

3.2 超強颱風威馬遜 (1409)：二零一四年七月十一日至二十日

威馬遜是香港天文台在二零一四年第二個需要發出熱帶氣旋警告信號的熱帶氣旋，也是今年首個需要發出三號強風信號的熱帶氣旋。

熱帶低氣壓威馬遜於七月十一日早上在關島之東南偏東約410公里的北太平洋西部形成，隨後數天穩定地向偏西方向移動，並逐漸增強，發展為強颱風後於七月十五和十六日期間轉向西北偏西方向移動，橫過菲律賓中部後進入南海。受到陸地影響威馬遜曾一度減弱，在南海重新組織，並於七月十八日增強為超強颱風，達到其最高強度，中心附近最高持續風速估計為每小時240公里。威馬遜採取一個西北路徑，當天稍後於海南島北部文昌市附近登陸，翌日早上橫過廣西海岸，在內陸減弱，七月二十日在雲南減弱為一個低壓區。

根據報章報導，威馬遜吹襲菲律賓期間造成最少98人死亡，五人失蹤，另外630人受傷，多處地區停電，直接經濟損失超過108億披索(約19億港元)。威馬遜在海南島、廣東西部及廣西等地亦造成嚴重破壞，最少有18人死亡，三萬七千間房屋倒塌，740萬人受災，逾468 500公頃農田受影響，海陸空交通癱瘓，局部地區通信中斷，直接經濟損失超過265億元人民幣。威馬遜為雲南帶來暴雨及泥石流，造成最少14人死亡。

香港天文台於七月十六日下午11時40分發出一號戒備信號，當時威馬遜位於香港之東南偏南約790公里。隨着威馬遜逐漸移近華南沿岸，本港在七月十七日東風逐漸增強，天文台在下午4時15分發出三號強風信號，當時威馬遜位於香港以南約590公里。晚上本港風勢進一步增強，普遍吹達強風程度的東至東南風，離岸及高地間中吹烈風。香港天文台總部於七月十八日上午4時01分錄得最低瞬時海平面氣壓1001.6百帕斯卡，當時威馬遜位於香港之西南偏南約420公里。威馬遜於當日正午時分最接近香港，在本港西南約390公里附近掠過。隨著威馬遜移離，本港風勢逐漸減弱，天文台在晚上7時40分改發一號戒備信號，取代三號強風信號。威馬遜在晚間橫過北部灣並進一步遠離本港，天文台於七月十九日上午3時40分取消所有熱帶氣旋警告信號。

威馬遜影響香港期間，尖鼻咀錄得最高潮位(海圖基準面以上)為2.52米，而大埔滘則錄得最大風暴潮0.59米。

七月十七日本港初時大致天晴。受威馬遜的外圍雨帶影響，日間漸轉多雲，有狂風驟雨及雷暴，多處地區錄得超過20毫米雨量。威馬遜於七月十八日繼續為香港帶來狂風大驟雨及雷暴，普遍地區錄得20毫米雨量，西貢及新界北部更錄得超過50毫米。

威馬遜吹襲香港期間，本港最少有51宗塌樹報告及多宗高空墜物意外。荃灣路行車天橋的一支燈柱於七月十七日在強風吹襲下折斷，壓毀兩部私家車。香港國際機場有57班航班取消和413班航班延誤，另外有6班航班需要轉飛其它地方。

表3.2.1 - 3.2.4 分別是威馬遜影響香港期間各站錄得的最高風速、持續風力達到強風及烈風程度的時段、香港的日雨量及最高潮位資料。圖3.2.1 - 3.2.4 分別為威馬遜的路徑圖、本港的雨量分佈圖、威馬遜的衛星及雷達圖像。

3.2 Super Typhoon Rammasun (1409): 11 – 20 July 2014

Rammasun was the second tropical cyclone that necessitated the issuance of tropical cyclone warning signal by the Hong Kong Observatory in 2014. It was also the first tropical cyclone necessitating the issuance of Strong Wind Signal No. 3 in the year.

Rammasun formed as a tropical depression over the western North Pacific about 410 km east-southeast of Guam on the morning of 11 July. It intensified gradually and moved westwards steadily in the following few days. Rammasun developed into a severe typhoon and turned west-northwestwards on 15 and 16 July, moving across the central part of the Philippines and entering the South China Sea. After weakening over terrain, Rammasun re-organized over the South China Sea and intensified into a super typhoon on 18 July, reaching its peak intensity with an estimated sustained wind of 240 km/h near its centre. Tracking northwestwards, it made landfall near Wenchang over the northern part of Hainan Island later that day and crossed the coast of Guangxi the next morning. Rammasun weakened over land and became an area of low pressure over Yunnan on 20 July.

According to press reports, at least 98 people were killed, five were missing and 630 others were injured in the Philippines during the passage of Rammasun. There were also power blackouts over many places and the direct economic loss exceeded 10.8 billion PHP (around 1.9 billion HKD). Rammasun also wreaked havoc in Hainan Island, western Guangdong and Guangxi. At least 18 people were killed, 37 000 houses collapsed, with 7.4 million people and more than 468 500 hectares of farmland affected. Transportation services were suspended and communication in some areas was disrupted. The direct economic loss exceeded 26.5 billion RMB. Rammasun also brought rainstorms and mudslides to Yunnan where at least 14 people were killed.

In Hong Kong, the Standby Signal No. 1 was issued at 11:40 p.m. on 16 July when Rammasun was about 790 km south-southeast of the territory. With Rammasun edging closer to the south China coast, local winds strengthened gradually from the east on 17 July and the Strong Wind Signal No. 3 was issued at 4:15 p.m. when Rammasun was about 590 km south of Hong Kong. Winds in Hong Kong picked up further that night, becoming generally strong east to southeasterlies with occasionally gale force over offshore and on high grounds. At the Hong Kong Observatory Headquarters, the lowest instantaneous mean sea-level pressure of 1001.6 hPa was recorded at 4:01 a.m. on 18 July when Rammasun was at about 420 km to the south-southwest. Rammasun came closest to the territory around noon that day, skirting at around 390 km to the southwest of Hong Kong. Local winds subsided gradually as Rammasun moved away from Hong Kong. The Strong Wind Signal No. 3 was replaced by the Standby Signal No. 1 at 7:40 p.m. on 18 July. As Rammasun crossing Beibu Wan and moved further away from Hong Kong overnight, all tropical cyclone warning signals were cancelled at 3:40 a.m. on 19 July.

Under the influence of Rammasun, a maximum sea level (above chart datum) of 2.52 m was recorded at Tsim Bei Tsui, while a maximum storm surge of 0.59 m was recorded at Tai Po Kau.

Local weather was mainly fine at first on 17 July. Under the influence of the outer rainbands of Rammasun, the weather became cloudy with squally showers and thunderstorms. More than 20 millimetres of rainfall were recorded over many places in Hong Kong. Rammasun continued to bring heavy squally showers and thunderstorms to the territory on 18 July. 20 millimetres of rainfall were recorded generally over the territory, and rainfall even exceeded 50 millimetres over Sai Kung and northern part of the New Territories.

In Hong Kong, at least 51 trees were blown down and many incidents of fallen objects were reported. A lamp post in Tsuen Wan flyover fell down under strong winds on 17 July, damaging two private cars. At the Hong Kong International Airport, 57 flights were cancelled, 413 delayed and 6 aircraft were diverted.

Information on the maximum wind, period of strong and gale force winds, daily rainfall and maximum sea level reached in Hong Kong during the passage of Rammasun is given in Tables 3.2.1 - 3.2.4 respectively. Figures 3.2.1 - 3.2.4 show respectively the track of Rammasun, the rainfall distribution for Hong Kong, a satellite imagery and a radar imagery of Rammasun.

表 3.2.1 在威馬遜影響下，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 Rammasun 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	77	17/7	19:25	東南偏東	ESE	45	18/7	06:00
中環碼頭	Central Pier	東北偏東	ENE	81	17/7	17:21	東	E	40	18/7	09:00
長洲	Cheung Chau	東南	SE	103	18/7	09:42	東南	SE	63	18/7	12:00
長洲泳灘	Cheung Chau Beach	東北偏東	ENE	96	17/7	17:33	東	E	65	18/7	06:00
青洲	Green Island	東北	NE	101	17/7	17:24	東北	NE	58	17/7	17:00
香港國際 機場	Hong Kong International Airport	東南偏東	ESE	77	18/7	00:05	東南	SE	45	18/7	14:00
啟德	Kai Tak	東	E	77	17/7	17:16	東南偏東	ESE	36	19/7	00:00
京士柏	King's Park	東南	SE	67	18/7	05:38	東南	SE	34	18/7	09:00
流浮山	Lau Fau Shan	東南	SE	67	18/7	10:29	東	E	31	17/7	16:00
北角	North Point	東	E	77	17/7	17:22	東	E	36	18/7	06:00
坪洲	Peng Chau	東	E	76	17/7	19:42	東	E	45	18/7	06:00
平洲	Ping Chau	東	E	34	17/7	18:29	東	E	12	17/7	16:00
西貢	Sai Kung	東北偏東	ENE	70	17/7	21:34	東北偏東	ENE	41	17/7	16:00
沙洲	Sha Chau	東南偏南	SSE	90	18/7	10:05	東南	SE	49	18/7	14:00
沙螺灣	Sha Lo Wan	東南	SE	92	18/7	10:08	東	E	36	17/7	18:00
沙田	Sha Tin	東	E	59	17/7	17:21	東	E	20	17/7	13:00
石崗	Shek Kong	東南偏東	ESE	70	17/7	20:14	東	E	25	18/7	06:00
							東	E	25	18/7	08:00
九龍天星 碼頭	Star Ferry (Kowloon)	東	E	75	18/7	04:43	東	E	45	18/7	06:00
打鼓嶺	Ta Kwu Ling	東	E	58	18/7	06:54	東	E	25	18/7	08:00
大美督	Tai Mei Tuk	東	E	79	18/7	05:33	東	E	54	18/7	09:00
大帽山	Tai Mo Shan	東	E	118	18/7	06:27	東	E	79	18/7	07:00
塔門	Tap Mun	東	E	65	17/7	21:25	東南	SE	31	18/7	13:00
大老山	Tate's Cairn	東	E	113	17/7	17:19	東	E	67	18/7	06:00
將軍澳	Tseung Kwan O	東南偏東	ESE	59	18/7	11:04	東南偏東	ESE	16	18/7	14:00
		東南偏東	ESE	59	18/7	13:13					
青衣島 蜆殼油庫	Tsing Yi Shell Oil Depot	-	-	63	18/7	10:10	-	-	25	18/7	09:00
屯門政府 合署	Tuen Mun Government Offices	東南	SE	63	18/7	10:18	東南	SE	22	18/7	15:00
橫瀾島	Waglan Island	東	E	96	17/7	19:19	東南偏東	ESE	62	18/7	05:00
濕地公園	Wetland Park	東	E	52	17/7	16:52	東	E	22	18/7	06:00
							東南偏東	ESE	22	18/7	08:00
黃竹坑	Wong Chuk Hang	東南	SE	77	18/7	9:54	東南偏東	ESE	30	18/7	06:00

昂坪、大埔滘 - 沒有資料 Ngong Ping, Tai Po Kau- data not available

- 沒有資料 - data not available

表 3.2.2 在威馬遜影響下，在熱帶氣旋警告系統的八個參考測風站所錄到持續風力達到強風程度的時段

Table 3.2.2 Periods during which sustained strong winds were reached among the eight reference anemometers in the tropical cyclone warning system when warning signals for Rammasun were in force

站 (參閱圖 1.1) Station (See Fig. 1.1)		最初達到強風*時間 Start time strong wind speed* was reached		最後達到強風*時間 End time strong wind speed* was reached	
		日期/月份 Date/Month	時間 Time	日期/月份 Date/Month	時間 Time
長洲	Cheung Chau	17/7	10:52	19/7	01:47
香港國際機場	Hong Kong International Airport	17/7	13:21	18/7	15:11
啟德	Kai Tak	17/7	19:37	18/7	13:02
西貢	Sai Kung	17/7	12:45	18/7	13:23

流浮山、沙田、打鼓嶺及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 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： 本表列出持續風力最初及最後達到強風程度的時間。其間，風力可能高於或低於指定的風力。

Note: The table gives the first and last time when strong winds were recorded. Note that the winds might fluctuate above or below the specified wind speeds in between the times indicated.

表 3.2.3 威馬遜影響香港期間，香港天文台總部及其他各站所錄得的日雨量
 Table 3.2.3 Daily rainfall amounts recorded at the Hong Kong Observatory Headquarters and other stations during the passage of Rammasun

站 (參閱圖 3.2.2) Station (See Fig. 3.2.2)			七月十七日 17 Jul	七月十八日 18 Jul	七月十九日 19 Jul	總雨量 (毫米) Total (mm)
香港天文台 Hong Kong Observatory			34.5	19.5	6.5	60.5
香港國際機場 Hong Kong International Airport (HKA)			9.6	36.4	3.4	49.4
長洲 Cheung Chau (CCH)			20.0	17.5	1.0	38.5
H23	香港仔	Aberdeen	41.5	20.0	4.0	65.5
N05	粉嶺	Fanling	3.0	37.0	8.0	48.0
N13	糧船灣	High Island	24.5	27.0	7.5	59.0
K04	佐敦谷	Jordan Valley	27.5	28.0	13.5	69.0
N06	葵涌	Kwai Chung	22.5	28.0	10.0	60.5
H12	半山區	Mid Levels	32.0	23.0	6.5	61.5
N09	沙田	Sha Tin	17.0	47.0	10.0	74.0
H19	筲箕灣	Shau Kei Wan	39.0	16.0	5.5	60.5
SEK	石崗	Shek Kong	13.5	51.0	12.0	76.5
K06	蘇屋邨	So Uk Estate	0.5	24.5	7.0	32.0
R31	大美督	Tai Mei Tuk	8.0	59.0	8.0	75.0
R21	踏石角	Tap Shek Kok	3.5	19.5	1.5	24.5
N17	東涌	Tung Chung	14.5	31.0	7.0	52.5
R27	元朗	Yuen Long	8.5	27.5	2.5	38.5

表 3.2.4 威馬遜影響香港期間，香港各潮汐站所錄得的最高潮位及最大風暴潮
 Table 3.2.4 Times and heights of the maximum sea level and the maximum storm surge recorded at tide stations in Hong Kong during the passage of Rammasun

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	2.29	17/7	12:51	0.48	18/7	05:50
石壁	Shek Pik	2.37	18/7	13:07	0.52	18/7	13:07
大廟灣	Tai Miu Wan	2.28	17/7	12:43	0.53	18/7	12:21
大埔滘	Tai Po Kau	2.25	17/7	13:50	0.59	18/7	06:46
尖鼻咀	Tsim Bei Tsui	2.52	17/7	13:29	0.37	18/7	14:02
橫瀾島	Waglan Island	2.43	17/7	12:53	0.47	18/7	12:28

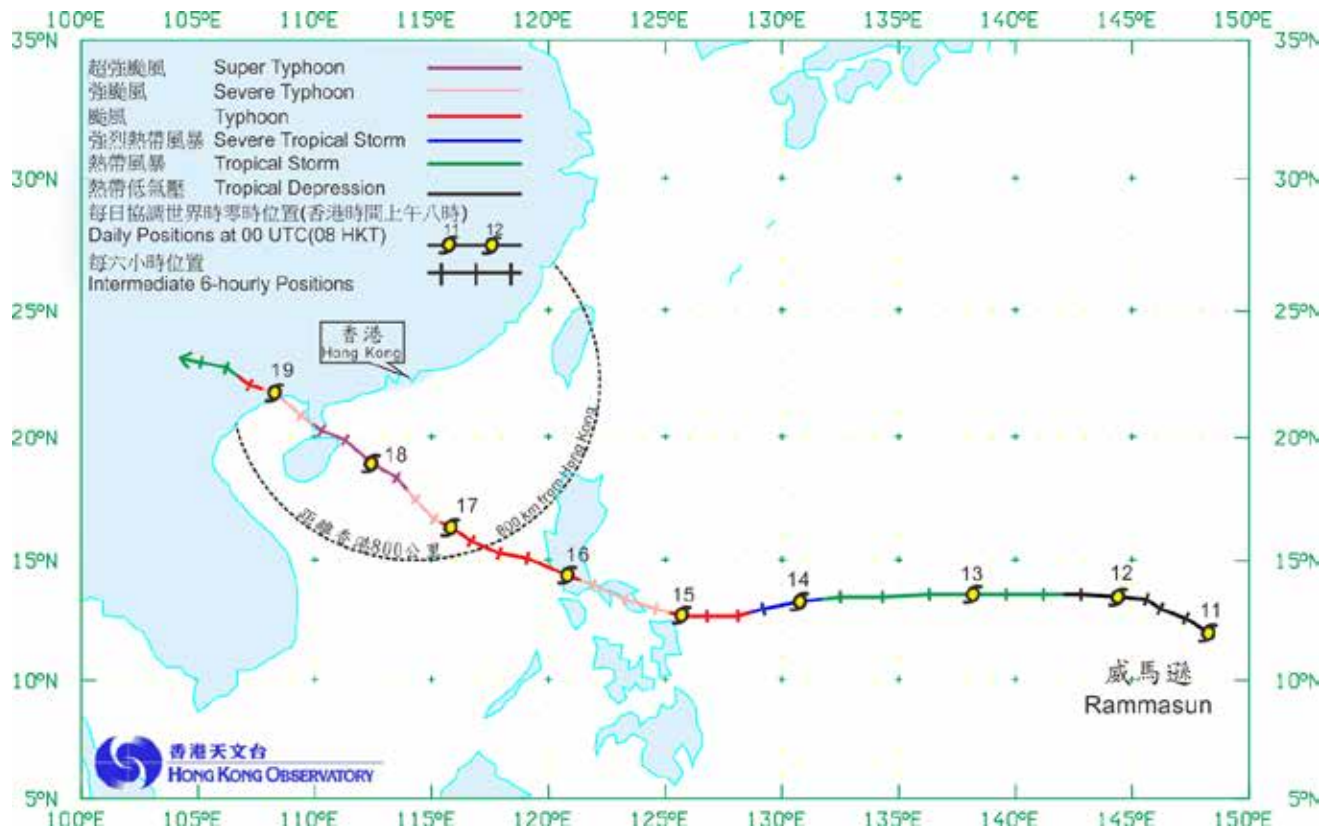


圖 3.2.1 威馬遜 (1409)在二零一四年七月十一日至二十日的路徑圖。

Figure 3.2.1 Track of Rammasun (1409) on 11 - 20 July 2014.

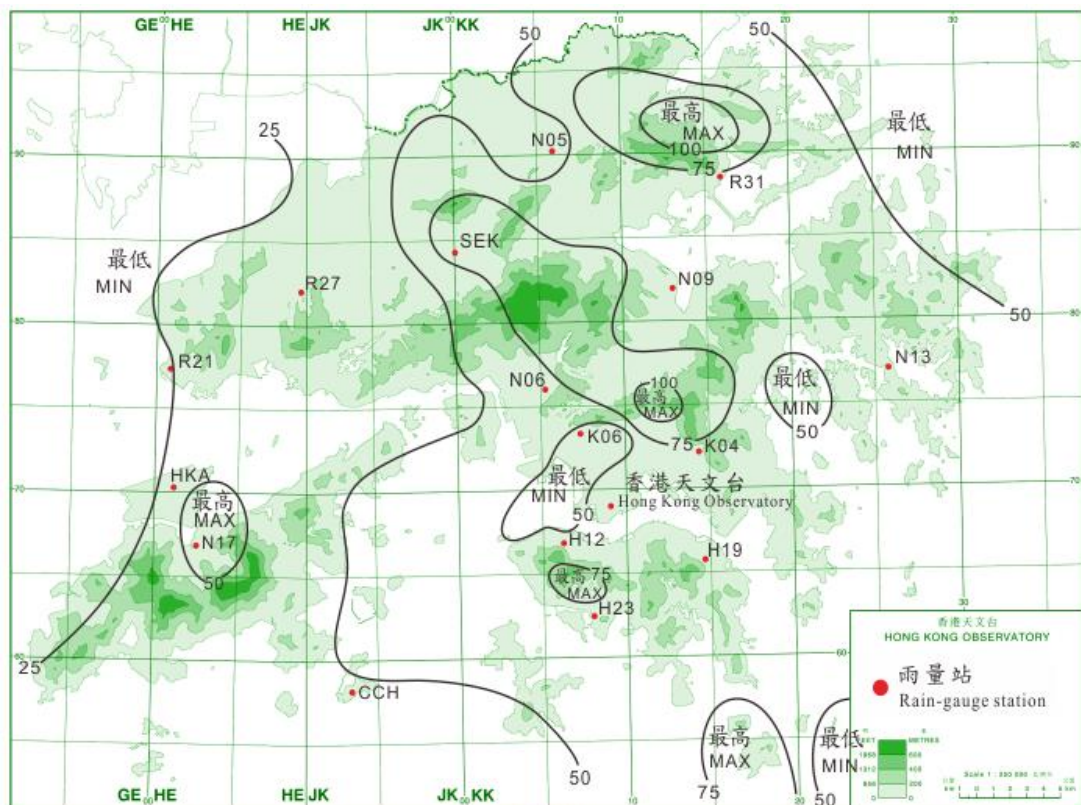


圖 3.2.2 二零一四年七月十七日至十九日的雨量分佈 (等雨量線單位為毫米)。

Figure 3.2.2 Rainfall distribution on 17 - 19 July 2014 (isohyets are in millimetres).

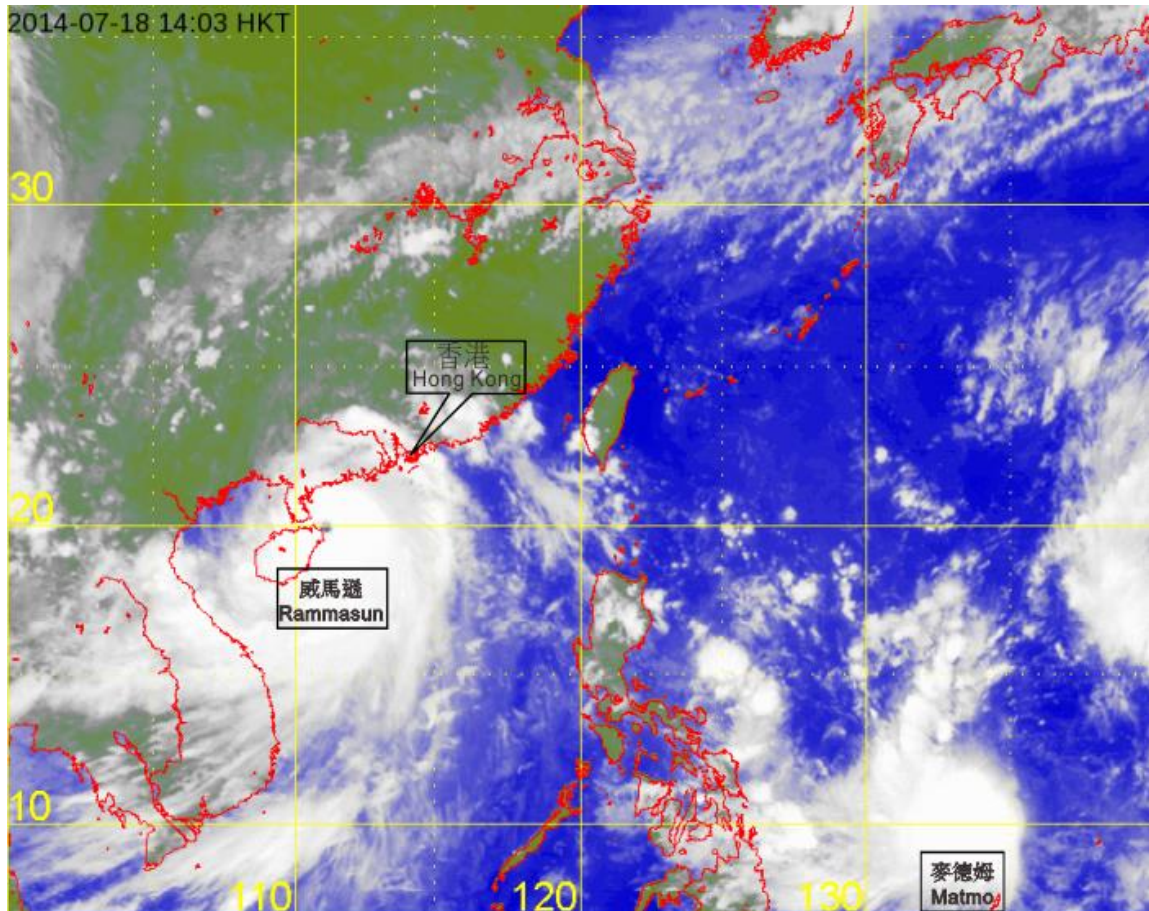


圖 3.2.3 超強颱風威馬遜在二零一四年七月十八日下午 2 時的紅外線衛星圖片，當時威馬遜達到其最高強度，中心附近最高持續風速估計為每小時 240 公里，其風眼正移近海南島文昌市沿岸。

Figure 3.2.3 Infra-red satellite imagery of Super Typhoon Rammasun at 2 p.m. on 18 July 2014 at its peak intensity with estimated maximum sustained winds of 240 km/h near its centre. The eye of Rammasun was edging close to the coast of Wenchang of Hainan Island.

〔此衛星圖像接收自日本氣象廳的多用途輸送衛星-2。〕

[The satellite imagery was originally captured by the Multi-functional Transport Satellite-2 (MTSAT-2) of Japan Meteorological Agency (JMA).]

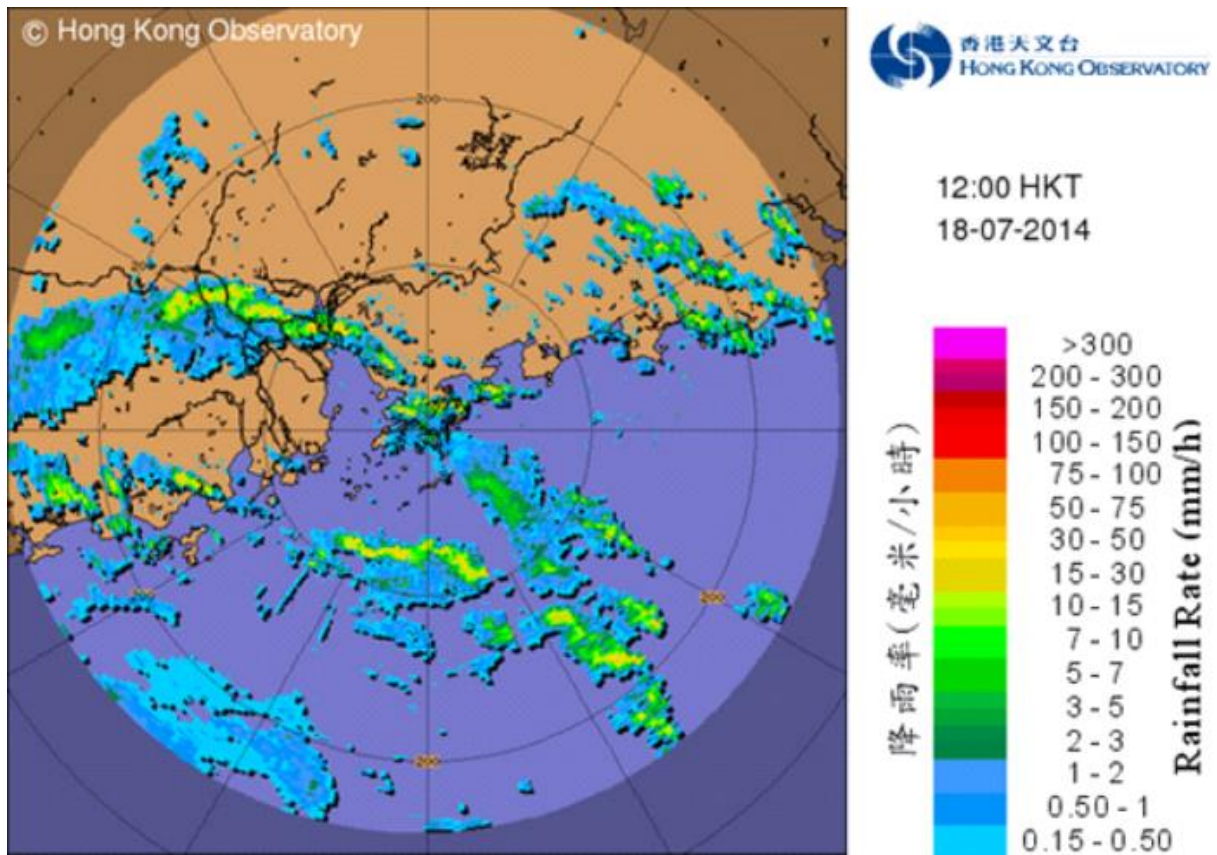


圖 3.2.4 二零一四年七月十八日中午 12 時的雷達回波圖像，超強颱風威馬遜最接近本港的一刻，其中心集結在香港之西南約 390 公里。當時威馬遜的外圍雨帶正影響本港。

Figure 3.2.4 Image of radar echoes captured at noon on 18 July 2014 when Super Typhoon Rammasun was closest to Hong Kong with its centre about 390 km to the southwest. The outer rainbands of Rammasun were affecting the territory.