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.

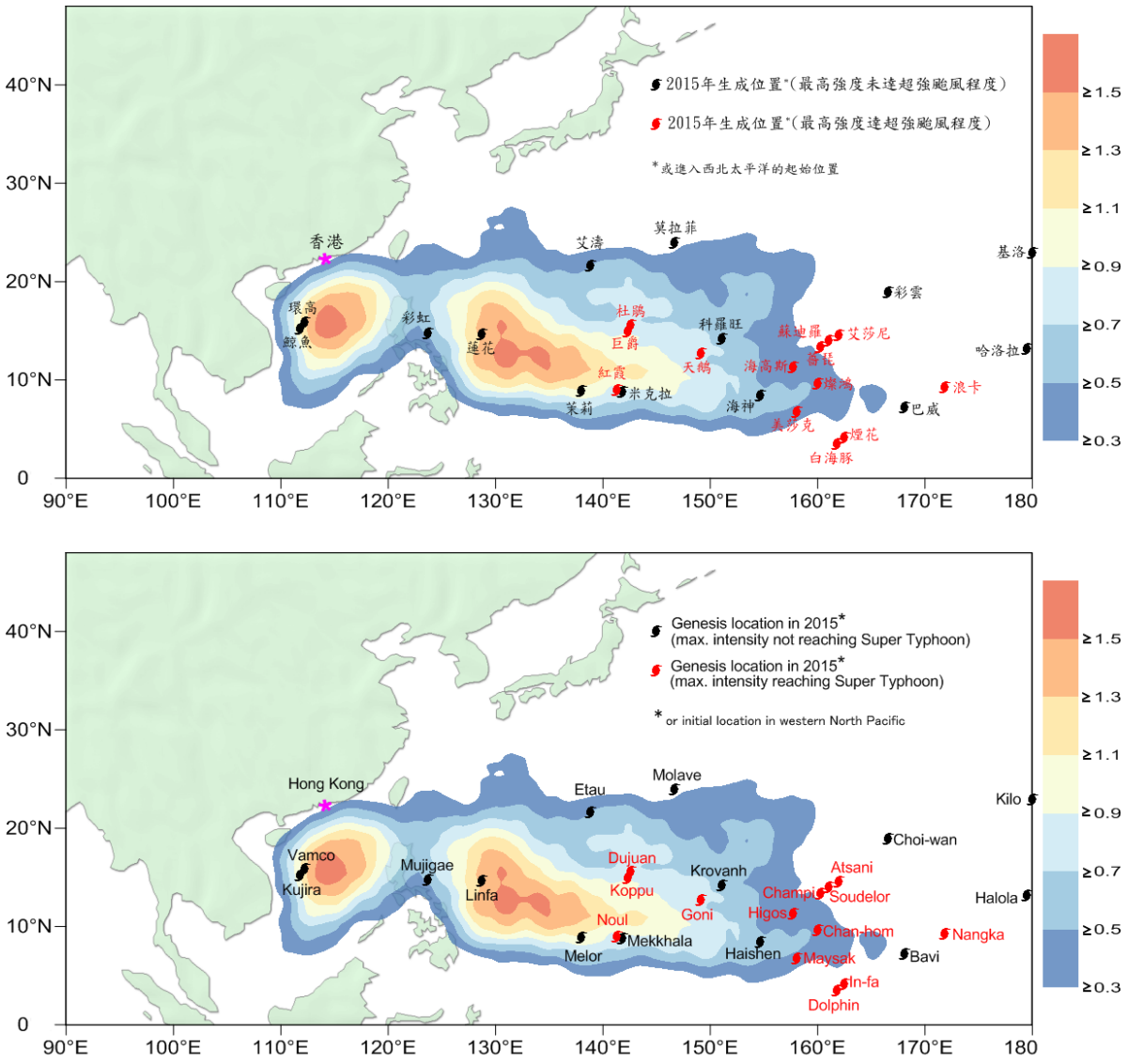

圖 2.1　　2015 年熱帶氣旋生成位置圖，背景顏色陰影為長期年平均 (1961 至 2010 年) 熱帶氣旋生成數目分佈。

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.

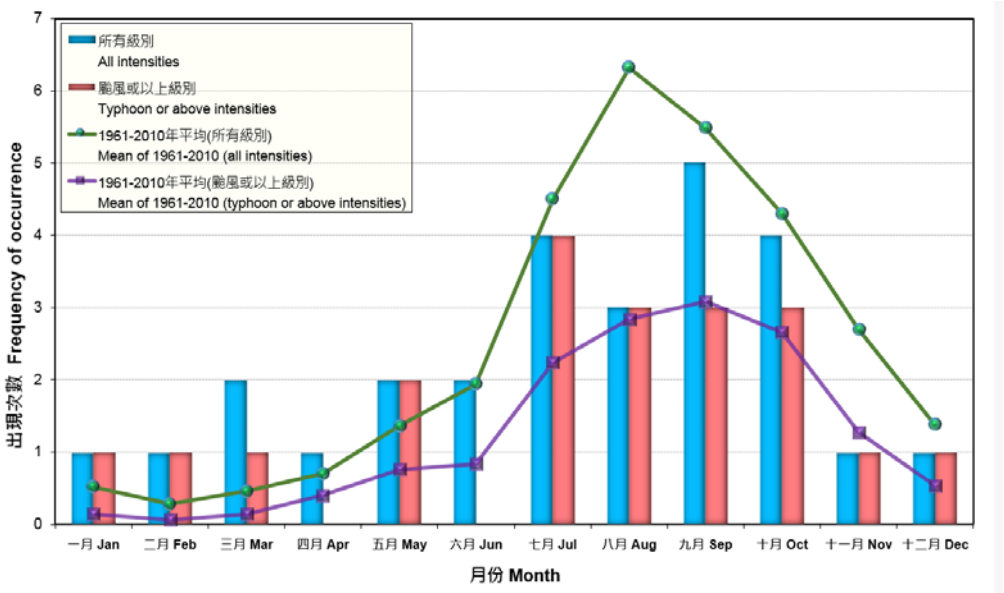

圖 2.2　二零一五年在北太平洋西部及南海區域的熱帶氣旋出現次數之每月分佈 (以熱帶氣旋在該月初次出現為準，假如一熱帶氣旋在九月形成並在十月首次增強為颱風或以上級別，它在「所有級別」及「颱風或以上級別」的統計數字將分別計算在九月及十月份內)。

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).

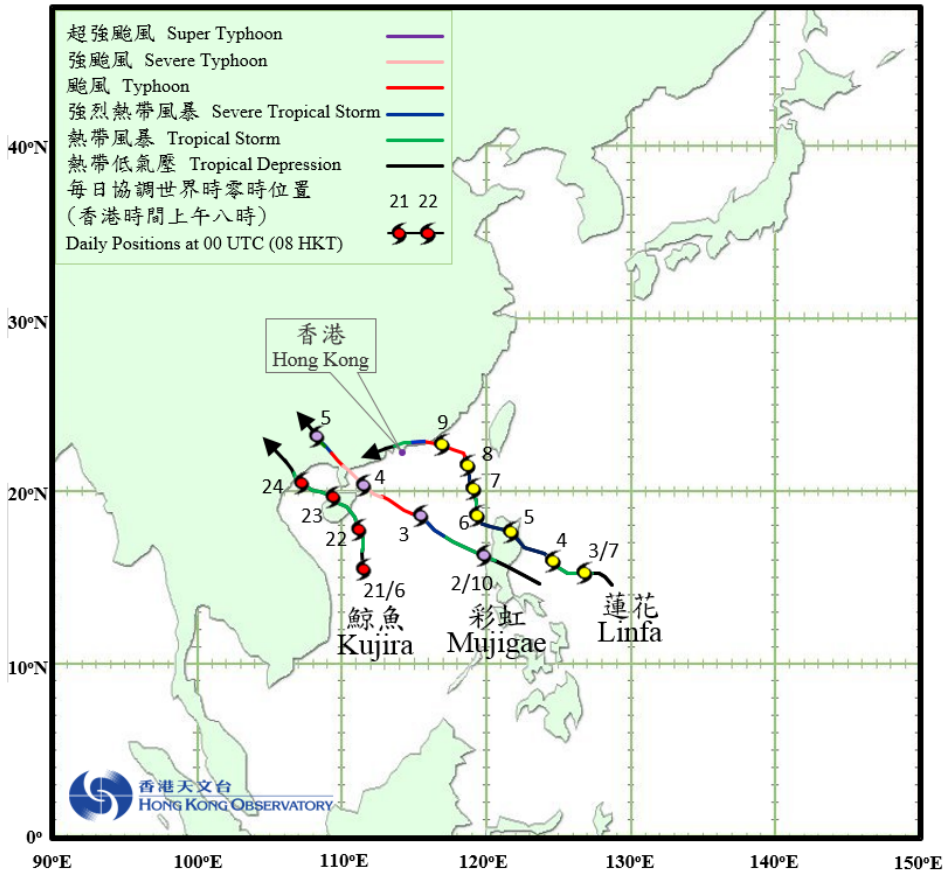

圖 2.3　二零一五年三個影響香港的熱帶氣旋的路徑圖。

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

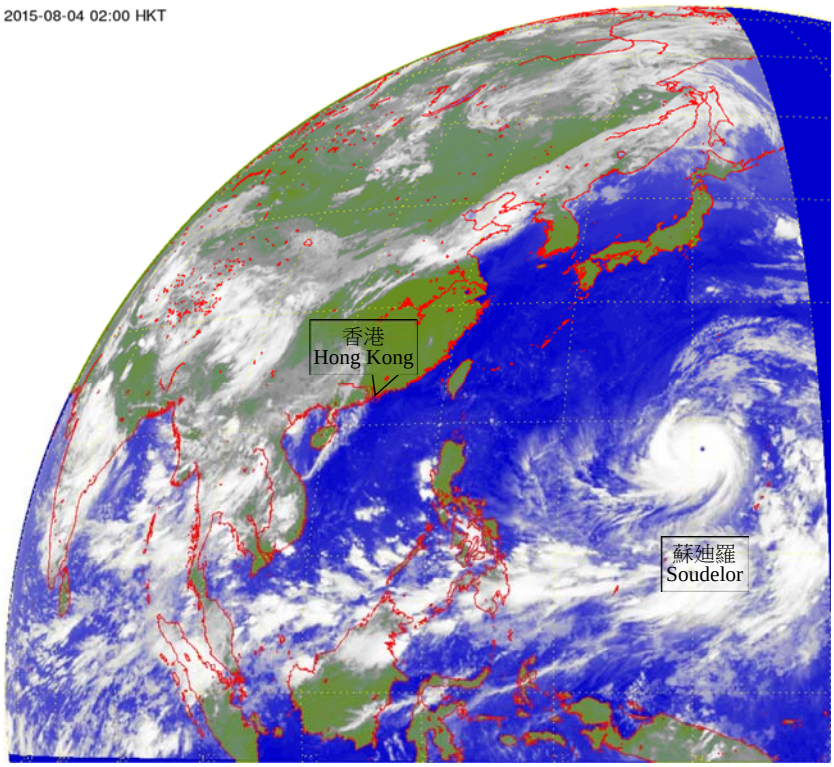

圖 2.4　二零一五年八月四日上午2時超強颱風蘇廸羅(1513)的紅外線衛星圖片。當時蘇廸羅位於馬尼拉之東北偏東約2 130公里的北太平洋西部上，最高風速估計為每小時240公里，而最低中心氣壓為905百帕斯卡。

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.