

3.4 熱帶風暴盧碧 (2109)：二零二一年八月二日至九日

盧碧是二零二一年第五個影響香港的熱帶氣旋。

熱帶低氣壓盧碧於八月二日晚上在香港之西南約280公里的南海北部上形成，大致向東北偏東方向橫過南海北部並逐漸增強。八月三日早上盧碧移速減慢，下午轉向東南移動。隨後盧碧於八月四日凌晨轉向東北移動，早上增強為熱帶風暴。八月五日凌晨盧碧達到其最高強度，中心附近最高持續風速估計為每小時85公里。當日下午及翌日盧碧掠過福建沿岸地區，並減弱為熱帶低氣壓。八月七日凌晨盧碧在台灣海峽再度增強為熱帶風暴，並採取東北路徑移向日本，最後於八月九日在日本本州以北海域演變為一股溫帶氣旋。

根據報章報導，盧碧為台灣及日本九州帶來暴雨及水浸。

香港天文台在八月二日晚上9時40分發出一號戒備信號，當時盧碧集結在香港之西南約260公里。當晚本港普遍吹和緩的東至東南風。翌日盧碧逐漸靠近本港，下午本港風力有所增強。盧碧於八月三日下午2時左右最接近香港，其中心位於香港之西南偏南約110公里。由於盧碧相當接近香港，預料香港的風力會在晚間進一步增強，天文台在八月三日下午4時25分發出三號強風信號，當時盧碧集結在香港之西南偏南約120公里。當晚本港普遍吹和緩至清勁的東至東北風，離岸及高地間中吹強風。隨著盧碧移至香港的東南面及逐漸遠離香港，本港轉吹偏北風，風力有所緩和，天文台在八月四日上午4時20分以一號戒備信號取代三號強風信號。當日日間本港轉吹和緩至清勁的北至西北風。下午盧碧進一步遠離香港，天文台在當日下午6時20分取消所有熱帶氣旋警告信號。

在盧碧的影響下，尖鼻咀錄得最高潮位(海圖基準面以上) 2.33米，而大埔滘及大廟灣則錄得最大風暴潮(天文潮高度以上) 0.30米。天文台總部於八月四日下午4時21分錄得最低瞬時海平面氣壓993.0百帕斯卡。

八月二日本港短暫時間有陽光及有幾陣驟雨。受盧碧相關的雨帶影響，八月三日至五日本港間中有大驟雨及狂風雷暴。本港大部分地區在這三日錄得超過100毫米雨量，而港島中部、新界北部及大嶼山東北部更錄得超過140毫米雨量。天文台在八月四日傍晚曾發出黃色暴雨警告及新界北部水浸特別報告。

盧碧吹襲香港期間，本港有多宗水浸報告。在八月四日黃色暴雨警告生效期間，新界北部多處出現水浸，有人被困於汽車內，需要救援人員協助離開。

3.4 Tropical Storm Lupit (2109): 2 to 9 August 2021

Lupit was the fifth tropical cyclone affecting Hong Kong in 2021.

Lupit formed as a tropical depression over the northern part of the South China Sea at about 280 km southwest of Hong Kong on the night of 2 August. It moved generally east-northeastwards across the northern part of the South China Sea and intensified gradually. Lupit slowed down on the morning of 3 August and turned to move southeastwards in the afternoon. It then turned to move northeastwards in the small hours on 4 August and intensified into a tropical storm in the morning. Lupit reached its peak intensity in the small hours on 5 August with an estimated maximum sustained wind of 85 km/h near its centre. It skirted past the coastal areas of Fujian in the afternoon and the next day, and weakened into a tropical depression. Lupit re-intensified into a tropical storm over the Taiwan Strait in the small hours on 7 August and tracked northeastwards towards Japan. It finally evolved into an extratropical cyclone over the seas north of Honshu of Japan on 9 August.

According to press reports, Lupit brought torrential rain and flooding to Taiwan and Kyushu of Japan.

The Standby Signal, No.1 was issued at 9:40 p.m. on 2 August when Lupit was about 260 km southwest of Hong Kong. Local winds were generally moderate to fresh east to southeasterlies that night. Lupit gradually edged closer to Hong Kong the next day and local winds strengthened in the afternoon. Lupit was closest to Hong Kong at around 2 p.m. on 3 August with its centre about 110 km south-southwest of the territory. As Lupit was very close to Hong Kong and local winds were expected to strengthen further at night, the Strong Wind Signal, No.3 was issued at 4:25 p.m. on 3 August when Lupit was about 120 km south-southwest of Hong Kong. Local winds were generally moderate to fresh east to northeasterlies that night and occasionally reached strong force offshore and on high ground. As Lupit moved to the southeast of Hong Kong and gradually departed from the territory, local winds turned to northerly and weakened. The Strong Wind Signal, No.3 was replaced by the Standby Signal, No.1 at 4:20 a.m. on 4 August. Local winds became moderate to fresh north to northwesterlies during the day. With Lupit further departing from Hong Kong in the afternoon, all tropical cyclone warning signals were cancelled at 6:20 p.m. on 4 August.

Under the influence of Lupit, a maximum sea level (above chart datum) of 2.33 m was recorded at Tsim Bei Tsui. A maximum storm surge of 0.30 m (above astronomical tide) was recorded at Tai Po Kau and Tai Miu Wan. At the Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 993.0 hPa was recorded at 4:21 p.m. on 4 August.

There were sunny intervals and a few showers in Hong Kong on 2 August. The outer rainbands associated with Lupit brought occasional heavy showers and squally thunderstorms to Hong Kong on 3 - 5 August. More than 100 millimetres of rainfall were recorded over most parts of the territory on these three days, and rainfall even exceeded 140 millimetres over the central part of Hong Kong Island, the northern part of the New Territories and the northeastern part of Lantau Island. The Amber Rainstorm Warning and the Special Announcement on Flooding in Northern New Territories were issued on the evening of 4 August.

A number of flooding were reported in Hong Kong during the passage of Lupit. There were flooding over many places of the northern part of the New Territories on 4 August when the Amber Rainstorm Warning was in force. A person was trapped inside a vehicle and was taken to safety by rescuers.

表 3.4.1 在盧碧影響下，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 3.4.1 Maximum gust peak speeds and maximum hourly mean winds with associated wind directions recorded at various stations when the tropical cyclone warning signals for Lupit 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	西北偏西	WNW	47	4/8	14:47	東	E	26	3/8	14:00
長洲	Cheung Chau	西北	NW	71	4/8	14:35	東南偏東	ESE	37	3/8	16:00
長洲泳灘	Cheung Chau Beach	東北偏東	ENE	65	3/8	14:02	東	E	39	3/8	16:00
		東北偏東	ENE	65	3/8	14:04					
青洲	Green Island	西北偏北	NNW	66	4/8	14:34	東北偏東	ENE	44	3/8	15:00
香港國際機場	Hong Kong International Airport	西北	NW	50	4/8	14:13	東	E	30	3/8	16:00
啟德	Kai Tak	東	E	40	3/8	14:13	東	E	20	3/8	15:00
京士柏	King's Park	東北偏東	ENE	37	3/8	13:54	東	E	16	3/8	14:00
							東	E	16	3/8	16:00
南丫島	Lamma Island	西北	NW	59	4/8	14:42	西北偏西	WNW	32	4/8	15:00
流浮山	Lau Fau Shan	西北偏北	NNW	67	4/8	13:56	東	E	26	3/8	16:00
昂坪	Ngong Ping	東南偏東	ESE	74	3/8	15:34	東	E	51	3/8	16:00
北角	North Point	西南偏西	WSW	47	4/8	15:05	東	E	26	3/8	14:00
坪洲	Peng Chau	西北偏北	NNW	58	4/8	14:29	東	E	33	3/8	16:00
平洲	Ping Chau	東北偏東	ENE	25	3/8	13:19	東	E	10	3/8	14:00
							東	E	10	3/8	15:00
西貢	Sai Kung	東北偏北	NNE	53	4/8	16:40	東北偏東	ENE	24	3/8	14:00
沙洲	Sha Chau	西北偏北	NNW	62	4/8	14:10	東南偏東	ESE	27	3/8	16:00
沙螺灣	Sha Lo Wan	東	E	46	3/8	14:55	東	E	19	3/8	16:00
沙田	Sha Tin	東北偏東	ENE	32	3/8	17:05	東北偏北	NNE	12	3/8	13:00
九龍天星碼頭	Star Ferry (Kowloon)	西北偏西	WNW	49	4/8	15:09	西	W	23	4/8	15:00
打鼓嶺	Ta Kwu Ling	東南偏東	ESE	33	3/8	17:00	東	E	14	3/8	16:00
							東	E	14	3/8	19:00
大美督	Tai Mei Tuk	東	E	51	3/8	15:03	東	E	33	3/8	16:00
大帽山	Tai Mo Shan	東北偏東	ENE	66	3/8	22:53	東北偏東	ENE	49	3/8	23:00
大埔滘	Tai Po Kau	東	E	42	3/8	12:56	東	E	26	3/8	16:00
塔門東	Tap Mun East	東南偏東	ESE	48	3/8	16:30	東南偏東	ESE	35	3/8	19:00
大老山	Tate's Cairn	東南偏東	ESE	60	3/8	14:58	東南偏東	ESE	39	3/8	16:00
將軍澳	Tseung Kwan O	東南	SE	34	3/8	14:06	東北偏北	NNE	3	3/8	14:00
青衣島蜆殼油庫	Tsing Yi Shell Oil Depot	西北	NW	43	4/8	14:20	西北偏北	NNW	17	4/8	07:00
屯門政府合署	Tuen Mun Government Offices	西北偏西	WNW	42	4/8	14:02	西北偏西	WNW	12	4/8	14:00
橫瀾島	Waglan Island	東	E	61	4/8	00:22	東	E	41	3/8	19:00
濕地公園	Wetland Park	西北偏北	NNW	32	4/8	14:00	東	E	12	3/8	16:00
黃竹坑	Wong Chuk Hang	-	-	44	3/8	18:22	-	-	14	3/8	19:00

黃麻角(赤柱)、石崗 - 沒有資料

黃竹坑 - 沒有風向資料

Bluff Head (Stanley), Shek Kong - data not available

Wong Chuk Hang - wind direction not available

表 3.4.2 在盧碧影響下，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 3.4.2 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 Lupit 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	3/8	15:30	4/8	14:43
流浮山	Lau Fau Shan	4/8	13:57	4/8	14:05

香港國際機場、啟德、西貢、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, Sai Kung, 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 force winds. Winds might fluctuate above or below the specified wind speeds in between the times indicated.

表 3.4.3 盧碧影響香港期間，香港天文台總部及其他各站所錄得的日雨量
Table 3.4.3 Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Lupit

站(參閱圖 3.4.2) Station (See Fig. 3.4.2)		八月二日 2 Aug	八月三日 3 Aug	八月四日 4 Aug	八月五日 5 Aug	總雨量(毫米) Total rainfall (mm)
香港天文台 Hong Kong Observatory (HKO)		微量 Trace	19.7	41.9	28.1	89.7
香港國際機場 Hong Kong International Airport (HKA)		微量 Trace	21.9	48.1	11.9	81.9
長洲 Cheung Chau (CCH)		0.0	7.0	51.5	17.0	75.5
H23	香港仔 Aberdeen	0.0	22.0	38.5	45.5	106.0
N05	粉嶺 Fanling	0.0	13.0	87.0	17.5	117.5
N13	糧船灣 High Island	0.0	11.0	33.0	16.5	60.5
K04	佐敦谷 Jordan Valley	0.0	35.5	52.5	20.0	108.0
N06	葵涌 Kwai Chung	0.0	14.5	56.5	19.0	90.0
H12	半山區 Mid Levels	0.5	17.0	58.0	64.0	139.5
N09	沙田 Sha Tin	8.5	31.0	45.5	16.5	101.5
H19	筲箕灣 Shau Kei Wan	0.5	19.5	60.0	43.0	123.0
SEK	石崗 Shek Kong	0.0	9.5	[97.0]	15.5	[122.0]
K06	蘇屋邨 So Uk Estate	0.0	19.5	44.0	24.0	87.5
R31	大美督 Tai Mei Tuk	3.0	21.0	59.0	17.0	100.0
R21	踏石角 Tap Shek Kok	0.0	12.5	65.5	12.0	90.0
N17	東涌 Tung Chung	0.0	25.0	50.5	25.5	101.0
TMR	屯門水庫 Tuen Mun Reservoir	0.0	4.5	85.8	12.0	102.3

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

表 3.4.4 盧碧影響香港期間，香港各潮汐站所錄得的最高潮位及最大風暴潮
Table 3.4.4 Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Lupit

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	2.14	4/8	06:30	0.24	4/8	14:55
石壁	Shek Pik	2.20	4/8	06:29	0.19	4/8	13:47
大廟灣	Tai Miu Wan	2.15	4/8	05:59	0.30	4/8	14:41
大埔滘	Tai Po Kau	2.15	4/8	05:51	0.30	4/8	13:57
尖鼻咀	Tsim Bei Tsui	2.33	4/8	06:02	0.21	4/8	16:53

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

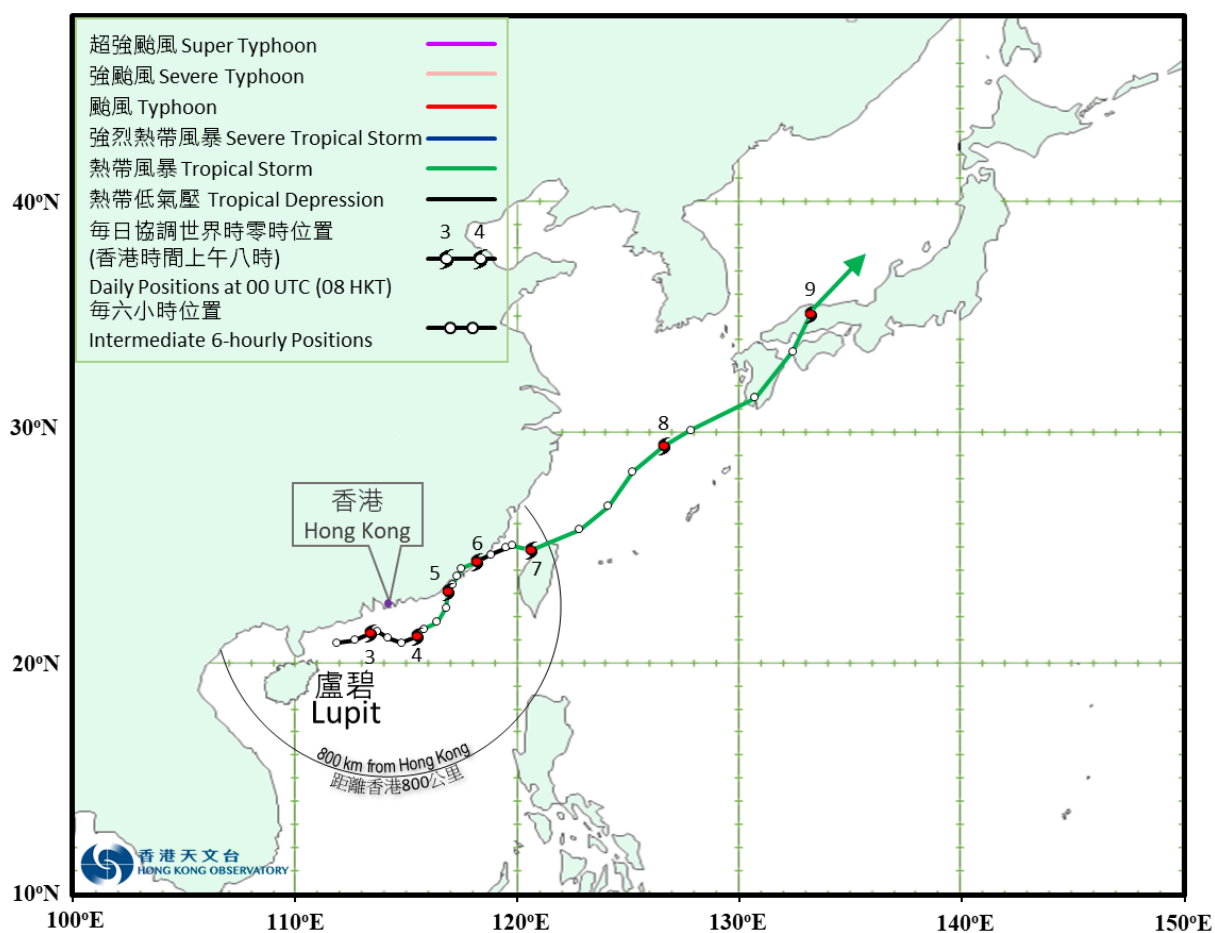


圖 3.4.1a 二零二一年八月二日至九日盧碧的路徑圖。

Figure 3.4.1a Track of Lupit : 2 – 9 August 2021.



圖 3.4.1b 盧碧接近香港時的路徑圖。

Figure 3.4.1b Track of Lupit near Hong Kong.

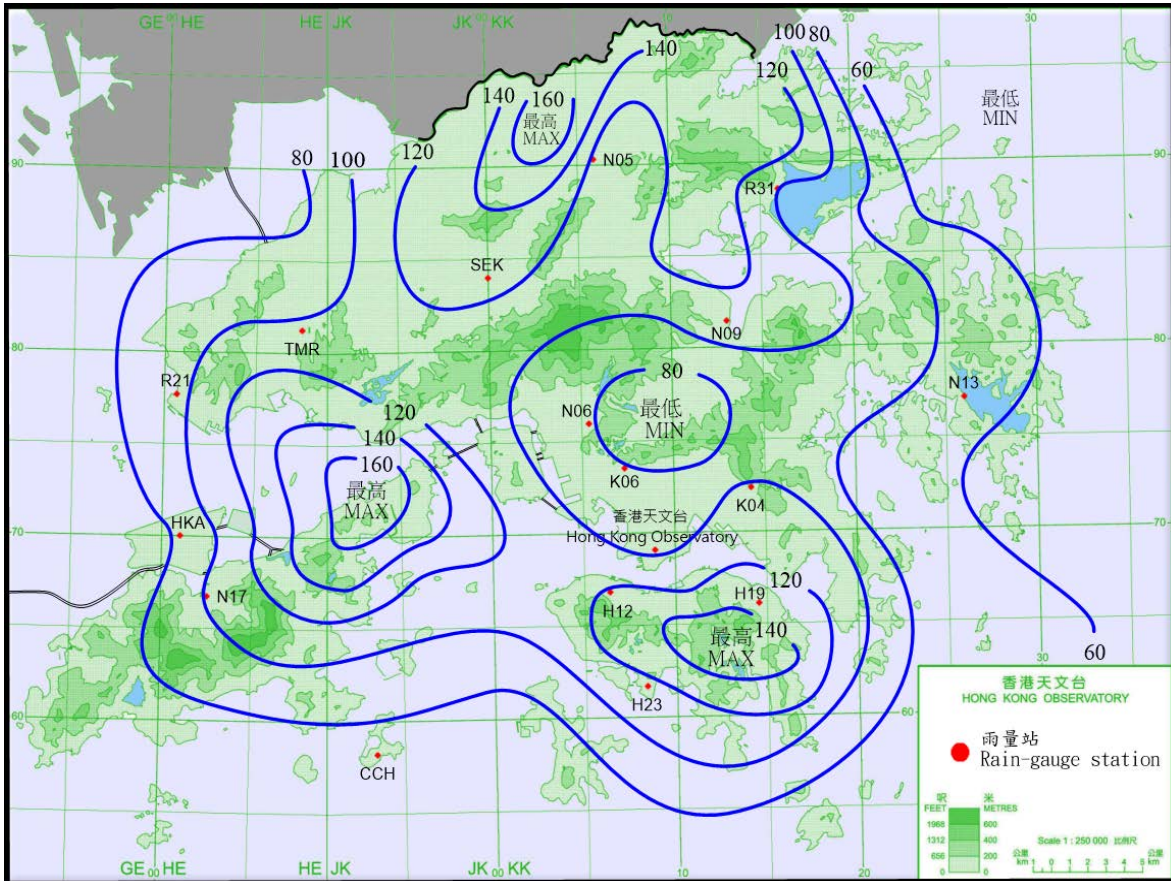


圖 3.4.2 二零二一年八月二日至五日的雨量分佈(等雨量線單位為毫米)。

Figure 3.4.2 Rainfall distribution on 2 – 5 August 2021 (isohyets in millimetres).

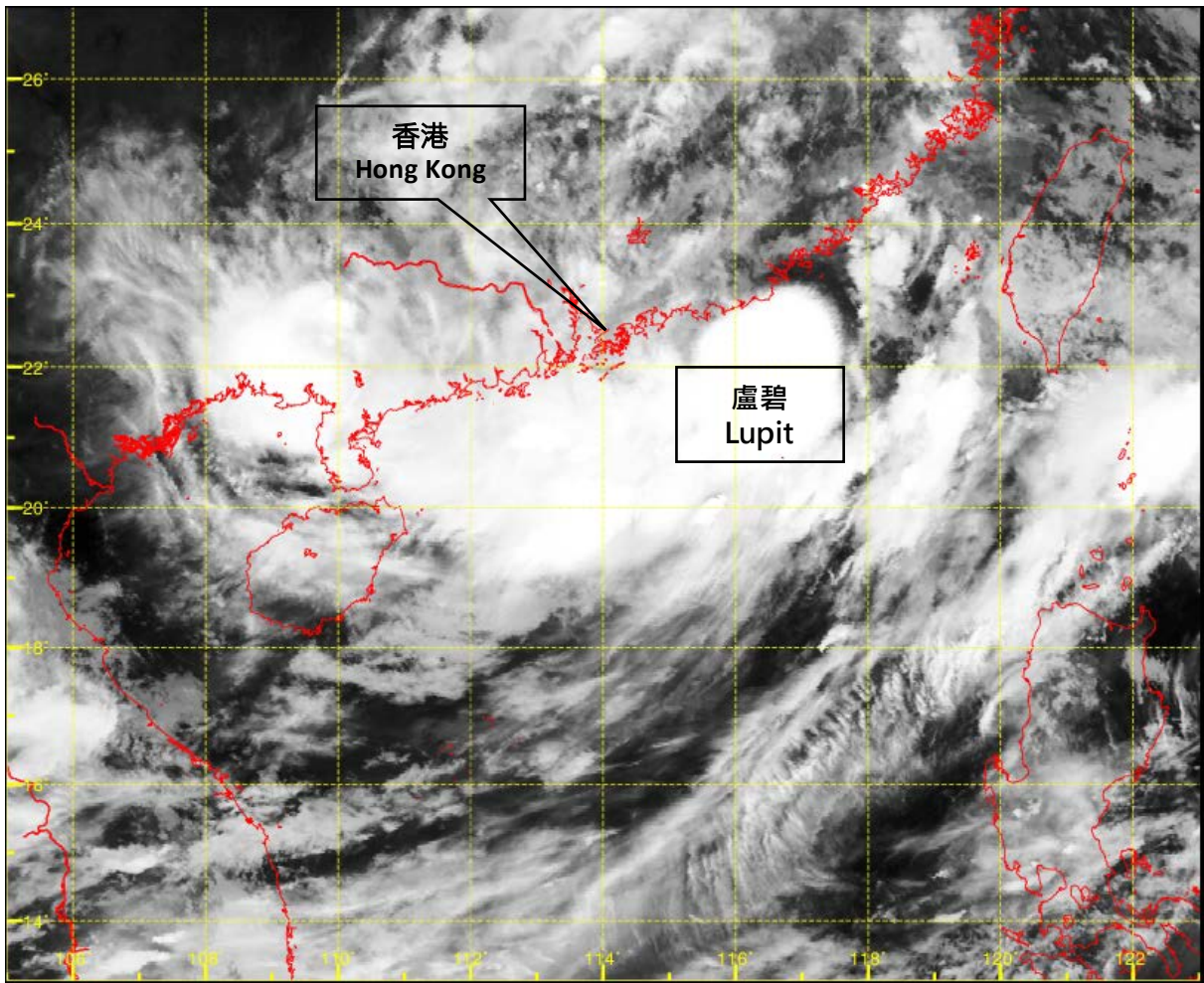


圖 3.4.3 二零二一年八月五日上午2時左右的紅外線衛星圖片，當時盧碧達到其最高強度，中心附近最高持續風速估計為每小時85公里。

Figure 3.4.3 Infra-red satellite imagery around 2 a.m. on 5 August 2021, when Lupit was at its peak intensity with an estimated sustained wind of 85 km/h near its centre.

[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).]

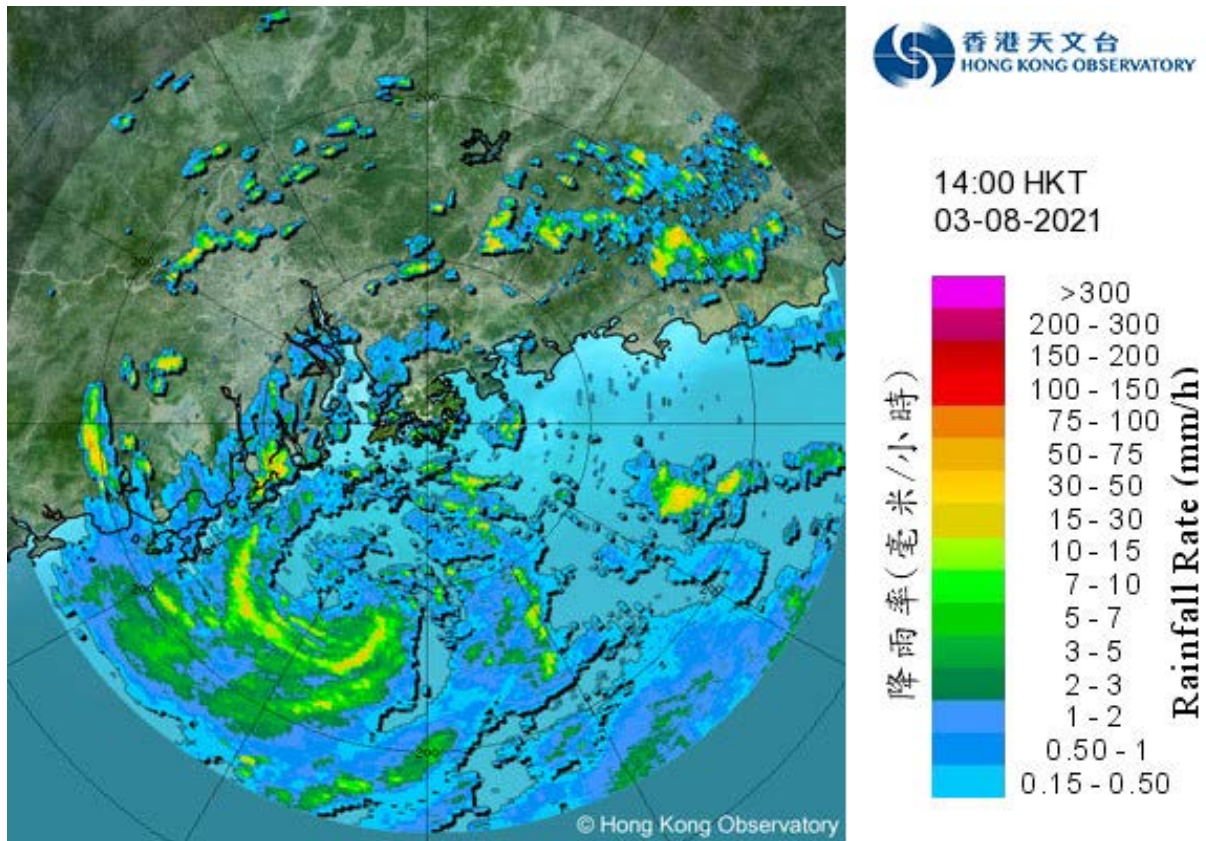


圖 3.4.4a 二零二一年八月三日下午 2 時正的雷達回波圖像，當時盧碧最接近香港，其中心位於本港之西南偏南約 110 公里。

Figure 3.4.4a Image of radar echoes at 2:00 p.m. on 3 August 2021. Lupit was closest to Hong Kong at the time with its centre about 110 km south-southwest of the territory.

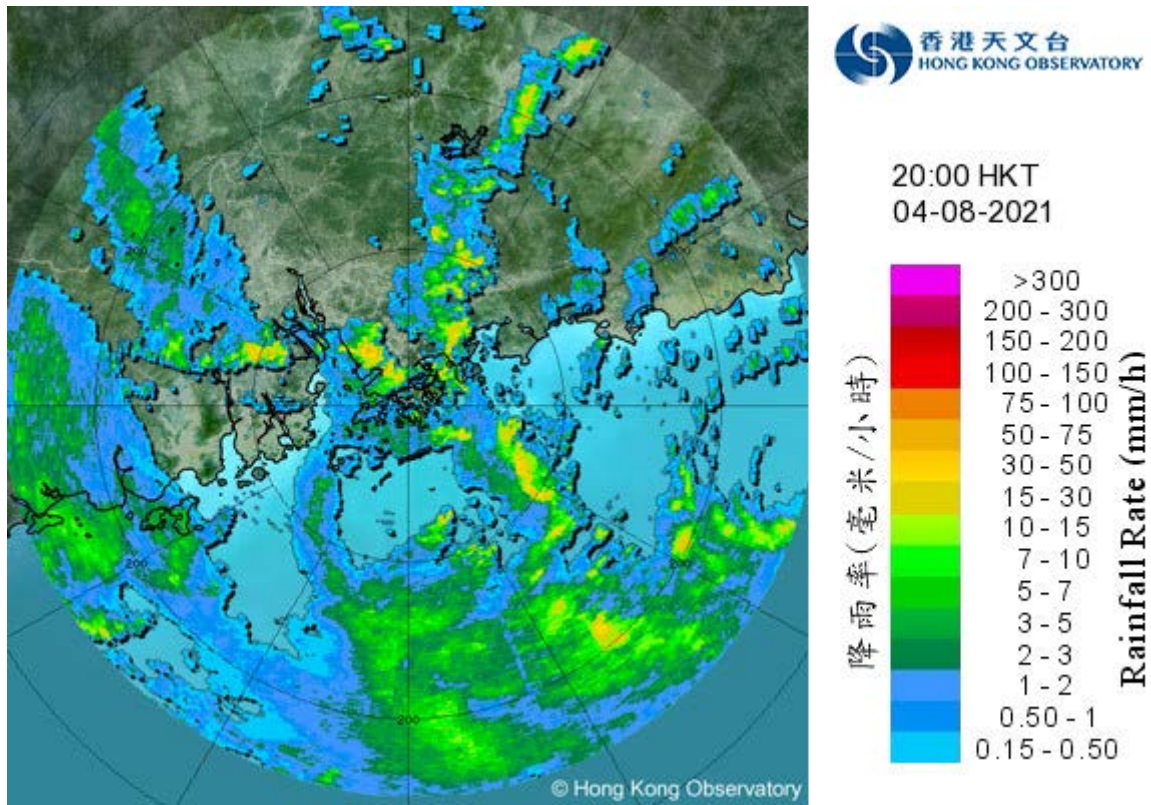


圖 3.4.4b 二零二一年八月四日下午 8 時正的雷達回波圖像，當時與盧碧相關的強雨帶正影響本港，黃色暴雨警告及新界北部水浸特別報告正在生效。

Figure 3.4.4b Image of radar echoes at 8:00 p.m. on 4 August 2021. Intense rainbands associated with Lupit were affecting Hong Kong at that time. Amber Rainstorm Warning and the Special Announcement on Flooding in Northern New Territories were in force.