

3.1 Severe Tropical Storm Kammuri (0212) : 3 - 5 August 2002

Kammuri was the first tropical cyclone that necessitated the Hong Kong Observatory to issue a warning signal this year.

Kammuri developed as a tropical depression over the northern part of the South China Sea, about 400 km east-southeast of Hong Kong on 3 August. Tracking westwards at around 15 km/h, Kammuri strengthened into a tropical storm in the early morning of 4 August. It then slowed down and abruptly turned to the north-northeast towards the east coast of Guangdong. On 5 August, Kammuri intensified further into a severe tropical storm with a maximum wind speed of about 100 km/h near the centre. After making landfall near Shanwei, Kammuri moved northwards at about 20 km/h and weakened gradually into an area of low pressure over Jiangxi Province that night.

The heavy rain brought by Kammuri triggered flash floods in Meizhou of Guangdong, which killed 10 people, injured at least 15 others and left 23 missing. Another 1 500 people were also left homeless after hundreds of houses were damaged. At the airport in Guangzhou, about 50 flights were delayed or canceled due to heavy rain.

In Hong Kong, the Standby Signal No. 1 was issued at 9.50 a.m. on 3 August when Kammuri was about 390 km to the east-southeast. Under the circulation of Kammuri, local winds became moderate northerly and there were scattered showers. As Kammuri came closer on 4 August, winds strengthened offshore and on high ground, but remained moderate in the harbour owing to sheltering by terrain. Kammuri was closest to Hong Kong that night when it was about 130 km to the east-southeast. The lowest instantaneous mean sea-level pressure of 990.1 hPa was recorded at the Hong Kong Observatory at 4.50 p.m. and 5.37 p.m. on 4 August. As Kammuri weakened after landfall, all tropical cyclone warning signals were lowered at 11.30 a.m. on 5 August.

The active southwesterly winds associated with the remnant of Kammuri brought heavy rain and thunderstorms to Hong Kong on 6 August. The Amber Rainstorm Warning Signal was issued at 6.10 a.m. and more than 200 millimetres of rainfall were recorded over Kwai Chung and Sha Tin on that day.

Information on wind, rainfall and tide during the passage of Kammuri is given in Tables 3.1.1 - 3.1.3. Figures 3.1.1 - 3.1.4 show the track of Kammuri, rainfall distribution in Hong Kong, cloud imagery and radar echoes respectively.

表 3.1.1 在北冕影響下，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 3.1.1 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 Kammuri

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	47	3/8	18:07	東 E	19	3/8	22:00
		北 N				北 N	19	4/8	16:00
中環廣場	Central Plaza	東北偏北 NNE	99	4/8	19:23	東北偏北 NNE	56	4/8	17:00
赤鱗角 (機場)	Chek Lap Kok (Airport)	東北 NE	52	4/8	11:47	東北偏北 NNE	31	4/8	12:00
						東北偏北 NNE	31	4/8	13:00
長洲	Cheung Chau	東北偏北 NNE	70	3/8	18:35	西北偏西 WNW	38	5/8	07:00
長沙灣	Cheung Sha Wan	東北 NE	54	4/8	12:45	北 N	14	3/8	19:00
		北 N	54	4/8	15:41				
青洲	Green Island	東 E	75	3/8	18:14	東北偏東 ENE	45	4/8	11:00
啓德	Kai Tak	東北 NE	70	4/8	06:41	東北 NE	25	4/8	14:00
						西北偏西 WNW	25	5/8	07:00
京士柏	King's Park	北 N	54	4/8	08:40	北 N	23	4/8	16:00
流浮山	Lau Fau Shan	北 N	67	3/8	17:41	西北偏西 WNW	40	5/8	08:00
北角	North Point	東北偏東 ENE	62	3/8	18:03	東北偏北 NNE	31	4/8	14:00
平洲	Ping Chau	東北偏東 ENE	47	4/8	13:48	西北偏西 WNW	23	5/8	09:00
西貢	Sai Kung	東北偏北 NNE	77	4/8	14:40	北 N	40	4/8	20:00
沙螺灣	Sha Lo Wan	東北 NE	54	4/8	13:33	東北偏東 ENE	27	4/8	12:00
沙田	Sha Tin	東北偏北 NNE	51	4/8	20:19	東北偏北 NNE	19	4/8	06:00
天星碼頭 (九龍)	Star Ferry (Kowloon)	西 W	45	5/8	08:43	西 W	31	5/8	09:00
打鼓嶺	Ta Kwu Ling	-	45	4/8	20:48	-	20	4/8	21:00
大尾篤	Tai Mei Tuk	東北偏北 NNE	77	4/8	15:02	東北偏北 NNE	43	4/8	12:00
大帽山	Tai Mo Shan	東 E	90	3/8	19:33	東北 NE	51	4/8	11:00
塔門	Tap Mun	東北偏北 NNE	68	4/8	14:13	西北偏西 WNW	38	5/8	05:00
大老山	Tate's Cairn	北 N	99	4/8	14:47	北 N	62	4/8	17:00
鯽魚湖	Tsak Yue Wu	東北 NE	59	4/8	15:48	東北偏北 NNE	20	4/8	16:00
將軍澳	Tseung Kwan O	東北偏東 ENE	51	4/8	16:59	東北偏東 ENE	16	3/8	14:00
						西北偏北 NNW	16	4/8	24:00
青衣	Tsing Yi	東南 SE	76	3/8	18:20	北 N	30	4/8	19:00
屯門	Tuen Mun	東北偏北 NNE	56	4/8	11:42	西北 NW	16	5/8	07:00
橫瀾島	Waglan Island	東北偏北 NNE	85	4/8	14:51	東北偏北 NNE	65	4/8	15:00
黃竹坑	Wong Chuk Hang	東南偏東 ESE	62	3/8	21:56	西北 NW	20	5/8	07:00

表 3.1.2 北冕影響香港期間，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 3.1.2 Daily rainfall amounts in millimetres recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Kammuri

站 (參閱圖 3.1.2) Station (see Fig. 3.1.2)	八月三日 3 Aug	八月四日 4 Aug	八月五日 5 Aug	八月六日 6 Aug	總雨量 Total
香港天文台 Hong Kong Observatory	13.3	19.4	6.2	43.7	82.6
H12 半山區 Mid Levels	19.5	17.5	12.0	47.5	96.5
H19 筲箕灣 Shau Kei Wan	12.5	17.5	5.5	63.5	99.0
H21 淺水灣 Repulse Bay	18.5	12.5	6.5	30.5	68.0
K04 佐敦谷 Jordan Valley	16.5	32.0	4.5	57.0	110.0
K06 蘇屋邨 So Uk Estate	45.0	12.5	6.5	133.5	197.5
N05 粉嶺 Fanling	13.5	10.0	6.5	130.0	160.0
N06 葵涌 Kwai Chung	34.0	11.0	6.0	229.0	280.0
N09 沙田 Sha Tin	23.0	16.5	6.0	224.5	270.0
N12 元朗 Yuen Long	19.0	11.0	5.0	109.0	144.0
R21 踏石角 Tap Shek Kok	22.5	5.5	2.5	134.5	165.0
R26 石崗 Shek Kong	16.5	8.5	6.5	[156.5]	[188.0]
R31 大尾篤 Tai Mei Tuk	17.5	6.5	5.0	[124.0]	[153.0]

註： [] 基於不齊全的每小時雨量數據。

Note: [] based on incomplete hourly data.

表 3.1.3 北冕影響香港期間，香港各潮汐站所錄得的最高潮位及最大風暴潮
Table 3.1.3 Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Kammuri

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/月 Date/Month	時間 Time	高度 (米) Height (m)	日/月 Date/Month	時間 Time
鰂魚涌 Quarry Bay	2.28	4/8	06:17	0.45	4/8	07:50
石壁 Shek Pik	2.31	4/8	04:56	0.49	3/8	10:57
大埔滘 Tai Po Kau	2.08	5/8	05:49	0.39	3/8	20:52
尖鼻咀 Tsim Bei Tsui	2.20	5/8	06:44	0.22	4/8	16:59
橫瀾島 Waglan Island	2.43	4/8	06:03	0.53	4/8	14:29

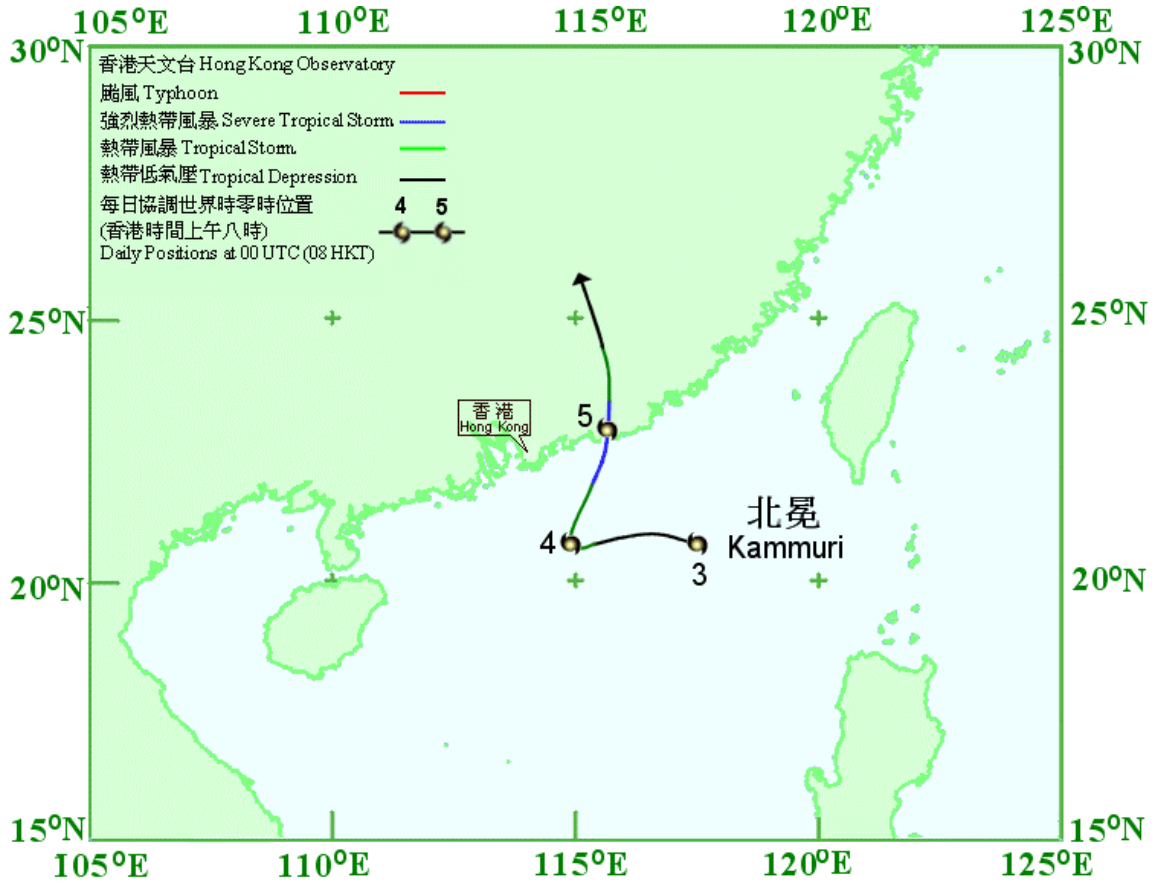


圖 3.1.1 二零零二年八月三日至五日北冕 (0212) 的路徑圖。
 Figure 3.1.1 Track of Kammuri (0212) : 3 - 5 August 2002.

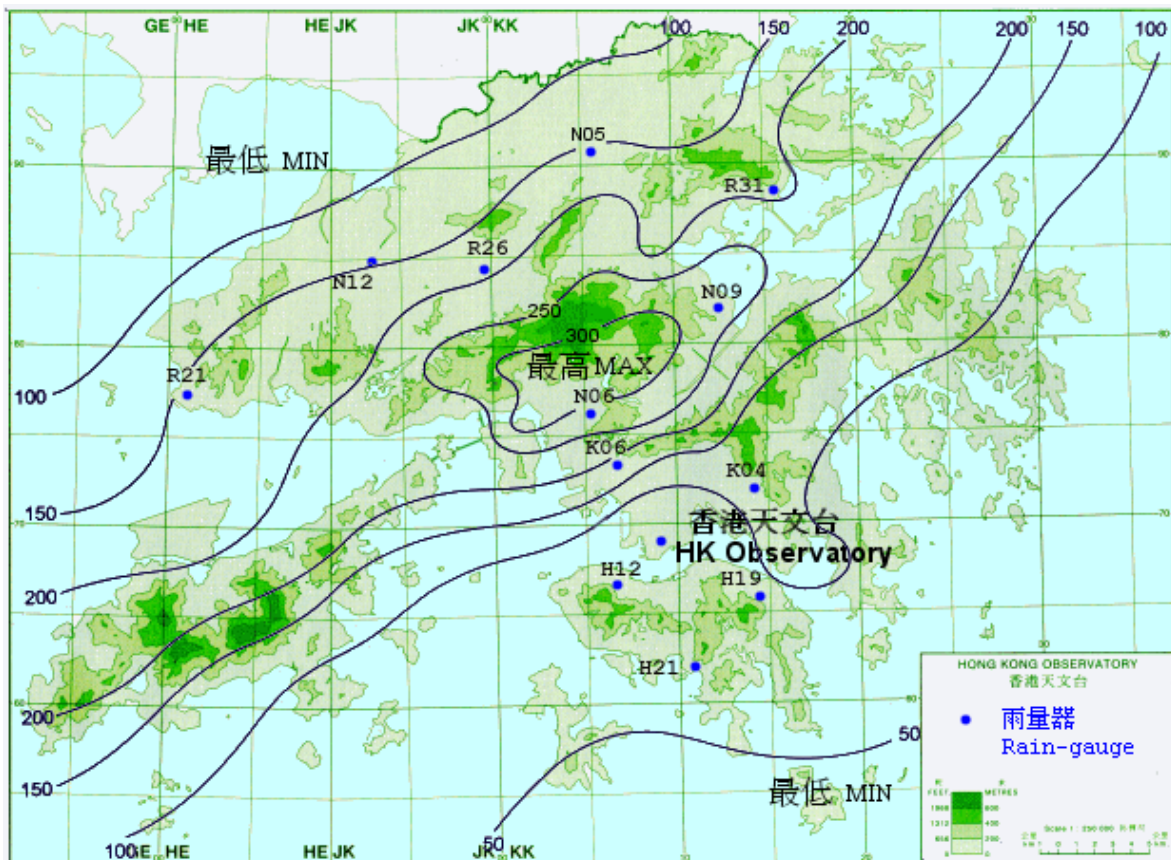


圖 3.1.2 二零零二年八月三日至六日的雨量分佈 (等雨量線單位為毫米)。
 Figure 3.1.2 Rainfall distribution on 3-6 August 2002 (isohyets are in millimetres).

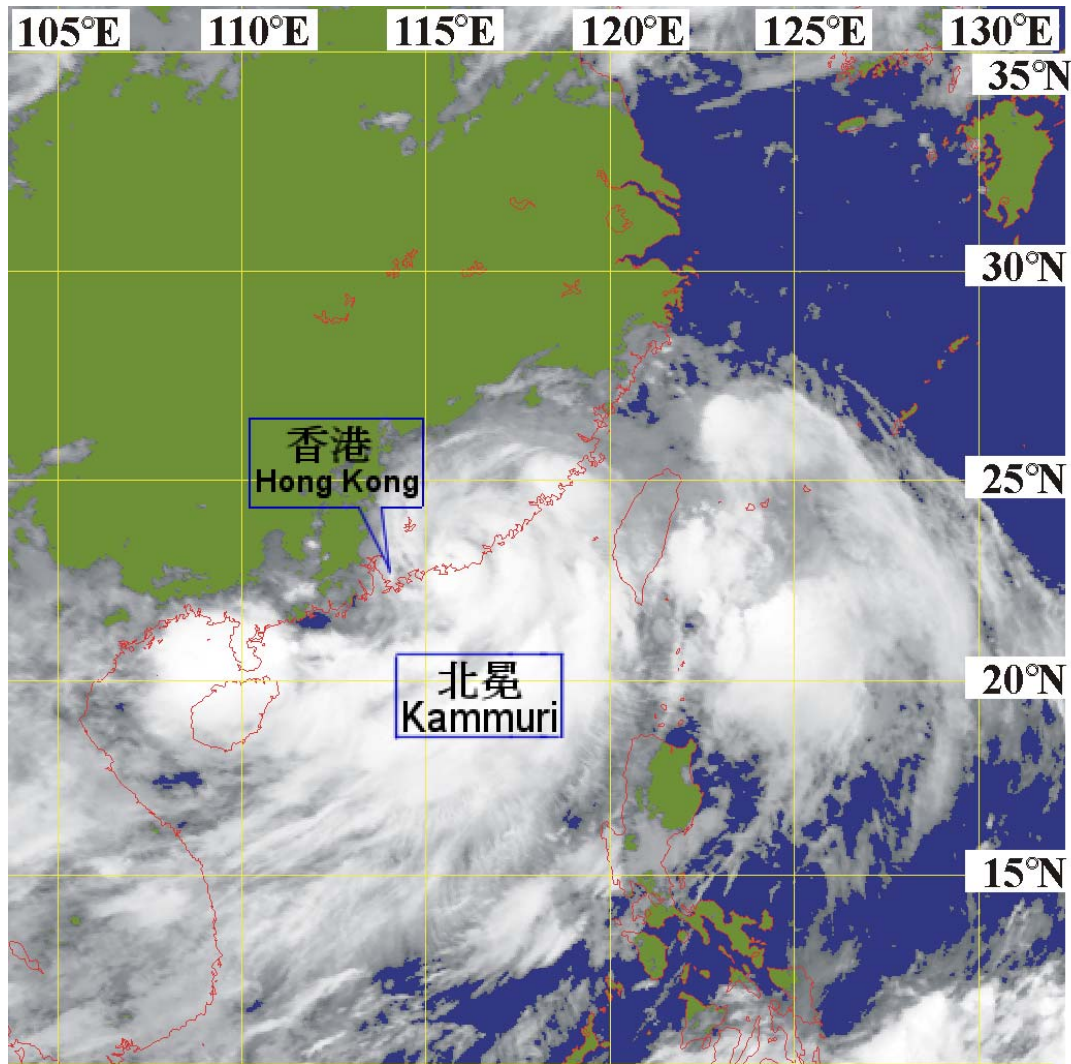


圖 3.1.3 二零零二年八月五日約上午7時30分的紅外線衛星圖片，顯示當時北冕剛在汕尾附近登陸。〔此衛星雲圖接收自日本氣象廳的地球同步氣象衛星(GMS-5)〕

Figure 3.1.3 Infra-red imagery at around 7.30 a.m. on 5 August 2002 showing that Kammuri had just made landfall near Shanwei. (The cloud imagery was originally captured by the Geostationary Meteorological Satellite (GMS-5) of Japan Meteorological Agency)

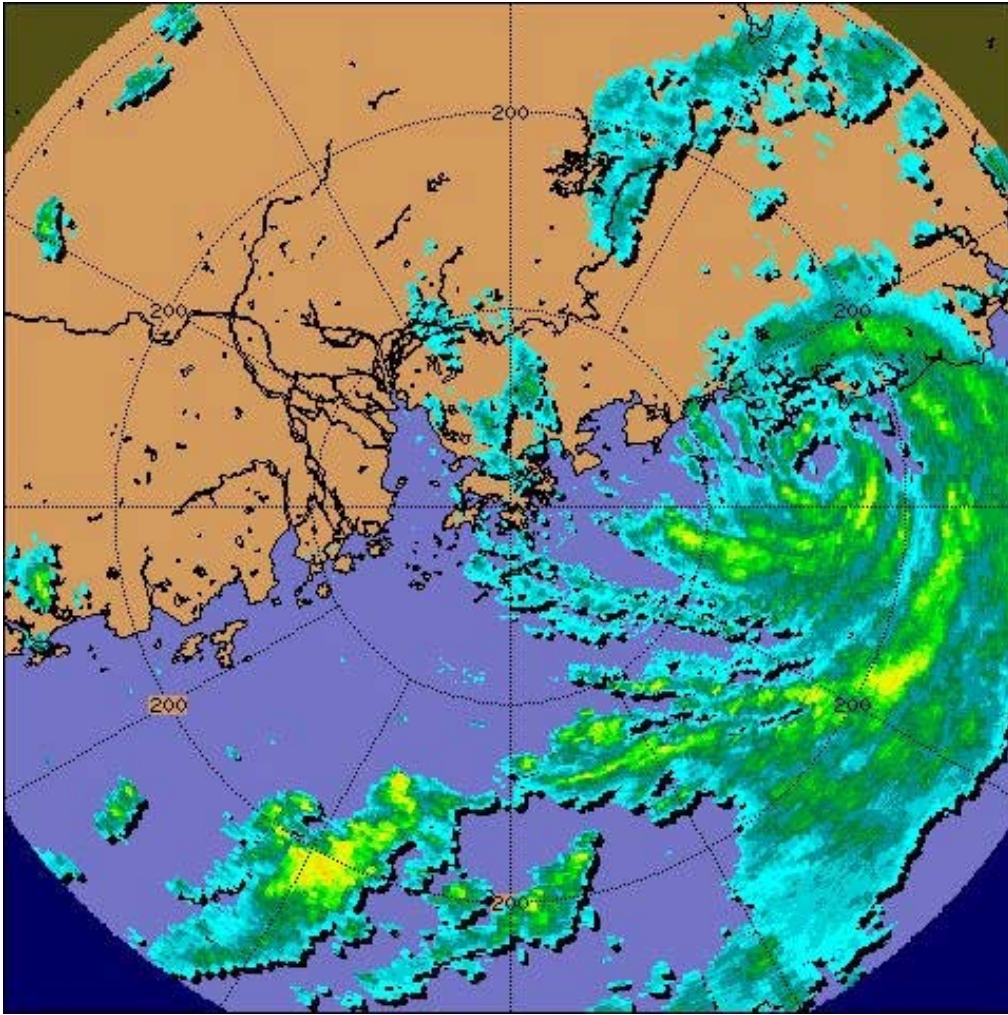


圖 3.1.4 二零零二年八月五日上午4時的雷達回波圖像，當時北冕的中心位於香港以東約150公里。

Figure 3.1.4 Radar echoes captured at 4 a.m. on 5 August 2002. At that time, the centre of Kammuri was located at about 150 km east of Hong Kong.