3.3 強颱風韋森特 (1208) ： 二零一二年七月二十日至二十五日

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

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

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

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

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

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

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

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

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

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

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

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

表3.3.1- 3.3.4 分別是韋森特影響香港期間各站錄得的最高風速、持續風力達到強風及烈風程度的時段、香港的日雨量及最高潮位資料。圖3.3.1及3.3.2 分別為韋森特的路徑圖及韋森特中心附近最高持續風速的時間序列圖。圖3.3.3顯示長洲錄得的風向、風速及海平面氣壓圖及天文台錄得的海平面氣壓圖。圖3.3.4顯示韋森特最接近香港時本港各站錄得的風向和風速。圖3.3.5顯示尖鼻咀錄得的潮位及風暴潮。

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

有關引致天文台需要發出十號颶風信號的颱風的資料，請參考表4.9。

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

表 3.3.2　在韋森特影響下，在熱帶氣旋警告系統的八個參考測風站所錄到持續風力達到強風及烈風程度的時段

Table 3.3.2　Periods during which sustained strong and gale force winds were reached at the eight reference anemometers in the tropical cyclone warning system when warning signals for Vicente were in force

站（參閱圖 1.1） Station (See Fig. 1.1)		最初達到強風*時間 Start time when strong wind speed* was reached		最後達到強風*時間 End time when strong wind speed* was reached		最初達到烈風#時間 Start time when gale force wind speed# was reached		最後達到烈風#時間 End time when gale force wind speed# was reached	
		日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time
長洲	Cheung Chau	21/7	18:15	24/7	23:15	23/7	16:23	24/7	09:36
香港國際機場	Hong Kong International Airport	23/7	13:37	24/7	13:03	23/7	22:25	24/7	05:29
啟德	Kai Tak	21/7	17:49	24/7	12:17	23/7	23:35	24/7	07:58
西貢	Sai Kung	21/7	17:34	24/7	12:15	23/7	19:23	24/7	06:45
沙田	Sha Tin	23/7	22:23	24/7	06:16	-			
打鼓嶺	Ta Kwu Ling	23/7	19:30	24/7	02:44	-			
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	23/7	23:01	24/7	05:35	-			
濕地公園	Wetland Park	23/7	22:59	24/7	05:17	-			

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

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

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

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

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

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

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

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

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

站 (參閱圖 1.1) Station (See Fig. 1.1)		最高潮位 (海圖基準面以上) Maximum sea level (above chart datum)			最大風暴潮 (天文潮高度以上) Maximum storm surge (above astronomical tide)		
		高度(米) Height (m)	日期/月份 Date/Month	時間 Time	高度(米) Height (m)	日期/月份 Date/Month	時間 Time
鰂魚涌	Quarry Bay	2.76	24/7	01:48	1.11	24/7	01:48
石壁	Shek Pik	3.19	24/7	02:08	1.47	24/7	02:08
大廟灣	Tai Miu Wan	2.78	24/7	01:45	1.19	24/7	01:45
大埔滘	Tai Po Kau	3.09	24/7	01:53	1.47	24/7	03:24
尖鼻咀	Tsim Bei Tsui	3.23	24/7	03:46	1.51	24/7	03:46

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

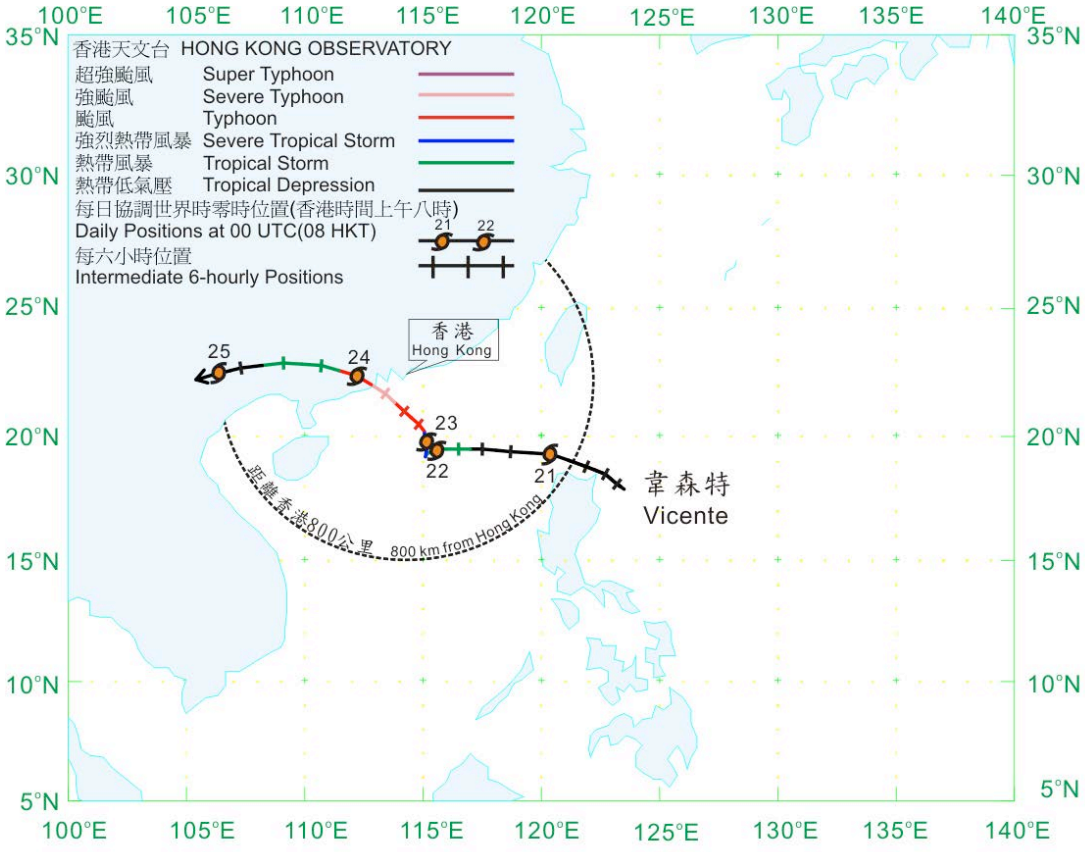

圖 3.3.1(a) 韋森特（1208）在二零一二年七月二十日至二十五日的路徑圖。
Figure 3.3.1(a) Track of Vicente (1208) for 20 - 25 July 2012.

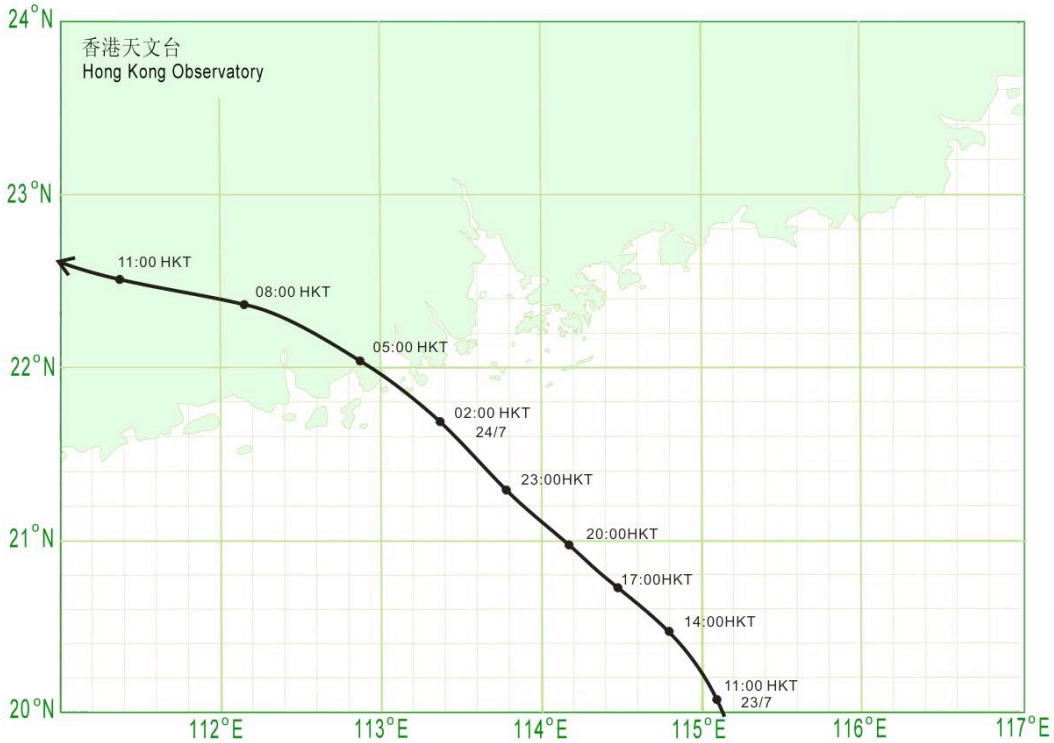

圖 3.3.1(b) 韋森特（1208）接近香港時的路徑圖。
Figure 3.3.1(b) Track of Vicente (1208) near Hong Kong.

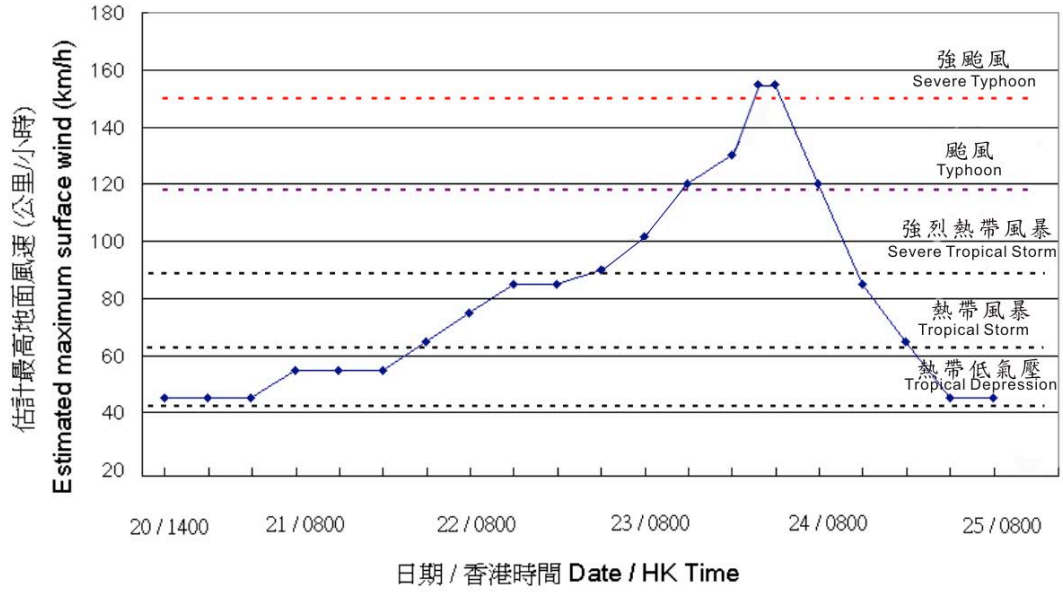

圖 3.3.2　韋森特（1208）中心附近最高持續風速(十分鐘平均)的時間序列。

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

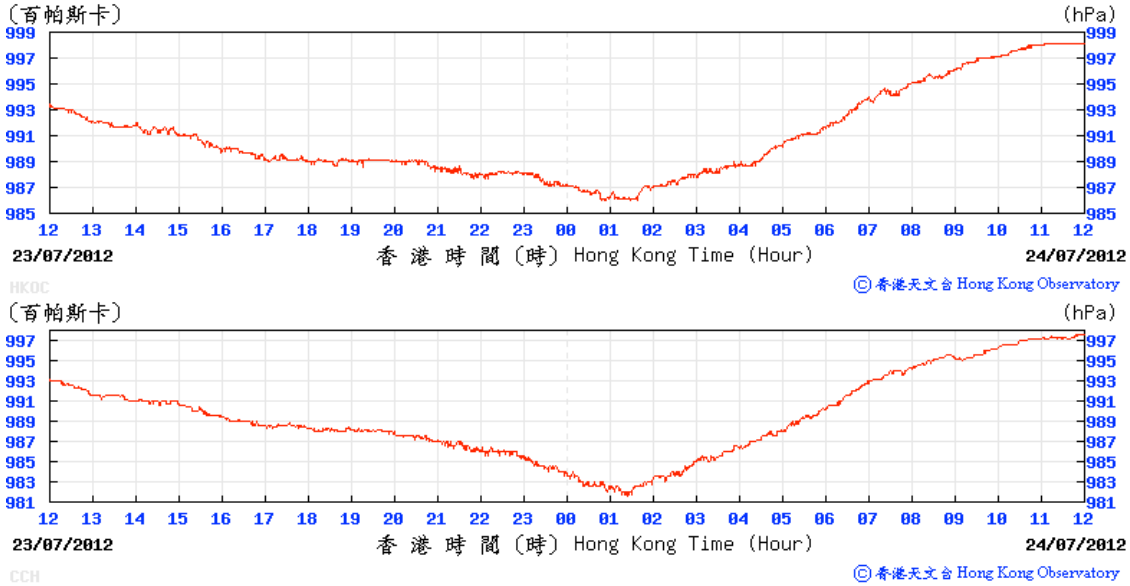

圖 3.3.3(a)　二零一二年七月二十三日至二十四日天文台總部(上)及長洲自動氣象站(下)錄得的海平面氣壓。

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

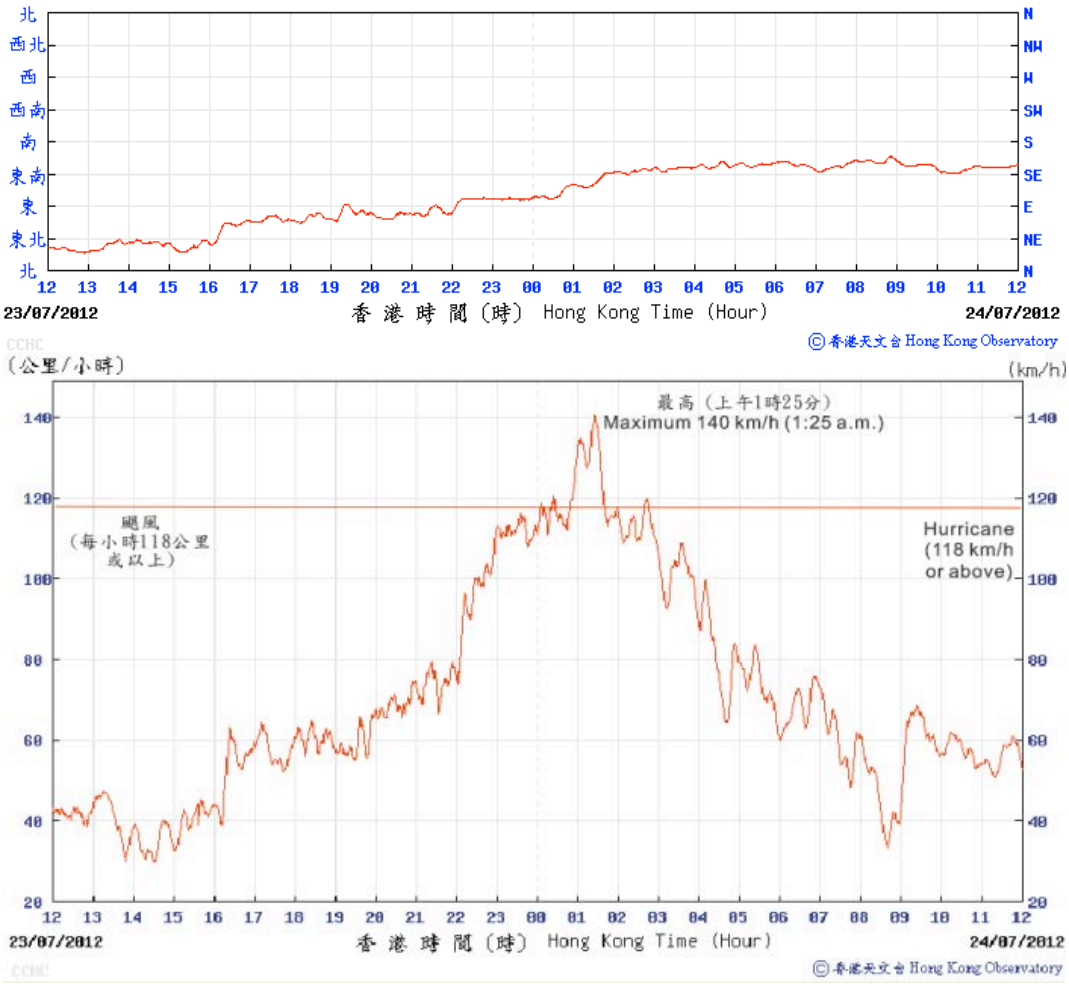

圖 3.3.3(b) 二零一二年七月二十三日至二十四日長洲自動氣象站錄得的十分鐘平均風向(上)及風速(下)。該站在七月二十四日上午 12 時 07 分至 2 時 45 分之間錄得颶風(每小時 118 公里或以上)的風力。

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

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

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

「M」　：表示該站在維修中 Maintenance

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

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

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

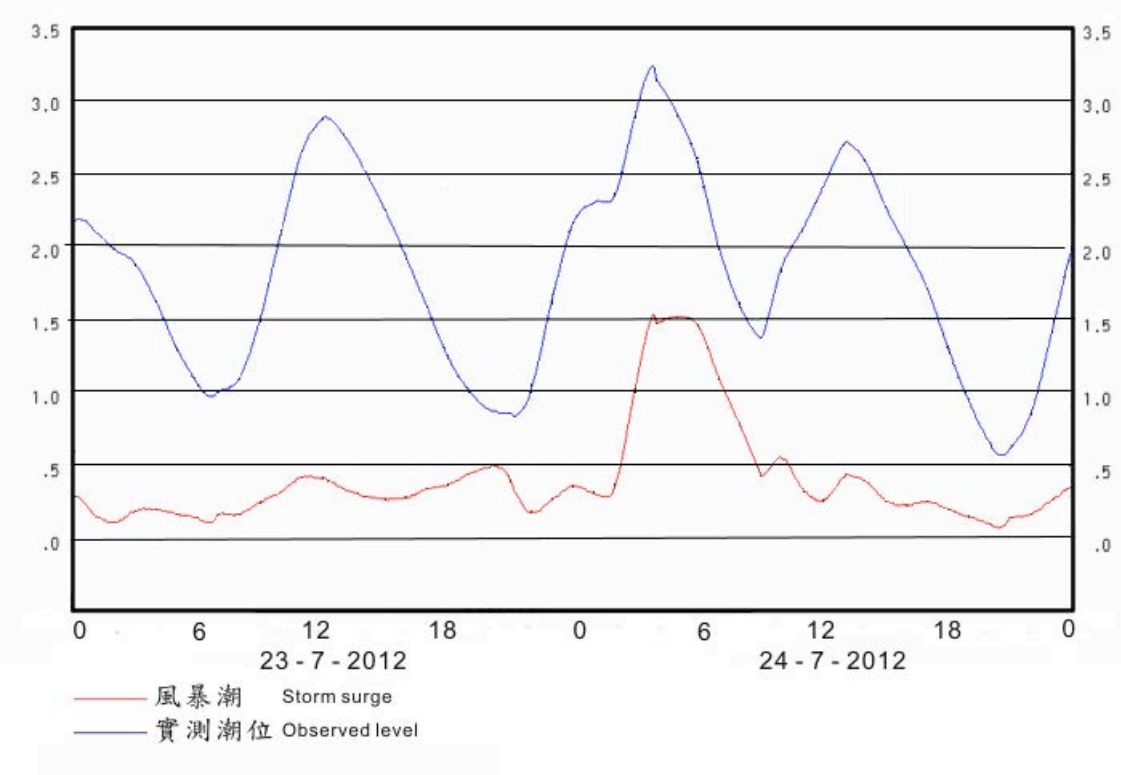

圖 3.3.5　　二零一二年七月二十三日至二十四日尖鼻咀錄得的潮位圖(潮位為海圖基準面以上，單位為米)。

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

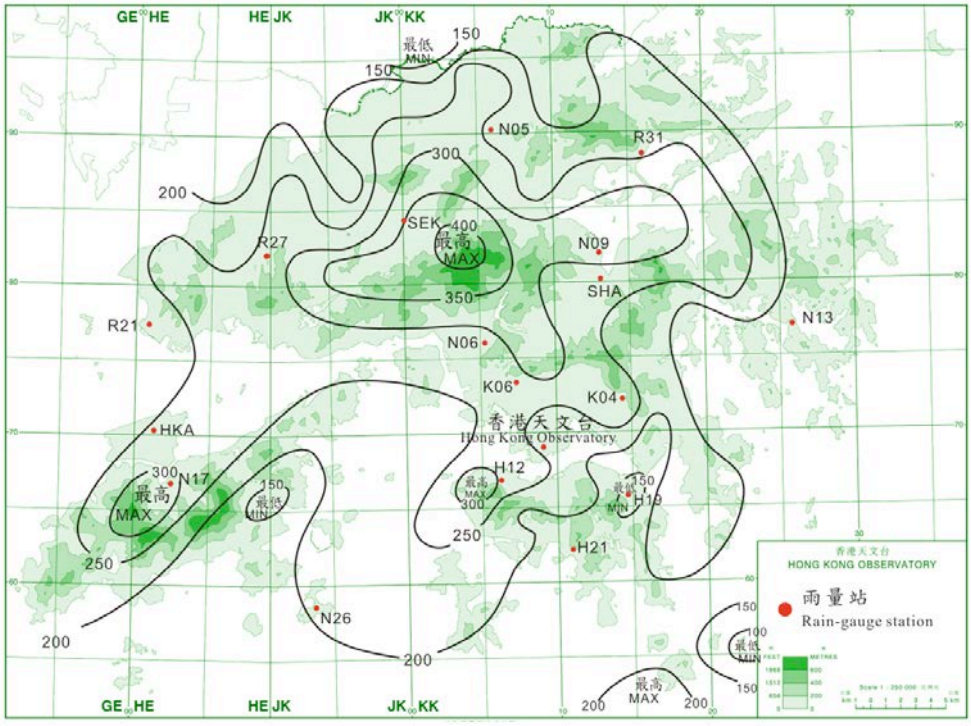

圖 3.3.6　　二零一二年七月二十一日至二十四日的雨量分佈(等雨量線單位為毫米)。

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

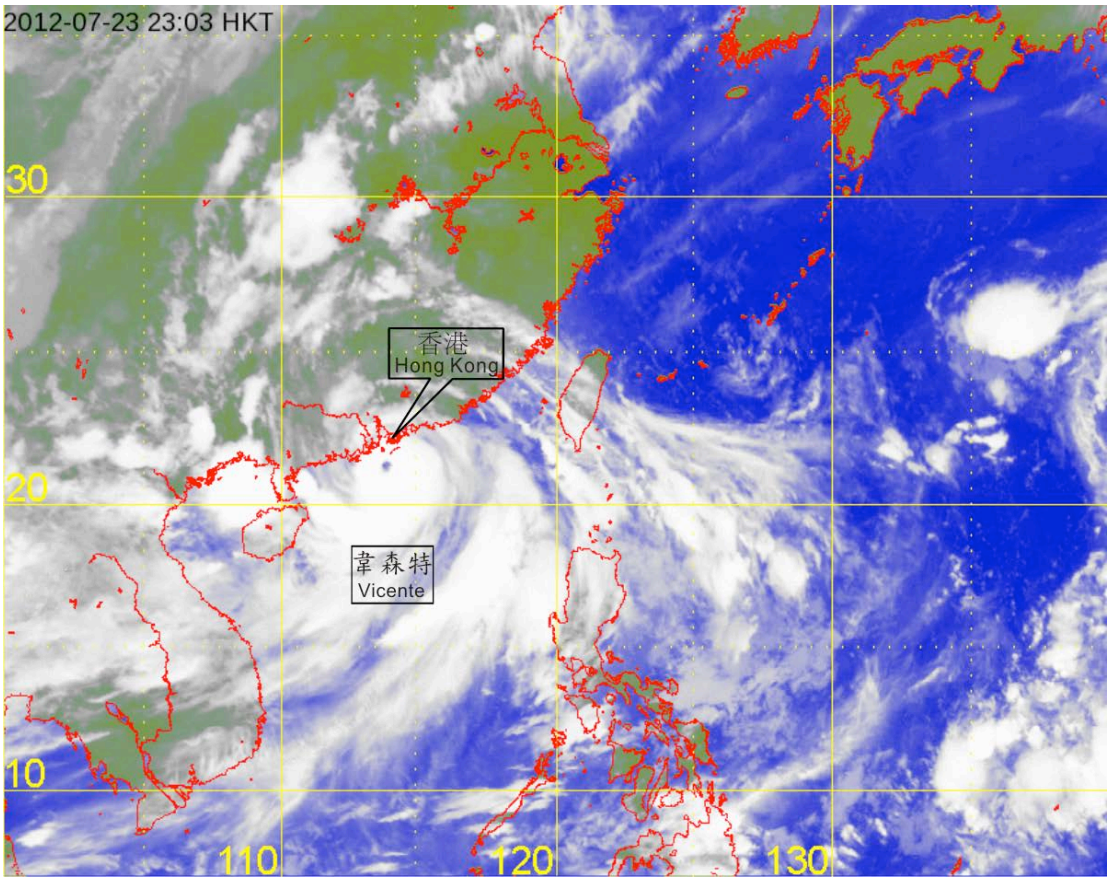

圖 3.3.7　強颱風韋森特在二零一二年七月二十三日下午 11 時的紅外線衛星圖片，其風眼清晰可見，並位於香港之西南偏南約 120 公里的南海北部上。當時韋森特達到其最高強度，中心附近估計最高持續風速達到每小時 155 公里。

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

〔此衛星圖像接收自日本氣象廳的多用途輸送衛星-2。〕

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

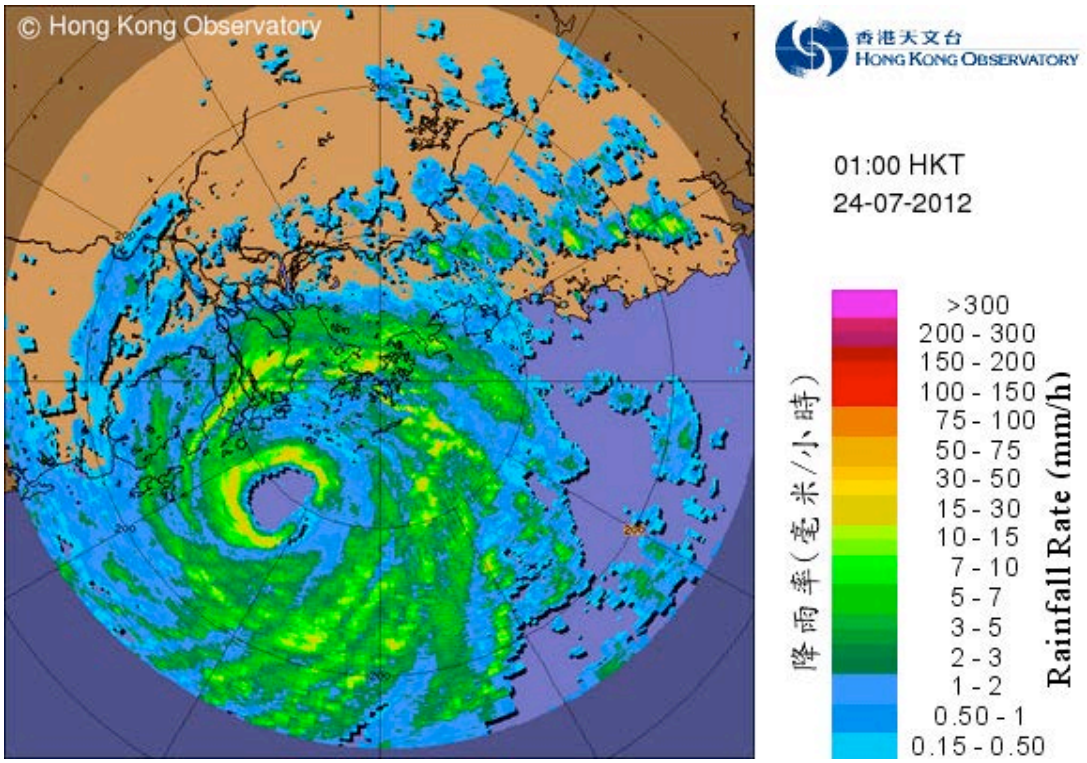

圖 3.3.8(a) 二零一二年七月二十四日上午 1 時的雷達回波圖像，當時強颱風韋森特的中心集結在香港天文台西南約 100 公里。與韋森特相連的雨帶正影響香港及廣東沿岸地區。

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

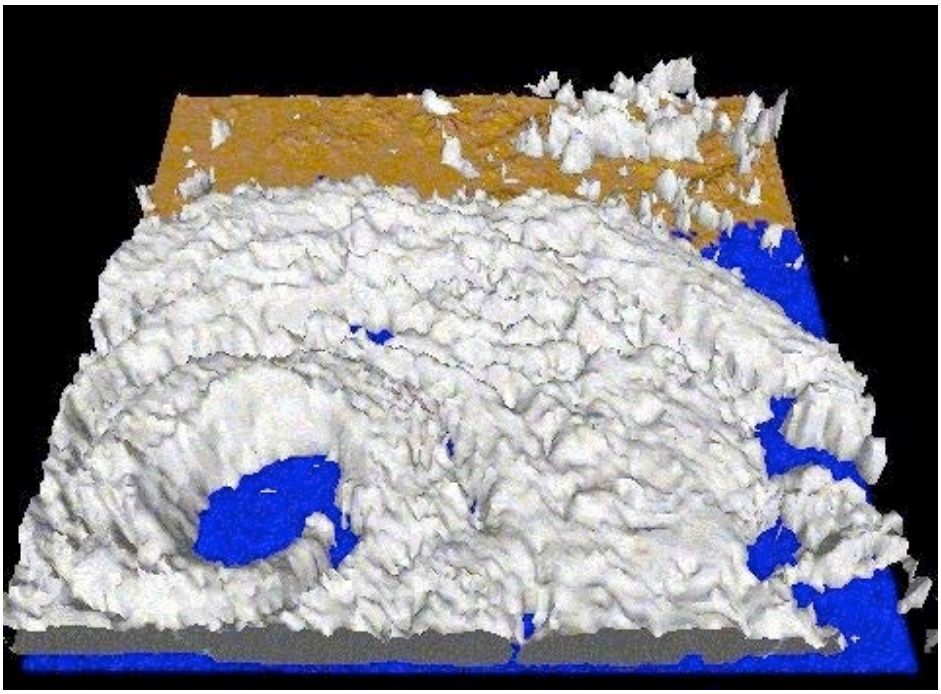

圖 3.3.8(b) 二零一二年七月二十四日上午 1 時的立體雷達回波圖片。

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

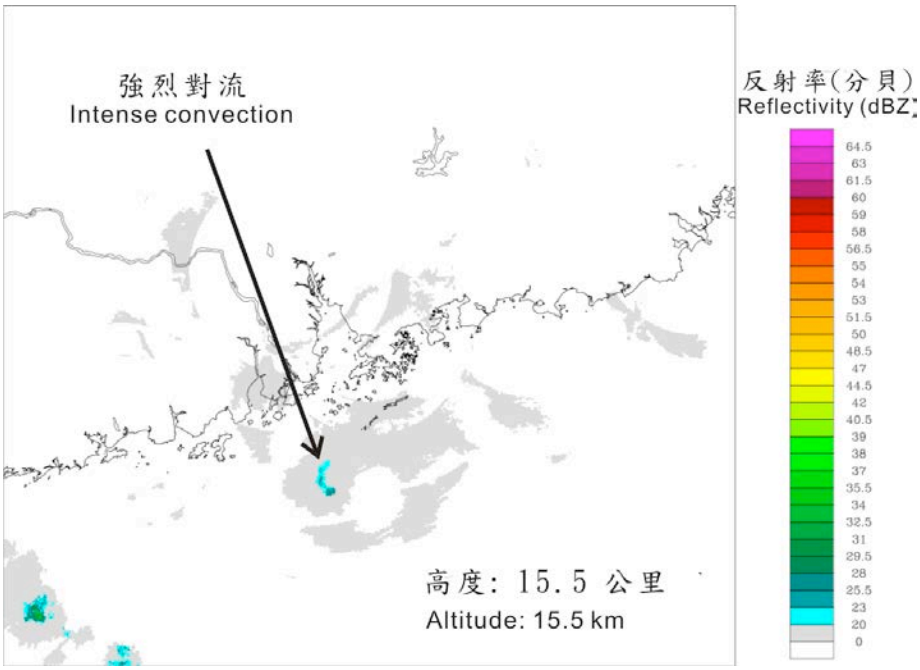

圖 3.3.9(a) 二零一二年七月二十三日下午 10 時 30 分的雷達反射率圖片：15.5 公里高的水平切面圖。箭頭所指之處，顯示韋森特風眼壁（圖中香港以南的灰色區域）上出現強烈對流區域，有劇烈上升運動把雲中水點抬升至對流層頂部。

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

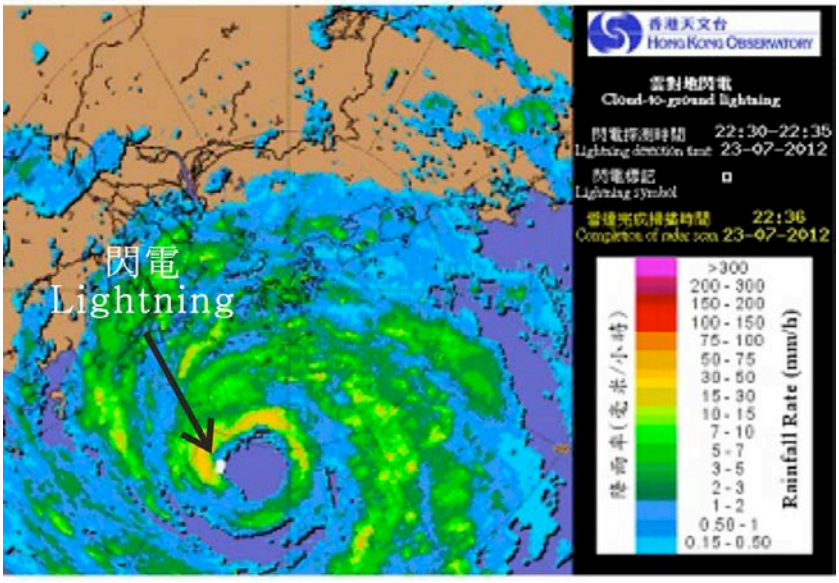

圖 3.3.9(b) 二零一二年七月二十三日下午 10 時 30 分左右雷達圖像上的閃電位置。

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

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

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

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

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