

3.3 強烈熱帶風暴黑格比（0218）：二零零二年九月十至十三日

黑格比是本年首個令香港天文台發出八號烈風或暴風信號的熱帶氣旋。

黑格比於九月十日在東沙島東南約140公里處發展為一個熱帶低氣壓，並穩定地在南海北部向西北偏西移動。它於當晚迅速增強為一個熱帶風暴，並在九月十一日變為一個強烈熱帶風暴，中心附近的最高風速約為每小時110公里。黑格比於九月十二日在廣東西部的陽江附近登陸，之後減弱為一個熱帶風暴及轉向西移，晚上進一步減弱為一個熱帶低氣壓。九月十三日清晨，黑格比在廣西沿岸減弱為一個低壓區。

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

隨著黑格比在香港東南約460公里處形成，天文台在九月十日下午2時40分發出一號戒備信號。在天氣方面，本港於九月十日初時吹輕微至和緩北風及有煙霞，而黑格比的外圍雨帶則由下午開始為本港帶來狂風驟雨及雷暴。當黑格比移向廣東沿岸及繼續增強時，三號強風信號在九月十一日上午5時40分發出，本港亦轉吹偏東強風，橫瀾島的風勢更達烈風程度。因黑格比逼近本港及在中午前增強為一個強烈熱帶風暴，天文台在該日下午1時40分改發八號東南烈風或暴風信號。在其後數小時，離岸及高地的風勢達暴風程度，風向亦由東轉為東南。在長洲錄得的最高持續風力約為每小時100公里。黑格比在下午3時左右最接近香港，當時它位於香港西南偏南約150公里。在黑格比的影響下，本港部份地區錄得的最低瞬時海平面氣壓如下：

站	最低瞬時海平面氣壓 (百帕斯卡)	時間	日/月
香港天文台總部	1001.0	05:14	11/9
打鼓嶺	1001.9	05:32	11/9
橫瀾島	999.9	06:49	11/9
長洲	1000.4	05:20	11/9

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Table 3.3.1 Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations during the issuing of the tropical cyclone warning signal for Hagupit

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

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

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

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

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

站 (參閱圖 1.1) Station (see Fig. 1.1)	最高潮位 (海圖基準面以上) Maximum sea level (above chart datum)			最大風暴潮 (天文潮高度以上) Maximum storm surge (above astronomical tide)		
	高度 (米) Height (m)	日期/月份 Date/Month	時間 Time	高度 (米) Height (m)	日期/月份 Date/Month	時間 Time
鰂魚涌 Quarry Bay	2.68	11/9	13:17	0.72	11/9	14:54
石壁 Shek Pik	2.78	11/9	14:36	0.96	11/9	14:37
大埔滘 Tai Po Kau	2.62	11/9	12:39	0.71	11/9	11:47
尖鼻咀 Tsim Bei Tsui	2.65	11/9	13:06	0.69	11/9	16:56
橫瀾島 Waglan Island	2.70	11/9	12:44	0.64	11/9	12:44

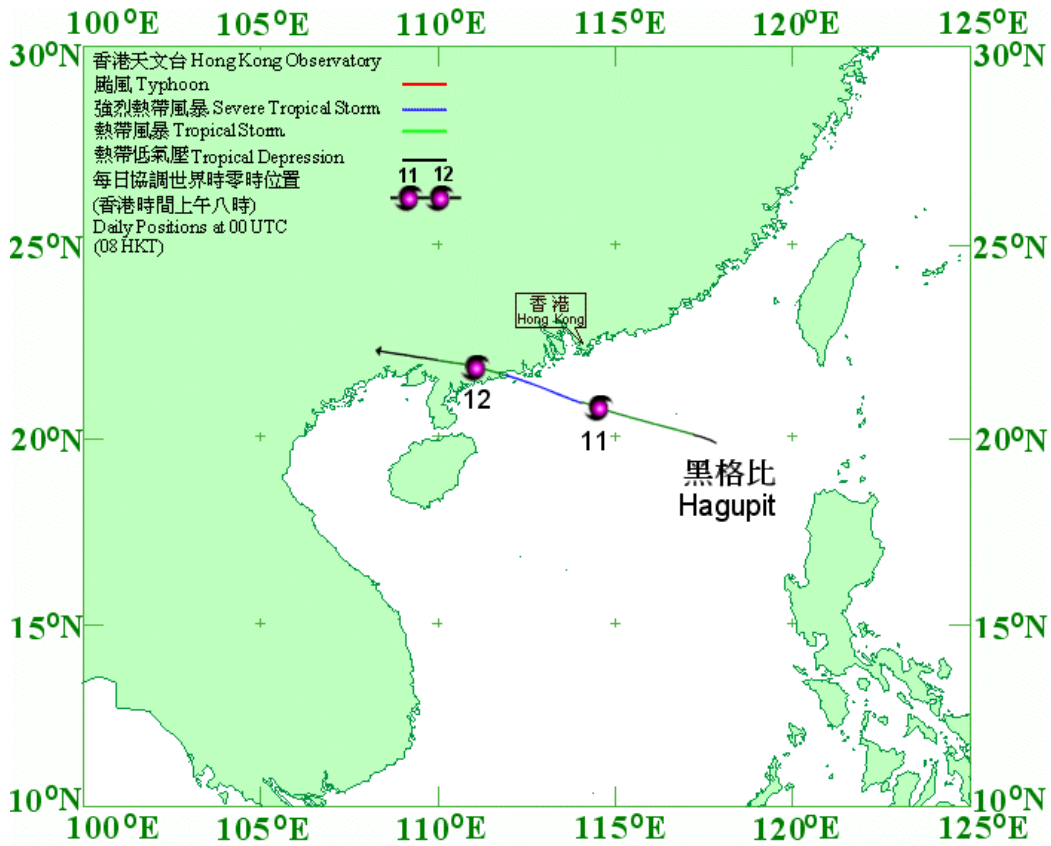


圖 3.3.1.a 二零零二年九月十至十三日黑格比 (0218) 的路徑圖。
 Figure 3.3.1.a Track of Hagupit (0218) : 10 - 13 September 2002.

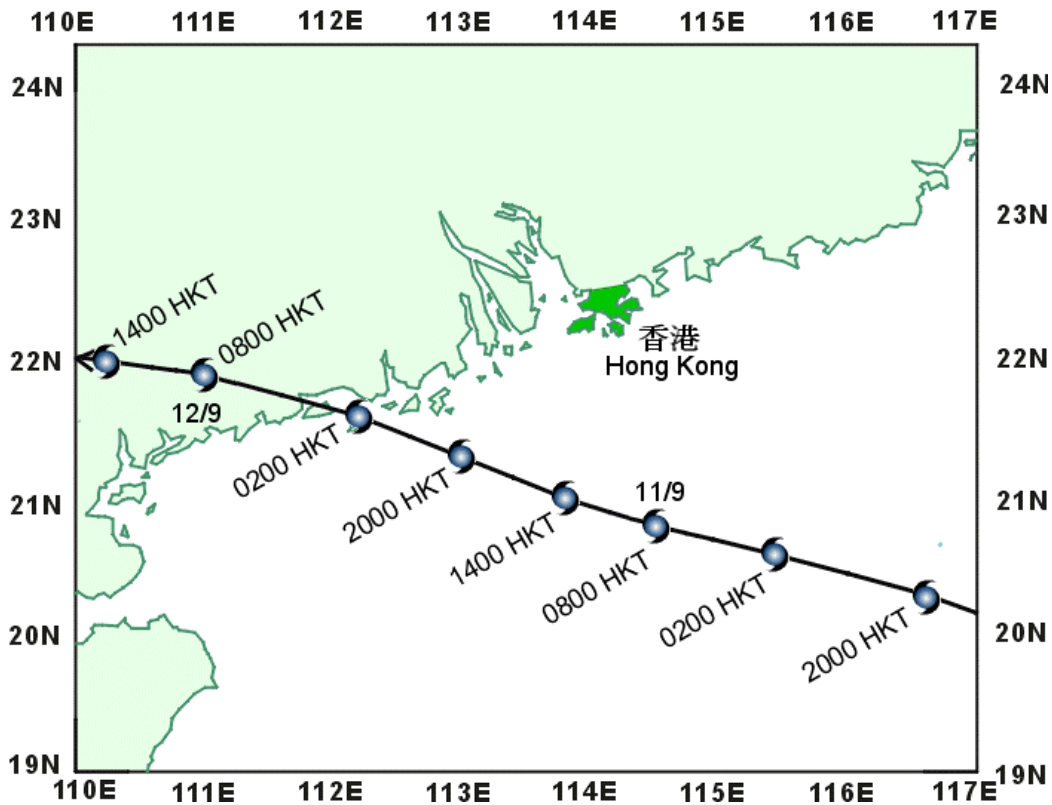


圖 3.3.1.b 黑格比接近香港時的路徑圖。
 Figure 3.3.1.b Track of Hagupit near Hong Kong.

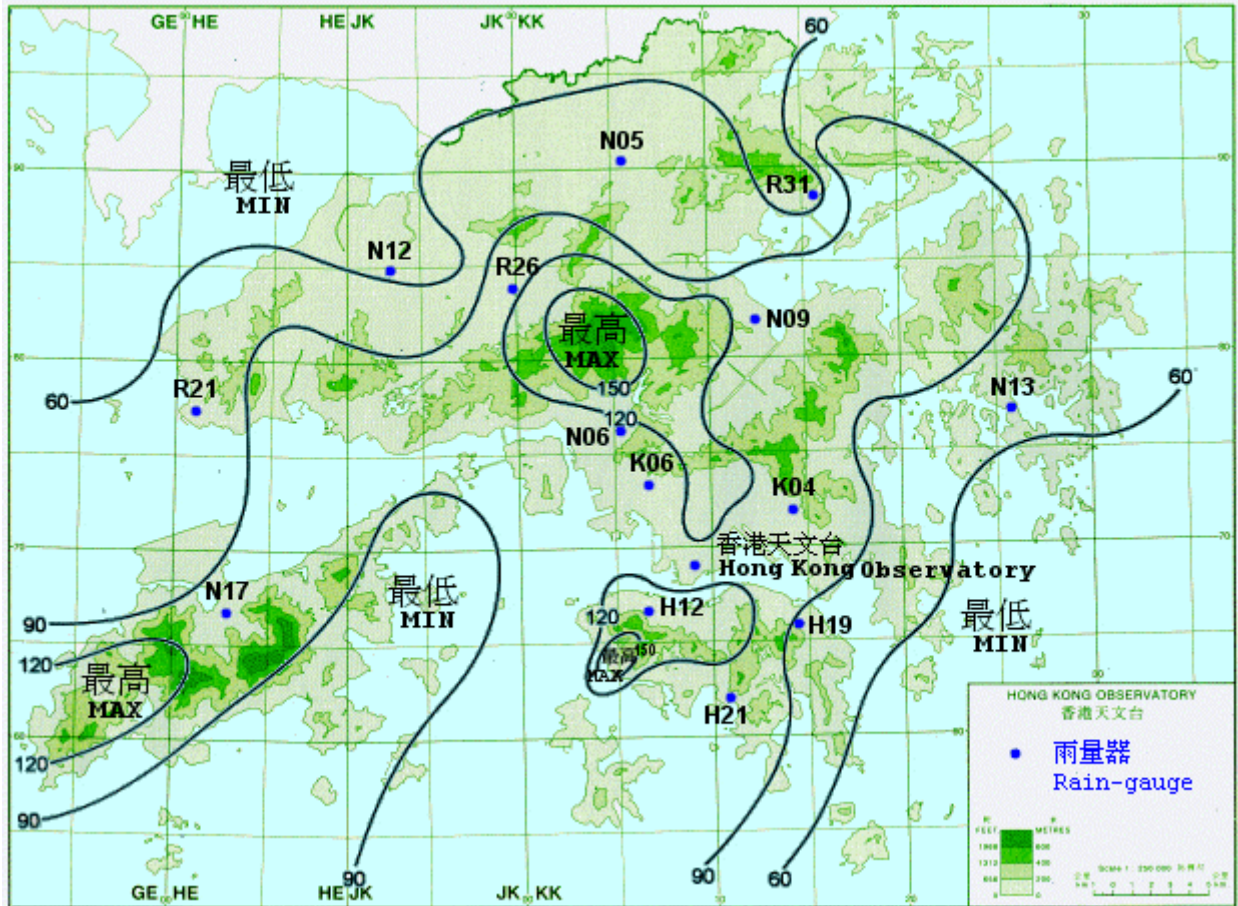


圖 3.3.2 二零零二年九月十至十二日的雨量分佈 (等雨量線單位為毫米)。
 Figure 3.3.2 Rainfall distribution on 10-12 September 2002 (isohyets are in millimetres).

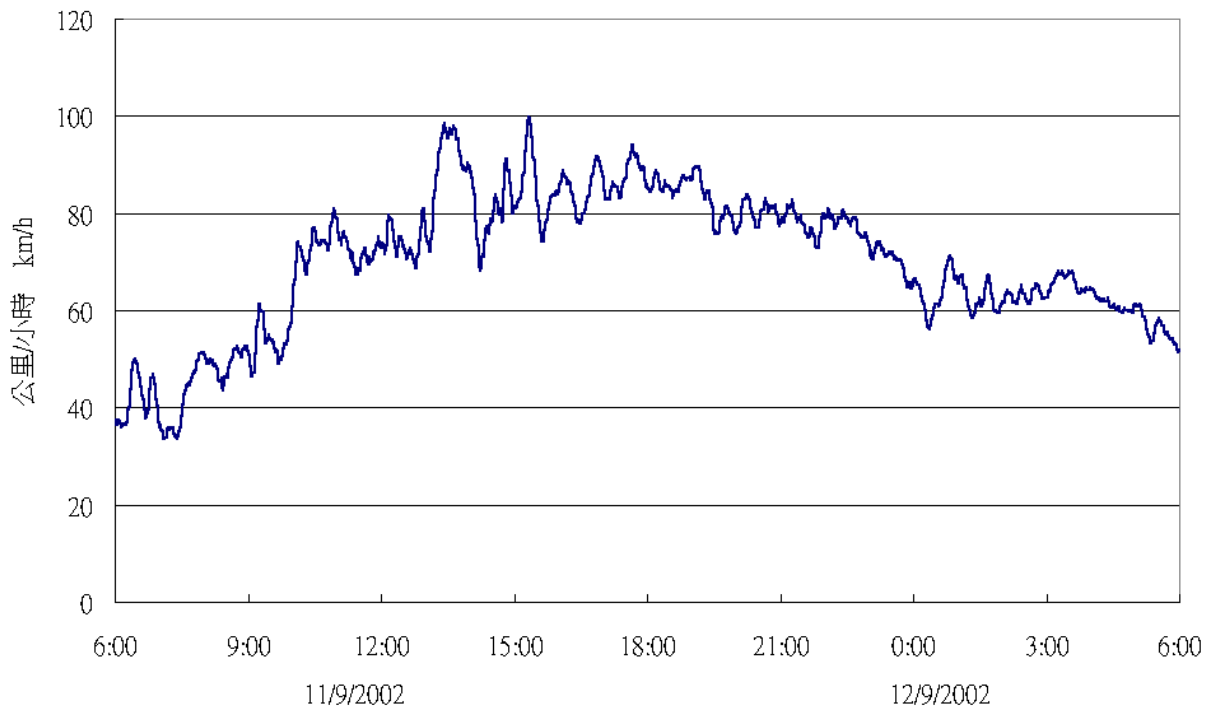


圖 3.3.3 長洲錄得的十分鐘平均風速的變化情形。
 Figure 3.3.3 Trace of the 10-minute mean wind speed recorded at Cheung Chau.

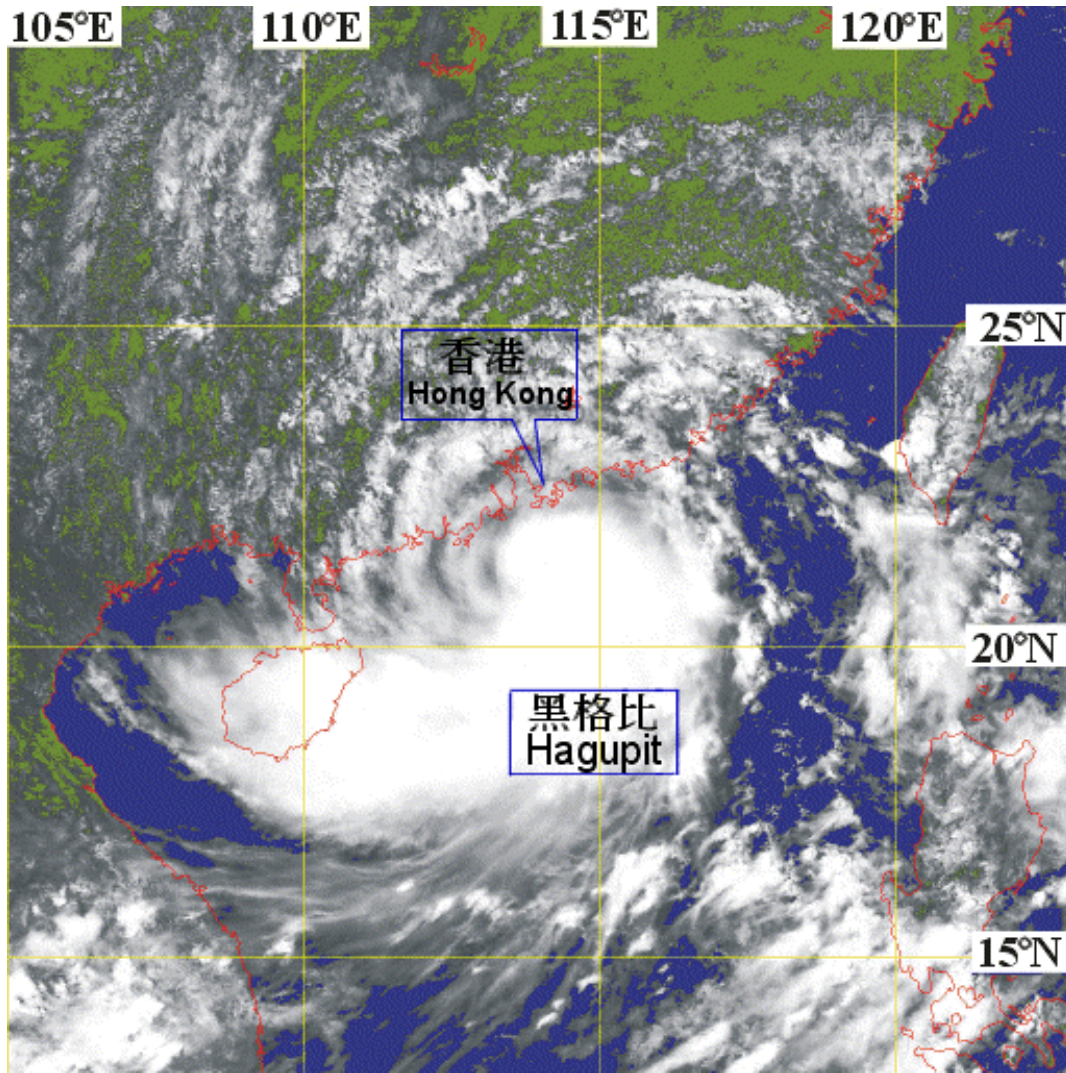


圖 3.3.4 二零零二年九月十一日約下午1時30分的可見光衛星圖片，當時黑格比為一個強烈熱帶風暴，中心風力約每小時110公里。〔此衛星雲圖接收自日本氣象廳的地球同步氣象衛星(GMS-5)〕

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

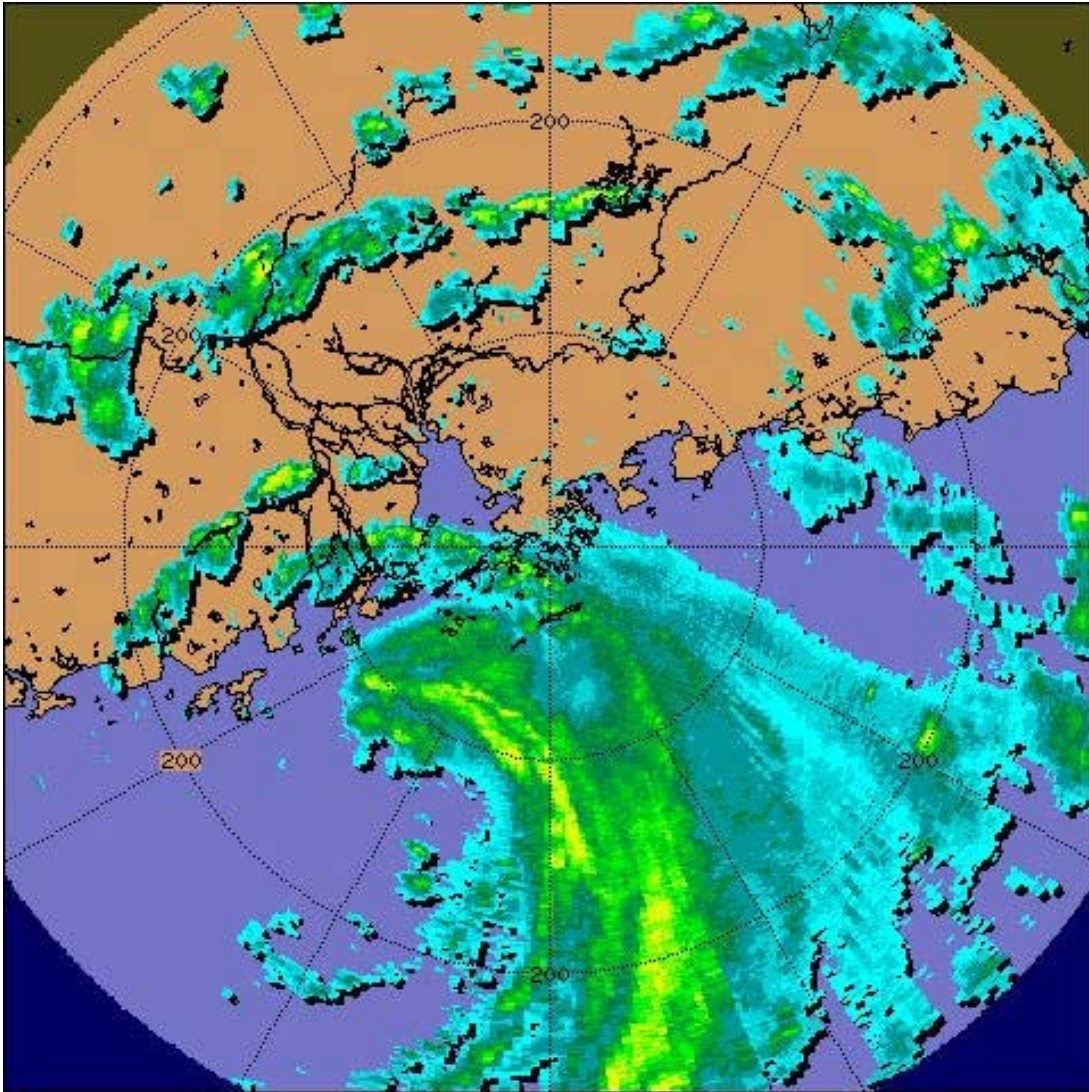


圖 3.3.5 二零零二年九月十一日下午3時的雷達回波圖像，當時黑格比的外圍雨帶正影響香港的西南部。

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