

### 3.3 颱風查帕卡(2107)：二零二一年七月十八日至二十四日

查帕卡是二零二一年第四個影響香港的熱帶氣旋。

熱帶低氣壓查帕卡於七月十八日晚上在香港之西南偏南約180公里的南海北部上形成，也是查帕卡最接近香港的時候。當晚查帕卡大致向西北至西北偏西方向緩慢移動，趨向廣東西部沿岸並迅速增強。七月二十日凌晨查帕卡增強為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120公里，晚上查帕卡開始減弱並在陽江附近登陸。查帕卡於七月二十一日橫過廣東西部及廣西內陸，逐步減弱為熱帶低氣壓。查帕卡翌日轉向西南偏南移動，七月二十三日進入北部灣。最後於七月二十四日在北部灣減弱為一個低壓區。

七月十八日晚上查帕卡形成後，天文台在當晚9時40分發出一號戒備信號。當晚及翌日早上本港普遍吹和緩至清勁偏東風，離岸及高地間中吹強風。由於查帕卡逐漸靠近廣東西部沿岸及顯著增強，天文台在七月十九日下午4時10分發出三號強風信號，當時查帕卡集結在香港之西南約180公里。當晚及七月二十日初時本港離岸吹強風，高地間中吹烈風。隨著查帕卡逐漸遠離香港並減弱，本港風力緩和，天文台於七月二十日下午1時20分以一號戒備信號取代三號強風信號，到當晚7時40分取消所有熱帶氣旋警告信號。

在查帕卡的影響下，尖鼻咀錄得最高潮位(海圖基準面以上) 2.60米，而大埔滘則錄得最大風暴潮(天文潮高度以上) 0.41米。天文台總部於七月十九日下午4時09分錄得最低瞬時海平面氣壓1001.2百帕斯卡。

受查帕卡相關的外圍雨帶影響，本港七月十八日至二十日有狂風大驟雨及雷暴，期間天文台曾四度發出黃色暴雨警告，亦在七月二十日下午發出新界北部水浸特別報告。這三天本港大部分地區錄得超過200毫米雨量，新界東的雨量更超過350毫米。

查帕卡吹襲香港期間，本港有多宗塌樹及水浸報告。在強陣風下牛池灣有大樹倒塌並壓毀鐵絲網。一名男子於七月二十日在馬鞍山遠足時遭洪水沖走，其後被證實死亡。

### 3.3 Typhoon Cempaka (2107): 18 to 24 July 2021

Cempaka was the fourth tropical cyclone affecting Hong Kong in 2021.

Cempaka formed as a tropical depression over the northern part of the South China Sea about 180 km south-southwest of Hong Kong on the night of 18 July. It was also closest to Hong Kong at that time. Cempaka moved generally northwestwards to west-northwestwards slowly towards the coast of western Guangdong and intensified rapidly at night. Cempaka intensified into a typhoon in the small hours on 20 July and reached its peak intensity with an estimated maximum sustained wind of 120 km/h near its centre. It started to weaken at night and made landfall near Yangjiang. Cempaka moved across western Guangdong and inland Guangxi, and weakened into a tropical depression progressively on 21 July. It turned to move south-southwestwards the next day and entered Beibu Wan on 23 July. Cempaka finally degenerated into an area of low pressure over Beibu Wan on 24 July.

After the formation of Cempaka on the night of 18 July, the Hong Kong Observatory issued the Standby Signal, No.1 at 9:40 p.m. that night. Local winds were generally moderate to fresh easterlies that night and the next morning, occasionally reaching strong force offshore and on high ground. With Cempaka edging closer to the coast of western Guangdong and intensifying, the Strong Wind Signal, No.3 was issued at 4:10 p.m. on 19 July when Cempaka was about 180 km southwest of Hong Kong. Locally, there were strong winds offshore and occasional gales on high ground that night and on the morning of 20 July. As Cempaka moved away from Hong Kong gradually and weakened, local winds moderated and the Strong Wind Signal, No.3 was replaced by the Standby Signal, No.1 at 1:20 p.m. on 20 July. All tropical cyclone warning signals were cancelled at 7:40 p.m. that day.

Under the influence of Cempaka, a maximum sea level (above chart datum) of 2.60 m and a maximum storm surge of 0.41 m (above astronomical tide) were recorded at Tsim Bei Tsui and Tai Po Kau respectively. At the Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 1001.2 hPa was recorded at 4:09 p.m. on 19 July.

The outer rainbands associated with Cempaka brought heavy squally showers and thunderstorms to Hong Kong on 18 - 20 July. The Observatory issued the Amber Rainstorm Warning for four times during this period. The Special Announcement on Flooding in Northern New Territories was also issued on the afternoon of 20 July. More than 200 millimetres of rainfall were recorded over most part of Hong Kong during these three days, with rainfall exceeding 350 millimetres over the eastern part of the New Territories.

A number of fallen trees and flooding were reported in Hong Kong during the passage of Cempaka. A tree toppled at Ngau Chi Wan under intense gusts, damaging the wire fences. A man was washed away by flash floods while hiking in Ma On Shan on 20 July and confirmed dead later.

表 3.3.1 在查帕卡影響下，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 Cempaka 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	東南偏東	ESE	55	20/7	03:22	東	E	32	19/7	11:00
長洲	Cheung Chau	東南偏東	ESE	75	19/7	12:05	東南偏東	ESE	44	20/7	00:00
長洲泳灘	Cheung Chau Beach	東北偏東	ENE	75	19/7	12:00	東北偏東	ENE	47	19/7	13:00
香港國際機場	Hong Kong International Airport	東	E	51	19/7	12:35	東	E	30	19/7	22:00
啟德	Kai Tak	東北	NE	63	19/7	00:18	東	E	25	19/7	15:00
京士柏	King's Park	東	E	53	19/7	20:42	東	E	21	19/7	21:00
南丫島	Lamma Island	東南偏東	ESE	60	19/7	12:06	東	E	27	19/7	13:00
流浮山	Lau Fau Shan	東	E	53	19/7	15:55	東	E	24	19/7	16:00
昂坪	Ngong Ping	東	E	96	20/7	06:10	東	E	69	19/7	18:00
北角	North Point	東	E	54	19/7	07:35	東	E	33	19/7	11:00
		東北偏東	ENE	54	19/7	10:47					
坪洲	Peng Chau	東	E	58	19/7	12:56	東	E	39	19/7	18:00
平洲	Ping Chau	東北偏東	ENE	34	19/7	09:44	東	E	12	19/7	19:00
西貢	Sai Kung	東	E	86	18/7	22:58	東北偏東	ENE	34	19/7	11:00
沙洲	Sha Chau	東南偏東	ESE	54	19/7	12:39	東南偏東	ESE	34	19/7	18:00
沙螺灣	Sha Lo Wan	東	E	53	19/7	16:50	東	E	25	19/7	17:00
沙田	Sha Tin	東	E	39	19/7	15:10	東北	NE	14	18/7	23:00
		東南	SE	39	19/7	16:47					
九龍天星碼頭	Star Ferry (Kowloon)	東	E	54	19/7	23:42	東	E	28	19/7	15:00
打鼓嶺	Ta Kwu Ling	東南偏東	ESE	50	19/7	13:57	東	E	16	19/7	16:00
大美督	Tai Mei Tuk	東	E	76	18/7	23:05	東	E	42	19/7	18:00
大帽山	Tai Mo Shan	東南偏東	ESE	89	19/7	18:55	東	E	62	19/7	18:00
大埔滘	Tai Po Kau	東	E	61	18/7	23:11	東	E	32	19/7	19:00
塔門東	Tap Mun East	東	E	89	18/7	22:53	東南偏東	ESE	48	19/7	15:00
大老山	Tate's Cairn	東南偏東	ESE	86	19/7	00:14	東南偏東	ESE	56	19/7	18:00
		東南偏東	ESE	86	19/7	00:15					
將軍澳	Tseung Kwan O	東北偏北	NNE	40	19/7	00:21	北	N	6	19/7	01:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東	E	51	19/7	02:46	東南偏東	ESE	19	20/7	19:00
屯門政府合署	Tuen Mun Government Offices	東北	NE	37	19/7	03:02	東北偏北	NNE	11	20/7	07:00
橫瀾島	Waglan Island	東南偏東	ESE	75	19/7	12:22	東	E	53	19/7	11:00
		東南偏東	ESE	75	19/7	12:24					
濕地公園	Wetland Park	東	E	36	18/7	23:35	東	E	12	19/7	19:00
黃竹坑	Wong Chuk Hang	-	-	51	19/7	00:36	-	-	18	19/7	11:00

黃麻角(赤柱)、青洲、石崗 - 沒有資料 Bluff Head (Stanley), Green Island, Shek Kong - data not available  
 黃竹坑 - 沒有風向資料 Wong Chuk Hang - wind direction not available

表 3.3.2 在查帕卡影響下，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 winds were attained at the eight reference anemometers in the tropical cyclone warning system when tropical cyclone warning signals for Cempaka were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		最初達到強風*時間		最後達到強風*時間	
		Start time when strong wind speed* was attained		End time when strong wind speed* was attained	
		日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time
長洲	Cheung Chau	19/7	01:56	20/7	18:48
西貢	Sai Kung	18/7	23:04	19/7	00:14

香港國際機場、啟德、流浮山、沙田、打鼓嶺、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 Hong Kong International Airport, Kai Tak, 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： 本表列出持續風力達到強風程度的起始及終結時間。期間風力可能高於或低於指定的風力。

Note: The table gives the start and end time of sustained strong winds. Winds might fluctuate above or below the specified wind speeds in between the times indicated.

表 3.3.3 查帕卡影響香港期間，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 Cempaka

站(參閱圖 3.3.2) Station (See Fig. 3.3.2)			七月十八日 18 Jul	七月十九日 19 Jul	七月二十日 20 Jul	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory (HKO)			42.4	117.2	87.8	247.4
香港國際機場 Hong Kong International Airport (HKA)			12.6	104.5	137.1	254.2
長洲 Cheung Chau (CCH)			[38.5]	[142.0]	[128.0]	[308.5]
H23	香港仔	Aberdeen	57.5	93.5	82.5	233.5
N05	粉嶺	Fanling	5.0	52.5	109.5	167.0
N13	糧船灣	High Island	47.0	62.5	141.5	251.0
K04	佐敦谷	Jordan Valley	48.0	170.5	162.5	381.0
N06	葵涌	Kwai Chung	24.0	112.0	112.0	248.0
H12	半山區	Mid Levels	54.0	114.0	102.0	270.0
N09	沙田	Sha Tin	40.5	92.5	166.0	299.0
H19	筲箕灣	Shau Kei Wan	80.0	130.5	107.0	317.5
SEK	石崗	Shek Kong	[14.0]	[64.5]	[118.5]	[197.0]
K06	蘇屋邨	So Uk Estate	29.0	126.5	100.5	256.0
R31	大美督	Tai Mei Tuk	8.0	45.5	116.0	169.5
R21	踏石角	Tap Shek Kok	5.5	52.5	123.5	181.5
TMR	屯門水庫	Tuen Mun Reservoir	5.0	62.1	120.1	187.2

東涌 (N17) - 沒有資料 Tung Chung (N17) - data not available

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

表 3.3.4 查帕卡影響香港期間，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 Cempaka

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	2.34	20/7	05:14	0.31	20/7	05:14
石壁	Shek Pik	2.48	20/7	05:27	0.39	19/7	12:17
大廟灣	Tai Miu Wan	2.30	20/7	05:45	0.38	18/7	23:18
大埔滘	Tai Po Kau	2.36	20/7	05:24	0.41	20/7	05:09
尖鼻咀	Tsim Bei Tsui	2.60	20/7	06:37	0.34	20/7	10:55

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

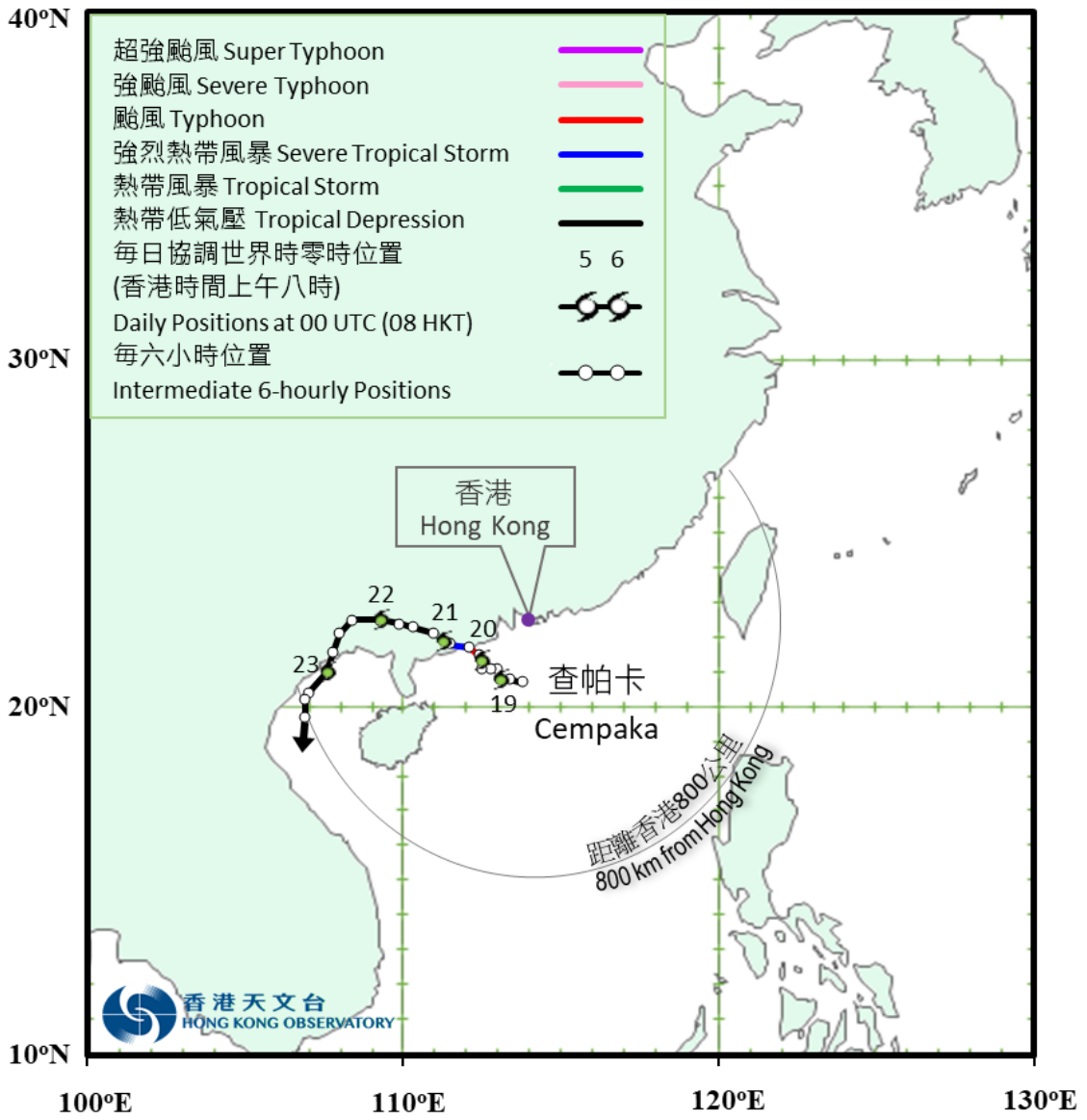


圖 3.3.1a 二零二一年七月十八日至二十四日查帕卡的路徑圖。  
Figure 3.3.1a Track of Cempaka : 18 – 24 July 2021.



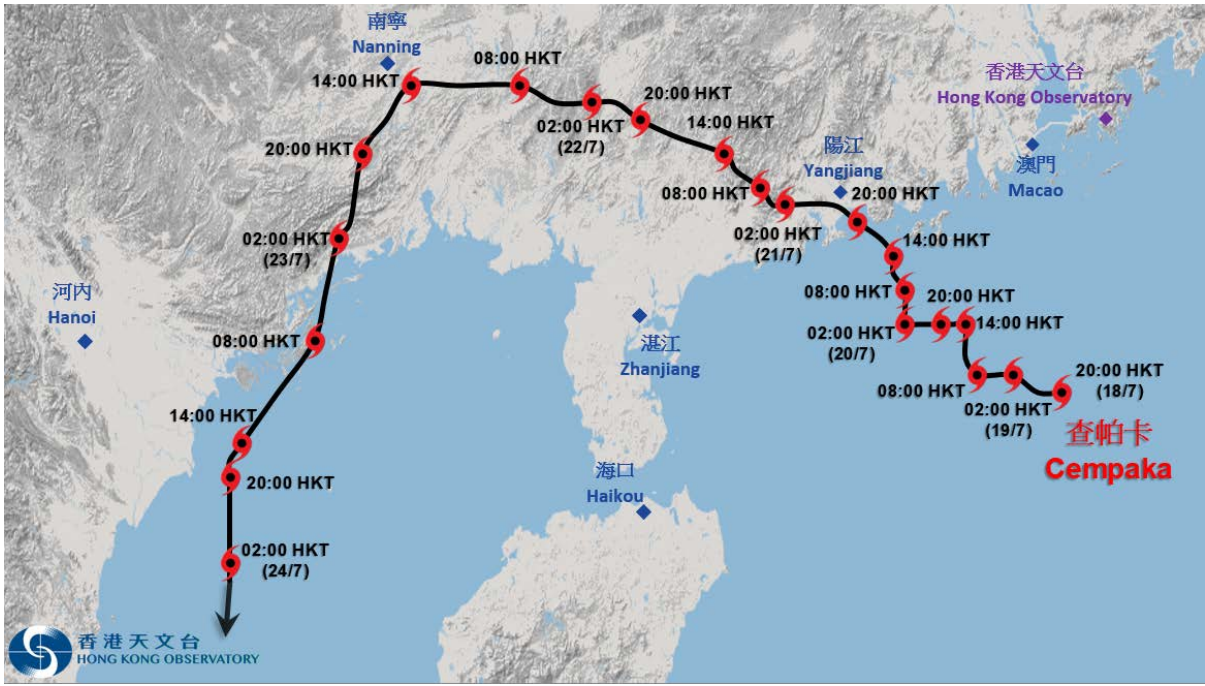


圖 3.3.1b 查帕卡接近香港時的路徑圖。  
Figure 3.3.1b Track of Cempaka near Hong Kong.

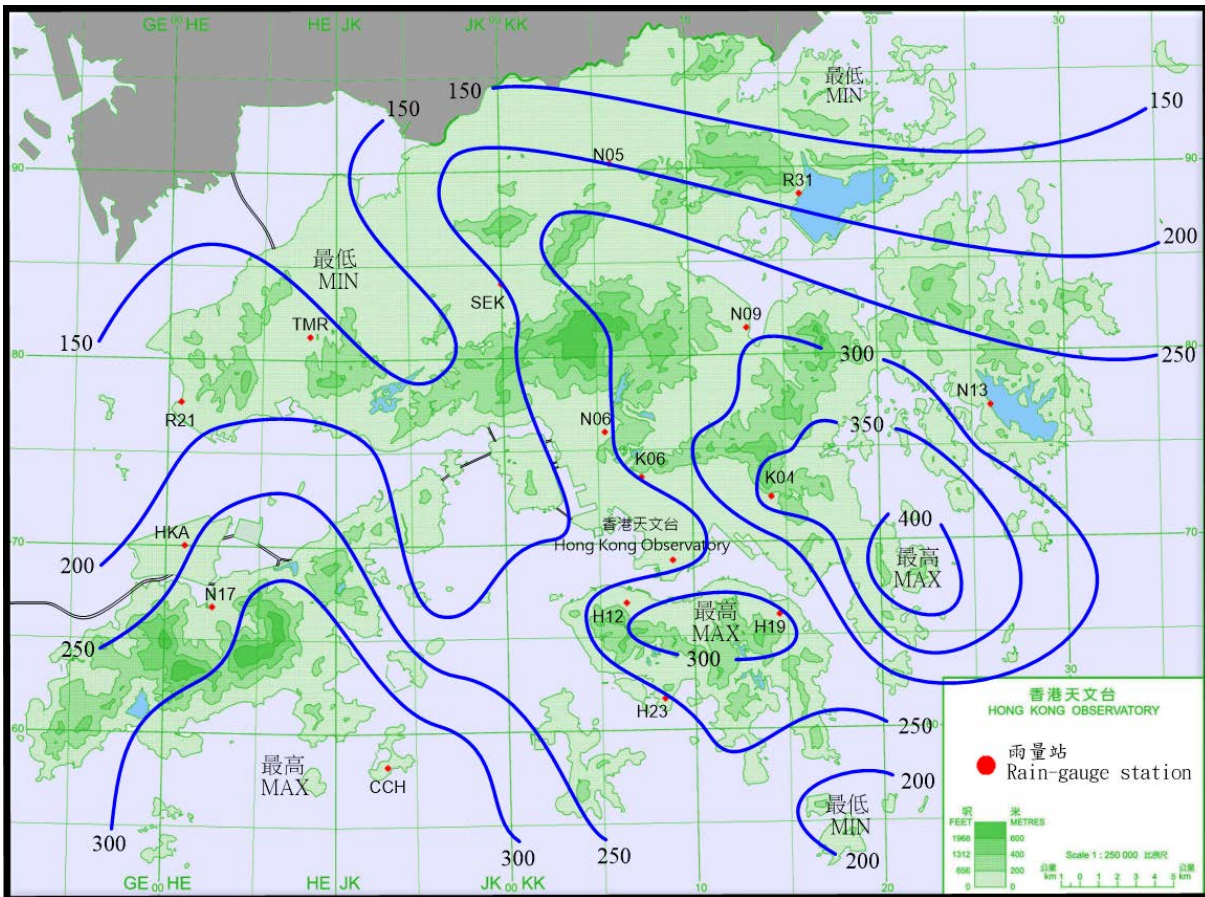


圖 3.3.2 二零二一年七月十八日至二十日的雨量分佈(等雨量線單位為毫米)。  
Figure 3.3.2 Rainfall distribution on 18 – 20 July 2021 (isohyets in millimetres).

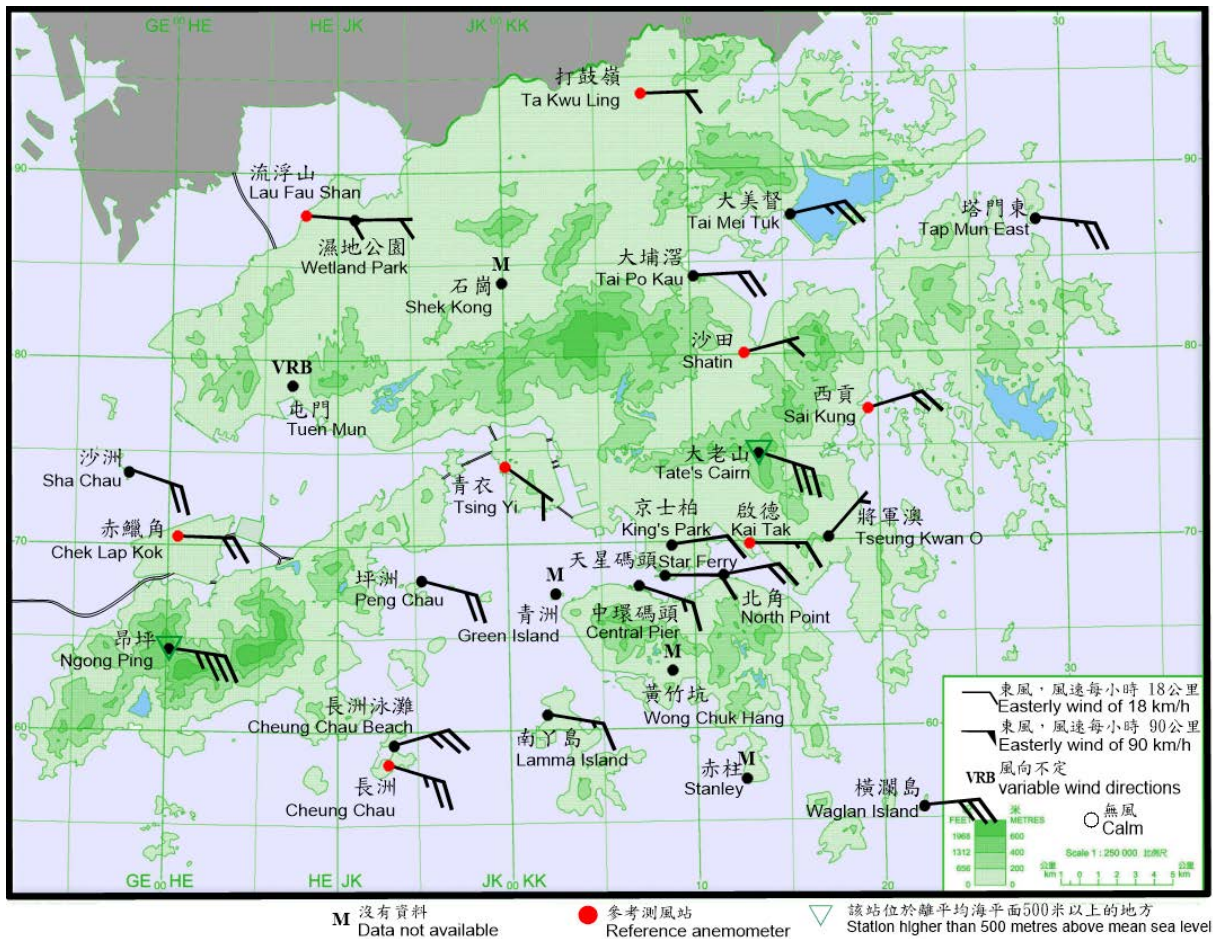


圖 3.3.3 二零二一年七月十九日下午 6 時正香港各站錄得的十分鐘平均風向和風速。當時昂坪的風力達到烈風程度，大老山、橫瀾島、長洲、長洲泳灘及大美督的風力達到強風程度。

Figure 3.3.3 10-minute mean wind direction and speed recorded at various stations in Hong Kong at 6:00 p.m. on 19 July 2021. Wind at Ngong Ping reached gale force at that time, while winds at Tate's Cairn, Waglan Island, Cheung Chau, Cheung Chau Beach and Tai Mei Tuk reached strong force.

註：屯門當時錄得的十分鐘平均風速為每小時10公里。

Note: The 10-minute mean wind speed recorded at Tuen Mun was 10 km/h at that time.



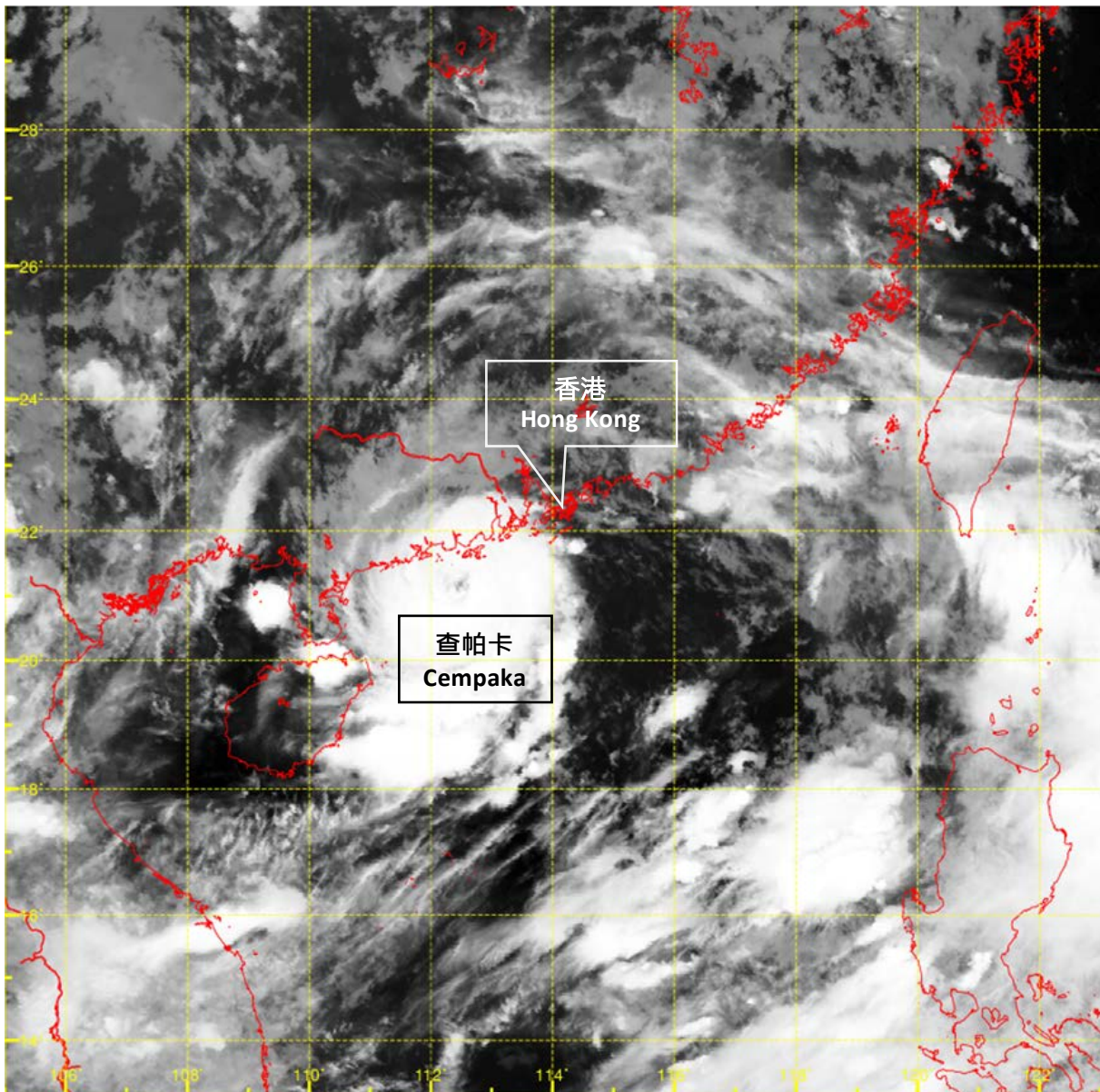


圖 3.3.4 二零二一年七月二十日上午 2 時左右的紅外線衛星圖片，當時查帕卡達到其最高強度，中心附近最高持續風速估計為每小時 120 公里。查帕卡的對流雲團較為細小，直徑只有約 350 公里。

Figure 3.3.4 Infra-red satellite imagery around 2 a.m. on 20 July 2021, when Cempaka was at its peak intensity with an estimated sustained wind of 120 km/h near its centre. The convection of Cempaka was relatively small with a diameter of only around 350 km.

[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 Satellite (H-8) of Japan Meteorological Agency (JMA).]

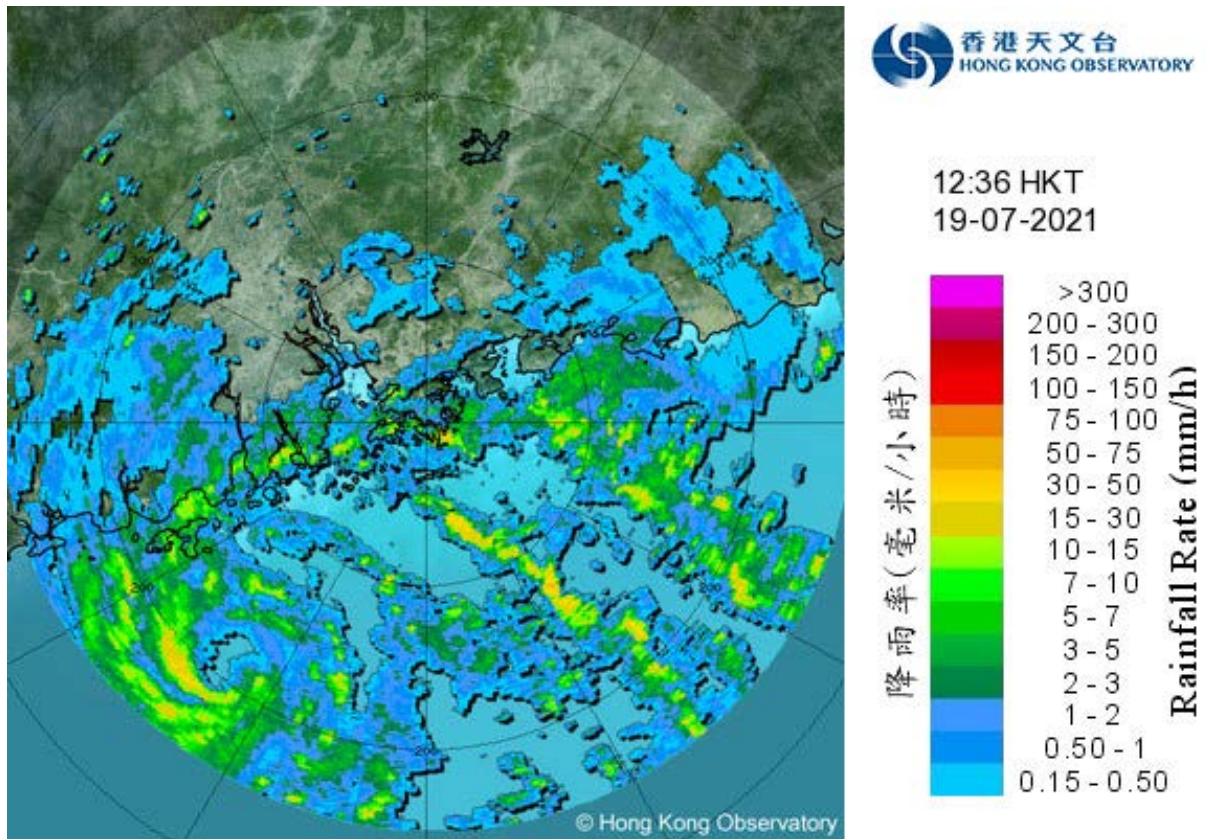


圖 3.3.5a 二零二一年七月十九日下午 12 時 36 分的雷達回波圖像，當時查帕卡的外圍雨帶正影響廣東沿岸及南海北部，黃色暴雨警告正在生效。

Figure 3.3.5a Image of radar echoes at 12:36 p.m. on 19 July 2021 when the outer rainbands of Cempaka were affecting the coast of Guangdong and the northern part of the South China Sea. Amber Rainstorm Warning was in force at that time.



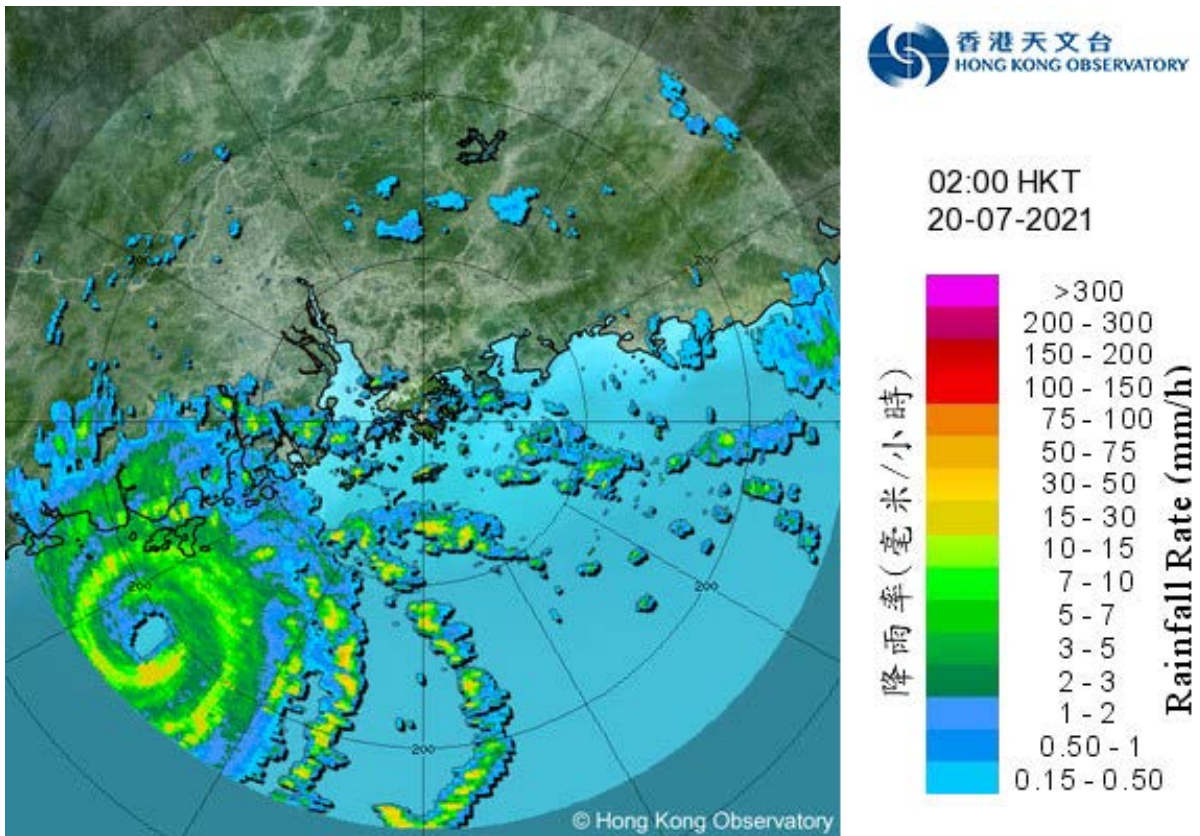


圖 3.3.5b 二零二一年七月二十日上午2時正的雷達回波圖像，查帕卡直徑約25公里的風眼清晰可見。

Figure 3.3.5b Image of radar echoes at 2:00 a.m. on 20 July 2021 showing clearly the eye of Cempaka with a diameter of about 25 km.