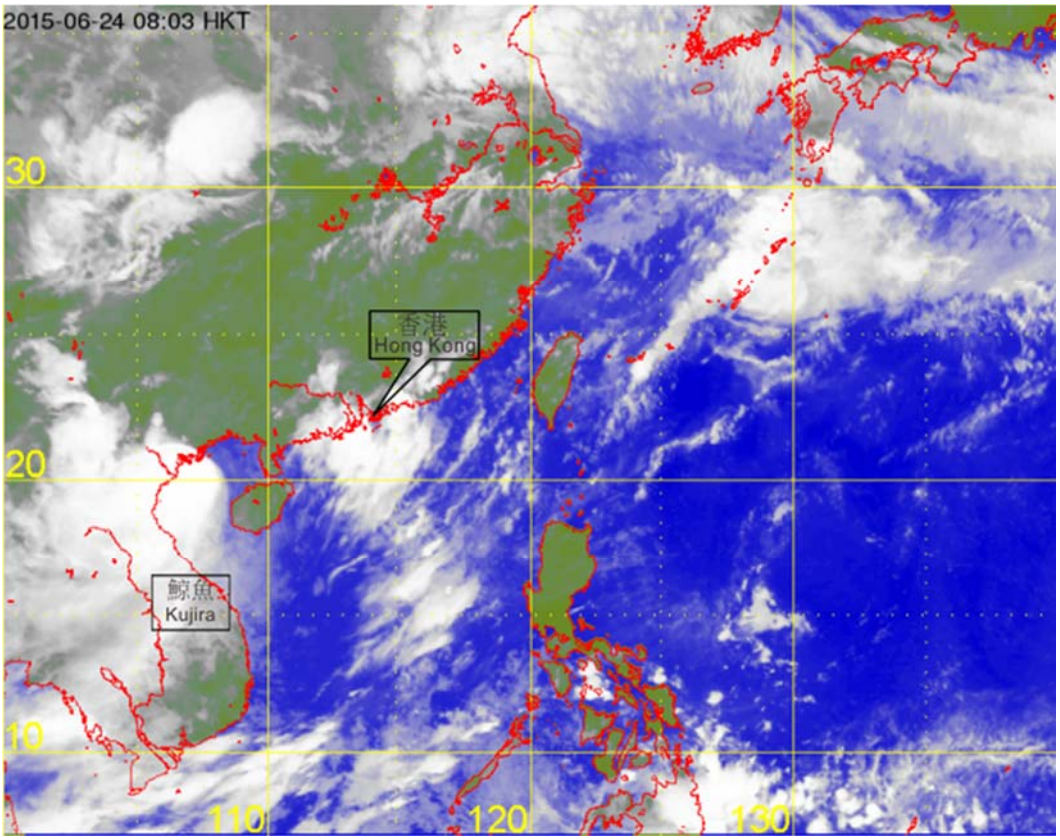


圖 3.1.3　二零一五年六月二十四日上午 8 時左右的紅外線衛星圖片，當時鯨魚達到其最高強度，中心附近最高持續風速估計為每小時 85 公里。

Figure 3.1.3　Infra-red satellite imagery around 8:00 a.m. on 24 June 2015 when Kujira was at its peak intensity with estimated maximum sustained winds of 85 km/h near its centre.

〔此衛星圖像接收自日本氣象廳的多用途輸送衛星-2。〕

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

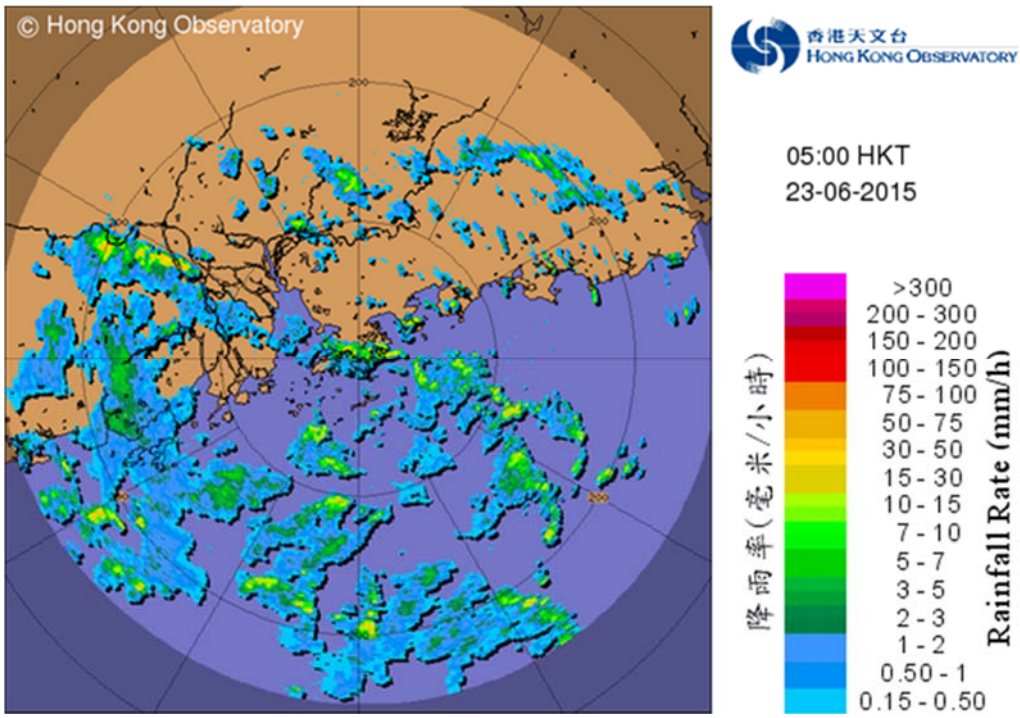


圖 3.1.4　二零一五年六月二十三日上午 5 時的雷達回波圖像。當時鯨魚的外圍雨帶正影響本港。

Figure 3.1.4　Radar echoes captured at 5 a.m. on 23 June 2015. The outer rainbands of Kujira were affecting the territory.

3.2 颱風蓮花(1510)：二零一五年七月二日至十日

蓮花是香港天文台在二零一五年第二個需要發出熱帶氣旋警告信號的熱帶氣旋，亦是二零一五年唯一需要發出八號烈風或暴風信號的熱帶氣旋。

熱帶低氣壓蓮花於七月二日下午在馬尼拉以東約830公里的北太平洋西部形成，大致向偏西方向移動，翌日上午增強為熱帶風暴。七月四日蓮花轉向西北方向移向呂宋北部，並發展為強烈熱帶風暴。蓮花於七月五日橫過呂宋北部並進入南海，翌日減弱為熱帶風暴。由於引導氣流較弱，蓮花於七月六日至七日緩慢地向偏北方向漂移，並再次增強為強烈熱帶風暴。七月八日下午蓮花開始採取較為偏西的路徑逐漸靠近廣東東部沿岸，當晚增強為颱風，翌日上午達到其最高強度，中心附近最高持續風速估計為每小時140公里。蓮花於正午時分在廣東省陸豐市附近登陸，下午繼續採取偏西路徑橫越廣東沿岸地區及移向珠江口。受北面較乾燥的空氣影響，蓮花迅速減弱為熱帶低氣壓。最後於七月十日早上在廣東西部減弱為一個低壓區。

根據報章報導，蓮花吹襲廣東東部期間，最少有70萬人受災，6 700多間房屋受損，海陸空交通癱瘓，多個地區停電。

由於預料蓮花會轉向偏西的路徑靠近廣東東部沿岸，香港天文台於七月八日上午7時40分發出一號戒備信號，當時蓮花位於香港以東約480公里。隨著蓮花繼續移近廣東沿岸，天文台於七月九日上午8時40分發出三號強風信號，當時蓮花位於香港之東北偏東約260公里。下午本港風力普遍增強，多處錄得強風，高地風力間中達烈風程度。

由於預料蓮花會向西至西南偏西方向移動，在傍晚非常接近香港，天文台在七月九日下午4時40分發出八號西北烈風或暴風信號，當時蓮花集結在香港之東北約110公里。其後，蓮花迅速減弱，與蓮花相關的環流及烈風範圍亦顯著縮小。蓮花在下午9時左右最接近香港，在天文台總部以北約50公里附近掠過。隨著蓮花逐漸遠離及減弱，本港普遍受烈風影響的威脅解除，天文台在下午10時10分改發三號強風信號。其後蓮花進一步減弱為一個低壓區，天文台在七月十日上午5時50分取消所有熱帶氣旋警告信號。

蓮花吹襲香港期間，橫瀾島錄得最高潮位(海圖基準面以上)及最大風暴潮(天文潮高度以上)分別為 2.37 米及 0.48 米。各站錄得的最低瞬時海平面氣壓如下：

站	最低瞬時海平面氣壓 (百帕斯卡)	日期/月份	時間
香港天文台總部	993.8	9/7	下午 4 時 21 分
長洲	993.8	9/7	下午 4 時 40 分
香港國際機場	994.9	9/7	下午 4 時 36 分
京士柏	993.5	9/7	下午 4 時 32 分
流浮山	994.1	9/7	下午 5 時 05 分
橫瀾島	993.1	9/7	下午 3 時 59 分

七月八日本港短暫時間有陽光。與蓮花及其殘餘相關的雨帶於七月九日下午至七月十日早上影響本港，各區普遍錄得超過 20 毫米雨量，港島、大嶼山、長洲及南丫島更錄得超過 40 毫米雨量。

蓮花吹襲香港期間並沒有造成嚴重破壞，本港有幾宗塌樹報告。香港國際機場有520班航班需要重新編配。

表3.2.1 - 3.2.4 分別是蓮花影響香港期間各站錄得的最高風速、持續風力達到強風及烈風程度的時段、香港的日雨量及最高潮位資料。圖3.2.1 - 3.2.5 分別為蓮花的路徑圖、本港的雨量分佈圖、飛機觀測、蓮花的衛星及雷達圖像。

3.2 Typhoon Linfa (1510): 2 – 10 July 2015

Linfa was the second tropical cyclone necessitating the issuance of tropical cyclone warning signal by the Hong Kong Observatory in 2015. It was also the only tropical cyclone requiring the issuance of the Gale or Storm Signal No. 8 in the year.

Linfa formed as a tropical depression over the western North Pacific about 830 km east of Manila on the afternoon of 2 July. It moved generally westwards and intensified into a tropical storm the next morning. Moving northwestwards, Linfa headed towards the northern part of Luzon and developed into a severe tropical storm on 4 July. Linfa moved across the northern part of Luzon on 5 July and entered the South China Sea. It weakened into a tropical storm the next day. With a weaker steering flow, Linfa slowly drifted northwards on 6 and 7 July and re-intensified into a severe tropical storm. It started to take on a more westerly track and edged closer to the coast of eastern Guangdong on the afternoon of 8 July. Linfa intensified into a typhoon that night, reaching its peak intensity the next morning with an estimated sustained wind of 140 km/h near its centre. Linfa made landfall near Lufeng in Guangdong around noon and continued to track westwards across the coastal areas of Guangdong towards the Pearl River Estuary in the afternoon. Affected by relatively dry air from the north, Linfa weakened rapidly into a tropical depression. It finally degenerated into an area of low pressure on the morning of 10 July over western Guangdong.

According to press reports, at least 700 000 people were affected and 6 700 houses were damaged in eastern Guangdong during the passage of Linfa. Transportation services were suspended and there were power outage in many places.

As Linfa was expected to turn west towards the coastal areas of eastern Guangdong, the Standby Signal No. 1 was issued at 7:40 a.m. on 8 July when Linfa was about 480 km east of Hong Kong. As Linfa continued to move closer to the coast of Guangdong, the Strong Wind Signal No. 3 was issued at 8:40 am on 9 July when Linfa was about 260 km east-northeast of the territory. Wind strengthened generally over Hong Kong in the afternoon, with strong winds recorded over many places and winds reaching gale force occasionally on high ground.

As Linfa was expected to turn west or west-southwestward, getting very close to the territory in the evening, the No. 8 Northwest Gale or Storm Signal was issued at 4:40 p.m. on 9 July when Linfa was about 110 km northeast of the territory. Subsequently, Linfa weakened rapidly and its circulation and gale extent also shrunk significantly. Linfa was closest to Hong Kong at around 9 p.m. on 9 July when it was about 50 km north of the Hong Kong Observatory Headquarters. With Linfa gradually moving away from Hong Kong and weakening, the threat of gales subsided. The Strong Wind Signal No. 3 was issued at 10:10 p.m. on 9 July. As Linfa degenerated further into an area of low pressure, all tropical cyclone warning signals were cancelled at 5:50 a.m. on 10 July.

Under the influence of Linfa, a maximum sea level (above chart datum) of 2.37 m and a maximum storm surge of 0.48 m (above astronomical tide) were recorded at Waglan Island. The lowest instantaneous mean sea-level pressures recorded at some selected stations are as follows:-

Station	Lowest instantaneous mean sea-level pressure (hPa)	Date/Month	Time
Hong Kong Observatory Headquarters	993.8	9/7	4:21 p.m.
Cheung Chau	993.8	9/7	4:40 p.m.
Hong Kong International Airport	994.9	9/7	4:36 p.m.
King's Park	993.5	9/7	4:32 p.m.
Lau Fau Shan	994.1	9/7	5:05 p.m.
Waglan Island	993.1	9/7	3:59 p.m.

There were sunny intervals in Hong Kong on 8 July. Rainbands associated with Linfa and its remnant affected the territory from the afternoon of 9 July to the morning of 10 July. More than 20 millimetres of rainfall were generally recorded, with rainfall amounts exceeding 40 millimetres over Hong Kong Island, Lantau Island, Cheung Chau and Lamma Island.

Linfa did not cause any significant damage in Hong Kong and there were a few reports of fallen trees. There were 520 flights re-scheduled at the Hong Kong International Airport.

Information on the maximum wind, period of strong and gale force winds, daily rainfall and maximum sea level reached in Hong Kong during the passage of Linfa is given in Tables 3.2.1 - 3.2.4 respectively. Figures 3.2.1 - 3.2.5 show respectively the track of Linfa, the rainfall distribution for Hong Kong, aircraft observation, satellite imageries and radar imageries of Linfa.

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

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

站（參閱圖 1.1） Station (See Fig. 1.1)		最高陣風 Maximum Gust					最高每小時平均風速 Maximum Hourly Mean Wind				
		風向 Direction		風速 （公里/時） Speed (km/h)	日期/月份 Date/Month	時間 Time	風向 Direction		風速 （公里/時） Speed (km/h)	日期/月份 Date/Month	時間 Time
黃麻角(赤柱)	Bluff Head (Stanley)	東南偏東	ESE	58	10/7	05:02	東	E	22	10/7	05:00
中環碼頭	Central Pier	西	W	54	9/7	17:18	西	W	31	9/7	16:00
長洲	Cheung Chau	西北偏北	NNW	63	9/7	15:41	西北	NW	38	9/7	16:00
長洲泳灘	Cheung Chau Beach	東北偏東	ENE	58	10/7	05:38	西北偏西	WNW	30	9/7	16:00
青洲	Green Island	西北偏北	NNW	70	9/7	15:26	西北偏北	NNW	49	9/7	16:00
香港國際機場	Hong Kong International Airport	西北偏北	NNW	59	9/7	16:22	西北偏北	NNW	45	9/7	16:00
啟德	Kai Tak	東南偏東	ESE	58	10/7	05:33	西北偏西	WNW	30	9/7	16:00
京士柏	King's Park	東	E	43	10/7	05:50	西北	NW	14	9/7	17:00
流浮山	Lau Fau Shan	西北	NW	59	9/7	15:53	西北	NW	40	9/7	15:00
昂坪	Ngong Ping	東南偏東	ESE	75	10/7	01:15	東	E	49	10/7	04:00
北角	North Point	東	E	62	10/7	05:06	西南偏西	WSW	25	9/7	20:00
坪洲	Peng Chau	西北偏西	WNW	65	9/7	19:09	西北偏西	WNW	40	9/7	15:00
平洲	Ping Chau	西	W	41	9/7	18:44	西	W	22	9/7	19:00
西貢	Sai Kung	西北偏北	NNW	59	9/7	14:19	東	E	31	10/7	05:00
沙洲	Sha Chau	西北偏北	NNW	83	9/7	16:13	西北偏北	NNW	45	9/7	17:00
沙螺灣	Sha Lo Wan	東南偏東	ESE	43	10/7	05:36	西北偏西	WNW	19	9/7	20:00
沙田	Sha Tin	東北偏東	ENE	51	10/7	04:57	東北偏東	ENE	14	10/7	05:00
		東北	NE	51	10/7	05:29					
石崗	Shek Kong	東	E	59	10/7	05:45	東	E	22	10/7	05:00
九龍天星碼頭	Star Ferry (Kowloon)	東	E	58	10/7	05:11	西	W	30	9/7	14:00
打鼓嶺	Ta Kwu Ling	東	E	47	10/7	03:57	東	E	16	10/7	05:00
大美督	Tai Mei Tuk	東	E	79	10/7	03:41	東	E	47	10/7	04:00
大帽山	Tai Mo Shan	東南偏東	ESE	92	10/7	05:21	東南偏東	ESE	62	10/7	02:00
大埔滘	Tai Po Kau	西北	NW	52	9/7	15:06	東	E	31	10/7	05:00
塔門	Tap Mun	西北偏西	WNW	68	9/7	14:40	西北偏西	WNW	38	9/7	17:00
							西北偏西	WNW	38	9/7	18:00
大老山	Tate's Cairn	東南偏東	ESE	101	10/7	05:13	西北偏北	NNW	52	9/7	16:00
將軍澳	Tseung Kwan O	東南偏東	ESE	31	10/7	04:19	東北偏東	ENE	12	8/7	14:00
		東南偏東	ESE	31	10/7	04:27	東北	NE	12	8/7	16:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	西北偏西	WNW	40	9/7	17:29	西北	NW	20	9/7	15:00
屯門政府合署	Tuen Mun Government Offices	西北偏西	WNW	52	9/7	15:23	西北	NW	19	9/7	16:00
橫瀾島	Waglan Island	東南偏東	ESE	70	10/7	04:44	東北偏東	ENE	38	10/7	05:00
		東南偏東	ESE	70	10/7	04:45					
		東南偏東	ESE	70	10/7	04:48					
		東	E	70	10/7	05:41					
濕地公園	Wetland Park	西北	NW	40	9/7	16:12	西北偏北	NNW	20	9/7	15:00
黃竹坑	Wong Chuk Hang	東	E	52	10/7	05:49	東	E	19	10/7	04:00

表 3.2.2　在蓮花影響下，熱帶氣旋警告信號系統的八個參考測風站在熱帶氣旋警告信號生效時錄得持續風力達到強風及烈風程度的時段

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

站 (參閱圖 1.1) Station (See Fig. 1.1)		最初達到強風*時間 Start time strong wind speed* was reached		最後達到強風*時間 End time strong wind speed* was reached	
		日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time
長洲	Cheung Chau	9/7	15:42	9/7	15:47
香港國際機場	Hong Kong International Airport	9/7	14:10	9/7	18:40
流浮山	Lau Fau Shan	9/7	14:34	9/7	16:02

所有參考測風站的持續風力未達到烈風#程度。
The sustained wind speed did not attain gale# at all reference anemometers.

啟德、西貢、沙田、打鼓嶺及青衣島蜆殼油庫的持續風力未達到強風程度。
The sustained wind speed did not attain strong force at Kai Tak, Sai Kung, Sha Tin, Ta Kwu Ling and Tsing Yi Shell Oil Depot.

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

十分鐘平均風速達每小時 63-87 公里
10-minute mean wind speed of 63-87 km/h

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

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

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

站 (參閱圖 3.2.2) Station (See Fig. 3.2.2)			七月八日 8 Jul	七月九日 9 Jul	七月十日 10 Jul	總雨量 (毫米) Total (mm)
香港天文台 Hong Kong Observatory			0.0	2.0	24.3	26.3
香港國際機場 Hong Kong International Airport (HKA)			0.0	1.7	23.9	25.6
長洲 Cheung Chau (CCH)			0.0	0.5	[31.5]	[32.0]
H23	香港仔	Aberdeen	0.0	2.0	41.5	43.5
N05	粉嶺	Fanling	0.0	4.5	6.0	10.5
N13	糧船灣	High Island	0.0	4.0	26.0	30.0
K04	佐敦谷	Jordan Valley	0.0	4.5	28.5	33.0
N06	葵涌	Kwai Chung	0.0	3.0	17.5	20.5
H12	半山區	Mid Levels	0.0	3.5	33.5	37.0
N09	沙田	Sha Tin	0.0	2.5	13.5	16.0
H19	筲箕灣	Shau Kei Wan	0.0	0.0	25.0	25.0
SEK	石崗	Shek Kong	0.0	7.5	[19.5]	[27.0]
K06	蘇屋邨	So Uk Estate	0.0	2.5	20.0	22.5
R31	大美督	Tai Mei Tuk	0.0	2.5	21.0	23.5
R21	踏石角	Tap Shek Kok	0.0	2.0	15.0	17.0
N17	東涌	Tung Chung	0.0	9.0	44.0	53.0
R27	元朗	Yuen Long	0.0	6.5	10.0	16.5

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

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

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	2.22	8/7	14:27	0.42	9/7	03:32
大廟灣	Tai Miu Wan	2.16	8/7	14:16	0.41	8/7	14:16
大埔滘	Tai Po Kau	2.29	10/7	05:03	0.45	8/7	20:47
尖鼻咀	Tsim Bei Tsui	2.33	8/7	14:11	0.31	9/7	05:38
橫瀾島	Waglan Island	2.37	10/7	04:50	0.48	9/7	03:33

石壁 – 沒有資料 Shek Pik – data not available

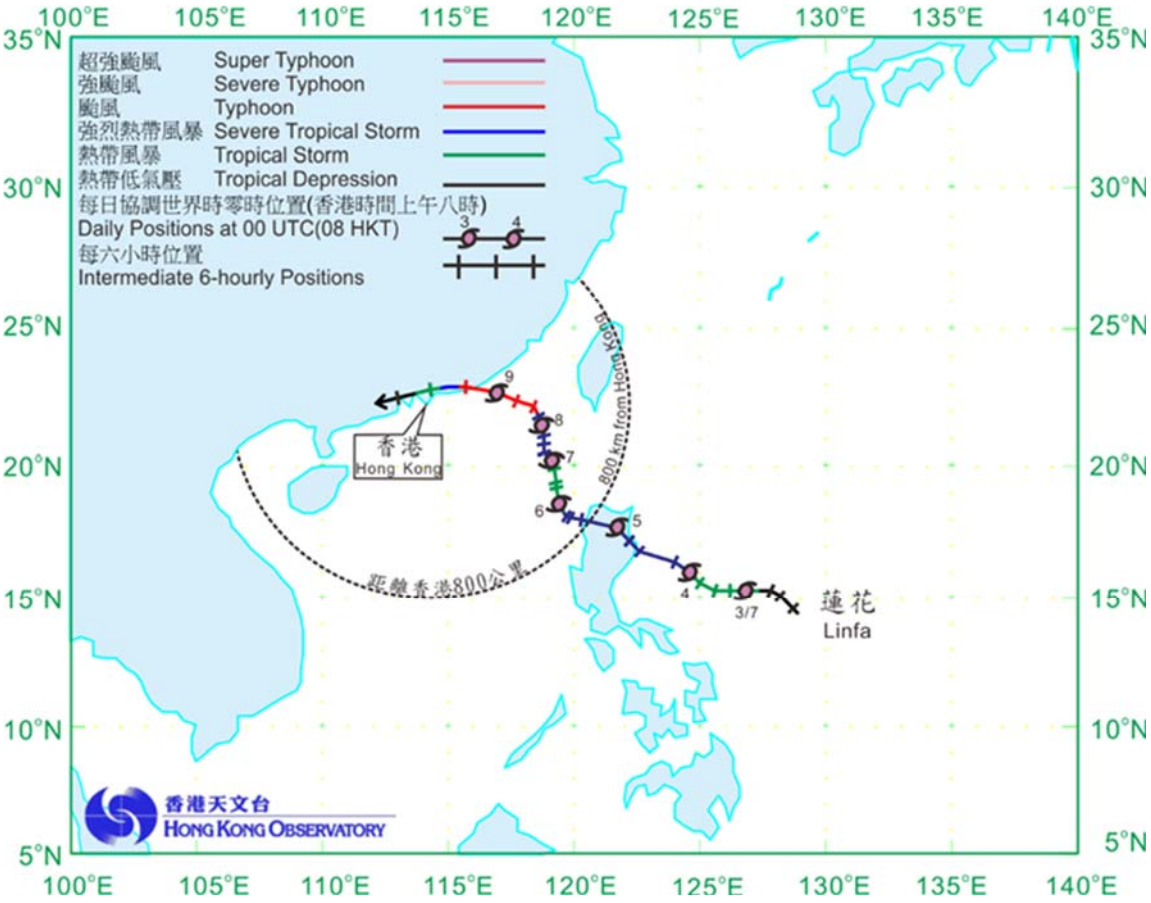


圖 3.2.1a 二零一五年七月二日至十日蓮花 (1510) 的路徑圖。
Figure 3.2.1a Track of Linfa (1510): 2 – 10 July 2015.

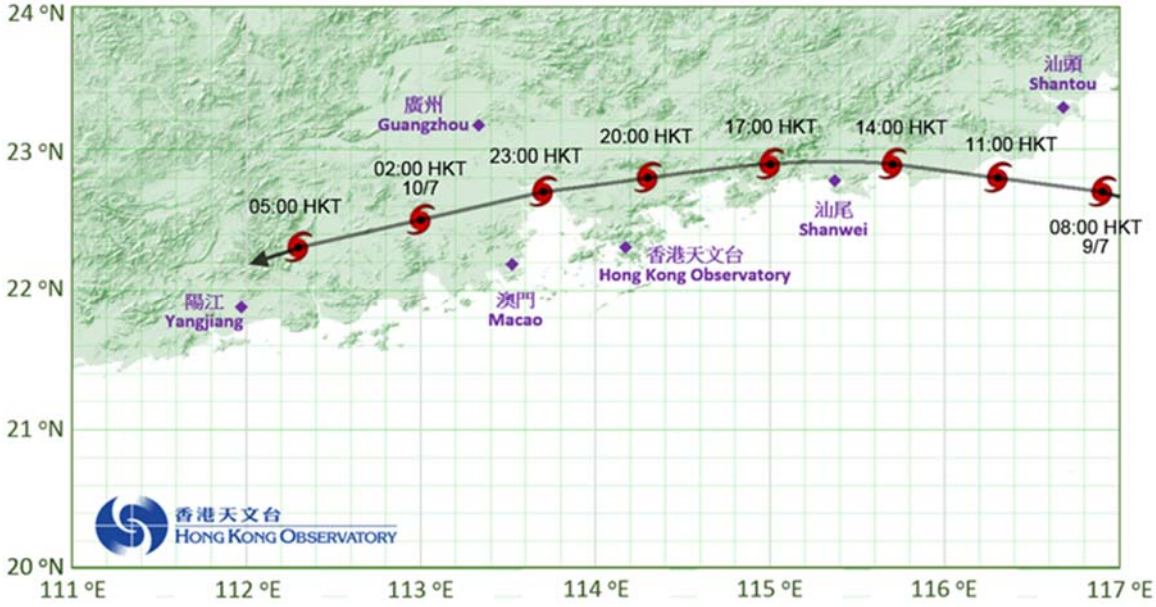


圖 3.2.1b 蓮花 (1510) 接近香港時的路徑圖。
Figure 3.2.1b Track of Linfa (1510) near Hong Kong.

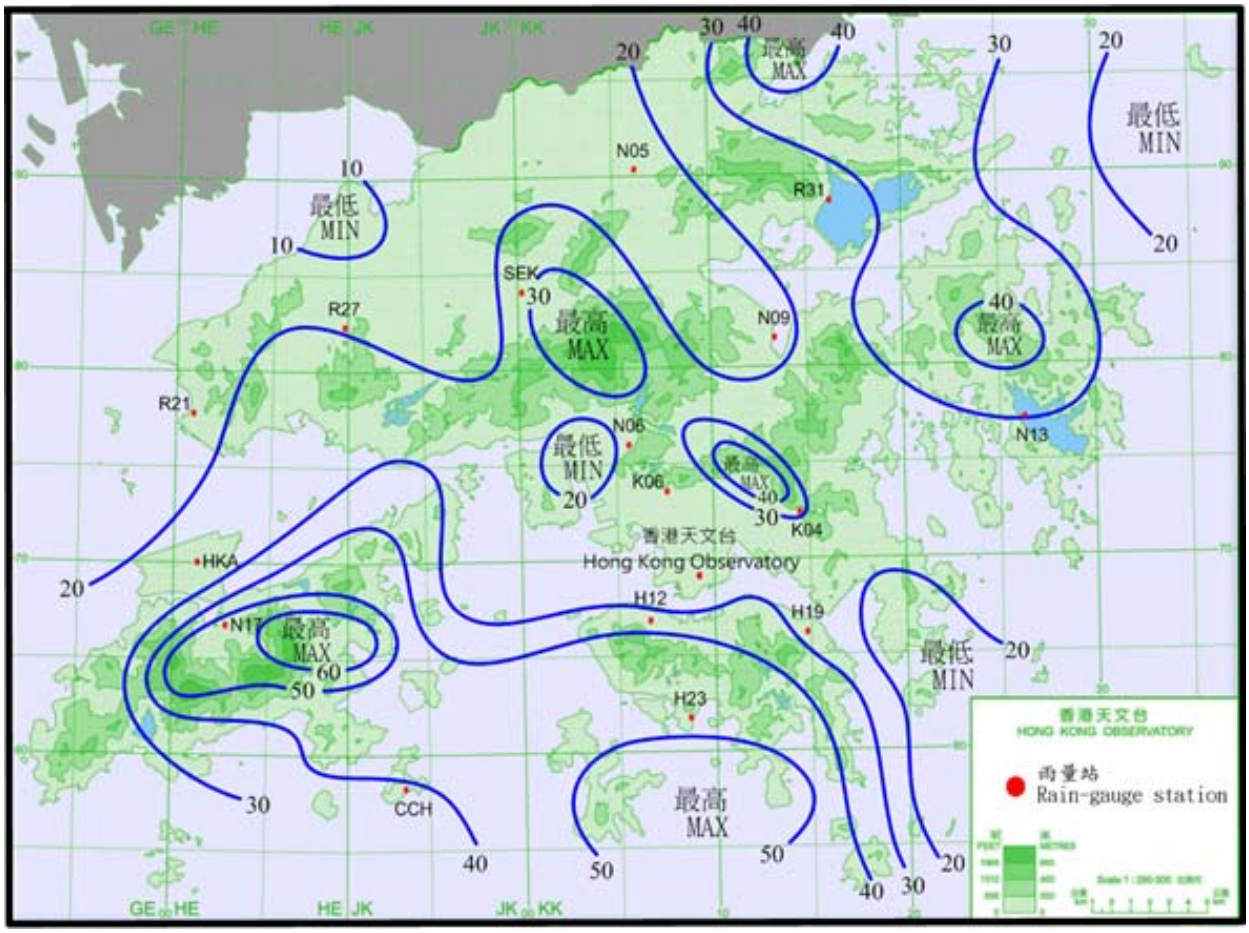


圖 3.2.2　　二零一五年七月八日至十日的雨量分佈(等雨量線單位為毫米)。

Figure 3.2.2　　Rainfall distribution on 8 – 10 July 2015 (isohyets are in millimetres).

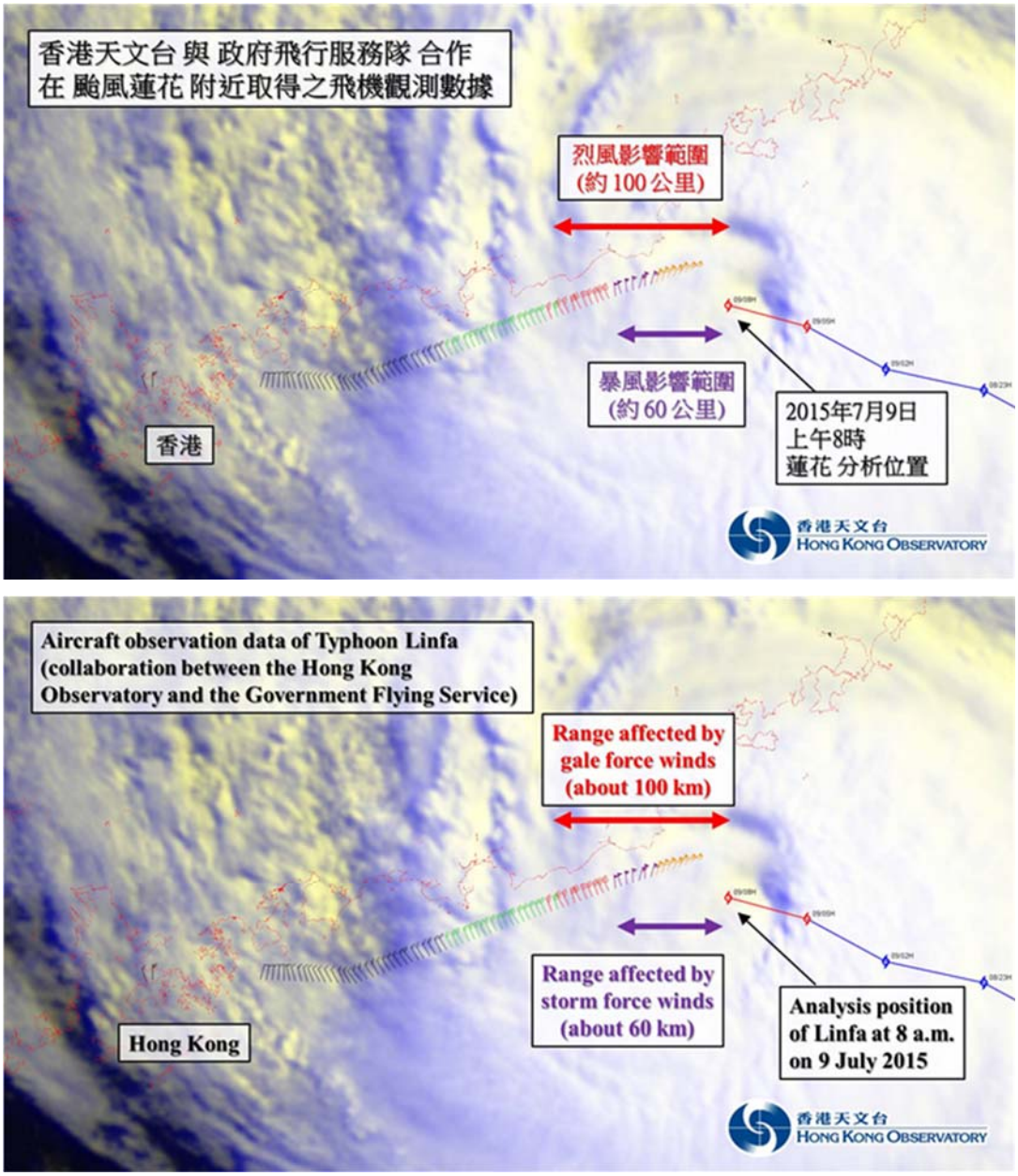


圖 3.2.3　香港天文台與飛行服務隊合作在七月九日上午 7 時至 9 時取得之飛機觀測數據，顯示颱風蓮花風眼附近利用飛機數據估算的接近海平面風力達颶風程度，而距離其中心 100 公里附近的風力達烈風程度。

Figure 3.2.3 Aircraft observation data of Typhoon Linfa under collaboration between the Hong Kong Observatory and the Government Flying Service from 7 to 9 a.m. on 9 July, showing that winds near sea surface estimated from the flight data reaching hurricane force winds near centre of Linfa, and gales extending about 100 km from its centre.

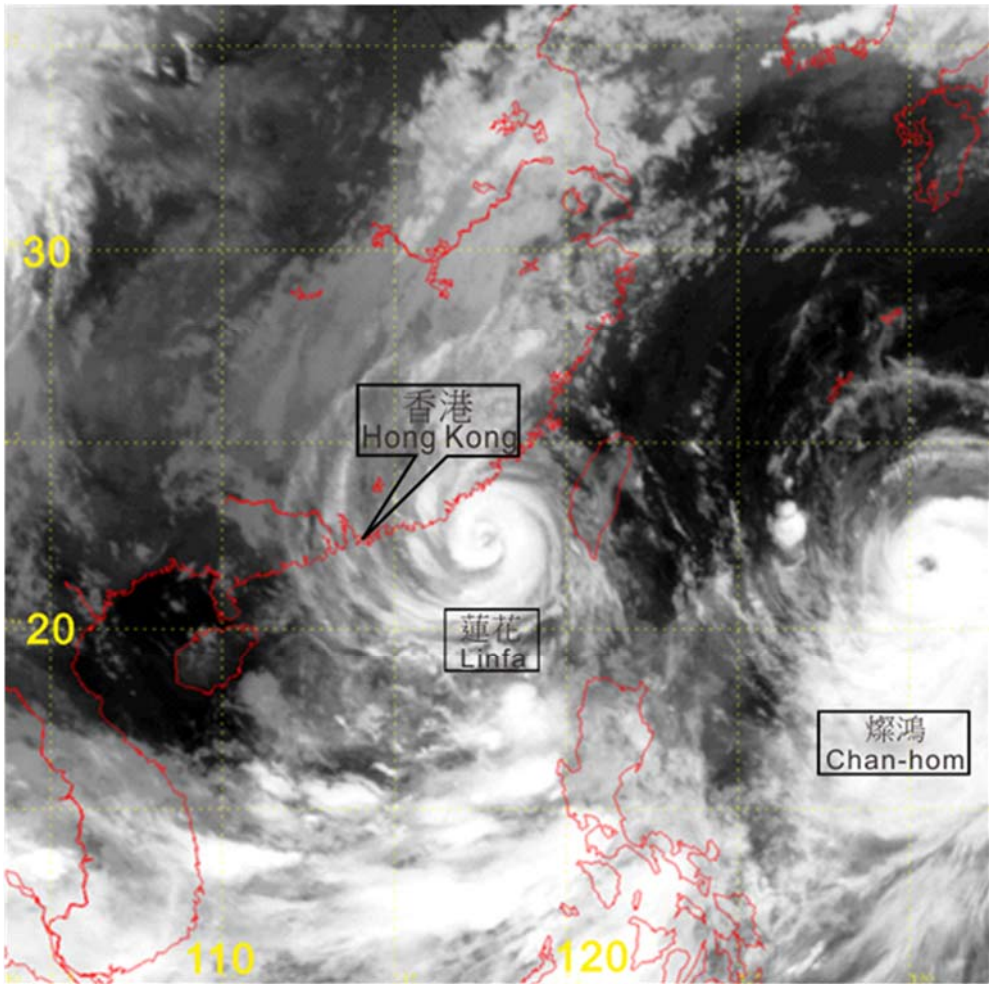


圖 3.2.4　二零一五年七月九日上午 1 時 30 分左右的紅外線衛星圖片，當時蓮花達到其最高強度，中心附近最高持續風速估計為每小時 140 公里。

Figure 3.2.4 Infra-red satellite imagery around 1:30 a.m. on 9 July 2015 when Linfa was at its peak intensity with estimated maximum sustained winds of 140 km/h near its centre

〔此衛星圖像接收自日本氣象廳的向日葵 8 號衛星。〕

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

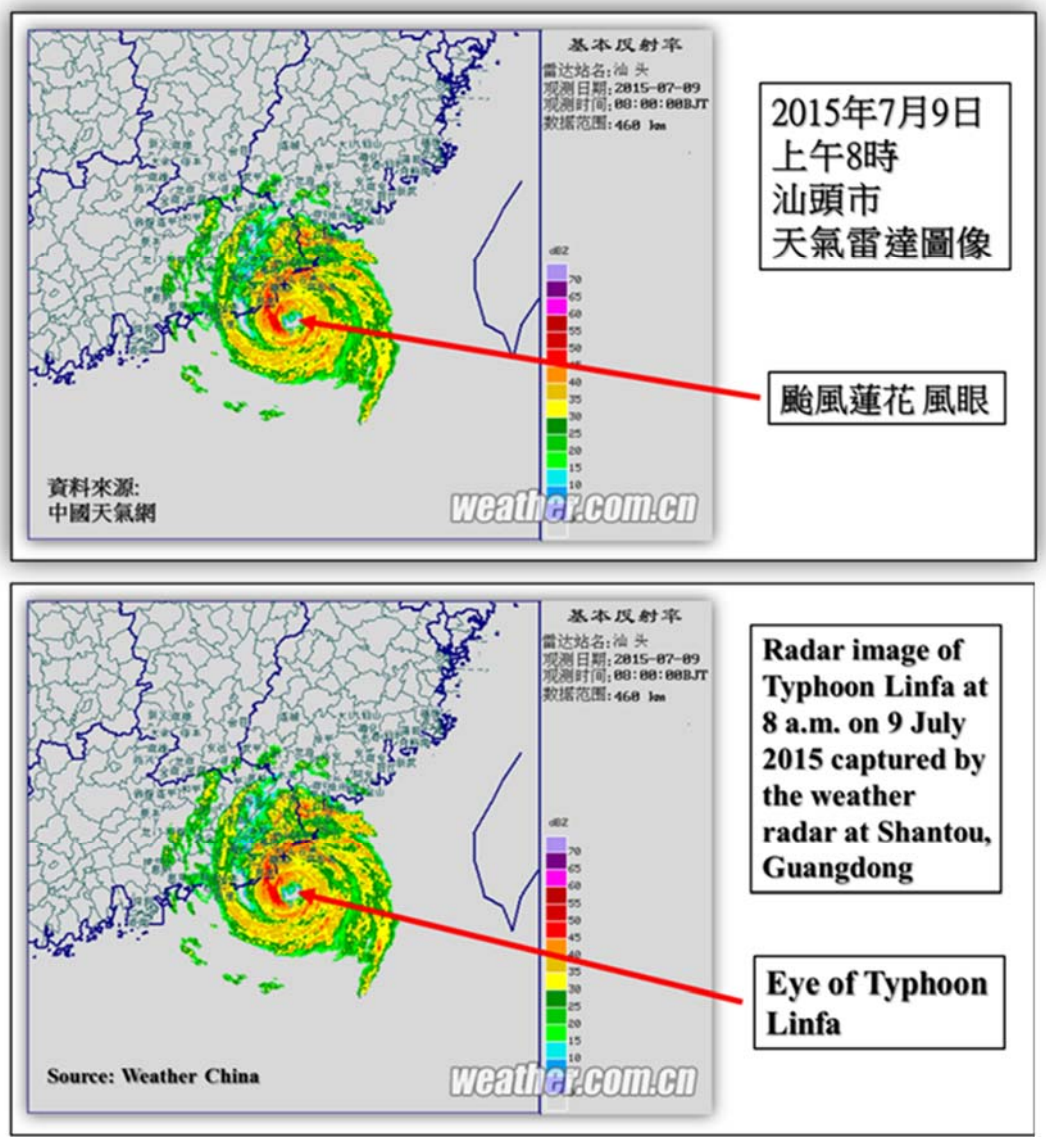


圖 3.2.5a　二零一五年七月九日上午 8 時廣東省汕頭市天氣雷達圖像，當時蓮花中心附近最高持續風速估計為每小時 140 公里，其風眼在雷達上清晰可見。

Figure 3.2.5a　Radar image of Typhoon Linfa at 8 a.m. on 9 July 2015 captured by the weather radar at Shantou, Guandong. The estimated sustained wind of Linfa at that time was 140 km/hr and its eye was clearly discernible on radar.

資料來源：中國天氣網
Source: Weather China

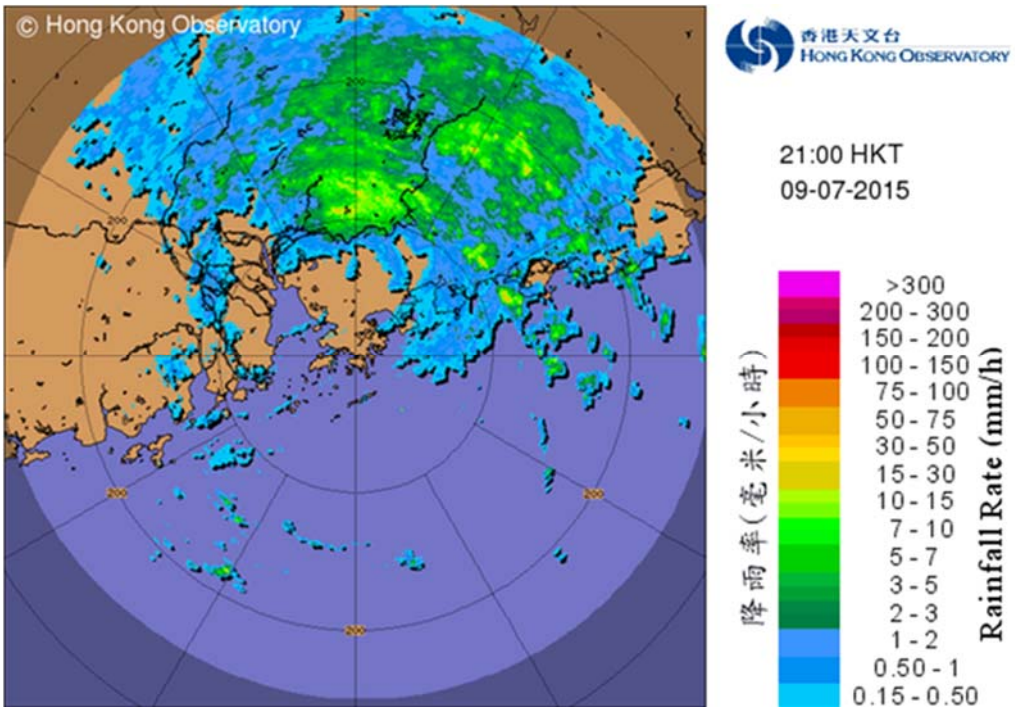


圖 3.2.5b　二零一五年七月九日下午 9 時的雷達回波圖像，蓮花最接近本港的一刻。當時蓮花已減弱為熱帶風暴，其中心集結在天文台總部以北約 50 公里。與蓮花相關的雨帶主要集中在其環流的北面。

Figure 3.2.5b　Radar echoes captured at 9 p.m. on 9 July 2015, when Linfa was closest to Hong Kong. Linfa had weakened into a tropical storm by then and its centre was about 50 km north of the Observatory Headquarters. Rainbands associated with Linfa were mostly confined to the northern side of its circulation.

3.3 強颱風彩虹(1522) ：二零一五年十月一日至五日

彩虹是香港天文台在二零一五年第三個需要發出熱帶氣旋警告信號的熱帶氣旋。

熱帶低氣壓彩虹於十月一日下午在馬尼拉以東約290公里的菲律賓以東海域上形成，採取西北偏西路徑移向呂宋。翌日早上彩虹進入南海並增強為熱帶風暴。其後兩天彩虹穩定地向西北偏西方向移動，靠近廣東西部，並繼續增強。彩虹於十月四日凌晨發展為強颱風，正午前達到其最高強度，中心附近最高持續風速估計為每小時175公里。彩虹當日下午在廣東湛江附近登陸並逐漸減弱，最後於十月五日下午在廣西減弱為一個低壓區。

根據報章報導，彩虹吹襲廣東及廣西期間，兩省最少有460萬人受災，8 500多間房屋受損，直接經濟損失超過120億元人民幣。在彩虹的環流影響下，佛山順德及廣州番禺受龍捲風吹襲，多間房屋損毀，車輛被吹翻，至少六人死亡及超過200人受傷。澳門亦有多宗塌樹報告及高空墜物意外，低窪地區出現水浸。一艘貨船在香港西面約210公里處擱淺，船上14位船員全部獲救。

由於彩虹逐漸靠近廣東沿岸，香港天文台於十月二日下午8時40分發出一號戒備信號，當時彩虹集結在香港之東南偏南約 670公里。隨著彩虹繼續靠近香港，天文台於十月三日上午10時20分發出三號強風信號，當時彩虹位於本港之東南偏南約410公里。當日下午本港風力顯著增強，普遍吹達強風程度的東至東北風，離岸及高地間中吹烈風。天文台總部於當日下午3時37分錄得最低瞬時海平面氣壓1009.7百帕斯卡，當時彩虹位於香港以南約370公里。彩虹於十月三日晚上9時左右最接近香港，在香港之西南偏南約320公里附近掠過。當晚及翌日早上本地仍普遍吹達強風程度的東至東南風，離岸及高地間中吹烈風。

隨著彩虹於十月四日下午移入內陸並減弱，本港風力普遍開始緩和，天文台於下午8時40分改發一號戒備信號，取代三號強風信號。雖然彩虹進一步減弱及遠離香港，在彩虹及中國東南沿岸一道高壓脊的共同影響下，本港離岸和高地仍然吹強風，十月五日上午5時20分天文台發出強烈季候風信號取代一號戒備信號，直至下午3時30分才取消。

彩虹吹襲香港期間，尖鼻咀錄得3.08米的最高潮位(海圖基準面以上)及0.64米的最大風暴潮(天文潮高度以上)。

十月二日本港部分時間有陽光及有幾陣驟雨。受到彩虹的雨帶影響，本港天氣在十月三日下午開始轉壞，有狂風驟雨。隨後兩天本港仍然密雲，間中有狂風大驟雨及雷暴，天文台在十月三日及四日曾兩度發出黃色暴雨警告信號。在十月二日至五日四天期間，各區普遍錄得超過150毫米雨量，大嶼山西南部的雨量更超過250毫米。

彩虹吹襲本港期間，至少有30棵樹被吹倒及有14宗水浸報告。粉嶺火車站架空電纜受塌樹影響，列車服務一度受阻。香港國際機場有39班航班需要轉飛其它地方。

表3.3.1 - 3.3.4分別是彩虹影響香港期間各站錄得的最高風速、持續風力達到強風程度的時段、香港的日雨量及最高潮位資料。圖3.3.1 - 3.3.4分別為彩虹的路徑圖、本港的雨量分佈圖、彩虹的衛星及相關雷達圖像。

3.3 Severe Typhoon Mujigae (1522) : 1 – 5 October 2015

Mujigae was the third tropical cyclone necessitating the issuance of tropical cyclone warning signals by the Hong Kong Observatory in 2015.

Mujigae formed as a tropical depression over the sea areas east of the Philippines about 290 km east of Manila on the afternoon of 1 October and tracked west-northwestwards in the direction of Luzon. Mujigae entered the South China Sea the next morning and intensified into a tropical storm. Moving west-northwestwards steadily, it edged closer to western Guangdong and continued to intensify in the next two days. Mujigae developed into a severe typhoon in the small hours of 4 October, reaching its peak intensity before noon with an estimated sustained wind of 175 km/h near its centre. It made landfall near Zhanjiang in Guangdong that afternoon and weakened gradually. Mujigae finally degenerated into an area of low pressure on the afternoon of 5 October over Guangxi.

According to press reports, at least 4.6 million people were affected and 8 500 houses were damaged in Guangdong and Guangxi during the passage of Mujigae, with direct economic loss amounting to over 12 billion RMB. Under the influence of the circulation of Mujigae, Shunde district in Foshan and Panyu district in Guangzhou were affected by tornadoes, resulting in at least six deaths and over 200 injuries. Houses were damaged and vehicles were overturned. In Macao, there were numerous reports of fallen trees and incidents of blown down objects, with flooding in low-lying areas. A vessel ran aground about 210 km west of Hong Kong and all 14 crew members on board were rescued.

As Mujigae gradually edged closer to the coast of Guangdong, the Standby Signal No. 1 was issued at 8:40 p.m. on 2 October when Mujigae was about 670 km south-southeast of Hong Kong. As it continued to move closer to the territory, the Strong Wind Signal No. 3 was issued at 10:20 a.m. on 3 October when Mujigae was about 410 km south-southeast of Hong Kong. East to northeasterly winds strengthened significantly over Hong Kong in the afternoon, becoming generally strong and occasionally reaching gale force offshore and on high ground. At the Hong Kong Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 1009.7 hPa was recorded at 3:37 p.m. on 3 October when Mujigae was about 370 km to the south. Mujigae came closest to the territory around 9 p.m. that night, skirting past around 320 km south-southwest of Hong Kong. Local winds remained generally strong from the east to southeast with occasional gales offshore and on high ground during the night and the next morning.

With Mujigae moving inland and weakening gradually on the afternoon of 4 October, local winds started to subside gradually. The Strong Wind Signal No. 3 was replaced by the Standby Signal No. 1 at 8:40 p.m. on 4 October. Although Mujigae further weakened and moved away from Hong Kong, winds were still strong offshore and on high ground under the combined effect of Mujigae and a ridge of high pressure along the coast of southeastern China. The Strong Monsoon Signal replaced the Standby Signal No. 1 at 5:20 a.m. on 5 October and lasted till 3:30 p.m. that day.

Under the influence of Mujigae, a maximum sea level (above chart datum) of 3.08 m and a maximum storm surge of 0.64 m (above astronomical tide) were recorded at Tsim Bei Tsui.

There were sunny periods and a few showers in Hong Kong on 2 October. Under the influence of the rainbands associated with Mujigae, local weather started to deteriorate with squally showers in the afternoon on 3 October. The weather remained cloudy to overcast with occasional heavy squally showers and thunderstorms in the following two days. The Amber Rainstorm Warning Signals were issued twice on 3 and 4 October. More than 150 millimetres of rainfall were generally recorded during the four-day period from 2 to 5 October. Rainfall over the southwestern part of Lantau Island even exceeded 250 millimetres.

In Hong Kong, at least 30 trees were blown down and 14 incidents of flooding were reported during the passage of Mujigae. Overhead cables near Fanling train station were affected by a fallen tree, resulting in a disruption of train services. At the Hong Kong International Airport, 39 aircraft were diverted.

Information on the maximum wind, period of strong force winds, daily rainfall and maximum sea level reached in Hong Kong during the passage of Mujigae is given in Tables 3.3.1 - 3.3.4 respectively. Figures 3.3.1 - 3.3.4 show respectively the track of Mujigae, the rainfall distribution for Hong Kong, a satellite imagery and a radar imagery of Mujigae.

表 3.3.1　在彩虹影響下，本港各站在熱帶氣旋警告信號生效時所錄得的最高陣風、最高每小時平均風速及風向

Table 3.3.1　Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when the tropical cyclone warning signals for Mujigae were in force

站（參閱圖 1.1） Station (See Fig. 1.1)		最高陣風 Maximum Gust					最高每小時平均風速 Maximum Hourly Mean Wind				
		風向 Direction		風速 (公里/時) Speed (km/h)	日期/月份 Date/Month	時間 Time	風向 Direction		風速 (公里/時) Speed (km/h)	日期/月份 Date/Month	時間 Time
黃麻角(赤柱)	Bluff Head (Stanley)	東南	SE	81	4/10	09:02	東南偏東	ESE	52	4/10	09:00
中環碼頭	Central Pier	東	E	79	3/10	22:47	東	E	40	3/10	17:00
長洲	Cheung Chau	東南偏東	ESE	118	4/10	07:07	東南偏東	ESE	76	4/10	09:00
長洲泳灘	Cheung Chau Beach	東	E	106	4/10	08:53	東	E	67	4/10	09:00
青洲	Green Island	南	S	96	3/10	21:46	東北	NE	54	3/10	14:00
香港國際機場	Hong Kong International Airport	東南	SE	77	4/10	08:50	東南偏東	ESE	45	4/10	09:00
啟德	Kai Tak	東	E	81	4/10	08:14	東南偏東	ESE	40	4/10	09:00
京士柏	King's Park	東南	SE	70	4/10	04:29	東南偏東	ESE	30	4/10	07:00
流浮山	Lau Fau Shan	東北偏東	ENE	63	4/10	01:12	東北偏東	ENE	27	4/10	02:00
昂坪	Ngong Ping	東	E	153	4/10	08:34	東	E	99	4/10	09:00
北角	North Point	東	E	70	4/10	02:22	東北偏東	ENE	40	3/10	20:00
坪洲	Peng Chau	東南	SE	79	3/10	21:50	東	E	51	4/10	07:00
西貢	Sai Kung	東南偏南	SSE	75	4/10	03:35	東北偏東	ENE	40	3/10	20:00
沙洲	Sha Chau	東南	SE	87	4/10	09:13	東南	SE	54	4/10	10:00
沙螺灣	Sha Lo Wan	東南偏東	ESE	99	4/10	08:34	東北偏東	ENE	38	4/10	09:00
沙田	Sha Tin	北	N	58	4/10	07:53	東南	SE	20	4/10	18:00
石崗	Shek Kong	東	E	72	4/10	08:03	東	E	27	4/10	08:00
九龍天星碼頭	Star Ferry (Kowloon)	東南偏東	ESE	99	4/10	07:57	東南偏東	ESE	43	4/10	09:00
打鼓嶺	Ta Kwu Ling	東	E	54	4/10	08:49	東	E	22	4/10	12:00
大美督	Tai Mei Tuk	東	E	94	4/10	08:11	東南偏東	ESE	62	4/10	09:00
大帽山	Tai Mo Shan	東南	SE	137	4/10	08:22	東南	SE	87	4/10	18:00
大埔滘	Tai Po Kau	東南	SE	85	4/10	09:06	東南偏東	ESE	47	4/10	09:00
塔門	Tap Mun	東南偏東	ESE	70	4/10	09:35	東南偏東	ESE	34	4/10	10:00
大老山	Tate's Cairn	東南偏東	ESE	112	4/10	08:12	東	E	67	4/10	01:00
							東	E	67	4/10	03:00
將軍澳	Tseung Kwan O	東北偏東	ENE	59	3/10	19:52	北	N	16	3/10	17:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南	SE	68	4/10	08:04	東南偏東	ESE	25	4/10	08:00
		東	E	68	4/10	10:40					
屯門政府合署	Tuen Mun Government Offices	東南	SE	76	4/10	08:16	東南	SE	23	4/10	12:00
							東南	SE	23	4/10	15:00
橫瀾島	Waglan Island	東北偏東	ENE	96	3/10	16:50	東北偏東	ENE	72	3/10	16:00
		東北偏東	ENE	96	3/10	16:51	東北偏東	ENE	72	3/10	17:00
濕地公園	Wetland Park	東南偏東	ESE	56	4/10	12:42	東南	SE	22	4/10	20:00
黃竹坑	Wong Chuk Hang	東南偏東	ESE	85	4/10	06:04	東	E	31	4/10	06:00

平洲- 沒有資料 Ping Chau- data not available

表 3.3.2　在彩虹影響下，熱帶氣旋警告信號系統的八個參考測風站在熱帶氣旋警告信號生效時錄得持續風力達到強風程度的時段

Table 3.3.2　Periods during which sustained strong force winds were attained at the eight reference anemometers in the tropical cyclone warning system when the tropical cyclone warning signals for Mujigae were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		最初達到強風*時間 Start time strong wind speed* was reached		最後達到強風*時間 End time strong wind speed* was reached	
		日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time
長洲	Cheung Chau	3/10	12:19	5/10	05:20
香港國際機場	Hong Kong International Airport	3/10	14:34	5/10	03:09
啟德	Kai Tak	3/10	23:02	4/10	09:20
西貢	Sai Kung	3/10	18:54	4/10	09:17

流浮山、沙田、打鼓嶺及青衣島蜆殼油庫的持續風力未達到強風程度。
The sustained wind speed did not attain strong force at Lau Fau Shan, Sha Tin, Ta Kwu Ling and Tsing Yi Shell Oil Depot.

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

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

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

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

站 (參閱圖 3.3.2) Station (See Fig. 3.3.2)			十月二日 2 Oct	十月三日 3 Oct	十月四日 4 Oct	十月五日 5 Oct	總雨量 (毫米) Total (mm)
香港天文台 Hong Kong Observatory			7.0	46.4	38.1	15.6	107.1
香港國際機場 Hong Kong International Airport (HKA)			微量 Trace	47.6	131.3	9.3	188.2
長洲 Cheung Chau (CCH)			0.0	78.5	49.5	14.5	142.5
H23	香港仔	Aberdeen	0.0	61.0	27.5	13.0	101.5
N05	粉嶺	Fanling	0.0	74.0	43.0	66.0	183.0
N13	糧船灣	High Island	3.0	34.0	25.0	74.5	136.5
K04	佐敦谷	Jordan Valley	4.0	66.5	47.0	17.5	135.0
N06	葵涌	Kwai Chung	6.0	68.0	50.0	35.5	159.5
H12	半山區	Mid Levels	3.5	42.0	37.0	11.5	94.0
SHA	沙田	Sha Tin	20.5	70.5	[39.0]	[56.5]	[186.5]
H19	筲箕灣	Shau Kei Wan	4.0	41.0	34.5	9.0	88.5
SEK	石崗	Shek Kong	12.5	[80.5]	68.5	[29.5]	[191.0]
K06	蘇屋邨	So Uk Estate	8.0	62.5	41.0	24.0	135.5
R31	大美督	Tai Mei Tuk	3.0	34.5	51.5	91.0	180.0
R21	踏石角	Tap Shek Kok	4.0	53.5	56.5	9.5	123.5
N17	東涌	Tung Chung	0.0	64.5	166.5	23.0	254.0

註: [　] 基於不齊全的每小時雨量數據。 Note: [　] based on incomplete hourly data.
元朗 (R27) - 沒有資料。 Yuen Long (R27) - data not available.

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

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	2.62	4/10	00:19	0.47	3/10	22:45
石壁	Shek Pik	2.88	4/10	00:02	0.58	4/10	00:02
大廟灣	Tai Miu Wan	2.51	3/10	22:15	0.45	3/10	22:15
大埔滘	Tai Po Kau	2.62	3/10	01:06	0.53	4/10	00:02
尖鼻咀	Tsim Bei Tsui	3.08	4/10	00:26	0.64	4/10	00:24
橫瀾島	Waglan Island	2.62	3/10	22:29	0.39	3/10	22:27

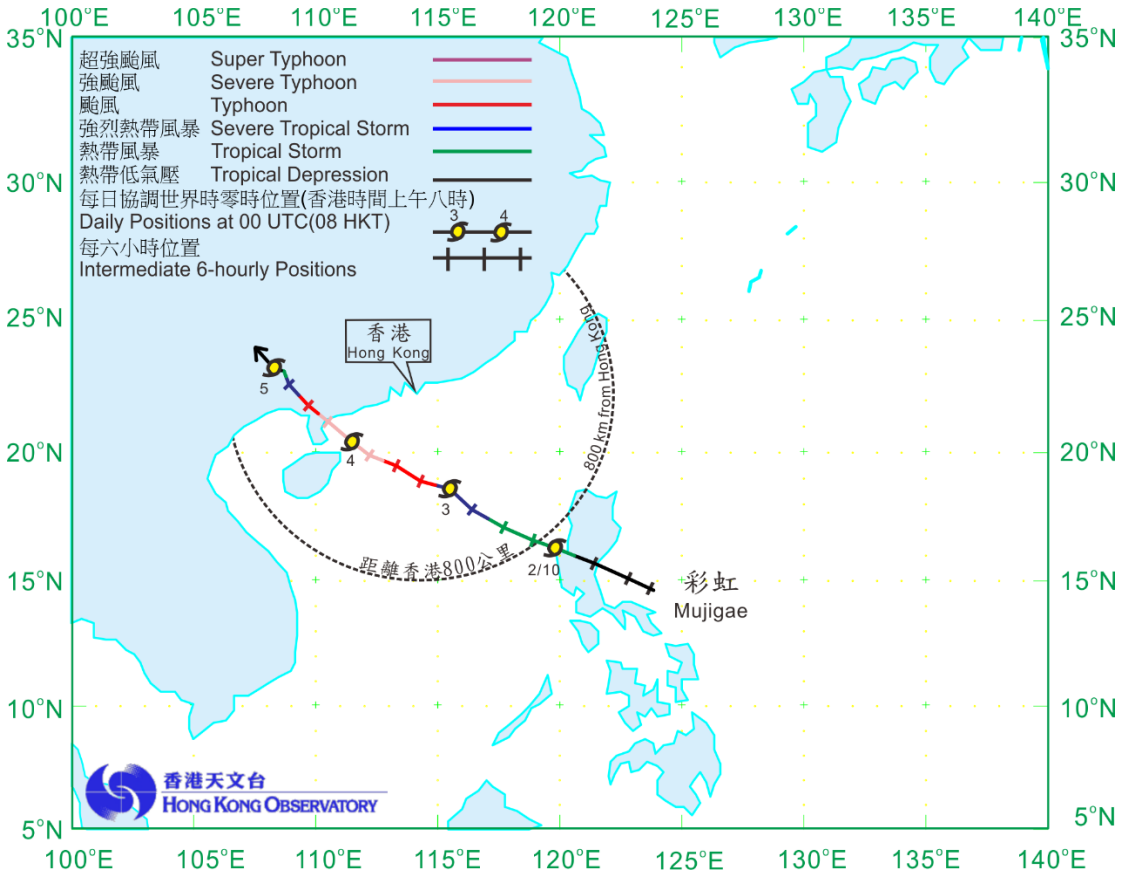


圖 3.3.1 二零一五年十月一日至五日彩虹 (1522)的路徑圖。

Figure 3.3.1 Track of Mujigae (1522): 1 – 5 October 2015.

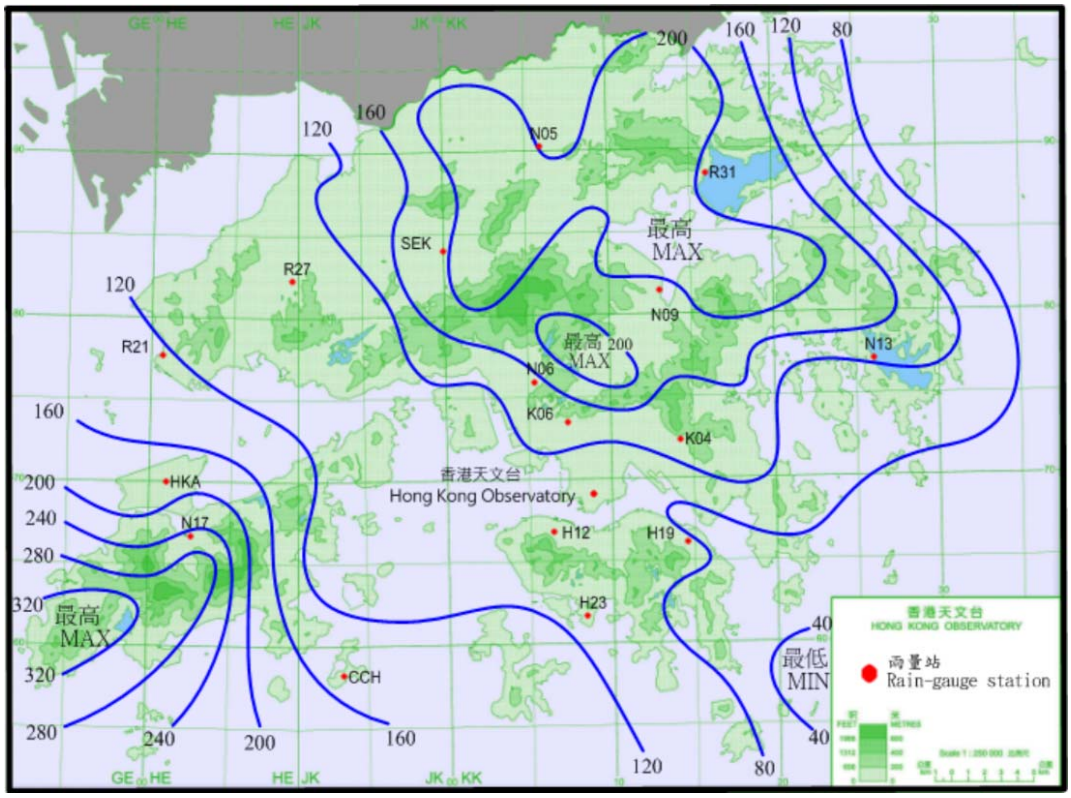


圖 3.3.2 二零一五年十月二日至五日的雨量分佈(等雨量線單位為毫米)。

Figure 3.3.2 Rainfall distribution on 2 – 5 October 2015 (isohyets are in millimetres).

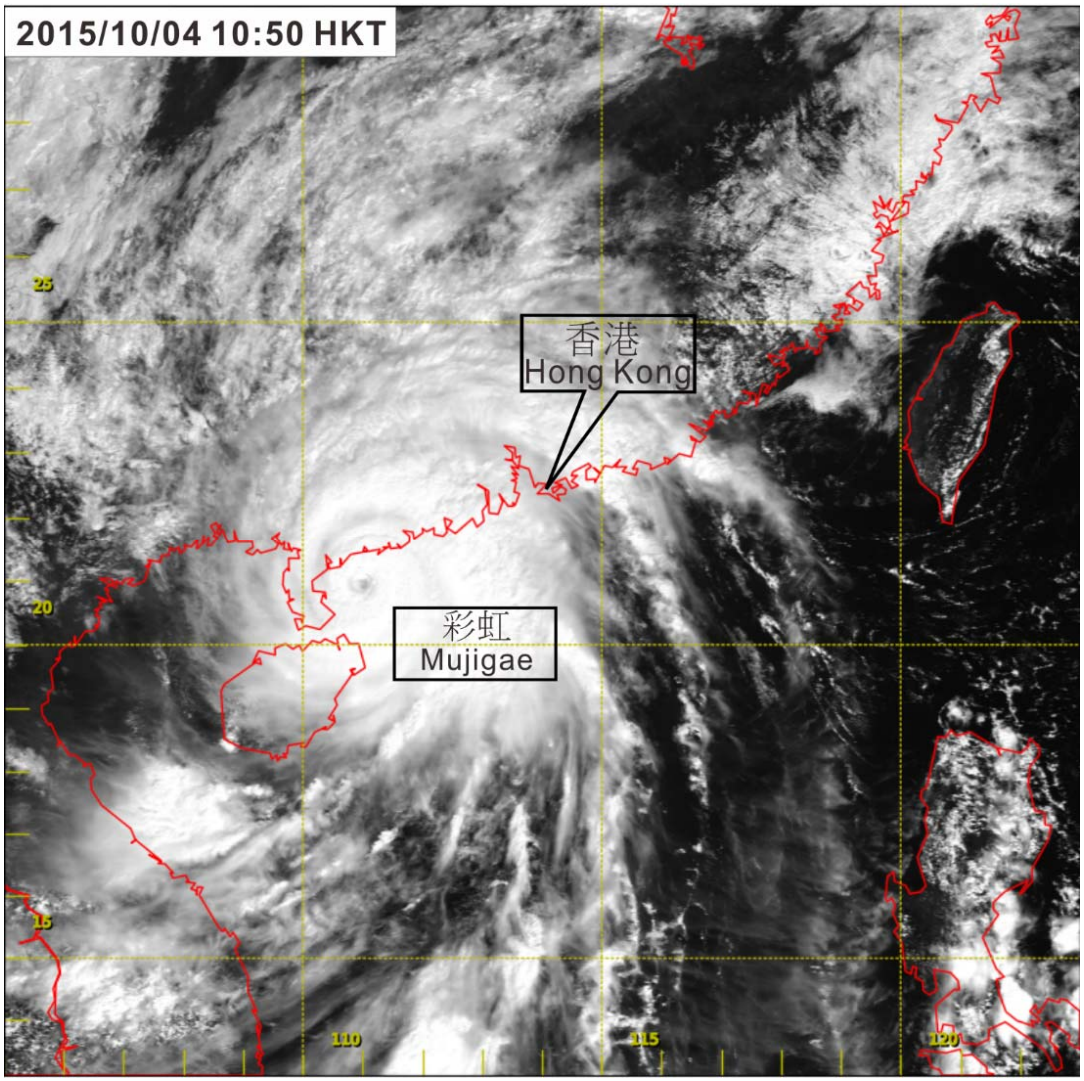


圖 3.3.3　二零一五年十月四日上午 10 時 50 分的可見光衛星圖片，當時彩虹達到其最高強度，中心附近最高持續風速估計為每小時 175 公里。彩虹的風眼在衛星圖上清晰可見。

Figure 3.3.3　Visible satellite imagery around 10:50 a.m. on 4 October 2015 when Mujigae was at its peak intensity with estimated maximum sustained winds of 175 km/h near its centre. The eye of Mujigae was clearly discernible on the satellite image.

〔此衛星圖像接收自日本氣象廳的向日葵 8 號衛星。〕

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

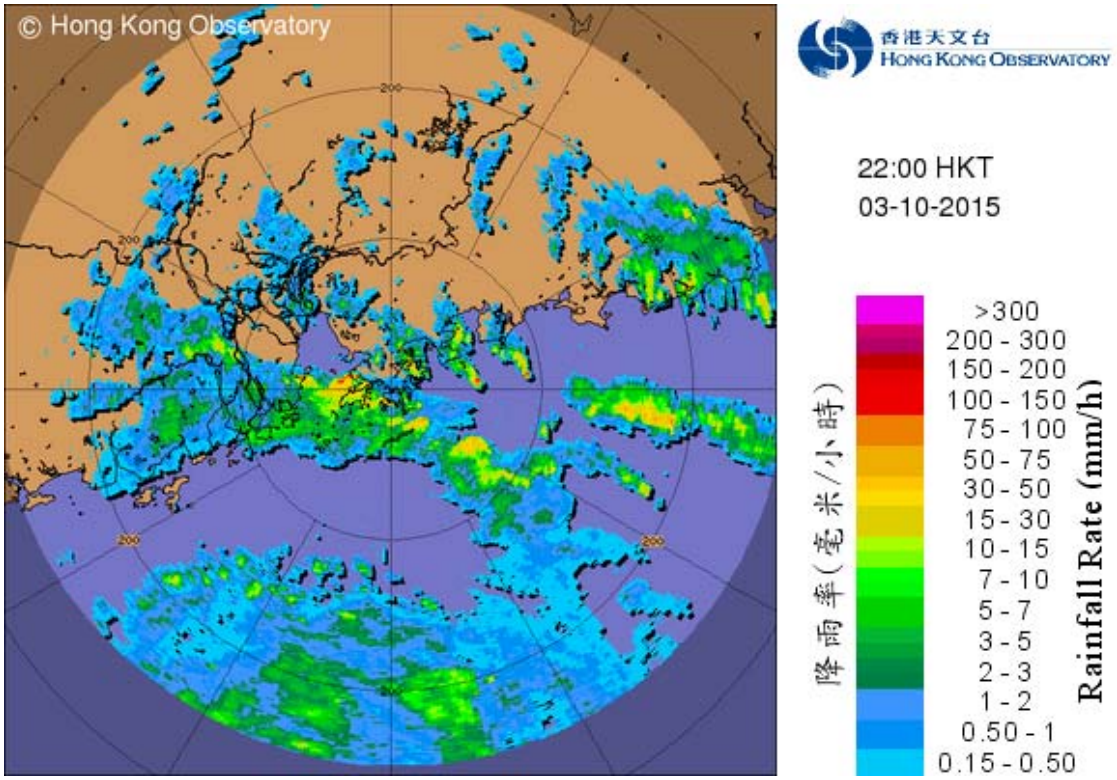


圖 3.3.4　二零一五年十月三日下午 10 時的雷達回波圖像，顯示彩虹的外圍雨帶正影響本港。當時彩虹的中心集結在香港之西南偏南約 320 公里。

Figure 3.3.4　Radar echoes captured at 10 p.m. on 3 October 2015, with the outer rainbands of Mujigae affecting Hong Kong and the centre of Mujigae located about 320 km to the south-southwest of Hong Kong.

第四節　熱帶氣旋統計表

表4.1是二零一五年在北太平洋西部及南海區域（即由赤道至北緯45度、東經100度至180度所包括的範圍）的熱帶氣旋一覽。表內所列出的日期只說明某熱帶氣旋在上述範圍內出現的時間，因而不一定包括整個風暴過程。這個限制對表內其他元素亦同樣適用。

表4.2是天文台在二零一五年為船舶發出的熱帶氣旋警告的次數、時段、首個及末個警告發出的時間。當有熱帶氣旋位於香港責任範圍內時（即由北緯10至30度、東經105至125度所包括的範圍），天文台會發出這些警告。表內使用的時間為協調世界時。

表4.3是二零一五年熱帶氣旋警告信號發出的次數及其時段的摘要。表內亦提供每次熱帶氣旋警告信號生效的時間和發出警報的次數。表內使用的時間為香港時間。

表4.4是一九五六至二零一五年間熱帶氣旋警告信號發出的次數及其時段的摘要。

表4.5是一九五六至二零一五年間每年位於香港責任範圍內以及每年引致天文台需要發出熱帶氣旋警告信號的熱帶氣旋總數。

表4.6是一九五六至二零一五年間天文台發出各種熱帶氣旋警告信號的最長、最短及平均時段。

表 4.7 是二零一五年當熱帶氣旋影響香港時本港的氣象觀測摘要。資料包括熱帶氣旋最接近香港時的位置及時間和當時估計熱帶氣旋中心附近的最低氣壓、京士柏、香港國際機場及橫瀾島錄得的最高風速、香港天文台錄得的最低平均海平面氣壓以及香港各潮汐測量站錄得的最大風暴潮（即實際水位高出潮汐表中預計的部分，單位為米）。

表4.8.1是二零一五年位於香港600公里範圍內的熱帶氣旋及其為香港所帶來的雨量。

表4.8.2是一八八四至一九三九年以及一九四七至二零一五年十個為香港帶來最多雨量的熱帶氣旋和有關的雨量資料。

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

表4.10是二零一五年熱帶氣旋在香港所造成的損失。資料參考了各政府部門和公共事業機構所提供的報告及本地報章的報導。

表4.11是一九六零至二零一五年間熱帶氣旋在香港所造成的人命傷亡及破壞。資料參考了各政府部門和公共事業機構所提供的報告及本地報章的報導。

表4.12是二零一五年天文台發出的熱帶氣旋路徑預測驗証。

Section 4 TROPICAL CYCLONE STATISTICS AND TABLES

TABLE 4.1 is a list of tropical cyclones in 2015 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 2015, 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 2015. 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 2015 inclusive.

TABLE 4.5 gives the annual number of tropical cyclones in Hong Kong's area of responsibility between 1956 and 2015 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 1956-2015.

TABLE 4.7 is a summary of meteorological information for each tropical cyclone affecting Hong Kong in 2015, including the position, time and the estimated minimum central pressure of each tropical cyclone during its closest approach to Hong Kong, the maximum winds at King’s Park, Hong Kong International Airport and Waglan Island, the minimum mean sea-level pressure recorded at the Hong Kong Observatory and the maximum storm surge (the excess, in metres, of the actual water level over that predicted in the Tide Tables) recorded at various tide stations in Hong Kong.

TABLE 4.8.1 tabulates the amount of rainfall associated with each tropical cyclone that came within 600 km of Hong Kong in 2015.

TABLE 4.8.2 highlights the 10 wettest tropical cyclones in Hong Kong for the period 1884-1939 and 1947-2015.

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 2015. 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: 1960-2015. The information is based on reports from various government departments, public utility companies and local newspapers.

TABLE 4.12 shows verification of the tropical cyclone track forecasts issued by the Hong Kong Observatory in 2015.

表 4.1　　二零一五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 2015

熱帶氣旋名稱	Name of tropical cyclone	編號 Code	路徑起點 Beginning of track			最高強度 (估計) Peak intensity (estimated)		路徑終點 End of track			DISP: 消散 Dissipated XT: 變為溫帶氣旋 Became Extratropical
			日期/月份 Date/Month	時間+ Time+	位置 Position 北緯 °N 東經 °E	風力 (公里每小時) Winds (km/h)	氣壓 (百帕斯卡) Pressure (hPa)	日期/月份 Date/Month	時間+ Time+	位置 Position 北緯 °N 東經 °E	
颱風米克拉	Typhoon Mekkhala	1501	13 / 1	1200	8.8 141.8	120	970	18 / 1	1800	15.7 121.8	DISP
超強颱風海高斯	Super Typhoon Higos	1502	7 / 2	1200	11.3 157.7	185	950	11 / 2	0000	15.4 153.1	DISP
熱帶風暴巴威	Tropical Storm Bavi	1503	11 / 3	1200	7.2 168.1	85	990	17 / 3	1800	15.7 133.4	DISP
超強颱風美莎克	Super Typhoon Maysak	1504	27 / 3	0000	6.7 158.1	230	910	5 / 4	1200	18.2 119.8	DISP
熱帶風暴海神	Tropical Storm Haishen	1505	3 / 4	1200	8.4 154.7	75	990	6 / 4	0600	9.0 150.7	DISP
超強颱風紅霞	Super Typhoon Noul	1506	3 / 5	1200	9.0 141.3	220	910	12 / 5	0000	28.0 128.3	XT
超強颱風白海豚	Super Typhoon Dolphin	1507	8 / 5	0000	3.5 161.8	205	925	20 / 5	0600	30.0 146.3	XT
熱帶風暴鯨魚	Tropical Storm Kujira	1508	20 / 6	0600	15.2 111.8	85	980	24 / 6	1800	21.8 106.1	DISP
超強颱風燦鴻	Super Typhoon Chan-hom	1509	30 / 6	1200	9.6 160.0	195	930	12 / 7	1200	36.7 124.8	XT
颱風蓮花	Typhoon Linfa	1510	2 / 7	0600	14.6 128.7	140	960	9 / 7	1800	22.5 113.0	DISP
超強颱風浪卡	Super Typhoon Nangka	1511	3 / 7	1200	9.2 171.8	220	920	17 / 7	1200	36.2 135.2	XT
颱風哈洛拉	Typhoon Halola	1512	13 / 7	0000	13.1 179.5	145	955	26 / 7	1200	33.6 129.9	DISP
超強颱風蘇迪羅	Super Typhoon Soudelor	1513	30 / 7	0000	13.6 160.7	240	905	9 / 8	1200	27.7 116.3	DISP
熱帶風暴莫拉菲	Tropical Storm Molave	1514	7 / 8	1200	23.9 146.7	85	988	13 / 8	0600	35.9 155.3	XT
超強颱風艾莎尼	Super Typhoon Atsani	1516	14 / 8	0600	15.0 163.0	220	915	25 / 8	0600	38.0 157.4	XT
超強颱風天鵝	Super Typhoon Goni	1515	14 / 8	1200	12.7 149.1	195	930	25 / 8	1800	37.7 133.0	XT
強颱風基洛	Severe Typhoon Kilo	1517	1 / 9	1800	23.8 179.9	155	950	11 / 9	0000	38.7 147.5	XT
強烈熱帶風暴艾濤	Severe Tropical Storm Etau	1518	6 / 9	1800	21.6 138.8	90	988	9 / 9	0600	37.0 136.5	XT
熱帶低氣壓環高	Tropical Depression Vamco	1519	13 / 9	0600	15.8 112.2	55	996	14 / 9	1800	15.4 107.5	DISP
強颱風科羅旺	Severe Typhoon Krovanh	1520	14 / 9	1800	17.1 151.9	155	950	20 / 9	1200	33.9 149.1	XT
超強颱風杜鵑	Super Typhoon Dujuan	1521	22 / 9	1200	17.7 140.0	210	920	29 / 9	0900	25.7 117.2	DISP
強颱風彩虹	Severe Typhoon Mujigae	1522	1 / 10	0600	14.7 123.7	175	940	5 / 10	0000	23.2 108.3	DISP
強烈熱帶風暴彩雲	Severe Tropical Storm Choi-wan	1523	2 / 10	1200	18.9 166.6	110	975	7 / 10	1800	37.2 150.4	XT
超強颱風巨爵	Super Typhoon Koppu	1524	13 / 10	0000	15.6 142.6	205	925	21 / 10	0000	19.5 121.7	DISP
超強颱風蓬琵	Super Typhoon Champi	1525	13 / 10	0600	13.0 160.2	195	935	24 / 10	1800	29.5 155.2	XT
超強颱風煙花	Super Typhoon In-fa	1526	17 / 11	0000	4.2 162.9	185	935	26 / 11	0000	22.4 138.4	XT
強颱風茉莉	Severe Typhoon Melor	1527	11 / 12	0600	8.9 138.0	175	945	16 / 12	1800	14.0 119.3	DISP

+ 時間為協調世界時。

+ Times are given in UTC.

表 4.2　　二零一五年為船舶發出的熱帶氣旋警告

TABLE 4.2　TROPICAL CYCLONE WARNINGS FOR SHIPPING ISSUED IN 2015

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+	
颱風米克拉	Typhoon Mekkhala	12	17 / 1	1500	19 / 1	0000	33
超強颱風美莎克	Super Typhoon Maysak	16	4 / 4	0900	6 / 4	0000	39
超強颱風紅霞	Super Typhoon Noul	21	9 / 5	0900	11 / 5	1800	57
* 熱帶風暴鯨魚	* Tropical Storm Kujira	33	20 / 6	1200	24 / 6	1200	96
* 颱風蓮花	* Typhoon Linfa	51	3 / 7	1800	9 / 7	1500	141
超強颱風燦鴻	Super Typhoon Chan-hom	12	10 / 7	0600	11 / 7	1200	30
超強颱風蘇迪羅	Super Typhoon Soudelor	19	7 / 8	0600	9 / 8	0600	48
超強颱風天鵝	Super Typhoon Goni	31	20 / 8	0300	23 / 8	2100	90
熱帶低氣壓環高	Tropical Depression Vamco	12	13 / 9	0900	14 / 9	1800	33
超強颱風杜鵑	Super Typhoon Dujuan	15	27 / 9	1800	29 / 9	0900	39
* 強颱風彩虹	* Severe Typhoon Mujigae	30	1 / 10	0900	4 / 10	2100	84
超強颱風巨爵	Super Typhoon Koppu	39	16 / 10	1800	21 / 10	1200	114
強颱風茉莉	Severe Typhoon Melor	25	14 / 12	0600	17 / 12	0600	72
	共 Total	316					876

* 這些熱帶氣旋引致天文台需要發出熱帶氣旋警告信號。

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

+ 時間為協調世界時。

+ Times are given in UTC.

表 4.3　　二零一五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 2015

摘要 SUMMARY

信號 Signal	次數 No. of occasions	總時段 Total duration	
		時 h	分 min
1	4	81	20
3	3	50	0
8 西北 NW	1	5	30
8 西南 SW	0	0	0
8 東北 NE	0	0	0
8 東南 SE	0	0	0
9	0	0	0
10	0	0	0
共 Total	8	136	50

詳情 DETAILS

熱帶氣旋 Tropical cyclone	警報發出的次數 No. of warning bulletins issued	信號 Signal	發出 Issued		取消 Cancelled	
			日期/月份 Date/Month	時間* Time*	日期/月份 Date/Month	時間* Time*
熱帶風暴鯨魚 Tropical Storm Kujira	35	1	21/06	21:40	23/06	07:40
颱風蓮花 Typhoon Linfa	54	1 3 8 西北 NW 3	08/07 09/07 09/07 09/07	07:40 08:40 16:40 22:10	09/07 09/07 09/07 10/07	08:40 16:40 22:10 05:50
強颱風彩虹 Severe Typhoon Mujigae	62	1 3 1	02/10 03/10 04/10	20:40 10:20 20:40	03/10 04/10 05/10	10:20 20:40 05:20

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

表 4.4　　一九五六至二零一五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 : 1956-2015

信號 Signals / 年份 Year	1	3	8 西北 NW	8 西南 SW	8 東北 NE	8 東南 SE	9	10	總時段 Total duration 時 h	分 min
1956	5	4	0	0	0	0	0	0	191	25
1957	4	9	1	1	2	2	0	1	295	45
1958	4	5	0	0	1	0	0	0	214	5
1959	1	1	0	0	0	0	0	0	36	35
1960	11	7	0	2	2	2	1	1	432	35
1961	6	7	1	2	1	0	1	1	192	55
1962	4	3	0	1	1	0	1	1	158	10
1963	4	5	0	0	1	0	0	0	175	50
1964	11	14	1	3	5	3	3	2	570	15
1965	7	6	0	0	1	1	0	0	239	40
1966	6	5	0	0	2	2	0	0	284	40
1967	8	6	0	0	2	1	0	0	339	10
1968	7	7	0	1	1	0	1	1	290	10
1969	4	2	0	0	0	0	0	0	110	15
1970	6	8	2	1	2	0	0	0	286	45
1971	9	10	1	3	2	2	1	1	323	25
1972	8	6	0	0	1	1	0	0	288	20
1973	8	6	1	1	1	0	1	0	416	50
1974	12	10	0	0	2	1	1	0	525	20
1975	8	6	1	0	0	1	1	1	292	20
1976	6	6	0	0	1	2	0	0	351	30
1977	8	6	0	0	1	0	0	0	395	10
1978	8	9	1	1	3	2	0	0	462	10
1979	5	5	1	0	2	2	1	1	281	15
1980	10	8	0	0	1	1	0	0	414	5
1981	5	4	0	0	1	1	0	0	202	20
1982	7	4	0	0	0	0	0	0	247	35
1983	8	7	0	1	2	2	1	1	289	42
1984	6	6	0	0	1	0	0	0	280	2
1985	5	4	1	0	0	1	0	0	193	35
1986	6	7	0	1	1	0	0	0	305	0
1987	6	1	0	0	0	0	0	0	165	45
1988	6	4	0	0	0	0	0	0	204	10
1989	7	8	0	0	2	2	0	0	306	10
1990	6	4	0	0	0	0	0	0	245	10
1991	8	6	0	0	1	1	0	0	349	55
1992	5	5	0	0	1	1	0	0	167	5
1993	8	9	0	0	2	4	0	0	325	40
1994	4	3	0	0	0	0	0	0	138	10
1995	8	6	2	2	1	1	0	0	348	50
1996	7	2	0	0	0	1	0	0	189	0
1997	2	3	0	1	1	0	1	0	97	30
1998	5	2	0	0	0	0	0	0	188	35
1999	10	13	4	3	2	0	2	1	520	0
2000	7	3	0	0	0	0	0	0	329	5
2001	6	6	1	1	2	1	0	0	253	35
2002	3	2	0	0	0	1	0	0	144	25
2003	4	5	1	1	1	1	1	0	158	0
2004	3	2	1	1	1	0	0	0	77	35
2005	3	1	0	0	0	0	0	0	142	45
2006	10	3	0	0	0	0	0	0	317	50
2007	4	3	0	1	0	0	0	0	86	50
2008	8	9	2	2	3	2	1	0	347	0
2009	13	9	1	1	1	2	1	0	255	30
2010	8	3	0	0	0	0	0	0	220	0
2011	8	5	0	0	0	1	0	0	213	0
2012	9	7	0	0	2	3	1	1	252	45
2013	10	7	1	1	0	1	0	0	292	50
2014	6	3	0	0	0	1	0	0	145	45
2015	4	3	1	0	0	0	0	0	136	50
共 Total	395	330	25	32	60	50	20	13	15706	39
平均 Mean	6.6	5.5	0.4	0.5	1.0	0.8	0.3	0.2	261	47

表 4.5　一九五六至二零一五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 : 1956-2015

年份 Year	每年位於香港責任範圍內的熱帶氣旋總數 Annual number of tropical cyclones in Hong Kong's area of responsibility	每年引致天文台需要發出熱帶氣旋警告信號的熱帶氣旋總數 Annual number of tropical cyclones necessitating the display of signals in Hong Kong
1956	23	5
1957	12	6
1958	15	5
1959	18	2
1960	18	9
1961	24	6
1962	20	4
1963	13	4
1964	26	10
1965	16	6
1966	17	6
1967	17	8
1968	12	6
1969	11	4
1970	20	6
1971	20	9
1972	15	5
1973	17	9
1974	21	11
1975	12	7
1976	10	5
1977	10	8
1978	20	8
1979	18	6
1980	17	10
1981	15	5
1982	16	5
1983	15	7
1984	14	5
1985	15	5
1986	16	4
1987	12	5
1988	17	6
1989	17	7
1990	18	6
1991	14	6
1992	11	5
1993	14	9
1994	20	4
1995	17	8
1996	15	7
1997	10	2
1998	15	5
1999	12	8
2000	20	7
2001	14	6
2002	10	3
2003	12	4
2004	15	3
2005	15	3
2006	16	7
2007	12	2
2008	17	6
2009	17	8
2010	11	5
2011	12	5
2012	14	5
2013	19	7
2014	10	4
2015	13	3
平均 Mean	15.5	5.9

表 4.6　　一九五六至二零一五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 : 1956-2015

信號 Signal	次數 Number of occasions	每次時段 Duration of each occasion			每年總時段 Total duration per year		
		平均 Mean	最長 Maximum	最短 Minimum	平均 Mean	最長 Maximum	最短 Minimum
		時 分 h min	時 分 h min	時 分 h min	時 分 h min	時 分 h min	時 分 h min
一號或以上 1 or higher	366	42 55	161 0 (桃麗達 Tilda, 1964)	4 30 (熱帶低氣壓 T.D., 2000)	261 47	570 15 (1964)	36 35 (1959)
三號或以上 3 or higher	244	29 26	124 15 (瑪麗Mary, 1960)	4 5 (熱帶低氣壓 T.D., 2006)	119 41	306 35 (1974)	15 5 (2004)
八號或以上 8 or higher	88	14 36	66 50 (瑪麗Mary, 1960)	2 40 (雲茵Wynne, 1984)	21 24	100 55 (1964)	0 0
8 西北 NW	25	5 47	15 45	1 30	2 24	18 0	0 0
8 西南 SW	32	4 56	10 45	2 0	2 38	16 10	0 0
8 東北 NE	60	7 41	35 35	1 35	7 41	40 20	0 0
8 東南 SE	50	7 32	21 45	0 20	6 16	31 15	0 0
九號或以上 9 or higher	21	6 54	12 25 (約克York, 1999)	2 0 (杜鵑Dujuan, 2003)	2 25	19 25 (1964)	0 0
十號 10	13	6 17	11 0 (約克York, 1999)	2 30 (愛麗斯 Alice, 1961)	1 22	12 10 (1964)	0 0

註：( ) 內為創造該記錄的熱帶氣旋名稱及年份。
Note: ( ) are the years and the names of the tropical cyclones which created the record.

表 4.7　　二零一五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 2015

熱帶氣旋名稱 Name of tropical cyclone	當最接近香港時 Nearest approach to Hong Kong								香港天文台錄得的最低海平面氣壓(百帕斯卡) Minimum M.S.L. pressure (hPa) at the Hong Kong Observatory				最大風暴潮(米) Maximum storm surge (metres)					
	月份 Month	日期 Date	時間* Hour*	方位 Direction	距離 (公里) Distance (km)	移動方向及速度 (公里每小時) Movement (km/h)		估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	月份 Month	日期 Date	時間* Hour*	瞬時 Inst. / 每小時 Hourly	鰂魚涌 Quarry Bay	石壁 Shek Pik	大廟灣 Tai Miu Wan	大埔滘 Tai Po Kau	尖鼻咀 Tsim Bei Tsui	橫瀾島 Waglan Island
熱帶風暴鯨魚 Tropical Storm Kujira	6	22	16	西南 SW	510	西北偏北 NNW	20	988	6	22	16:04 - 17:40#	1001.7	0.24	-	0.20	0.31	0.18	0.29
											18:00	1001.8						
颱風蓮花 Typhoon Linfa	7	9	21	北 N	50	西南偏西 WSW	21	994	7	9	16:21 - 17:36#	993.8	0.42	-	0.41	0.45	0.31	0.48
											17:00	993.8						
強颱風彩虹 Severe Typhoon Mujigae	10	3	21	西南偏南 SSW	320	西北偏西 WNW	22	960	10	3	15:37	1009.7	0.47	0.58	0.45	0.53	0.64	0.39
											15:00, 16:00	1010.0						

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

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

\- 沒有資料　\- data not available

表 4.7 (續) TABLE 4.7 (cont'd)

熱帶氣旋名稱 Name of tropical cyclone	月份 Month	最高60分鐘平均風向及風速 (公里每小時) Maximum 60-min mean wind in points and km/h			最高10分鐘平均風向及風速 (公里每小時) Maximum 10-min mean wind in points and km/h			最高陣風風向及風速 (公里每小時) Maximum gust peak speed in km/h with direction in points		
		京士柏 King's Park	香港國際機場 Hong Kong International Airport	橫瀾島 Waglan Island	京士柏 King's Park	香港國際機場 Hong Kong International Airport	橫瀾島 Waglan Island	京士柏 King's Park	香港國際機場 Hong Kong International Airport	橫瀾島 Waglan Island
熱帶風暴鯨魚 Tropical Storm Kujira	6	東南偏東 ESE 16	東南偏東 ESE 30	東南 SE 38	東南偏東 ESE 22	東南偏南, 東南偏東, SSE, ESE 38	東南偏南 SSE 51	東南偏東 ESE 41	東南偏東 ESE 52	東南 SE 67
颱風蓮花 Typhoon Linfa	7	東南偏東 ESE 16	西北偏北 NNW 45	東 E 52	東南偏東 ESE 20	西北偏北 NNW 49	東南偏東 ESE 56	東 E 43	西北偏北 NNW 59	東南偏東, 東 ESE, E 70
強颱風彩虹 Severe Typhoon Mujigae	10	東南偏東, 東南, ESE, SE 30	東南偏東 ESE 47	東北偏東 ENE 72	東南偏東 ESE 34	東南偏東 ESE 62	東北偏東 ENE 79	東南 SE 70	東南 SE 77	東北偏東 ENE 96

表 4.8.1　　二零一五年位於香港600公里範圍內的熱帶氣旋及其為本港帶來的雨量期間，天文台錄得的雨量

TABLE 4.8.1　RAINFALL ASSOCIATED WITH EACH TROPICAL CYCLONE THAT CAME WITHIN 600 KM OF HONG KONG IN 2015

熱帶氣旋名稱 Name of tropical cyclone	熱帶氣旋位於香港600公里範圍內的時期 Period when tropical cyclone within 600 km of Hong Kong (T_1 → T_2) 日期/月份 Date/Month 時間* Time*	香港天文台錄得的雨量(毫米) Rainfall at the Hong Kong Observatory (mm)				
		(i) 在香港600公里內 within 600 km of Hong Kong (T_1→ T_2)	(ii) 在 T_2 之後的24小時內 24-hour period after T_2	(iii) 在 T_2 之後的48小時內 48-hour period after T_2	(iv) 在 T_2 之後的72小時內 72-hour period after T_2	(i) + (iv) 共 Total T_1 → (T_2+72 小時 hours)
熱帶風暴鯨魚 Tropical Storm Kujira	(T_1) 22 / 6 0600 - (T_2) 23 / 6 1000	58.6	14.8	29.6	52.9	111.5
颱風蓮花 Typhoon Linfa	(T_1) 7 / 7 0000 - (T_2) 10 / 7 0200	2.0	24.3	24.3	24.3	26.3
超強颱風蘇迪羅 Super Typhoon Soudelor	(T_1) 8 / 8 2200 - (T_2) 9 / 8 1700	0.0	35.1	51.9	51.9	51.9
超強颱風杜鵑 Super Typhoon Dujuan	(T_1) 29 / 9 0900 - (T_2) 29 / 9 1700	0.0	0.0	0.3	0.3	0.3
強颱風彩虹 Severe Typhoon Mujigae	(T_1) 3 /10 0000 - (T_2) 5 /10 0700	91.1	20.9	63.4	65.5	156.6
					共 Total	346.6

* 香港時間（協調世界時加八小時）。

T_1 - 熱帶氣旋首次出現於香港600公里範圍內的時間。

T_2 - 熱帶氣旋在香港600公里範圍內消散或離開該範圍的時間。

* Hong Kong Time （UTC + 8 hours）.

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

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

表 4.8.2　一八八四至一九三九年及一九四七至二零一五年間十個為香港帶來最多雨量的熱帶氣旋

TABLE 4.8.2　TEN WETTEST TROPICAL CYCLONES IN HONG KONG (1884-1939, 1947-2015)

熱帶氣旋 Tropical Cyclone			香港天文台錄得的雨量(毫米) Rainfall at the Hong Kong Observatory (mm)				
年份 Year	月份 Month	名稱 Name	(i) 在香港600公里內 within 600 km of Hong Kong ($T_1 \rightarrow T_2$)	(ii) 在 T_2 之後的 24 小時內 24-hour period after T_2	(iii) 在 T_2 之後的 48 小時內 48-hour period after T_2	(iv) 在 T_2 之後的 72 小時內 72-hour period after T_2	(i) + (iv) 共 Total $T_1 \rightarrow$ (T_2+72 小時 hours)
1999	8	森姆 Sam	368.1	178.9	248.1	248.4	616.5
1926	7	熱帶氣旋 T.C.	34.8 #	534.0 #	561.1 #	562.2 #	597.0
1916	6	熱帶氣旋 T.C.	494.8 #	27.9 #	59.4 #	67.2 #	562.0
1965	9	愛娜斯 Agnes	404.6	8.9	64.3	126.1	530.7
1978	7	愛娜斯 Agnes	502.4	12.3	12.3	16.6	519.0
1976	8	愛倫 Ellen	90.7	394.2	421.0	425.4	516.1
1993	9	黛蒂 Dot	459.6	37.9	37.9	37.9	497.5
1982	8	黛蒂 Dot	41.2	322.5	403.1	450.5	491.7
1995	8	海倫 Helen	241.4	146.2	235.2	239.5	480.9
1904	8	熱帶氣旋 T.C.	446.5 #	0.0 #	3.7 #	26.7 #	473.2

T_1 - 熱帶氣旋首次出現於香港600公里範圍內的時間。

T_2 - 熱帶氣旋在香港600公里範圍內消散或離開該範圍的時間。

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

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

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

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

表 4.9　　一九四六至二零一五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 1946-2015

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

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

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

* 估計，超出風速記錄圖的上限。

* estimated, exceeding upper limit of anemogram.

表 4.10　　二零一五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 2015

熱帶氣旋名稱 Name of tropical cyclone	月份 Month	物質損毀 Damage in physical terms					金錢損失（百萬港元） Damage in monetary terms (million HK$)					
		農業 Agriculture	公用建設 (處) Public works facilities (site)	公用業務 (處) Public utilities (site)	物業單位 (個) Property (unit)	山泥傾瀉及斜坡倒塌 (宗) Landslip and collapse of slope (case)	農業 Agriculture	公用建設 Public works facilities	公用業務 Public utilities	私人物業 Private property	工業 Industry	共 Total
熱帶風暴鯨魚 Tropical Storm Kujira	6			公共巴士 Public bus: 2					0.00157			0.00157
颱風蓮花 Typhoon Linfa	7		道路 Road: 1 防護板 Fender: 7			1						
強颱風彩虹 Severe Typhoon Mujigae	10		遊樂場 Playground: 1	公共巴士 Public bus: 24		1			0.05009			0.05009

備註： 資料由各有關政府部門及公共事業機構提供，同時亦參考了本地報章上的損毀報導。

N.B.: Based on information supplied by relevant government departments and public utility companies. Damage reports in the local press were also examined and collated.

表 4.11　　一九六零至二零一五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 : 1960-2015

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

表 4.11 (續)
TABLE 4.11 (cont'd)

年份 Year	日期 / 月份 Date / Month	Name of tropical cyclone	熱帶氣旋名稱	死亡人數 Persons dead	失蹤人數 Persons missing	受傷人數 Persons injured	遇事越洋船舶 Ocean-going vessels in trouble	受到毀壞或翻沉的小艇數目 Small craft sunk or wrecked	受到損壞的小艇數目 Small craft damaged
1981	3 / 7 - 7 / 7	S.T.S. Lynn	林茵	0	0	32	0	0	3
1982	27 / 6 - 2 / 7	T.S. Tess	戴絲	0	0	16	0	1	0
	22 / 7 - 30 / 7	T. Andy	安迪	0	0	0	0	0	1
	5 / 9 - 16 / 9	T. Irving	伊文	0	0	0	0	0	2
1983	12 / 7 - 19 / 7	T. Vera	維娜	0	0	0	0	1	0
	29 / 8 - 9 / 9	T. Ellen	愛倫	10	12	333	44	135	225
	10 /10 - 14 /10	T. Joe	喬伊	0	0	58	2	0	3
	20 /10 - 26 /10	S.T.S. Lex	力士	0	0	0	0	0	1
1984	27 / 8 - 7 / 9	T. Ike	艾克	0	0	1	0	0	0
1985	19 / 6 - 25 / 6	T. Hal	哈爾	0	1	13	0	4	2
	1 / 9 - 7 / 9	T. Tess	戴絲	2	0	12	6	1	3
	13 /10 - 22 /10	T. Dot	黛蒂	0	0	1	0	0	0
1986	3 / 7 - 12 / 7	T. Peggy	蓓姬	1	0	26	3	0	3
	9 / 8 - 12 / 8	T.D. -	-	0	0	3	0	1	5
	18 / 8 - 6 / 9	T. Wayne	韋恩	3	1	15+	0	3	0
	11 /10 - 19 /10	T. Ellen	愛倫	0	0	4	1	2	1
1987	16 /10 - 27 /10	T. Lynn	林茵	0	0	1	0	0	0
1988	14 / 7 - 20 / 7	T. Warren	華倫	0	1	12	1	2	1
	19 / 9 - 22 / 9	T. Kit	吉蒂	0	0	0	0	0	1
	18 /10 - 23 /10	T. Pat	帕特	2	0	1	0	0	0
	21 /10 - 29 /10	T. Ruby	露比	0	0	4	0	0	0
1989	16 / 5 - 21 / 5	T. Brenda	布倫達	6	1	119	0	3	5
	11 / 7 - 19 / 7	T. Gordon	戈登	2	0	31	1	0	8
	8 /10 - 14 /10	T. Dan	丹尼	0	0	0	1	0	1
1990	15 / 5 - 19 / 5	T. Marian	瑪麗安	0	0	0	0	0	1
	15 / 6 - 19 / 6	S.T.S. Nathan	彌敦	5	1	1	1	0	2
	21 / 6 - 30 / 6	T. Percy	珀西	1	0	0	0	0	0
	27 / 7 - 31 / 7	S.T.S. Tasha	泰莎	0	0	1	0	1	0
	25 / 8 - 30 / 8	T. Becky	貝姬	0	1	0	0	0	0
	10 / 9 - 20 / 9	T. Ed	義德	0	0	1	0	0	0
1991	15 / 7 - 20 / 7	T. Amy	艾美	0	0	1	1	0	2
	20 / 7 - 24 / 7	S.T.S. Brendan	布倫登	0	0	17	1	1	13
	13 / 8 - 18 / 8	T. Fred	法雷德	0	0	0	0	1	0
1992	9 / 7 - 14 / 7	T. Eli	艾里	0	0	23	0	0	1
	17 / 7 - 18 / 7	T.S. Faye	菲爾	2	0	24	1	0	3
	19 / 7 - 23 / 7	S.T.S. Gary	加里	0	0	18	2	0	0
1993	21 / 6 - 28 / 6	T. Koryn	高蓮	0	0	183	0	0	2
	16 / 8 - 21 / 8	T. Tasha	泰莎	0	0	35	0	0	7
	9 / 9 - 14 / 9	T. Abe	艾貝	1	0	0	0	0	0
	15 / 9 - 17 / 9	S.T.S. Becky	貝姬	1	0	130	0	0	10
	23 / 9 - 27 / 9	T. Dot	黛蒂	0	1	48	0	1	0
	28 /10 - 5 /11	T. Ira	艾拉	2	0	30	0	1	0
1994	23 / 6 - 25 / 6	T.S. Sharon	莎朗	0	0	5	0	1	1
	25 / 8 - 29 / 8	S.T.S. Harry	夏里	1	0	2	0	0	2
1995	7 / 8 - 12 / 8	S.T.S. Helen	海倫	3	0	35	0	0	0
	25 / 8 - 1 / 9	T. Kent	肯特	0	0	5	0	0	0
	28 / 9 - 4 /10	T. Sibyl	斯寶	0	0	14	0	0	0
1996	5 / 9 - 10 / 9	T. Sally	莎莉	2	0	4	0	0	0
	18 / 9 - 23 / 9	S.T.S. Willie	威利	0	1	0	0	0	0
1997	31 / 7 - 3 / 8	T. Victor	維克托	1	0	58	0	0	0
	20 / 8 - 23 / 8	T. Zita	思蒂	0	0	3	0	0	0
1998	7 / 8 - 11 / 8	S.T.S. Penny	彭妮	1	0	1	0	0	0
	12 / 9 - 14 / 9	T.D. -	-	0	0	10	0	0	0
	15 /10 - 27 /10	T. Babs	寶絲	0	0	14	0	0	0

表 4.11 (續)
TABLE 4.11 (cont'd)

年份 Year	日期 / 月份 Date / Month	Name of tropical cyclone	熱帶氣旋名稱	死亡人數 Persons dead	失蹤人數 Persons missing	受傷人數 Persons injured	遇事越洋船舶 Ocean-going vessels in trouble	受到毀壞或翻沉的小艇數目 Small craft sunk or wrecked	受到損壞的小艇數目 Small craft damaged
1999	28 / 4 - 2 / 5	T. Leo	利奧	0	0	14	0	0	0
	2 / 6 - 8 / 6	T. Maggie	瑪姬	0	0	5	0	2	0
	25 / 7 - 28 / 7	T.S. -	-	0	0	18	0	0	0
	19 / 8 - 23 / 8	T. Sam	森姆	4	0	328	0	0	0
	12 / 9 - 17 / 9	T. York	約克	2	0	500	3	*	*
	24 / 9 - 26 / 9	S.T.S. Cam	錦雯	1	0	23	0	0	0
2000	15 / 7 - 16 / 7	T.D. -	-	0	1	6	0	0	0
	27 / 8 - 1 / 9	S.T.S. Maria	瑪莉亞	2	0	0	0	0	0
	5 / 9 - 10 / 9	T. Wukong	悟空	0	0	1	0	0	1
2001	30 / 6 - 3 / 7	T. Durian	榴槤	0	0	1	0	0	0
	1 / 7 - 8 / 7	T. Utor	尤特	1	0	1	0	1	0
	23 / 7 - 26 / 7	T. Yutu	玉兔	0	0	10	0	0	0
	28 / 8 - 1 / 9	T.S. Fitow	菲特	2	0	0	0	0	0
2002	15 / 8 - 20 / 8	S.T.S. Vongfong	黃蜂	0	0	2	0	0	1
	10 / 9 - 13 / 9	S.T.S. Hagupit	黑格比	0	0	32	0	0	3
2003	16 / 7 - 23 / 7	S.T.S. Koni	天鵝	0	0	15	0	0	0
	17 / 7 - 25 / 7	T. Imbudo	伊布都	1	0	45	0	2	8
	17 / 8 - 26 / 8	T. Krovanh	科羅旺	0	0	11	0	0	2
	29 / 8 - 3 / 9	T. Dujuan	杜鵑	0	4	24	0	1	4
2004	14 / 7 - 16 / 7	T.S. Kompasu	圓規	0	0	12	0	0	0
2005	10 / 8 - 14 / 8	S.T.S. Sanvu	珊瑚	0	0	0	0	0	1
	16 / 9 - 19 / 9	T.S. Vicente	韋森特	2	0	0	0	0	0
	21 / 9 - 28 / 9	T. Damrey	達維	0	0	5	0	0	1
2006	9 / 5 - 18 / 5	T. Chanchu	珍珠	0	0	6	0	1	0
	27 / 6 - 29 / 6	T.S. Jelawat	杰拉華	1	0	0	0	0	0
	31 / 7 - 4 / 8	T. Prapiroon	派比安	0	0	8	0	1	4
	6 / 8 - 10 / 8	S.T.S. Bopha	寶霞	0	0	0	0	0	1
	23 / 8 - 25 / 8	T.D. -	-	0	0	0	0	0	1
	12 / 9 - 13 / 9	T.D. -	-	0	0	1	0	0	0
	27 /10 - 6 / 11	T. Cimaron	西馬侖	0	0	4	0	0	0
2007	5 / 8 - 11 / 8	S.T.S. Pabuk	帕布	1	0	17	0	0	0
2008	15 / 4 - 20 / 4	T. Neoguri	浣熊	0	0	2	0	0	0
	18 / 6 - 26 / 6	T. Fengshen	風神	0	0	17	0	0	0
	4 / 8 - 8 / 8	S.T.S. Kammuri	北冕	0	0	37	0	0	0
	17 / 8 - 23 / 8	T. Nuri	鸚鵡	2	0	112	0	0	0
	19 / 9 - 25 / 9	T. Hagupit	黑格比	0	0	58	0	10	0
2009	15 / 7 - 19 / 7	T. Molave	莫拉菲	0	0	5	0	3	0
	1 / 8 - 9 / 8	S.T.S. Goni	天鵝	4	0	10	0	1	0
	9 / 9 - 12 / 9	T.S. Mujigae	彩虹	0	0	1	0	0	0
	12 / 9 - 16 / 9	T. Koppu	巨爵	0	0	74	0	0	0
2010	19 / 7 - 23 / 7	T. Chanthu	燦都	4	0	30	0	0	0
2011	18 / 6 - 25 / 6	T.S. Haima	海馬	0	0	3	0	1	0
	25 / 7 - 31 / 7	S.T.S. Nock-ten	洛坦	0	0	4	0	0	1
	23 / 9 - 1 /10	T. Nesat	納沙	0	0	26	0	1	1
	27 / 9 - 5 /10	S.T. Nalgae	尼格	0	0	1	0	0	0
2012	26 / 6 - 30 / 6	T.S. Doksuri	杜蘇芮	0	0	2	0	1	0
	20 / 7 - 25 / 7	S.T. Vicente	韋森特	0	0	138	0	1	0
	12 / 8 - 18 / 8	T. Kai-tak	啟德	0	0	1	0	0	0
	18 / 8 - 30 / 8	S.T. Tembin	天秤	1	0	1	0	0	0
2013	9 / 8 - 16 / 8	SuperT. Utor	尤特	0	1	9	0	0	0
	17 / 9 - 23 / 9	SuperT. Usagi	天兔	0	0	17	0	0	1
2014	14 / 6 - 15 / 6	T.S. Hagibis	海貝思	0	0	1	0	0	0
	14 / 9 - 17 / 9	T. Kalmaegi	海鷗	0	0	29	0	0	0
2015	無 NIL								

備註： 資料由各有關政府部門及公共事業機構提供，同時亦參考了本地報章上的損毀報導。

N.B.: Based on information supplied by relevant government departments and public utility companies. Damage reports in the local press were also examined and collated.

* 缺乏數據 Data unavailable.

+ 被雷電擊中 Struck by lightning.

表 4.12　　二零一五年天文台發出的熱帶氣旋路徑預測驗証

TABLE 4.12　Verification of the tropical cyclone track forecasts issued by the Hong Kong Observatory in 2015

熱帶氣旋名稱	Name of tropical cyclone	編號 Code	最高強度 Maximum Intensity	24 小時預測位置 24-hour forecast position		48 小時預測位置 48-hour forecast position		72 小時預測位置 72-hour forecast position		96 小時預測位置 96-hour forecast position		120 小時預測位置 120-hour forecast position	
				平均誤差 Average error	預測數目 No. of forecasts	平均誤差 Average error	預測數目 No. of forecasts	平均誤差 Average error	預測數目 No. of forecasts	平均誤差 Average error	預測數目 No. of forecasts	平均誤差 Average error	預測數目 No. of forecasts
米克拉	Mekkhala	1501	T.	77	12	84	8	157	5	-	-	-	-
巴威	Bavi	1503	T.S.	57	2	-	-	-	-	-	-	-	-
美莎克	Maysak	1504	SuperT.	58	13	94	9	108	6	-	-	-	-
紅霞	Noul	1506	SuperT.	53	23	96	19	110	15	-	-	-	-
白海豚	Dolphin	1507	SuperT.	30	7	77	5	60	2	-	-	-	-
鯨魚	Kujira	1508	T.S.	88	14	184	10	332	6	415	2	-	-
燦鴻	Chan-hom	1509	SuperT.	67	18	151	14	254	10	418	7	767	4
蓮花	Linfa	1510	T.	93	25	184	21	305	17	377	13	568	9
浪卡	Nangka	1511	SuperT.	63	13	102	10	104	8	154	6	278	4
哈洛拉	Halola	1512	T.	57	9	120	6	189	4	236	2	-	-
蘇迪羅	Soudelor	1513	SuperT.	50	15	44	11	60	7	78	4	168	2
天鵝	Goni	1515	SuperT.	47	25	73	23	95	19	141	15	297	11
艾濤	Etau	1518	S.T.S.	126	4	278	2	-	-	-	-	-	-
環高	Vamco	1519	T.D.	62	2	-	-	-	-	-	-	-	-
杜鵑	Dujuan	1521	SuperT.	54	16	84	12	147	9	286	6	659	4
彩虹	Mujigae	1522	S.T.	52	11	88	7	163	3	-	-	-	-
巨爵	Koppu	1524	SuperT.	78	23	96	19	104	15	99	11	128	7
蔷琵	Champi	1525	SuperT.	42	2	144	2	294	2	272	1	-	-
煙花	In-fa	1526	SuperT.	147	8	352	6	481	4	558	2	-	-
茉莉	Melor	1527	S.T.	94	16	163	*12*	229	8	246	5	257	2
平均誤差 Average Error				69		121		175		242		394	
預測總數 Total number of forecasts				258		196		140		74		43	

註：

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

Note:

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

第五節　二零一五年熱帶氣旋的位置及強度數據

以下是二零一五年位於北太平洋西部及南海區域（即由赤道至北緯45度、東經100度至180度所包括的範圍）的熱帶氣旋。其每六小時之位置及強度刊於本節。

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

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

Section 5 TROPICAL CYCLONE POSITION AND INTENSITY DATA, 2015

Six-hourly position and intensity data are tabulated in this section for the following tropical cyclones in 2015 over the western North Pacific and the South China Sea (i.e. the area bounded by the Equator, 45°N, 100°E and 180°).

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

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

颱風米克拉(1501)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON MEKKHALA (1501)

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	13	1200	T.D.	1004	13	8.8	141.8
		1800	T.D.	1002	13	9.4	140.8
	14	0000	T.D.	1000	16	9.9	139.9
		0600	T.S.	995	18	10.4	138.4
		1200	T.S.	995	18	10.9	137.4
		1800	T.S.	995	18	11.2	136.2
	15	0000	T.S.	990	21	11.5	134.7
		0600	T.S.	990	21	11.8	133.4
		1200	T.S.	990	21	11.8	132.0
		1800	T.S.	990	21	11.8	131.5
	16	0000	T.S.	990	21	11.6	130.8
		0600	T.S.	985	23	11.4	130.0
		1200	S.T.S.	980	25	11.3	128.9
		1800	S.T.S.	975	31	10.9	127.6
	17	0000	T.	970	33	11.3	126.8
		0600	T.	970	33	12.0	125.8
		1200	S.T.S.	975	31	12.4	125.1
		1800	S.T.S.	984	25	12.6	124.3
	18	0000	T.S.	990	23	13.4	123.7
		0600	T.S.	995	21	14.0	122.6
		1200	T.S.	998	18	14.7	122.0
		1800	T.D.	1000	16	15.7	121.8
			消散 Dissipated				

超強颱風海高斯(1502)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON HIGOS (1502)

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	7	1200	T.D.	1000	16	11.3	157.7
		1800	T.S.	996	21	11.8	157.6
	8	0000	T.S.	992	23	12.1	157.3
		0600	S.T.S.	988	25	12.2	157.0
		1200	S.T.S.	985	28	12.2	156.8
		1800	S.T.S.	982	31	12.2	156.6
	9	0000	S.T.S.	982	31	12.2	156.3
		0600	T.	970	36	12.6	156.0
		1200	T.	970	36	12.8	155.7
		1800	T.	970	36	13.1	155.3
	10	0000	S.T.	965	43	13.8	154.6
		0600	SuperT.	950	52	14.2	154.2
		1200	S.T.	965	43	14.9	154.0
		1800	T.	975	33	15.1	153.5
	11	0000	S.T.S.	988	25	15.4	153.1
			消散 Dissipated				

熱帶風暴巴威(1503)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM BAVI (1503)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
三月 MAR	11	1200	T.D.	998	16	7.2	168.1
		1800	T.S.	995	18	7.1	167.4
	12	0000	T.S.	994	18	7.2	166.7
		0600	T.S.	994	18	8.0	165.9
		1200	T.S.	994	18	8.4	164.6
		1800	T.S.	992	21	8.5	163.2
	13	0000	T.S.	992	21	8.7	161.5
		0600	T.S.	992	21	9.0	160.2
		1200	T.S.	992	21	9.7	158.8
		1800	T.S.	992	21	10.7	157.6
	14	0000	T.S.	992	21	11.7	155.4
		0600	T.S.	990	23	12.2	153.2
		1200	T.S.	990	23	12.8	151.8
		1800	T.S.	990	23	13.4	150.4
	15	0000	T.S.	990	23	13.9	148.5
		0600	T.S.	990	23	14.3	146.4
		1200	T.S.	990	23	13.5	144.7
		1800	T.S.	992	21	13.5	143.9
	16	0000	T.S.	992	21	13.3	141.1
		0600	T.S.	992	21	13.9	139.7
		1200	T.S.	992	21	14.6	137.8
		1800	T.S.	995	18	15.0	137.0
	17	0000	T.S.	995	18	15.2	136.2
		0600	T.S.	995	18	15.4	135.4
		1200	T.D.	998	16	15.4	134.6
		1800	T.D.	998	16	15.7	133.4
			消散 Dissipated				

超強颱風美莎克(1504)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON MAYSAK (1504)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
三月 MAR	27	0000	T.D.	1000	13	6.7	158.1
		0600	T.D.	998	16	7.0	157.4
		1200	T.D.	998	16	7.4	156.7
		1800	T.D.	998	16	7.6	155.9
	28	0000	T.S.	995	18	7.6	155.1
		0600	T.S.	990	23	7.5	154.6
		1200	S.T.S.	985	28	7.3	153.8
		1800	S.T.S.	980	31	7.3	153.1
	29	0000	T.	975	33	7.4	152.2
		0600	T.	970	36	7.6	151.1
		1200	T.	960	39	8.0	149.7
		1800	T.	960	39	8.1	148.2

超強颱風美莎克(1504)的每六小時位置及強度 (續)
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON MAYSAK (1504) (CON'T)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
三月 MAR	30	0000	T.	955	41	8.4	147.1
		0600	T.	955	41	8.8	145.8
		1200	S.T.	945	46	9.0	144.9
		1800	SuperT.	935	52	9.4	143.7
	31	0000	SuperT.	930	54	9.6	142.5
		0600	SuperT.	920	59	10.0	141.3
		1200	SuperT.	910	64	10.2	139.9
		1800	SuperT.	910	64	10.3	138.7
四月 APR	1	0000	SuperT.	915	61	10.7	137.7
		0600	SuperT.	915	61	11.2	136.6
		1200	SuperT.	920	59	11.6	135.7
		1800	SuperT.	925	57	12.0	134.7
	2	0000	SuperT.	930	54	12.3	134.0
		0600	S.T.	940	49	12.8	133.3
		1200	S.T.	945	46	13.3	132.5
		1800	S.T.	950	43	13.7	132.0
	3	0000	T.	955	41	13.9	131.1
		0600	T.	955	41	14.1	130.0
		1200	T.	960	39	14.2	129.1
		1800	T.	960	39	14.3	127.7
	4	0000	T.	975	33	14.7	126.5
		0600	S.T.S.	980	31	15.1	125.2
		1200	S.T.S.	985	28	15.5	124.0
		1800	S.T.S.	988	25	15.9	123.4
	5	0000	T.S.	990	23	16.3	122.3
		0600	T.D.	995	16	16.9	121.3
		1200	T.D.	1000	13	18.2	119.8
			消散 Dissipated				

熱帶風暴海神(1505)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM HAISHEN (1505)

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
四月 APR	3	1200	T.D.	1002	13	8.4	154.7
		1800	T.D.	1000	16	8.4	154.0
	4	0000	T.D.	1000	16	8.6	152.9
		0600	T.S.	995	18	8.7	152.6
		1200	T.S.	990	21	8.9	152.2
		1800	T.S.	990	21	9.0	152.0
	5	0000	T.S.	990	21	9.1	151.5
		0600	T.S.	990	21	9.0	150.9
		1200	T.S.	990	21	9.0	150.7
		1800	T.S.	995	18	9.0	150.7
	6	0000	T.D.	1000	16	9.0	150.7
		0600	T.D.	1000	16	9.0	150.7
			消散 Dissipated				

超強颱風紅霞(1506)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON NOUL (1506)

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	3	1200	T.D.	1000	16	9.0	141.3
		1800	T.S.	998	18	9.6	140.7
	4	0000	T.S.	995	21	9.8	140.4
		0600	T.S.	995	21	9.7	140.0
		1200	T.S.	990	23	9.6	139.7
		1800	T.S.	990	23	9.6	139.5
	5	0000	T.S.	990	23	9.6	139.1
		0600	S.T.S.	985	25	9.6	138.9
		1200	S.T.S.	980	28	9.5	138.8
		1800	S.T.S.	980	28	9.4	138.2
	6	0000	S.T.S.	975	31	9.5	137.7
		0600	S.T.S.	975	31	9.5	136.9
		1200	T.	965	36	9.8	136.0
		1800	T.	960	39	10.1	135.2
	7	0000	T.	955	41	10.5	134.3
		0600	S.T.	950	43	11.3	133.1
		1200	S.T.	950	43	11.6	132.2
		1800	S.T.	950	43	11.8	131.3
	8	0000	S.T.	950	43	12.0	130.2
		0600	S.T.	945	46	12.6	129.1
		1200	S.T.	940	49	13.3	128.0
		1800	S.T.	940	49	13.7	127.0
	9	0000	S.T.	940	49	14.3	126.3
		0600	S.T.	940	49	15.0	125.2
		1200	SuperT.	930	52	15.4	124.5
		1800	SuperT.	915	59	16.1	123.9
	10	0000	SuperT.	910	61	16.9	123.3
		0600	SuperT.	915	59	17.8	122.6
		1200	SuperT.	915	59	18.6	122.3
		1800	SuperT.	930	52	19.5	122.1
	11	0000	S.T.	945	46	20.6	122.0
		0600	T.	955	41	21.7	122.3
		1200	T.	965	36	23.2	123.5
		1800	T.	970	33	25.7	125.5
	12	0000	S.T.S. 變為溫帶氣旋 Became Extratropical	975	31	28.0	128.3

超強颱風白海豚(1507)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON DOLPHIN (1507)

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	8	0000	T.D.	1002	13	3.5	161.8
		0600	T.D.	1002	13	3.8	162.1
		1200	T.D.	1000	16	3.8	162.5
		1800	T.D.	1000	16	4.0	162.5
	9	0000	T.S.	998	18	4.5	162.5
		0600	T.S.	998	18	4.8	162.3
		1200	T.S.	996	21	5.3	162.2
		1800	T.S.	996	21	5.6	161.4
	10	0000	T.S.	996	21	6.2	160.2
		0600	T.S.	996	21	6.8	160.1
		1200	T.S.	996	21	7.2	160.0
		1800	T.S.	996	21	8.4	159.9
	11	0000	T.S.	996	21	9.2	159.7
		0600	T.S.	998	18	9.8	159.7
		1200	T.S.	998	18	10.0	159.0
		1800	T.S.	998	18	10.1	158.6
	12	0000	T.S.	996	21	10.1	158.2
		0600	T.S.	992	23	10.1	157.9
		1200	S.T.S.	985	25	10.1	157.5
		1800	S.T.S.	980	28	10.1	156.8
	13	0000	S.T.S.	975	31	10.1	156.3
		0600	T.	965	36	10.3	155.3
		1200	T.	960	39	10.6	154.2
		1800	T.	960	39	10.9	153.4
	14	0000	T.	960	39	11.4	152.2
		0600	T.	960	39	11.9	151.2
		1200	T.	960	39	12.5	149.7
		1800	T.	955	41	12.8	148.5
	15	0000	T.	955	41	13.4	147.2
		0600	S.T.	950	43	13.6	145.5
		1200	S.T.	945	46	14.0	144.5
		1800	SuperT.	935	52	14.8	143.5
	16	0000	SuperT.	930	54	15.2	142.4
		0600	SuperT.	925	57	15.8	141.5
		1200	SuperT.	925	57	16.5	140.6
		1800	SuperT.	925	57	17.2	139.8
	17	0000	SuperT.	925	57	17.9	139.1
		0600	SuperT.	925	57	18.6	138.7
		1200	SuperT.	930	54	19.4	138.5
		1800	SuperT.	935	52	20.1	138.4
	18	0000	S.T.	945	46	20.8	138.5
		0600	T.	955	41	21.5	138.6
		1200	T.	960	39	22.2	138.8
		1800	T.	965	36	23.1	139.0
	19	0000	T.	970	33	23.8	139.2
		0600	S.T.S.	975	31	24.6	139.9
		1200	S.T.S.	975	31	25.4	141.1
		1800	S.T.S.	975	31	26.9	142.3
	20	0000	S.T.S.	975	31	28.0	144.1
		0600	S.T.S. 變為溫帶氣旋 Became Extratropical	980	28	30.0	146.3

熱帶風暴鯨魚(1508)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM KUJIRA (1508)

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	20	0600	T.D.	998	13	15.2	111.8
		1200	T.D.	994	16	15.3	111.5
		1800	T.D.	994	16	15.4	111.5
	21	0000	T.D.	994	16	15.5	111.5
		0600	T.D.	994	16	16.4	111.4
		1200	T.S.	984	21	16.8	111.5
		1800	T.S.	984	21	17.3	111.5
	22	0000	T.S.	984	21	17.8	111.2
		0600	T.S.	988	18	18.5	110.9
		1200	T.S.	988	18	19.1	110.4
		1800	T.S.	988	18	19.3	109.8
	23	0000	T.S.	988	18	19.7	109.4
		0600	T.S.	988	18	20.0	108.5
		1200	T.S.	988	18	20.1	108.0
		1800	T.S.	984	21	20.3	107.6
	24	0000	T.S.	980	23	20.5	107.2
		0600	T.S.	984	21	20.8	106.8
		1200	T.D.	994	16	21.3	106.6
		1800	T.D.	998	13	21.8	106.1
			消散 Dissipated				

超強颱風燦鴻(1509)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON CHAN-HOM (1509)

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	30	1200	T.D.	1000	16	9.6	160.0
		1800	T.S.	998	18	10.0	159.6
七月 JUL	1	0000	T.S.	998	18	10.4	157.8
		0600	T.S.	998	18	11.0	156.8
		1200	T.S.	995	21	11.1	155.4
		1800	T.S.	990	23	11.2	154.5
	2	0000	T.S.	990	23	11.3	151.9
		0600	T.S.	990	23	11.0	150.4
		1200	T.S.	990	23	10.2	149.0
		1800	T.S.	990	23	10.1	148.2
	3	0000	T.S.	990	23	10.4	148.3
		0600	T.S.	995	21	10.8	148.5
		1200	T.S.	995	21	11.0	148.7
		1800	T.S.	995	21	11.5	148.6
	4	0000	T.S.	990	23	12.3	148.2
		0600	T.S.	990	23	13.0	147.4
		1200	T.S.	990	23	13.6	146.3
		1800	T.S.	990	23	13.8	146.1
	5	0000	T.S.	990	23	14.1	145.1
		0600	T.S.	990	23	14.1	144.8
		1200	T.S.	990	23	15.1	144.5
		1800	S.T.S.	985	25	16.1	143.3
	6	0000	S.T.S.	980	28	16.3	142.5
		0600	S.T.S.	980	28	16.9	140.8
		1200	S.T.S.	980	28	17.3	139.9
		1800	S.T.S.	975	31	17.4	138.7
	7	0000	T.	970	33	17.8	137.4
		0600	T.	970	33	18.4	136.3
		1200	T.	965	36	18.6	135.3
		1800	T.	960	39	19.0	134.3
	8	0000	T.	960	39	19.4	133.5
		0600	T.	960	39	20.5	132.8
		1200	T.	960	39	21.0	131.7
		1800	T.	960	39	21.7	130.5
	9	0000	T.	955	41	22.5	129.6
		0600	S.T.	950	43	23.3	128.6
		1200	S.T.	945	46	24.2	127.6
		1800	SuperT.	935	52	25.0	126.5
	10	0000	SuperT.	930	54	25.7	125.5
		0600	SuperT.	930	54	26.6	124.7
		1200	S.T.	940	49	27.3	123.9
		1800	S.T.	945	46	27.8	123.2
	11	0000	S.T.	950	43	28.6	122.8
		0600	T.	955	41	29.5	122.4
		1200	T.	960	39	30.3	122.8
		1800	T.	970	33	31.4	123.2
	12	0000	S.T.S.	975	31	33.1	123.6
		0600	S.T.S.	980	28	35.0	124.2
		1200	S.T.S. 變為溫帶氣旋 Became Extratropical	985	25	36.7	124.8

颱風蓮花(1510)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON LINFA (1510)

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	2	0600	T.D.	1000	13	14.6	128.7
		1200	T.D.	998	16	15.1	128.2
		1800	T.D.	998	16	15.3	127.8
	3	0000	T.S.	995	18	15.3	126.8
		0600	T.S.	990	23	15.3	126.2
		1200	T.S.	990	23	15.3	125.6
		1800	T.S.	990	23	15.6	125.0
	4	0000	T.S.	990	23	16.0	124.6
		0600	S.T.S.	984	25	16.4	124.0
		1200	S.T.S.	984	25	16.8	122.6
		1800	S.T.S.	984	25	17.2	122.2
	5	0000	S.T.S.	984	25	17.7	121.7
		0600	S.T.S.	984	25	18.0	120.3
		1200	S.T.S.	984	25	18.1	119.8
		1800	S.T.S.	984	25	18.1	119.7
	6	0000	T.S.	988	23	18.6	119.4
		0600	T.S.	988	23	19.2	119.3
		1200	T.S.	988	23	19.4	119.3
		1800	T.S.	988	23	20.0	119.2
	7	0000	T.S.	988	23	20.2	119.1
		0600	S.T.S.	984	25	20.5	118.8
		1200	S.T.S.	984	25	20.8	118.8
		1800	S.T.S.	980	28	21.1	118.8
	8	0000	S.T.S.	980	28	21.5	118.7
		0600	S.T.S.	975	31	21.8	118.6
		1200	T.	970	33	22.2	118.4
		1800	T.	960	39	22.4	117.7
	9	0000	T.	960	39	22.7	116.9
		0600	T.	970	33	22.9	115.7
		1200	T.S.	992	18	22.8	114.3
		1800	T.D.	996	13	22.5	113.0
			消散 Dissipated				

超強颱風浪卡(1511)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON NANGKA (1511)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
七月 JUL	3	1200	T.D.	1000	16	9.2	171.8
		1800	T.S.	998	18	9.4	170.5
	4	0000	T.S.	995	21	10.3	170.3
		0600	T.S.	995	21	10.7	168.9
		1200	T.S.	995	21	11.2	167.1
		1800	T.S.	990	23	11.6	165.7
	5	0000	T.S.	990	23	11.4	164.7
		0600	T.S.	990	23	11.1	163.9
		1200	S.T.S.	985	25	11.2	162.2
		1800	S.T.S.	985	25	11.2	161.7
	6	0000	S.T.S.	980	28	11.7	159.9
		0600	T.	975	33	11.7	158.6
		1200	T.	970	36	12.2	157.8
		1800	T.	965	39	12.6	156.8
	7	0000	S.T.	955	43	13.1	155.6
		0600	S.T.	945	49	13.6	154.6
		1200	SuperT.	930	57	14.3	153.5
		1800	SuperT.	930	57	15.0	152.2
	8	0000	SuperT.	935	54	15.4	150.7
		0600	SuperT.	935	54	15.4	149.9
		1200	SuperT.	935	54	16.0	149.1
		1800	SuperT.	930	57	16.6	147.8
	9	0000	SuperT.	930	57	17.0	146.9
		0600	SuperT.	925	59	17.6	145.9
		1200	SuperT.	920	61	18.0	144.6
		1800	SuperT.	925	59	18.2	143.6
	10	0000	SuperT.	930	57	18.2	142.7
		0600	SuperT.	935	54	18.4	141.9
		1200	SuperT.	930	52	18.2	141.3
		1800	SuperT.	930	52	18.3	140.6
	11	0000	S.T.	945	46	18.3	140.0
		0600	S.T.	955	43	18.3	139.5
		1200	S.T.	955	43	18.4	138.9
		1800	S.T.	955	43	18.3	138.4
	12	0000	T.	960	41	18.4	137.7
		0600	T.	960	41	18.6	137.5
		1200	T.	960	41	18.7	137.4
		1800	T.	960	41	19.0	137.2
	13	0000	T.	960	41	19.6	137.2
		0600	T.	960	41	20.5	137.0
		1200	T.	960	41	21.4	136.8
		1800	T.	960	41	22.2	136.6
	14	0000	T.	960	41	22.8	136.5
		0600	T.	960	41	23.6	136.5
		1200	S.T.	955	43	24.3	136.6
		1800	S.T.	955	43	25.4	136.5
	15	0000	S.T.	955	43	26.4	136.3
		0600	S.T.	955	43	27.5	136.0
		1200	S.T.	955	43	28.8	135.6
		1800	T.	960	41	30.0	135.3
	16	0000	T.	965	39	31.0	134.8
		0600	T.	965	39	32.0	134.5
		1200	T.	965	39	33.0	134.3
		1800	T.	970	36	34.0	133.8
	17	0000	S.T.S.	985	25	35.0	133.5
		0600	T.S.	995	21	35.7	133.5
		1200	T.S.	998	18	36.2	135.2
			變為溫帶氣旋 Became Extratropical				

颱風哈洛拉(1512)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TYPHOON HALOLA (1512)

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	13	0000	T.S.	988	23	13.1	179.5
		0600	S.T.S.	985	25	13.5	178.8
		1200	S.T.S.	980	28	14.2	177.6
		1800	S.T.S.	975	31	14.7	176.6
	14	0000	T.	965	36	15.2	175.5
		0600	T.	965	36	15.7	174.4
		1200	T.	965	36	16.5	173.2
		1800	T.	965	36	16.8	172.0
	15	0000	T.	970	33	17.0	171.6
		0600	S.T.S.	975	31	17.5	170.2
		1200	S.T.S.	975	31	17.7	168.8
		1800	S.T.S.	980	28	18.1	167.2
	16	0000	S.T.S.	985	25	18.4	166.8
		0600	T.S.	988	23	19.1	166.0
		1200	T.S.	992	21	18.6	164.1
		1800	T.S.	995	18	18.4	162.0
	17	0000	T.D.	998	16	18.5	161.0
		0600	T.D.	998	16	18.5	159.8
		1200	T.D.	998	16	18.3	158.3
		1800	T.D.	998	16	18.2	157.0
	18	0000	T.D.	1002	13	18.2	156.3
		0600	T.D.	1002	13	18.0	155.8
		1200	T.D.	1002	13	18.0	154.9
		1800	T.D.	1002	13	18.3	153.4
	19	0000	T.D.	1002	13	18.5	152.0
		0600	T.D.	1002	13	19.0	151.5
		1200	T.D.	1002	13	19.9	150.4
		1800	T.D.	998	16	20.5	149.3
	20	0000	T.S.	995	18	20.9	148.2
		0600	T.S.	988	23	21.4	147.4
		1200	S.T.S.	985	25	21.7	146.4
		1800	S.T.S.	980	28	21.8	145.4
	21	0000	S.T.S.	975	31	22.3	144.0
		0600	T.	965	36	22.6	142.9
		1200	T.	960	39	22.9	141.7
		1800	T.	960	39	23.0	140.5
	22	0000	T.	960	39	23.2	139.6
		0600	T.	960	39	23.6	138.5
		1200	T.	960	39	23.8	137.7
		1800	T.	960	39	24.1	136.9
	23	0000	T.	955	41	24.4	135.9
		0600	T.	960	39	24.6	135.1
		1200	T.	960	39	24.6	134.3
		1800	T.	960	39	24.6	133.4
	24	0000	T.	960	39	24.8	132.8
		0600	T.	965	36	24.9	131.8
		1200	T.	970	33	25.0	131.1
		1800	T.	970	33	25.5	130.6
	25	0000	T.	970	33	26.2	129.8
		0600	S.T.S.	975	31	27.2	129.6
		1200	S.T.S.	975	31	28.1	129.2
		1800	S.T.S.	980	28	29.6	128.9
	26	0000	S.T.S.	985	25	31.0	129.2
		0600	T.S.	992	21	32.2	129.3
		1200	T.D.	998	16	33.6	129.9
			消散 Dissipated				

超強颱風蘇迪羅(1513)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON SOUDELOR (1513)

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	30	0000	T.D.	1002	13	13.6	160.7
		0600	T.D.	1000	16	13.6	159.8
		1200	T.S.	996	18	13.7	159.2
		1800	T.S.	996	18	13.7	158.8
	31	0000	T.S.	996	18	13.6	158.3
		0600	T.S.	996	18	13.5	156.8
		1200	T.S.	996	18	13.4	155.8
		1800	T.S.	996	18	13.4	154.8
八月 AUG	1	0000	T.S.	996	18	13.6	153.4
		0600	T.S.	996	18	14.0	152.2
		1200	T.S.	992	21	14.2	150.8
		1800	T.S.	988	23	14.4	149.6
	2	0000	S.T.S.	976	28	14.6	148.2
		0600	T.	965	33	14.9	146.8
		1200	T.	955	39	15.1	145.9
		1800	S.T.	950	43	15.6	145.0
	3	0000	S.T.	945	46	16.2	144.0
		0600	SuperT.	935	52	16.9	143.0
		1200	SuperT.	925	57	17.4	141.9
		1800	SuperT.	905	67	17.8	140.7
	4	0000	SuperT.	905	67	18.3	139.6
		0600	SuperT.	905	67	18.6	138.3
		1200	SuperT.	910	64	19.0	137.2
		1800	SuperT.	920	59	19.3	136.1
	5	0000	SuperT.	930	54	19.5	134.8
		0600	SuperT.	935	52	19.9	133.7
		1200	S.T.	940	49	20.0	132.6
		1800	S.T.	945	46	20.1	131.4
	6	0000	S.T.	945	46	20.4	130.2
		0600	S.T.	940	49	20.9	129.3
		1200	S.T.	940	49	21.2	128.1
		1800	S.T.	940	49	21.5	126.8
	7	0000	S.T.	940	49	21.9	125.8
		0600	S.T.	940	49	22.4	124.7
		1200	S.T.	940	49	22.9	123.8
		1800	S.T.	940	49	23.7	122.6
	8	0000	S.T.	950	43	23.7	120.6
		0600	T.	955	41	23.9	120.0
		1200	T.	965	36	24.8	119.5
		1800	S.T.S.	975	31	25.4	118.5
	9	0000	S.T.S.	985	25	25.9	117.4
		0600	T.S.	994	18	26.8	116.8
		1200	T.D.	996	16	27.7	116.3
			消散 Dissipated				

熱帶風暴莫拉菲(1514)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL STORM MOLAVE (1514)

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	7	1200	T.D.	998	16	23.9	146.7
		1800	T.S.	994	18	25.1	146.0
	8	0000	T.S.	990	21	26.0	144.5
		0600	T.S.	990	21	26.2	143.5
		1200	T.S.	990	21	26.4	142.5
		1800	T.S.	990	21	27.1	141.3
	9	0000	T.S.	990	21	27.4	140.7
		0600	T.S.	988	23	27.8	140.7
		1200	T.S.	988	23	28.7	140.7
		1800	T.S.	990	21	29.1	140.5
	10	0000	T.S.	990	21	29.9	140.4
		0600	T.S.	990	21	30.5	140.7
		1200	T.S.	990	21	30.8	141.1
		1800	T.S.	988	23	31.1	141.7
	11	0000	T.S.	988	23	31.4	142.8
		0600	T.S.	988	23	32.1	143.5
		1200	T.S.	988	23	32.3	144.9
		1800	T.S.	988	23	32.9	145.8
	12	0000	T.S.	988	23	33.5	146.9
		0600	T.S.	988	23	33.7	148.2
		1200	T.S.	988	23	33.9	150.0
		1800	T.S.	988	23	34.1	151.7
	13	0000	T.S.	990	21	35.0	153.4
		0600	T.S. 變為溫帶氣旋 Became Extratropical	990	21	35.9	155.3

超強颱風艾莎尼(1516)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON ATSANI (1516)

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	14	0600	T.D.	1004	13	15.0	163.0
		1200	T.D.	1000	16	15.0	162.6
		1800	T.S.	996	18	14.8	162.4
	15	0000	T.S.	996	18	14.7	162.2
		0600	T.S.	996	18	14.8	162.0
		1200	T.S.	992	21	14.9	161.8
		1800	S.T.S.	985	25	14.8	161.3
	16	0000	S.T.S.	985	25	14.4	160.9
		0600	S.T.S.	980	28	14.5	160.4
		1200	S.T.S.	975	31	14.4	160.0
		1800	S.T.S.	975	31	14.3	159.6
	17	0000	T.	965	36	14.5	159.1
		0600	T.	955	41	14.7	158.5
		1200	S.T.	945	46	15.1	158.0
		1800	S.T.	940	49	15.7	157.0
	18	0000	SuperT.	935	52	15.9	156.2
		0600	SuperT.	930	54	16.3	155.5
		1200	SuperT.	930	54	17.0	154.9
		1800	SuperT.	925	57	17.9	153.8
	19	0000	SuperT.	925	57	18.7	152.9
		0600	SuperT.	920	59	19.1	151.9
		1200	SuperT.	915	61	19.7	151.3
		1800	SuperT.	925	57	20.4	150.4
	20	0000	SuperT.	935	52	21.2	149.5
		0600	S.T.	940	49	22.0	148.6
		1200	S.T.	940	49	22.6	147.8
		1800	S.T.	945	46	23.3	147.1
	21	0000	S.T.	950	43	24.1	146.5
		0600	T.	955	41	25.0	146.0
		1200	T.	955	41	25.5	145.5
		1800	T.	955	41	26.4	145.1
	22	0000	T.	955	41	27.0	144.9
		0600	T.	955	41	27.6	145.0
		1200	T.	955	41	28.2	145.1
		1800	T.	960	39	29.0	145.3
	23	0000	T.	960	39	29.5	145.5
		0600	T.	960	39	30.0	146.1
		1200	T.	960	39	30.6	146.7
		1800	T.	965	36	31.3	147.4
	24	0000	T.	970	33	32.0	148.1
		0600	S.T.S.	975	31	32.6	149.2
		1200	S.T.S.	975	31	32.9	150.8
		1800	S.T.S.	975	31	33.9	152.9
	25	0000	S.T.S.	975	31	35.6	155.7
		0600	S.T.S. 變為溫帶氣旋 Became Extratropical	975	31	38.0	157.4

超強颱風天鵝(1515)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON GONI (1515)

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	14	1200	T.D.	1002	16	12.7	149.1
		1800	T.S.	998	18	13.0	148.2
	15	0000	T.S.	995	21	13.5	147.0
		0600	T.S.	990	23	13.8	146.4
		1200	T.S.	990	23	14.3	145.7
		1800	S.T.S.	988	25	14.3	145.0
	16	0000	S.T.S.	984	28	14.7	144.6
		0600	S.T.S.	978	31	15.0	144.2
		1200	S.T.S.	978	31	15.5	143.6
		1800	T.	965	36	16.0	142.7
	17	0000	S.T.	950	43	16.5	141.6
		0600	S.T.	945	46	17.0	140.4
		1200	S.T.	945	46	17.3	139.2
		1800	S.T.	940	49	17.8	137.7
	18	0000	S.T.	940	49	18.2	136.0
		0600	S.T.	940	49	18.6	134.5
		1200	S.T.	940	49	18.7	132.9
		1800	S.T.	940	49	18.7	131.1
	19	0000	S.T.	940	49	18.8	129.8
		0600	S.T.	940	49	18.9	128.4
		1200	SuperT.	930	54	18.9	127.3
		1800	SuperT.	930	54	18.9	126.1
	20	0000	SuperT.	935	52	18.9	125.2
		0600	SuperT.	935	52	18.9	124.7
		1200	SuperT.	935	52	19.0	124.0
		1800	S.T.	940	49	19.2	123.2
	21	0000	S.T.	945	46	19.2	123.0
		0600	S.T.	945	46	19.4	122.4
		1200	S.T.	945	46	19.4	122.4
		1800	S.T.	945	46	19.6	122.5
	22	0000	S.T.	950	43	20.1	122.6
		0600	S.T.	950	43	20.7	122.7
		1200	T.	955	41	21.4	123.1
		1800	T.	960	39	22.3	123.3
	23	0000	T.	960	39	23.2	123.4
		0600	S.T.	950	43	23.8	123.5
		1200	SuperT.	935	52	24.5	124.0
		1800	SuperT.	930	54	25.2	124.6
	24	0000	SuperT.	935	52	26.2	125.9
		0600	S.T.	940	49	27.9	127.4
		1200	S.T.	940	49	29.6	128.8
		1800	S.T.	940	49	31.6	130.0
	25	0000	T.	960	39	33.9	130.4
		0600	T.	965	36	35.1	131.0
		1200	S.T.S.	975	31	36.4	131.5
		1800	T.S.	985	23	37.7	133.0
			變為溫帶氣旋 Became Extratropical				

強颱風基洛(1517)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON KILO (1517)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
九月 SEP	1	1800	S.T.	950	43	23.8	179.9
	2	0000	T.	955	41	24.0	179.7
		0600	T.	955	41	24.3	179.3
		1200	T.	960	39	24.5	179.1
		1800	T.	965	36	24.7	178.6
	3	0000	T.	965	36	24.7	178.3
		0600	T.	965	36	24.7	178.0
		1200	T.	965	36	24.5	177.9
		1800	T.	965	36	24.3	177.7
	4	0000	T.	965	36	23.8	176.9
		0600	T.	965	36	23.6	176.3
		1200	T.	965	36	23.4	175.7
		1800	T.	965	36	23.5	174.6
	5	0000	T.	965	36	23.5	174.0
		0600	T.	965	36	23.6	172.9
		1200	T.	960	39	23.6	171.9
		1800	T.	960	39	23.7	170.5
	6	0000	T.	960	39	23.8	169.4
		0600	T.	960	39	24.0	168.5
		1200	T.	960	39	24.3	167.6
		1800	T.	955	41	24.5	166.5
	7	0000	T.	955	41	24.7	165.7
		0600	T.	955	41	25.0	164.1
		1200	T.	955	41	25.2	163.0
		1800	T.	960	39	25.6	161.6
	8	0000	T.	965	36	26.0	160.3
		0600	T.	965	36	26.6	158.6
		1200	T.	970	33	27.3	157.3
		1800	T.	970	33	28.1	155.8
	9	0000	S.T.S.	975	31	29.0	154.7
		0600	S.T.S.	975	31	29.7	153.5
		1200	S.T.S.	975	31	30.8	152.5
		1800	S.T.S.	980	28	31.6	151.0
	10	0000	S.T.S.	985	25	32.6	150.1
		0600	S.T.S.	985	25	33.9	149.3
		1200	S.T.S.	985	25	35.0	148.6
		1800	S.T.S.	985	25	36.8	147.9
	11	0000	S.T.S. 變為溫帶氣旋 Became Extratropical	985	25	38.7	147.5

強烈熱帶風暴艾濤(1518)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM ETAU (1518)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
九月 SEP	6	1800	T.D.	1000	13	21.6	138.8
	7	0000	T.D.	998	16	22.6	138.8
		0600	T.S.	995	18	23.8	138.6
		1200	T.S.	995	18	24.8	138.5
		1800	T.S.	990	23	26.1	138.3
	8	0000	S.T.S.	988	25	27.5	138.2
		0600	S.T.S.	988	25	29.2	138.2
		1200	S.T.S.	988	25	31.1	138.3
		1800	T.S.	990	23	32.8	137.9
	9	0000	T.S.	990	23	34.7	137.1
		0600	T.S.	995	18	37.0	136.5
			變為溫帶氣旋 Became Extratropical				

熱帶低氣壓環高(1519)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF TROPICAL DEPRESSION VAMCO (1519)

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	13	0600	T.D.	1000	13	15.8	112.2
		1200	T.D.	1000	13	15.6	111.7
		1800	T.D.	996	16	15.3	111.4
	14	0000	T.D.	996	16	15.1	110.3
		0600	T.D.	996	16	15.5	109.7
		1200	T.D.	996	16	15.5	108.9
		1800	T.D.	1000	13	15.4	107.5
			消散 Dissipated				

強颱風科羅旺(1520)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON KROVANH (1520)

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	14	1800	T.D.	1002	13	17.1	151.9
	15	0000	T.D.	1002	13	17.9	151.5
		0600	T.D.	998	16	18.0	150.6
		1200	T.D.	998	16	18.3	149.7
		1800	T.S.	995	18	18.4	149.4
	16	0000	T.S.	992	21	19.1	148.4
		0600	T.S.	988	23	19.8	147.3
		1200	S.T.S.	980	28	20.0	146.3
		1800	S.T.S.	975	31	20.4	145.6
	17	0000	T.	965	36	21.0	144.8
		0600	T.	960	39	21.7	144.2
		1200	S.T.	950	43	22.2	143.5
		1800	S.T.	950	43	22.9	142.8
	18	0000	T.	955	41	23.7	142.5
		0600	T.	955	41	24.9	142.3
		1200	T.	955	41	25.3	142.3
		1800	T.	960	39	26.5	142.7
	19	0000	T.	960	39	27.9	143.3
		0600	T.	965	36	28.9	144.2
		1200	T.	970	33	30.0	145.3
		1800	S.T.S.	980	28	31.0	146.4
	20	0000	S.T.S.	982	25	31.9	147.1
		0600	T.S.	985	23	32.9	148.1
		1200	T.S.	990	21	33.9	149.1
			變為溫帶氣旋 Became Extratropical				

超強颱風杜鵑(1521)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON DUJUAN (1521)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
九月 SEP	22	1200	T.D.	1000	13	17.7	140.0
		1800	T.D.	998	16	17.7	138.2
	23	0000	T.S.	995	18	17.7	136.7
		0600	T.S.	995	18	18.1	135.1
		1200	T.S.	992	21	18.3	134.3
		1800	T.S.	988	23	18.4	133.9
	24	0000	T.S.	988	23	18.5	133.1
		0600	S.T.S.	985	25	18.6	132.7
		1200	S.T.S.	985	25	18.6	132.2
		1800	S.T.S.	985	25	18.9	132.0
	25	0000	S.T.S.	980	28	19.2	132.0
		0600	S.T.S.	975	31	19.5	131.8
		1200	T.	970	33	19.8	131.3
		1800	T.	970	33	20.2	130.9
	26	0000	T.	960	39	20.9	130.3
		0600	S.T.	950	43	21.5	129.7
		1200	S.T.	945	46	22.0	128.9
		1800	S.T.	940	49	22.2	128.1
	27	0000	SuperT.	930	54	22.3	127.5
		0600	SuperT.	920	59	22.5	126.7
		1200	SuperT.	920	59	22.8	125.9
		1800	SuperT.	920	59	22.9	124.9
	28	0000	SuperT.	925	57	23.3	123.9
		0600	SuperT.	925	57	23.9	123.0
		1200	S.T.	940	49	24.0	121.3
		1800	S.T.	950	43	24.1	120.1
	29	0000	T.	965	36	25.1	119.3
		0600	T.S.	988	23	25.6	117.7
		0900	T.D. 消散 Dissipated	998	16	25.7	117.2

強颱風彩虹(1522)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON MUJIGAE (1522)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十月 OCT	1	0600	T.D.	1000	16	14.7	123.7
		1200	T.D.	1000	16	15.1	122.8
		1800	T.D.	1000	16	15.7	121.4
	2	0000	T.S.	996	18	16.3	119.8
		0600	T.S.	992	21	16.6	118.9
		1200	T.S.	988	23	17.1	117.7
		1800	S.T.S.	984	25	17.8	116.4
	3	0000	S.T.S.	980	28	18.6	115.5
		0600	T.	970	33	18.9	114.3
		1200	T.	960	39	19.5	113.3
		1800	S.T.	950	43	19.9	112.2
	4	0000	S.T.	945	46	20.4	111.5
		0600	S.T.	940	49	21.2	110.5
		1200	T.	970	36	21.8	109.7
		1800	S.T.S.	985	25	22.6	108.9
	5	0000	T.D.	1002	16	23.2	108.3
			消散 Dissipated				

強烈熱帶風暴彩雲(1523)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TROPICAL STORM CHOI-WAN (1523)

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	2	1200	T.D.	995	16	18.9	166.6
		1800	T.S.	992	18	19.0	166.6
	3	0000	T.S.	992	18	19.1	166.1
		0600	T.S.	992	18	19.4	165.2
		1200	T.S.	990	21	19.3	163.3
		1800	T.S.	990	21	19.7	162.1
	4	0000	T.S.	988	23	20.0	160.4
		0600	T.S.	988	23	20.8	158.7
		1200	T.S.	988	23	21.1	157.1
		1800	T.S.	988	23	21.2	155.4
	5	0000	T.S.	988	23	21.5	154.6
		0600	S.T.S.	984	25	21.9	153.8
		1200	S.T.S.	984	25	22.3	152.8
		1800	S.T.S.	984	25	22.7	151.9
	6	0000	S.T.S.	980	28	23.3	150.8
		0600	S.T.S.	975	31	24.2	150.8
		1200	S.T.S.	975	31	25.1	150.8
		1800	S.T.S.	975	31	26.5	150.8
	7	0000	S.T.S.	975	31	28.5	151.0
		0600	S.T.S.	975	31	31.2	151.2
		1200	S.T.S.	980	28	34.1	151.2
		1800	S.T.S.	980	28	37.2	150.4
			變為溫帶氣旋 Became Extratropical				

超強颱風巨爵(1524)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON KOPPU (1524)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十月 OCT	13	0000	T.D.	1002	13	15.6	142.6
		0600	T.D.	998	16	15.7	140.8
		1200	T.S.	995	18	15.8	139.1
		1800	T.S.	992	21	15.8	137.7
	14	0000	T.S.	992	21	15.7	136.1
		0600	T.S.	992	21	15.7	134.7
		1200	T.S.	992	21	15.6	133.5
		1800	T.S.	992	21	15.4	132.7
	15	0000	T.S.	988	23	15.5	131.6
		0600	T.S.	988	23	15.5	130.2
		1200	S.T.S.	980	28	15.5	129.1
		1800	T.	970	33	15.5	128.1
	16	0000	T.	965	36	15.6	127.3
		0600	T.	960	39	15.6	126.4
		1200	T.	955	41	15.7	125.7
		1800	S.T.	950	43	15.8	125.0
	17	0000	S.T.	945	46	15.8	124.5
		0600	SuperT.	935	52	15.8	123.8
		1200	SuperT.	925	57	15.9	123.2
		1800	SuperT.	925	57	16.0	122.2
	18	0000	S.T.	940	49	16.0	121.5
		0600	S.T.	950	43	16.1	121.1
		1200	T.	960	39	16.4	120.7
		1800	T.	970	33	16.7	120.4
	19	0000	S.T.S.	975	31	17.3	119.9
		0600	S.T.S.	980	28	17.8	120.1
		1200	S.T.S.	984	25	18.1	120.2
		1800	S.T.S.	984	25	18.3	120.3
	20	0000	T.S.	988	23	18.6	120.4
		0600	T.S.	992	21	19.0	120.5
		1200	T.S.	995	18	19.3	120.8
		1800	T.D.	998	16	19.3	121.3
	21	0000	T.D.	1002	13	19.5	121.7
			消散 Dissipated				

超強颱風蓓琵(1525)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON CHAMPI (1525)

月份 Month	日期 Date	時間 (協調世界時) Time (UTC)	強度 Intensity	估計最低中心氣壓 (百帕斯卡) Estimated minimum central pressure (hPa)	估計最高風速 (米每秒) Estimated maximum surface winds (m/s)	北緯 Lat. °N	東經 Long. °E
十月 OCT	13	0600	T.D.	1004	13	13.0	160.2
		1200	T.D.	1002	16	13.2	159.0
		1800	T.D.	1002	16	13.6	158.1
	14	0000	T.S.	998	18	14.0	156.7
		0600	T.S.	998	18	14.5	155.5
		1200	T.S.	998	18	14.8	155.1
		1800	T.S.	996	21	15.0	153.7
	15	0000	T.S.	994	23	15.4	151.9
		0600	T.S.	994	23	15.1	150.3
		1200	T.S.	994	23	15.4	149.2
		1800	S.T.S.	990	25	15.5	147.6
	16	0000	S.T.S.	985	28	16.0	146.6
		0600	S.T.S.	985	28	15.6	144.8
		1200	S.T.S.	980	31	16.2	144.0
		1800	T.	975	33	16.5	143.3
	17	0000	T.	970	36	16.9	142.4
		0600	T.	965	39	17.7	141.5
		1200	T.	960	41	18.4	140.7
		1800	T.	960	41	18.8	140.3
	18	0000	S.T.	955	43	19.2	140.1
		0600	S.T.	945	49	19.5	140.1
		1200	SuperT.	935	54	19.8	140.2
		1800	SuperT.	935	54	20.2	140.3
	19	0000	SuperT.	940	52	20.5	140.4
		0600	S.T.	945	49	20.8	140.3
		1200	S.T.	950	46	21.0	140.2
		1800	S.T.	950	46	21.1	140.1
	20	0000	S.T.	955	43	21.4	140.2
		0600	S.T.	955	43	21.8	140.2
		1200	S.T.	955	43	21.9	139.9
		1800	T.	960	41	22.1	139.9
	21	0000	T.	965	39	22.6	139.8
		0600	T.	965	39	22.8	139.9
		1200	T.	960	41	22.9	140.3
		1800	T.	960	41	23.5	140.7
	22	0000	S.T.	955	43	23.7	141.2
		0600	S.T.	955	43	24.0	141.8
		1200	S.T.	955	43	24.2	142.7
		1800	S.T.	955	43	24.7	143.9
	23	0000	S.T.	955	43	25.0	145.1
		0600	T.	960	41	25.4	146.6
		1200	T.	965	39	25.8	147.9
		1800	T.	970	36	26.4	149.2
	24	0000	T.	975	33	27.0	150.3
		0600	S.T.S.	980	31	27.5	151.6
		1200	S.T.S.	985	28	28.3	153.2
		1800	S.T.S.	985	28	29.5	155.2
			變為溫帶氣旋 Became Extratropical				

超強颱風煙花(1526) 的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SUPER TYPHOON IN-FA (1526)

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	17	0000	T.D.	1002	13	4.2	162.9
		0600	T.D.	1000	16	4.5	161.4
		1200	T.S.	998	18	4.7	159.8
		1800	T.S.	995	21	5.4	158.4
	18	0000	T.S.	990	23	5.6	157.0
		0600	S.T.S.	985	25	5.8	155.8
		1200	S.T.S.	985	25	6.3	154.7
		1800	S.T.S.	985	25	6.8	153.9
	19	0000	S.T.S.	985	25	8.0	152.8
		0600	S.T.S.	980	28	8.7	151.4
		1200	S.T.S.	980	28	9.2	150.4
		1800	S.T.S.	975	31	9.8	149.4
	20	0000	T.	965	36	9.9	148.7
		0600	T.	960	39	10.4	147.5
		1200	T.	955	41	10.7	145.9
		1800	S.T.	950	43	11.0	144.3
	21	0000	SuperT.	935	52	11.2	142.8
		0600	SuperT.	935	52	11.8	141.2
		1200	SuperT.	935	52	12.5	139.6
		1800	S.T.	940	49	12.8	138.1
	22	0000	S.T.	945	46	13.5	136.6
		0600	S.T.	945	46	14.0	135.2
		1200	S.T.	945	46	14.6	133.9
		1800	S.T.	950	43	15.2	132.8
	23	0000	S.T.	950	43	15.8	131.9
		0600	S.T.	950	43	16.5	131.5
		1200	S.T.	950	43	17.2	131.4
		1800	S.T.	950	43	17.6	131.5
	24	0000	T.	955	41	18.5	131.9
		0600	T.	960	39	18.7	132.7
		1200	T.	970	33	19.1	133.7
		1800	S.T.S.	980	28	19.4	134.4
	25	0000	S.T.S.	985	25	19.9	134.9
		0600	T.S.	995	21	20.0	135.8
		1200	T.S.	998	18	20.7	136.9
		1800	T.S.	998	18	21.3	137.6
	26	0000	T.D.	1000	16	22.4	138.4
			變為溫帶氣旋 Became Extratropical				

強颱風茉莉(1527)的每六小時位置及強度
SIX-HOURLY POSITION AND INTENSITY DATA OF SEVERE TYPHOON MELOR (1527)

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	11	0600	T.D.	1000	16	8.9	138.0
		1200	T.D.	1000	16	9.5	136.8
		1800	T.S.	998	18	9.9	135.6
	12	0000	T.S.	998	18	10.4	134.4
		0600	T.S.	992	21	10.7	133.6
		1200	T.S.	988	23	11.1	132.5
		1800	S.T.S.	978	31	11.5	131.2
	13	0000	T.	970	36	11.9	130.3
		0600	T.	960	41	12.2	129.1
		1200	S.T.	950	46	12.3	128.0
		1800	S.T.	950	46	12.4	126.9
	14	0000	S.T.	945	49	12.5	125.9
		0600	S.T.	945	49	12.6	124.5
		1200	S.T.	950	46	12.8	123.5
		1800	S.T.	955	43	12.9	122.6
	15	0000	S.T.	950	46	13.0	121.7
		0600	S.T.	955	43	13.2	121.2
		1200	T.	960	41	13.3	120.6
		1800	T.	965	39	13.8	120.3
	16	0000	T.	970	36	14.0	119.8
		0600	S.T.S.	982	28	14.5	119.5
		1200	T.S.	992	21	14.7	119.4
		1800	T.D.	1002	13	14.0	119.3
			消散 Dissipated				