

3.2 熱帶風暴韋帕 (1907)：二零一九年七月三十日至八月三日

韋帕是二零一九年第二個影響香港的熱帶氣旋。雖然熱帶風暴韋帕在香港約310公里掠過，但其廣闊的環流及不對稱的風力結構令天文台需要發出今年唯一一個八號烈風或暴風信號。韋帕是一九六一年以來距離香港最遠而需發出八號烈風或暴風信號的熱帶風暴。

熱帶低氣壓韋帕於七月三十日下午在香港以南約510公里的南海北部上形成，晚間至翌日早上向北緩慢移動。韋帕於七月三十一日早上增強為熱帶風暴，其後達到最高強度時，中心附近最高持續風速估計為每小時85公里。韋帕於當日下午開始加速向西北偏西移向海南島，八月一日清晨韋帕移速減慢，以逆時針方向在海南島東北部沿岸徘徊，早上再度加速向北移動，晚上向西橫過雷州半島。八月二日韋帕橫過廣西沿岸至北部灣一帶，並逐漸減弱，翌日晚上在越南北部減弱為一個低壓區。

七月三十日下午韋帕於南海北部發展為熱帶低氣壓後，香港天文台在下午3時40分發出一號戒備信號，當時韋帕集結在香港以南約500公里。下午本港吹清勁偏東風，離岸及高地吹強風。隨著韋帕逐漸增強，天文台在當晚9時15分發出三號強風信號，當時韋帕位於香港以南約500公里。晚間本港吹清勁至強風程度的東至東北風。由於韋帕於七月三十一日上午採取較偏北路徑移動，進一步靠近廣東沿岸及增強，天文台在當日下午1時40分發出八號東北烈風或暴風信號，當時韋帕集結在香港以南約340公里。受韋帕右半圓外圍的強雨帶影響，下午本港普遍吹強風至烈風程度的東至東北風。韋帕在當日下午5時左右最接近香港，在香港之西南偏南約310公里掠過。隨著當晚韋帕逐漸遠離香港，本港風力有所減弱，天文台在晚上11時40分改發三號強風信號。八月一日初時韋帕仍然在海南島東北部沿岸徘徊，與其相關的外圍雨帶繼續影響香港。當日早上本港仍普遍吹強風程度的東至東南風，離岸及高地間中吹烈風。下午韋帕移向雷州半島，本港風力逐漸緩和，天文台在晚上7時20分改發一號戒備信號，到八月二日上午8時40分取消所有熱帶氣旋警告信號。

在韋帕的影響下，大帽山、長洲及橫瀾島錄得的最高每小時平均風速分別為每小時88、72及70公里，而最高陣風則分別為每小時131、108及117公里。尖鼻咀錄得最高潮位3.47米(海圖基準面以上)，而石壁則錄得最大風暴潮(天文潮高度以上) 0.64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	998.1	1/8	上午 4 時 49 分
香港國際機場	997.4	1/8	上午 4 時 30 分
長洲	997.3	1/8	上午 4 時 38 分
京士柏	998.1	1/8	上午 4 時 54 分
流浮山	997.8	1/8	上午 4 時 31 分
坪洲	997.6	1/8	上午 4 時 43 分
沙田	998.7	1/8	上午 4 時 49 分
上水	998.5	1/8	上午 4 時 20 分
打鼓嶺	998.2	1/8	上午 4 時 50 分
大埔	998.9	1/8	上午 4 時 54 分
橫瀾島	998.3	1/8	上午 4 時 21 分

韋帕的外圍雨帶在七月三十日至八月二日為香港帶來連場狂風大雨，期間本港普遍錄得超過250毫米雨量，而新界部分地區及大嶼山的雨量更超過350毫米。天文台在七月三十一日、八月一日及八月二日均曾發出黃色暴雨警告。雨勢在七月三十一日晚上最大，當晚天文台曾發出紅色暴雨警告、新界北部水浸特別報告及山泥傾瀉警告。

韋帕吹襲香港期間，最少有20人受傷，另有超過850宗塌樹報告，3宗水浸報告及3宗山泥傾瀉報告。深水埗有天秤被強風吹塌，一人被雜物擊中受傷。西貢、東涌及香港仔分別有棚架倒塌。風暴期間，一人在石澳游泳時受傷，需要救生員協助。錦田有村民被洪水圍困，需要消防員協助離開。中環街市有假天花在大雨下倒塌。大棠亦有護土牆倒塌，壓倒一間鐵皮屋。約300公頃的新界農地受影響。香港國際機場有693班航班延誤、25班航班取消、14班航班需要轉飛其他地方。

根據報章報導，韋帕在澳門造成六人受傷。韋帕亦為越南北部帶來暴雨，引致廣泛地區水浸，共造成最少10人死亡，11人失蹤。

表3.2.1 - 3.2.4分別是韋帕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 - 3.2.2分別為韋帕的路徑圖和本港的雨量分佈圖。圖3.2.3是香港各站錄得的風向和風速。圖3.2.4顯示橫瀾島、長洲及大美督錄得的風速。圖3.2.5 - 3.2.6分別為韋帕的衛星及

雷達圖像。圖3.2.7顯示有天秤被強風吹塌。

3.2 Tropical Storm Wipha (1907): 30 July – 3 August 2019

Wipha was the second tropical cyclone affecting Hong Kong in 2019. Although tropical storm Wipha skirted past at about 310 km of the territory, its extensive circulation and asymmetric wind structure necessitated the issuance of the only No.8 Gale or Storm Signal this year. Wipha is also the farthest tropical storm necessitating the issuance of No.8 Gale or Storm Signal in Hong Kong since 1961.

Wipha formed as a tropical depression over the northern part of the South China Sea about 510 km south of Hong Kong on the afternoon of 30 July. It drifted northwards slowly during that night and next morning. Wipha intensified into a tropical storm on the morning of 31 July, later reaching its peak intensity with an estimated maximum sustained wind of 85 km/h near its centre. It started to pick up speed to move west-northwest towards Hainan Island in the afternoon. Wipha slowed down on the early morning of 1 August, making an anti-clockwise loop around the northeastern coast of Hainan Island. It picked up its speed to move northward again in the morning and then moved westward across the Leizhou Peninsula that night. Wipha moved across the coast of Guangxi and the vicinity of Beibu Wan on 2 August and weakened gradually. It degenerated into an area of low pressure over the northern part of Vietnam the next night.

After Wipha developed into a tropical depression over the northern part of the South China Sea on the afternoon of 30 July, the Hong Kong Observatory issued the Standby Signal No. 1 at 3:40 p.m. when Wipha was about 500 km south of Hong Kong. Local winds were fresh easterlies, reaching strong force offshore and on high ground in the afternoon. With Wipha intensifying gradually, the No. 3 Strong Wind Signal was issued at 9:15 p.m. that night when Wipha was about 500 km south of Hong Kong. Local winds became fresh to strong east to northeasterly during the night. As Wipha adopted a more northerly track and edged closer to the coast of Guangdong and intensified further on the morning of 31 July, the No. 8 Northeast Gale or Storm Signal was issued at 1:40 p.m. when Wipha was about 340 km south of Hong Kong. Under the influence of the intense outer rainbands in the right semicircle of Wipha, strong to gale force east to northeasterly winds generally affected the territory in the afternoon. Wipha came closest to Hong Kong at around 5 p.m. that day, skirting past about 310 km south-southwest of the territory. With Wipha departing gradually from Hong Kong and local wind moderating, the No. 3 Strong Wind Signal was issued at 11:40 p.m. that night. Wipha lingered around the northeastern coast of Hainan Island at first on 1 August and the rainbands associated with Wipha continued to affect Hong Kong. Strong east to southeasterly winds persisted over Hong Kong that morning, occasionally reaching gale force offshore and on high ground. Wipha moved towards Leizhou Peninsula in the afternoon and local winds abated gradually. The Standby Signal No.1 was issued at 7:20 p.m. on 1 August, before all tropical cyclone warning signals were cancelled at 8:40 a.m. on 2 August.

Under the influence of Wipha, maximum hourly mean winds of 88, 72 and 70 km/h and maximum gusts of 131, 108 and 117 km/h were recorded at Tai Mo Shan, Cheung Chau and Waglan Island respectively. A maximum sea level (above chart datum) of 3.47 m was recorded at Tsim Bei Tsui, and a maximum storm surge (above astronomical tide) of 0.64 m was recorded at Shek Pik. 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	998.1	1/8	4:49 a.m.
Hong Kong International Airport	997.4	1/8	4:30 a.m.
Cheung Chau	997.3	1/8	4:38 a.m.
King's Park	998.1	1/8	4:54 a.m.
Lau Fau Shan	997.8	1/8	4:31 a.m.
Peng Chau	997.6	1/8	4:43 a.m.
Shatin	998.7	1/8	4:49 a.m.
Sheung Shui	998.5	1/8	4:20 a.m.
Ta Kwu Ling	998.2	1/8	4:50 a.m.
Tai Po	998.9	1/8	4:54 a.m.
Waglan Island	998.3	1/8	4:21 a.m.

The heavy rain and squalls associated with the outer rainbands of Wipha lashed the territory during 30 July to 2 August. Overall, more than 250 millimetres of rainfall were generally recorded over the territory, with rainfall exceeding 350 millimetres over the Lantau Island and parts of the New Territories. Amber Rainstorm Warning was issued on 31 July, 1 August and 2 August. The rain was particularly heavy on the night of 31 July, necessitating the issuance of the Red Rainstorm Warning, Landslip Warning and Special Announcement on Flooding in Northern New Territories by the Observatory.

In Hong Kong, at least 20 people were injured during the passage of Wipha. There were more than 850 reports of fallen trees, 3 reports of flooding and 3 reports of landslides. Under high winds, a tower crane in Sham Shui Po was blown down and one person was injured by falling objects. Scaffoldings at Sai Kung, Tung Chung and Aberdeen were blown down. During the stormy weather, one person was injured while swimming in Shek O and required the assistance of lifeguards. Villagers in Kam Tin were trapped by flood waters in and were taken to safety by firemen. Part of the false ceiling in Central Market collapsed under heavy rain. A retaining wall at Tai Tong also collapsed, damaging a metal hut. About 300 hectares of farmland in the New Territories were affected. 693 flights were cancelled, 25 flights were delayed and 14 flights diverted at the Hong Kong International Airport.

According to press reports, at least six people were injured in Macao during the passage of Wipha. Wipha also brought torrential rain to the northern part of Vietnam, which triggered extensive flooding. At least 10 people were killed and 11 were reported missing.

Information on the maximum wind, periods of strong and gale force winds, daily rainfall and maximum sea level reached in Hong Kong during the passage of Wipha is given in Tables 3.2.1 - 3.2.4 respectively. Figures 3.2.1 - 3.2.2 show respectively the track of Wipha and the rainfall distribution for Hong Kong. Figure 3.2.3 shows the winds recorded at various stations in Hong Kong. Figure 3.2.4 shows traces of the wind speed recorded at Waglan Island, Cheung Chau and Tai Mei Tuk. Figures 3.2.5 - 3.2.6 show respectively a satellite imagery and radar imageries of Wipha. Figure 3.2.7 shows that a tower crane was blown down under high winds.

表 3.2.1 在韋帕影響下，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 Wipha 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	E	90	31/7	13:59	東南	SE	51	1/8	08:00
中環碼頭	Central Pier	東	E	94	31/7	13:44	東	E	43	31/7	16:00
長洲	Cheung Chau	東南偏東	ESE	108	1/8	07:18	東	E	72	1/8	08:00
長洲泳灘	Cheung Chau Beach	東北偏東	ENE	115	31/7	16:30	東	E	68	1/8	07:00
青洲	Green Island	東北偏東	ENE	112	31/7	13:46	東北偏東	ENE	59	31/7	16:00
香港國際機場	Hong Kong International Airport	東南偏東	ESE	79	1/8	07:32	東南偏東	ESE	47	1/8	08:00
啟德	Kai Tak	東	E	79	31/7	14:01	東	E	34	31/7	19:00
京士柏	King's Park	東	E	75	31/7	15:43	東	E	31	1/8	07:00
南丫島	Lamma Island	東南偏東	ESE	77	1/8	07:15	東	E	43	1/8	05:00
流浮山	Lau Fau Shan	東南	SE	90	1/8	07:49	東	E	31	30/7	17:00
北角	North Point	東	E	83	31/7	18:29	東	E	47	31/7	16:00
坪洲	Peng Chau	東	E	104	31/7	16:33	東	E	54	31/7	16:00
平洲	Ping Chau	東	E	49	31/7	18:25	東	E	22	31/7	20:00
西貢	Sai Kung	東北	NE	92	31/7	17:50	東北偏東	ENE	40	31/7	16:00
							東北偏東	ENE	40	31/7	20:00
沙洲	Sha Chau	東南	SE	85	1/8	07:32	東南偏東	ESE	49	1/8	08:00
沙螺灣	Sha Lo Wan	東	E	99	1/8	07:34	東	E	41	31/7	22:00
沙田	Sha Tin	東北偏東	ENE	62	31/7	22:02	東南	SE	23	1/8	20:00
							東	E	31	1/8	05:00
石崗	Shek Kong	東	E	75	31/7	14:19	東	E	31	1/8	11:00
							東	E	31	1/8	11:00
九龍天星碼頭	Star Ferry (Kowloon)	東南	SE	90	1/8	07:27	東	E	45	1/8	08:00
打鼓嶺	Ta Kwu Ling	東北偏東	ENE	58	31/7	14:16	東	E	23	1/8	00:00
大美督	Tai Mei Tuk	東	E	94	31/7	22:55	東	E	59	1/8	07:00
大帽山	Tai Mo Shan	東南偏東	ESE	131	1/8	06:22	東南偏東	ESE	88	1/8	07:00
大埔滘	Tai Po Kau	東南偏東	ESE	76	1/8	07:40	東	E	43	31/7	15:00
塔門東*	Tap Mun East*	東南偏東	ESE	94	31/7	13:53	東	E	63	31/7	19:00
大老山	Tate's Cairn	東南偏東	ESE	121	31/7	20:08	東	E	76	31/7	21:00
將軍澳	Tseung Kwan O	東南偏東	ESE	63	31/7	19:27	東南偏東	ESE	20	1/8	20:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	東南偏南	SSE	77	1/8	07:30	東南偏東	ESE	31	1/8	08:00
屯門政府合署	Tuen Mun Government Offices	東南偏東	ESE	90	1/8	07:50	東南	SE	23	1/8	08:00
							東南	SE	23	1/8	21:00
橫瀾島	Waglan Island	東	E	117	31/7	13:48	東	E	70	31/7	19:00
濕地公園	Wetland Park	東	E	62	31/7	14:13	東	E	20	30/7	18:00
黃竹坑	Wong Chuk Hang	東南偏東	ESE	96	1/8	07:15	東北	NE	31	31/7	16:00

昂坪、黃竹坑 - 沒有資料 Ngong Ping, Wong Chuk Hang - data not available

*基於不完整的數據 *based on incomplete data

表 3.2.2 在韋帕影響下，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 tropical cyclone warning signals for Wipha were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		最初達到強風*		最後達到強風*		最初達到烈風#		最後達到烈風#	
		時間		時間		時間		時間	
		Start time when strong wind speed* was attained		End time when strong wind speed* was attained		Start time when gale force wind speed# was attained		End time when gale force wind speed# was attained	
		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	30/7	15:40	2/8	06:22	31/7	14:17	1/8	22:08
香港國際機場	Hong Kong International Airport	30/7	23:59	1/8	09:52	-			
啟德	Kai Tak	31/7	14:02	1/8	10:46	-			
流浮山	Lau Fau Shan	31/7	14:21	1/8	08:04	-			
西貢	Sai Kung	31/7	12:24	1/8	08:05	-			
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	1/8	07:36	1/8	07:39	-			

沙田及打鼓嶺的持續風力未達到強風程度。

The sustained wind speed did not attain strong force at Sha Tin and Ta Kwu Ling.

- 未達到指定的風速

- not attaining the specified wind speed

* 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： 本表列出持續風力達到強風及烈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 or gale force winds. Winds might fluctuate above or below the specified wind speeds in between the times indicated.

表 3.2.3 韋帕掠過期間，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 Wipha

站 (參閱圖 2.2.2) Station (See Fig. 2.2.2)			七月三十日 30 Jul	七月三十一日 31 Jul	八月一日 1 Aug	八月二日 2 Aug	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory			12.8	121.1	98.3	8.2	240.4
香港國際機場 Hong Kong International Airport (HKA)			8.8	99.2	104.8	45.7	258.5
長洲 Cheung Chau (CCH)			7.0	[100.5]	47.0	[16.5]	[171.0]
H23	香港仔 Aberdeen		14.5	130.0	90.5	6.5	241.5
N05	粉嶺 Fanling		6.0	120.5	99.0	20.0	245.5
N13	糧船灣 High Island		5.0	168.5	107.0	3.0	283.5
K04	佐敦谷 Jordan Valley		17.0	224.5	76.5	13.0	331.0
N06	葵涌 Kwai Chung		12.0	211.0	84.5	7.5	315.0
H12	半山區 Mid Levels		16.0	117.5	100.5	9.5	243.5
N09	沙田 Sha Tin		7.5	183.0	107.5	13.5	311.5
H19	筲箕灣 Shau Kei Wan		23.0	121.0	71.5	9.5	225.0
SEK	石崗 Shek Kong		5.0	[162.0]	65.5	[3.0]	[235.5]
K06	蘇屋邨 So Uk Estate		17.5	229.0	82.5	12.5	341.5
R31	大美督 Tai Mei Tuk		5.0	108.5	99.0	8.0	220.5
N17	東涌 Tung Chung		10.0	147.5	134.0	73.0	364.5
TMR	屯門水庫 Tuen Mun Reservoir		2.2	107.8	90.1	51.8	251.9

R21 踏石角 - 沒有資料 Tap Shek Kok - data not available

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

表 3.2.4 韋帕掠過期間，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 Wipha

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	2.97	1/8	07:38	0.53	1/8	07:36
石壁	Shek Pik	3.20	1/8	09:30	0.64	1/8	09:29
大廟灣	Tai Miu Wan	2.93	1/8	07:26	0.59	1/8	07:25
大埔滘	Tai Po Kau	2.93	1/8	07:26	0.63	1/8	00:44
尖鼻咀	Tsim Bei Tsui	3.47	1/8	09:11	0.60	1/8	18:04

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

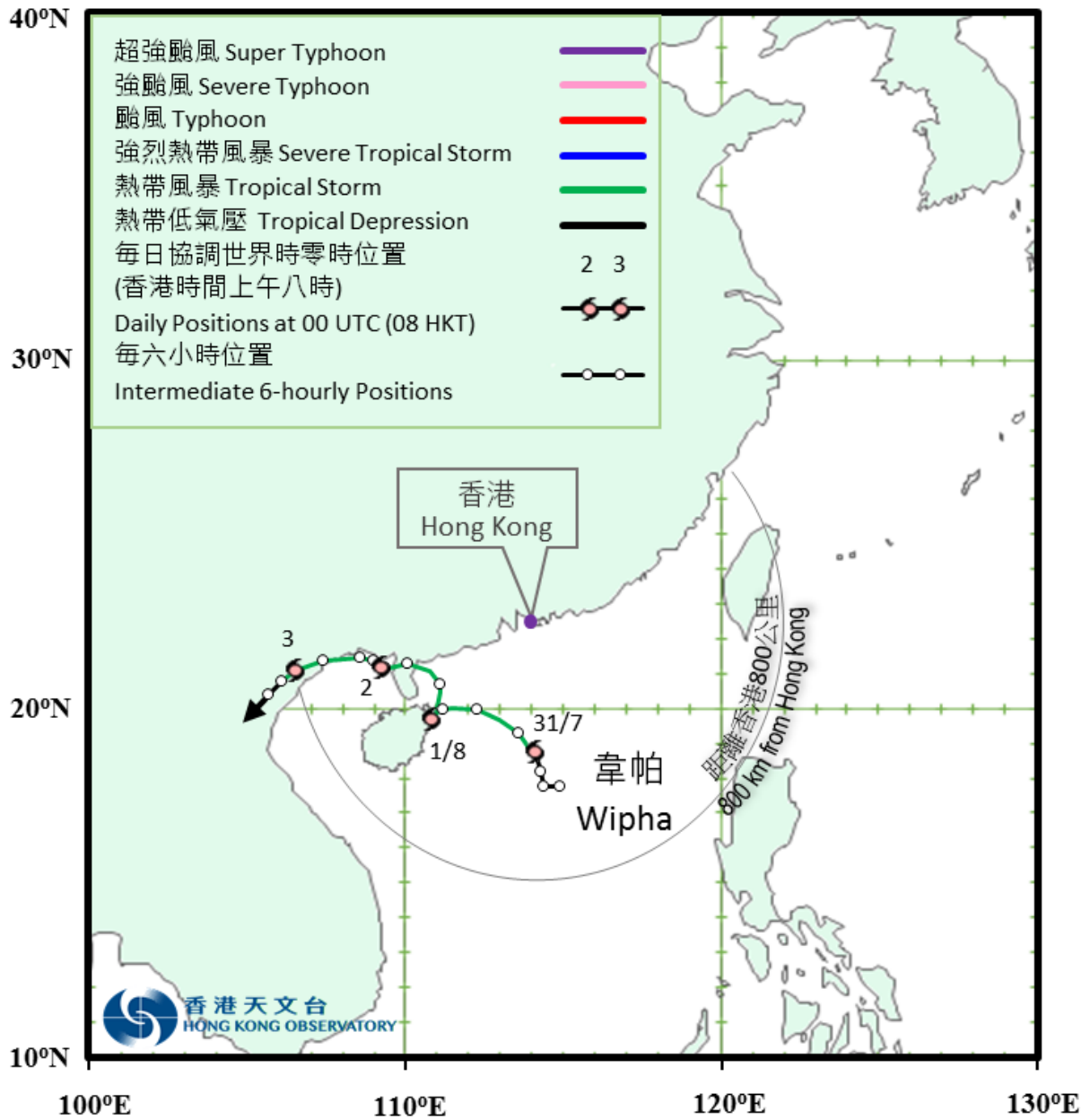


圖 3.2.1a 二零一九年七月三十日至八月三日韋帕的路徑圖。
 Figure 3.2.1a Track of Wipha: 30 July – 3 August 2019.



圖 3.2.1b 韋帕接近香港時的路徑圖。
Figure 3.2.1b Track of Wipha near Hong Kong.

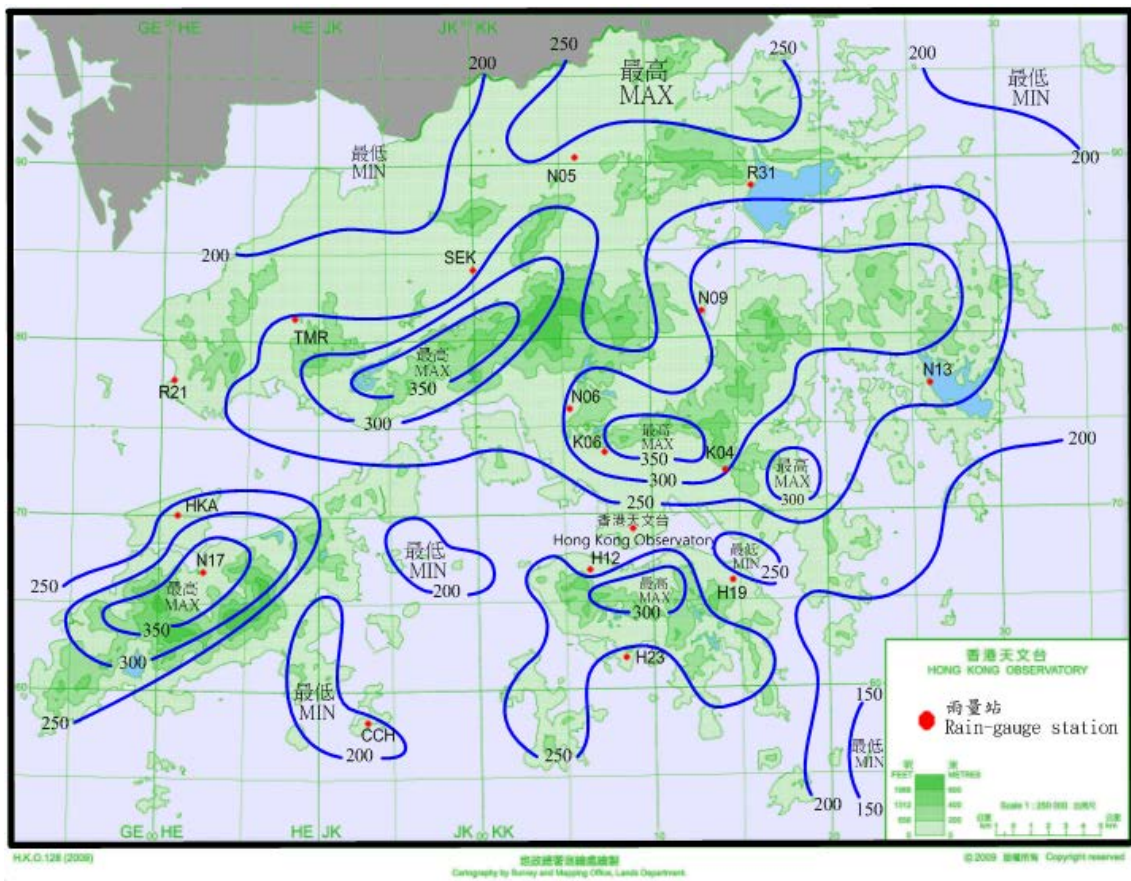


圖 3.2.2 二零一九年七月三十日至八月二日的雨量分佈(等雨量線單位為毫米)。
Figure 3.2.2 Rainfall distribution on 30 July - 2 August 2019 (isohyets in millimetres).

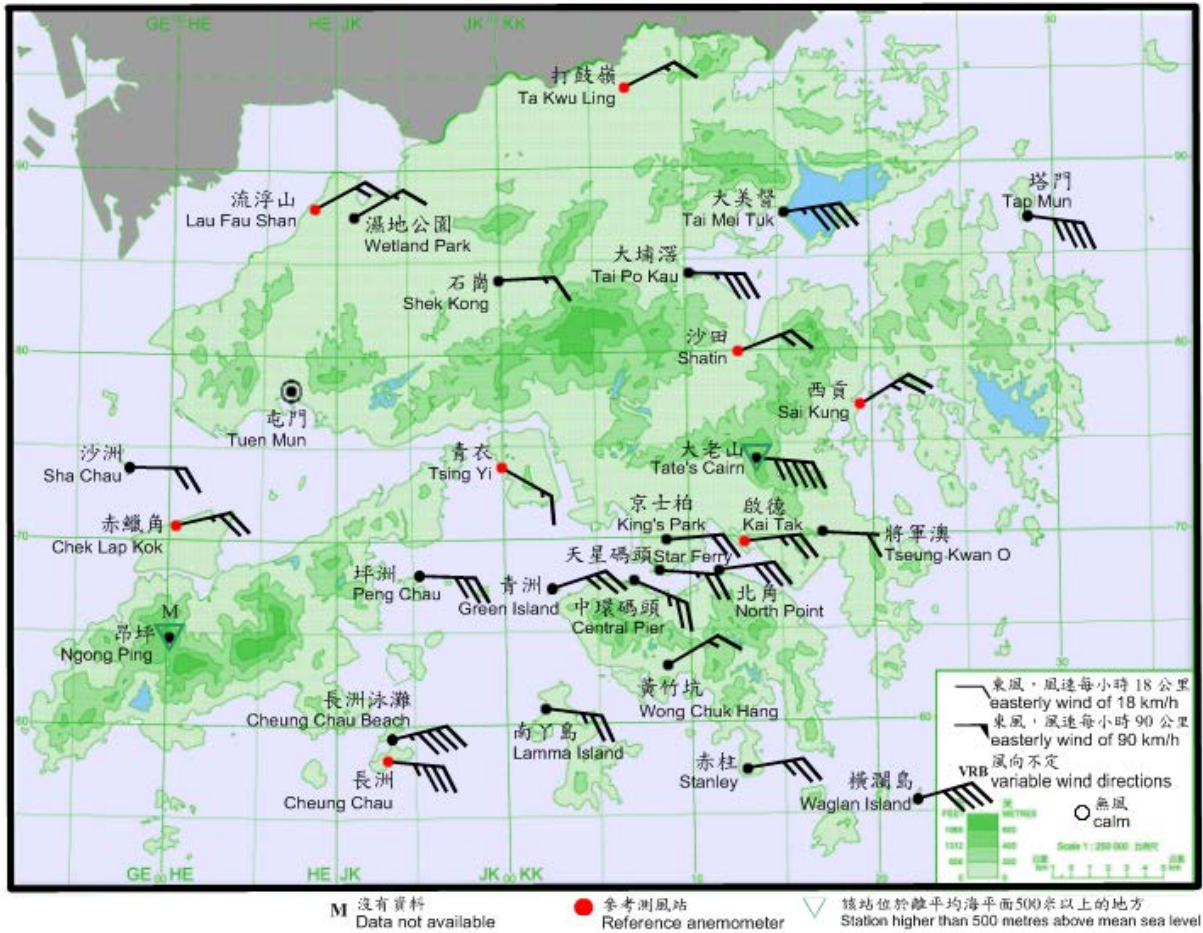


圖 3.2.3 二零一九年七月三十一日下午 2 時 10 分香港各站錄得的十分鐘平均風向和風速。當時大老山、橫瀾島、長洲泳灘、塔門及大美督的風力達到烈風程度。

Figure 3.2.3 10-minute mean wind direction and speed recorded at various stations in Hong Kong at 2:10 p.m. on 31 July 2019. Winds at Tate's Cairn, Waglan Island, Cheung Chau Beach, Tap Mun and Tai Mei Tuk reached gale force at the time.

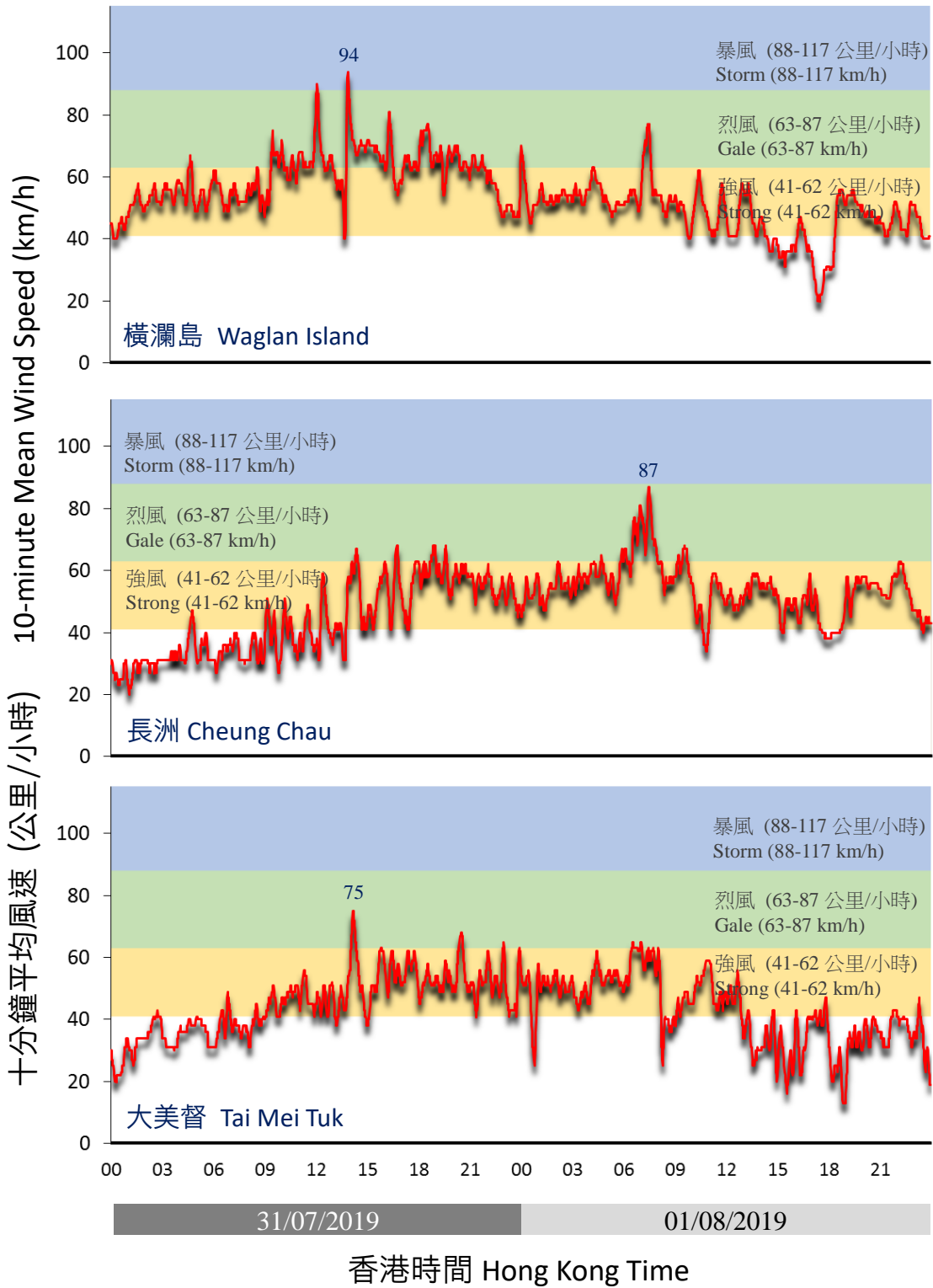


圖 3.2.4 二零一九年七月三十一日至八月一日在橫瀾島、長洲及大美督錄得的十分鐘平均風速。

Figure 3.2.4 Traces of 10-minute mean wind speed recorded at Waglan Island, Cheung Chau and Tai Mei Tuk on 31 July and 1 August 2019.

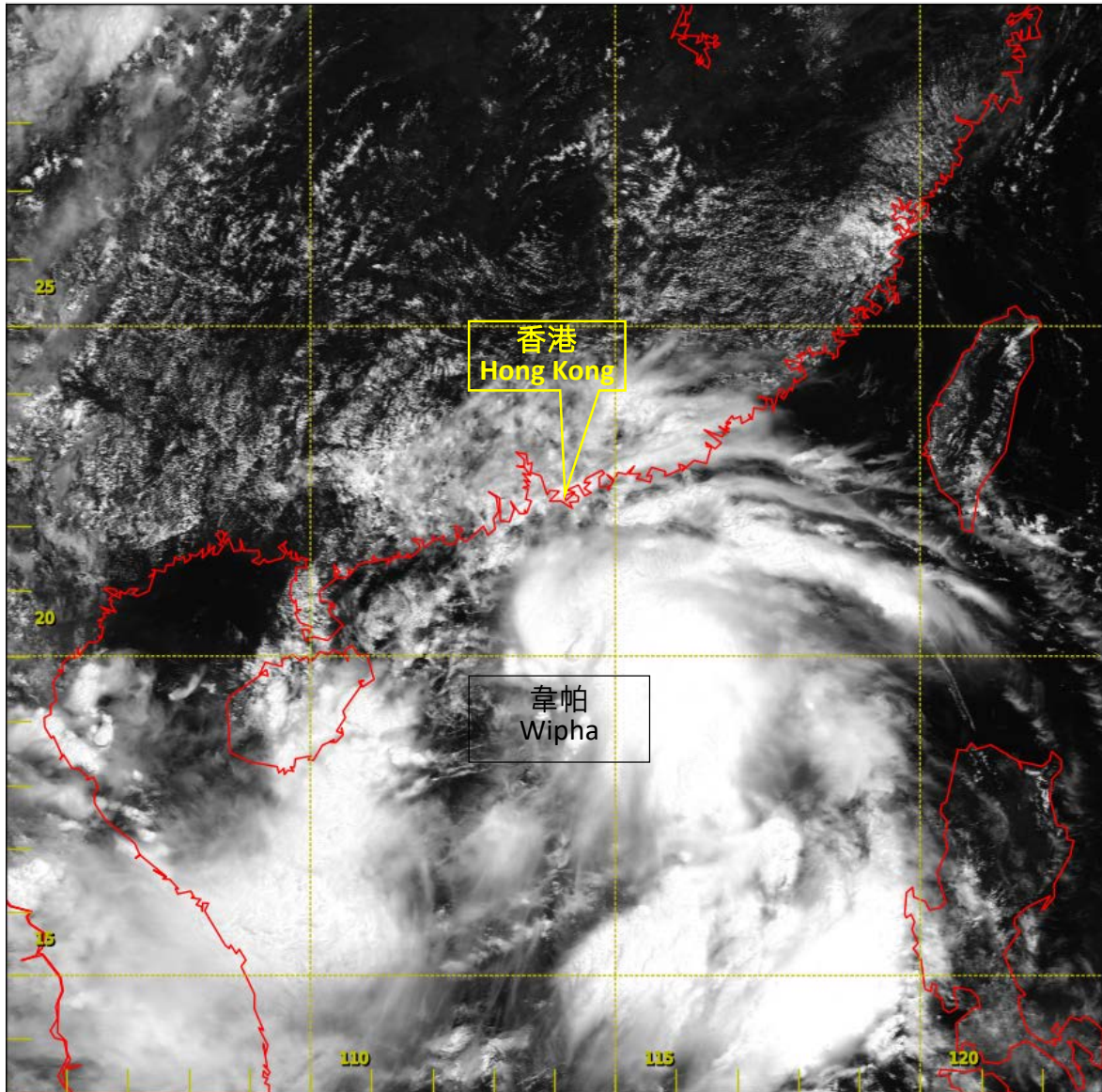


圖 3.2.5 二零一九年七月三十一日上午 11 時的可見光衛星圖片，當時韋帕達到其最高強度，中心附近最高持續風速估計為每小時 85 公里。韋帕的對流分佈相當不對稱，其右半圓發展較旺盛。

Figure 3.2.5 Visible satellite imagery around 11 a.m. on 31 July 2019, when Wipha was at peak intensity with estimated maximum sustained winds of 85 km/h near its centre. The convection of Wipha was highly asymmetric with more intense development on its right semicircle.

[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).]

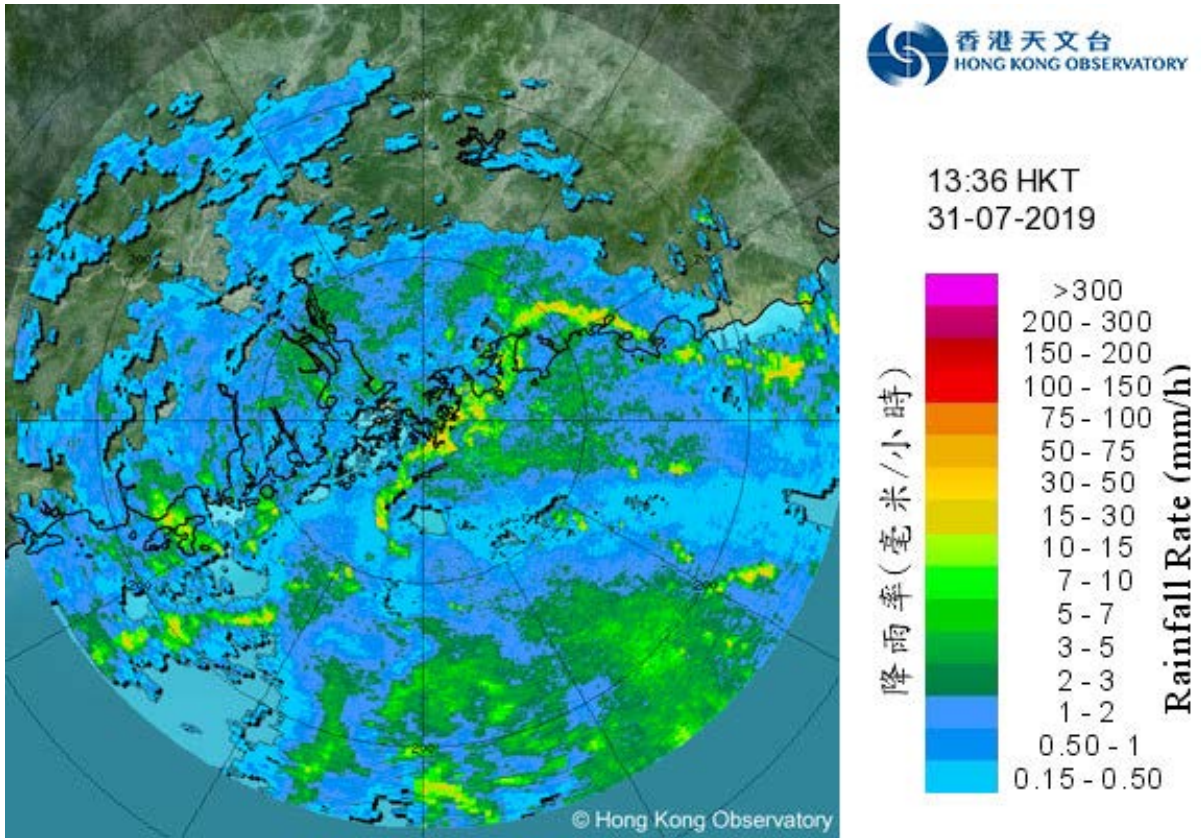


圖 3.2.6a 二零一九年七月三十一日下午 1 時 36 分的雷達回波圖像，與韋帕相關的雨帶正影響廣東沿岸及南海北部。

Figure 3.2.6a Image of radar echoes at 1:36 p.m. on 31 July 2019. The rainbands associated with Wipha were affecting the coast of Guangdong and the northern part of the South China Sea.

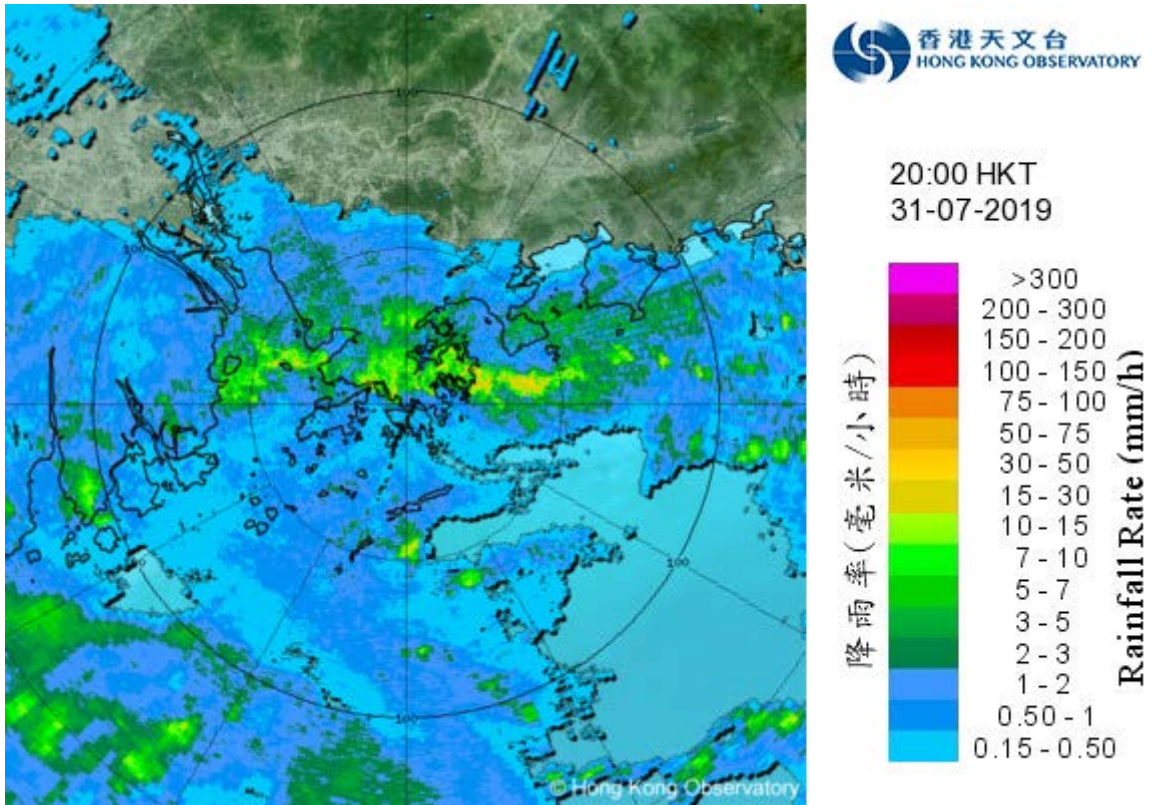


圖 3.2.6b 二零一九年七月三十一日晚上 8 時正的雷達回波圖像，與韋帕相關的強雨帶正影響香港，當時紅色暴雨警告正在生效。

Figure 3.2.6b Image of radar echoes at 8 p.m. on 31 July 2019. The intense rainbands associated with Wipha were affecting Hong Kong at that time and the Red Rainstorm Warning was in force.



圖 3.2.7 深水埗有天秤被強風吹塌。(圖片鳴謝: 譚曉暉)。

Figure 3.2.7 A tower crane in Sham Shui Po was blown down under high winds (photo courtesy of Tam Hiu Fai).