

Wind direction and force shown as under. Arrows by with the wind

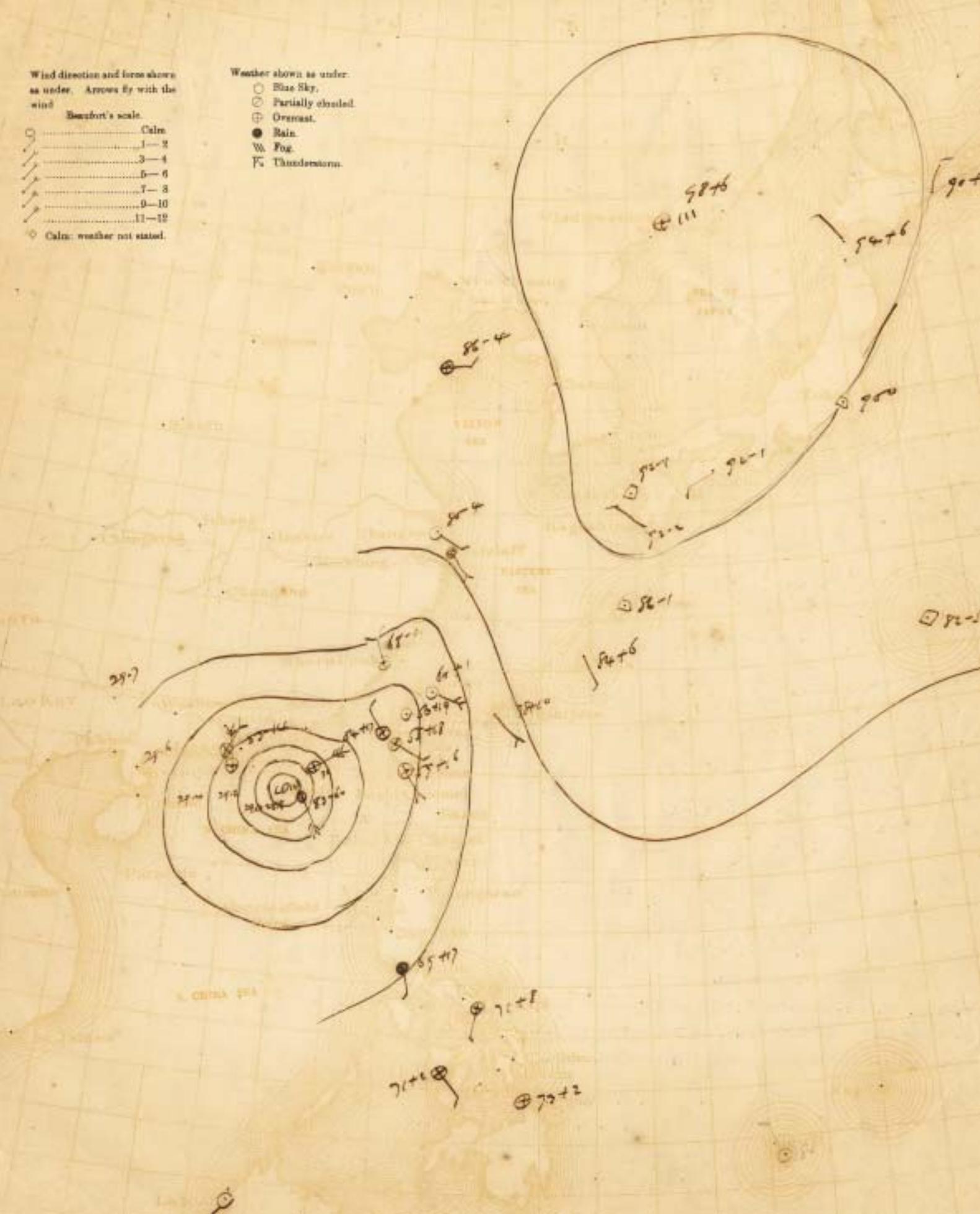
Beaufort's scale.

○	Calms
↘	1-2
↘↘	3-4
↘↘↘	5-6
↘↘↘↘	7-8
↘↘↘↘↘	9-10
↘↘↘↘↘↘	11-12

○ Calm: weather not stated.

Weather shown as under.

- Blue Sky.
- ⊖ Partially clouded.
- ⊕ Overcast.
- Rain.
- W Fog.
- ⚡ Thunderstorm.



2

A Review of Natural Disasters of the Past

歷年天災的回顧

■ A typhoon passing to the south of Hong Kong in 1927
 1927年一個在香港南面掠過的颱風

Since the 1980s, Hong Kong's sustained economic development has led to substantial improvements in its ability to withstand natural catastrophes. Natural disasters before the mid-1970s seriously affected the development of Hong Kong. Before the setting up of the Hong Kong Observatory in 1883, there was no specialised department to observe, record and disseminate information on typhoons. Therefore it was very difficult to gather information systematically on casualties caused by natural disasters before 1884. Based on the official publications by the Hong Kong government and civilian reports, the natural calamities that occurred between 1884 to 2002 have been generally categorised into five main types — typhoons, severe rainstorms, very cold, very hot and very dry weather. The following sections are attempts to study in depth how such natural disasters have wreaked havoc on society.

Typhoons

From June to October every year, Hong Kong is subjected to threats of typhoons. Using the terminology of modern-day meteorology, typhoons are 'tropical cyclones' that form over the western part of the North Pacific. They can last from a few days to several weeks. Their directions of movement are basically in line with the direction of the large-scale air currents above the ocean, tending to move northwards from the seas around the Philippines towards Southeast Asia and the South China Sea. Thus, typhoons refer to storms that are formed over the sea. Since ancient times only gazettes from China's coastal regions have provided information about typhoons. No gazettes from the inland regions had any description of typhoons, implying that typhoons are weather systems closely related to the ocean.

Tropical cyclones do not always develop into full-fledged typhoons. In the western North Pacific and the South China Sea, only about half of the tropical cyclones develop into typhoon strength.²³ At the international meteorology conference held in the Philippines in June 1949, tropical cyclones were classified into four categories according to wind speeds.

踏入 1980 年代，香港的經濟有了長足的進展，抵禦天然災害的能力也因此大大提升。整體來說，在 1970 年代中期以前，香港的發展受天災的影響仍然甚深。由於在 1883 年天文台成立之前，沒有專業部門負責觀察、記錄及發佈颱風消息，所以很難有系統地就 1883 年以前的自然災害作深入了解。為探討自然災害對社會所造成的損害，茲根據香港政府公佈的資料及民間報章的報導，把 1884 至 2002 年香港發生的自然災害綜述，而有關的資料可歸納為颱風、暴雨、嚴寒、酷熱及乾旱等五大類。

颱風

每年的 6 至 10 月，香港都會受到颱風吹襲。颱風，用現代氣象的術語，是一種形成於北太平洋西部及南海的「熱帶氣旋」，一般的壽命從數天至數星期不等，移動的方向基本上與海洋上空的氣流方向一致，主要是自菲律賓北上向東南亞及中國南海移動；因此，颱風是指於海上形成的暴風。其實中國自古以來就只有沿海地區的方志才有颱風的資料，內陸地區的方志從沒有颱風的記載，可證明颱風的形成與海洋上空的氣流有極密切的關係。

熱帶氣旋不一定會變為颱風，在北太平洋西部及中國南海，大約只有半數的熱帶氣旋會發展至颱風強度。²³ 按照 1949 年 6 月菲律賓國際氣象會議的協定，熱帶氣旋可按照其風力的強弱分為四級（參閱附表 2.1）。

表 2.1 熱帶氣旋分類與蒲福氏風級對照表²⁴

	最高持續風速		蒲福氏風級
	公里 / 小時	海里 / 小時	
熱帶低氣壓	41–62	22–33	6–7 級
熱帶風暴	63–87	34–47	8–9 級
強烈熱帶風暴	88–117	48–63	10–11 級
颱風	118 或以上	64 或以上	12 級

資料來源：
皇家香港天文台，《颱風》，香港，1992，頁 8。

Table 2.1 Tropical Cyclone Classification — Wind Speeds and the Beaufort Wind Scale²⁴

	Maximum Sustained Wind Speed		Beaufort Scale
	km/h	knot	
Tropical Depression	41–62	22–33	Force 6–7
Tropical Storm	63–87	34–47	Force 8–9
Severe Tropical Storm	88–117	48–63	Force 10–11
Typhoon	118 or above	64 or above	Force 12

Source:
Royal Observatory, Hong Kong, *Typhoons*, Hong Kong, 1992, p. 8.

Origins of Nomenclature

Of the ancient Chinese texts discussing storms that were formed over the sea, the earliest one can be traced to *Nanyue zhi* (Gazette of South China),²⁵ compiled by Shen Huaiyuan in the Jin Dynasty. In Shen's work, the so-called 'big' storms meant storms feared by people. The original excerpt is translated below:

According to unofficial sources, there are many *jufeng* (violent storms). *Jufeng* means wind coming from four directions, with a change of tone this can also mean 'fearful wind'. They occur in the seventh month. When they come, dogs and roosters make no sound for three days. The big ones last for seven days, and the small ones last for three days.²⁶

In the Yuan Dynasty, Lou Yuanli, recorded the immense force of the storms and also described the phenomena before and after the formation of the *jufeng*.²⁷

Between summer and autumn, the blowing of high winds and sea sand gives rise to *fengchao* (wind tides); the ancient people knew this as *jufeng*. The name *jufeng* refers to winds coming from all four directions. *Jufeng* are usually accompanied by heavy rain. They even uproot trees, flatten crops, destroy houses and damage river embankments. They first appear like a broken rainbow, known as *jumu* (mother of high winds). Mariners, when they see this phenomenon, call it *fanfeng* (sailing winds).

Jufeng is also known as *taifeng*. According to Tai Tong of the Song Dynasty, who wrote the *Liushu gu* (Ancient Stories From Six Books),²⁸ the name *fengbei* was the earliest term used to describe a big storm. Later the name was erroneously passed down as *ju*. 'The name *bei*, meaning disastrous winds from the sea, was mistaken as *ju* by popular books.' In the Ming work, *Wuzha cu*,²⁹

名稱的由來

中國古志書就海上形成暴風的記載，以晉朝沈懷遠撰寫的《南越志》²⁵ 有關「惧風」的紀錄為最早，沈氏認為「惧風」意指讓人懼怕之風。其原文節錄如後：

照民間多颶風，颶者其四方之風也，一曰惧風，常以云，七月興，其至時，三日雞犬不鳴，大者七日，小者三日。²⁶

而元朝婁元禮除了記述颶風的威力外，更有描述颶風形成前後的自然現象²⁷：

夏秋之交，大風及有海沙云起俗謂風潮，古人之曰颶風，言其具四方之風，古名颶風，有此風必有霖淫大雨同作，甚至撥木偃禾，壞房屋決堤堰，其先如斷虹之狀者，名曰颶母，航海之人見此，則又名帆風。

至於颶風又被稱為颱風，據宋戴侗《六書故》²⁸ 則認為「颶」是最早用以形容風暴之詞後，後被誤傳為颶：「颶，補妹切，海之災風也，俗書誤作颶。」明謝肇淛《五雜俎》²⁹ 有載：「福建人稱颶風，颶音貝，顛簸之意」，而「颶風」與粵音的「颱風」相近，故颶輾轉演變成颱風。清余景熹於《福州府志》³⁰ 中也有記載颶風：「颶，俗訛為颶，呼為報。」清楊慎：「颶作颶，音貝。」《佛經》也有「風虹如貝」的記載。清印光任《澳門紀略》：「……或曰楊慎曰颶，當作颶，故俗曰風報，報者貝之轉音也。」而有關颶、颶兩字的轉音，曾興起不少議論，認為颶風原應寫作颶者，多以韻書立論。

歷來修纂方志，多以颶風名海上強烈的暴風而少以颱風稱。颶風於粵地又稱作「舊風」、「風報」或「風暴」，印光任於《澳門紀略》³¹ 引陸胤傳謂：「南海歲有舊風，颶者舊之訛也。「舊風」又可解作颶風盛行季節，起於夏而止於秋之間，以秋為舊。」颶風於閩、台舟人呼海上大風叫做「風報」或「風暴」。³²

根據近代香港氣候資料的記載，產生於北太平洋西部和中國南海的熱帶氣旋，多以 typhoon (颶風) 名之。有謂此用語是源於古代希臘神話 Typhon (百頭巨怪) 一詞；也有認為英語所用的 typhoon 一詞源於粵音「大風」或「打風」。歐洲人使用 typhoon 一詞，以英人達皮爾 (William Dampier) 於 1687 年 7 月 4 日出版《航海日記》一書為最早。1697 年他著作的《海上環遊世界》(*A Voyage Around the World*)，更以 typhoon 形容強烈的暴風。十九世紀中期以後，中國、香港、菲律賓、日本及韓國等氣象台對發生於南中國海和西北太平洋的熱帶氣旋，均統稱為 typhoon (颶風)。

香港以外的地區，對風力強勁的熱帶氣旋也有不同的稱謂：1805 年英海軍蒲福 (Francis Beaufort) 制定的《蒲福風級》(Beaufort scale of wind force) 把離海平面 10 米的風速狀況，分為 12 級，第 12 級風速為每小時 118 公里以上，稱為 hurricane force wind (颶風)；產生於西印度群島海面、活躍在大西洋和

the editor Xie Zhaozhe wrote that the Fujian people call windstorms as *beifeng*, because of their jolting nature. The pronunciation of *beifeng* in Fujian dialect closely resembles that of *taifeng* in Cantonese. Thus, *beifeng* in the course of time became *taifeng*. A Qing man, Yu Jingxi in his *Fuzhou fuzhi* (Local Gazette of Fuzhou),³⁰ also mentioned the *beifeng* wind and said that *ju* was popularly known as *bei*, and was also called *bao*. Another Qing man, Yang Shen, said that *ju* was written as *bei*, and was pronounced as *bei*. In the Buddhist text, ‘red winds like *bei*’ were also mentioned. A Qing author, Yin Guangren in his book, *Aomeng jilue* (A Collection of Records of Macao), mentioned that Yang Shen equated *jufeng* with *beifeng*, and was colloquially called *fengbao* (the reporting of big winds); *bao* was a changed tone for *bei*. The change of tone between *ju* and *bei* caused a great deal of controversy. Those who thought that *jufeng* should be named as *beifeng*, usually used prosody books to support their arguments.

Scholars, who edited local gazettes, usually named severe storms from the seas as *jufeng* and seldom called them *taifeng*. *Jufeng* in Guangdong region were also known as *jiufeng* (old winds), *fengbao* (the reporting of big winds), or *fengbao* (violent storms). Yin Guangren in his book, *Aomeng jilue*,³¹ quoted another scholar Lu Yinchuan who said that in the southern seas, there would be *jiufeng* every year, and the name *jufeng* was just a mistaken term for *jiufeng*. However, *jiufeng* could also mean the *jufeng* season, which started from summer and ended in autumn. By autumn, such winds were so frequent that they literally became *jiu* (old). *Jufeng* among the people of Fujian and Taiwan were also known as *fengbao* (the reporting of big winds) or *fengbao* (violent storms).³²

According to recent Hong Kong meteorological data, a majority of the tropical cyclones formed in the western North Pacific and South China Sea are known as ‘typhoon’ (*taifeng*). Some say that the word ‘typhoon’ originated from a Greek mythological term ‘Typhon’, which was used to describe a 100-headed monster. Others say that the word ‘typhoon’ comes from the Cantonese pronunciation of *dafeng* (big winds), or *dafeng* (blowing of windstorms). In Europe the term ‘typhoon’ first appeared in the 4 July 1687 logbook entry of a British mariner, William Dampier. In his book, *A Voyage Around the World*, published in 1697, he also used the term ‘typhoon’ to describe violent storms. From the middle of the nineteenth century onwards, the meteorological agencies of China, Hong Kong, the Philippines, Japan and Korea have used the term ‘typhoon’ to describe tropical cyclones that are formed in the South China Sea and the western North Pacific.

北太平洋東部而風力達到12級風速的熱帶氣旋，一般統稱為hurricane (颶風)。有謂 hurricane (颶風) 一詞是演變自中美洲土語 hurrican (魔王)一詞，中文譯作颶風，以別於北太平洋西部和南中國海的熱帶氣旋。其實無論是颶風抑或颱風均是指夏秋之間，興自海洋的巨風。

1947年以前，吹襲香港的颱風並沒有被逐一命名。1947年起，為區別同時期出現的兩股或以上的颱風，北太平洋西部及南中國海區域開始採用美國關島聯合颱風警告中心 (Joint Typhoon Warning Center) 所擬定的風名表，為在該區形成的每一個熱帶氣旋命名。該表由四組各 23 個來自不同地區的女子名字組成，每組名稱分別以英文字母順序排列，輪流被使用，至於名字本身與颱風的風速強度均沒有關係。同一名字一般會在92個名字使用後重複再用，當然也會有特殊情況——一些帶來極大破壞的颱風名字，會被剔除於名單以外，沒有被重複再使用，以免勾起傷痛的回憶。

1979年起，風名表的名字，以男女名字交替排列，一改單以女子名字為熱帶氣旋命名的舊習。在此之前，於北半球西太平洋形成的熱帶氣旋，均以女性的名稱命名，而南半球西太平洋的熱帶氣旋則使用男性名字。³³ 2000年1月1日，一套由柬埔寨、中國、北韓、香港、日本、老撾、澳門、馬來西亞、米克羅尼西亞、菲律賓、南韓、泰國、美國及越南 14 個地區，每區提供各 10 個共 140 個名稱所組成的熱帶氣旋名單，取代了 1996 至 1999 年期間所採用的熱帶氣旋命名表。新名單不但凸顯了各地區的民族特色，同時亦反映了熱帶氣旋活躍的範圍，加強了區域間的合作。

產生的頻率

根據登恩 (Gordon E. Dunn) 在《大西洋的颶風》(*Atlantic Hurricanes*) 發表的統計，³⁴ 北大西洋平均每年約有 7.5 個颶風；沿墨西哥的北太平洋東部，平均每年約有 5.7 個颶風；印度洋上平均每年約有 13.5 個；西太平洋每年發生的颱風則約有 20 至 30 個，其中八成以上會在 6 月至 10 月產生，從西太平洋吹向香港的熱帶氣旋每年平均會有 5 至 6 個。而南太平洋東部及南大西洋則沒有熱帶氣旋出現。³⁵

表 2.2 西太平洋及中國海域每月熱帶氣旋分佈狀況統計 (1884–1941 年, 1946–1947 年)

月份	1	2	3	4	5	6	7	8	9	10	11	12
是月累積次數	–	–	–	–	–	1	15	20	23	8	3	–
百分比	–	–	–	–	–	1.4	21.4	28.6	32.9	11.4	4.3	–

資料來源:

Starbuck, L., *A Statistical Survey of Typhoons and Tropical Depressions in the Western Pacific and China Sea Area From Observations and Tracks Recorded at the Royal Observatory Hong Kong From 1884 to 1947*, Hong Kong, Noronha Co. Ltd., 1951, p. 4.

Outside Hong Kong, severe tropical cyclones are given many different names. In 1805 a British naval officer, Francis Beaufort, formulated the Beaufort scale of wind force. According to this scale, winds measured at 10 metres above ground level are classified into 12 grades of wind force. Force 12 is used for wind force exceeding 118 kilometres per hour and such wind is described as 'hurricane force wind' (*jufeng*). Tropical cyclones with Force 12 winds in the seas of the West Indies, the Atlantic Ocean and the eastern North Pacific, are known as 'hurricanes'. It is said that the word 'hurricane' came from a Central American aboriginal term '*hurrican*' (a demon); this is translated as *jufeng* in Chinese, to differentiate it from the tropical cyclones *taifeng* appearing in the western North Pacific and the South China Sea. Regardless whether they are called *jufeng* or *taifeng*, they are all severe storms that originate from the oceans during summers and autumns.

Before 1947, not every typhoon that affected Hong Kong was given a name. From 1947 onwards, to differentiate two or more typhoons that appeared simultaneously in the western North Pacific and the South China Sea areas, Hong Kong began to adopt the list of names for tropical cyclones drawn up by the Joint Typhoon Warning Center at Guam to name each tropical cyclone. The list was made up of four groups, each with 23 female names drawn from different places. The names were arranged alphabetically and used in rotation. The tropical cyclone names had no correlation with the intensity of wind speed. The names would be reused once the 92-name list had been exhausted. There were of course some exceptions. The names of some typhoons that had caused devastation would be retired from the list to avoid bringing back painful memories.

From 1979 onwards, the tropical cyclone name list contained both male and female names and they were used alternately, a change from the custom of using just female names. Before that, female names were used for tropical cyclones that were formed in western Pacific of the northern hemisphere, while male names were used for tropical cyclones that were formed in western Pacific of the southern hemisphere.³³ On 1 January 2000, 14 nations/regions each nominated 10 names to form a list of 140 names for tropical cyclones. These nations/regions were Cambodia, China, DPR Korea, Hong Kong, Japan, Lao PDR, Macau, Malaysia, Micronesia, the Philippines, Republic of Korea, Thailand, the United States and Vietnam. The list replaced the one used between 1996 and 1999. The new list highlights the areas affected by tropical cyclones and their different cultural characteristics, and also strengthens inter-regional co-operation.

表 2.3 1946 至 2002 年影響香港的熱帶氣旋統計

月份	1	2	3	4	5	6	7	8	9	10	11	12
是月累積次數	-	-	-	3	11	41	76	71	86	49	9	1
百分比	-	-	-	0.9	3.2	11.8	21.9	20.5	24.8	14.1	2.6	0.3

資料來源：
香港天文台內部資料。

根據天文台就 1946 年至 2002 年所作有關熱帶氣旋的紀錄，本港於 57 年內一共受到 347 個熱帶氣旋所影響，平均每年有 6.1 個。1946 至 2002 年期間，熱帶氣旋導致天文台須懸掛警告信號共 14,629 小時，平均每年為 257 小時。³⁶

1964 年是香港船舶熱帶氣旋警告範圍以內 (即北緯 10–30 度，東經 105–125 度) 最多熱帶氣旋的一年：是年在 5 月 25 日至 10 月 23 日的 4 個多月之間，在該範圍內共有熱帶氣旋 26 個；其中 10 個須發出本地熱帶氣旋警告信號 (參閱附表 2.4)；是年曾懸掛熱帶氣旋警告信號共 42 次，歷時共 570 小時。1974 年香港需要發出本地熱帶氣旋警告信號的熱帶氣旋多達 11 個，是歷來最多熱帶氣旋影響香港的一年。而最持久的一股颱風則要算是 1986 年的韋恩 (Typhoon Wayne)，它的壽命長達 19 天，曾在 8 月 19 日至 9 月 5 日期間橫越南海三次：第一次在 8 月 19 日至 21 日，天文台懸掛了 1、3 及 8 號熱帶氣旋警告信號；第二次是 8 月 25 日至 26 日，天文台懸掛了 1 號熱帶氣旋警告信號；第三次在 9 月 4 日至 5 日，天文台懸掛了 1 及 3 號熱帶氣旋警告信號。³⁷ 從颱風發生的頻率及懸掛時間來看，其在夏季對本地區的威脅甚大。

表 2.4 1964 年香港需要懸掛本地警告訊號的熱帶氣旋資料

懸掛日期	名稱	曾發出的熱帶氣旋警告訊號
5 月 25 至 28 日	維奧娜 (Viola)	1, 3, 7, 8
6 月 30 至 7 月 3 日	芸妮 (Winnie)	1, 3
8 月 7 至 8 日	艾黛 (Ida)	1, 3, 6, 7, 8, 9
9 月 4 至 6 日	露比 (Ruby)	1, 3, 7, 8, 9, 10
9 月 9 至 11 日	莎莉 (Sally)	1, 3, 5, 6, 7
9 月 15 至 21 日	桃麗達 (Tilda)	1, 3
9 月 30 至 10 月 1 日	比麗 (Billie)	1, 3
10 月 5 至 7 日	嘉麗 (Clara)	1, 3
10 月 11 至 13 日	黛蒂 (Dot)	1, 3, 6, 7, 9, 10
10 月 22 至 23 日	喬治亞 (Georgia)	1

資料來源：
Watts, I. E. M., (Director of the Royal Observatory), *Hong Kong Annual Departmental Report for the Financial Year 1964-65*, Hong Kong, Government Printer, 1965, pp. 8-14.

Frequency of Occurrences

According to Gordon E. Dunn's publication of statistics in *Atlantic Hurricanes*,³⁴ an average of seven hurricanes occur each year in the North Atlantic Ocean. In the eastern North Pacific Ocean, along the coast of Mexico, an average of 5.7 hurricanes are registered each year, while there are 13.5 in the Indian Ocean. In the western Pacific, the annual typhoon frequency is 20 to 30 on average of which over 80% are formed between June and October. Generally, five to six tropical cyclones that form in the western Pacific head towards Hong Kong. No tropical cyclones appear in the eastern South Pacific and the South Atlantic.³⁵

Table 2.2 Monthly Distribution of Typhoons in the Western Pacific and China Sea Area (1884–1941, 1946–1947)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total count for the month	–	–	–	–	–	1	15	20	23	8	3	–
%	–	–	–	–	–	1.4	21.4	28.6	32.9	11.4	4.3	–

Source:

Starbuck, L., *A Statistical Survey of Typhoons and Tropical Depressions in the Western Pacific and China Sea Area From Observations and Tracks Recorded at the Royal Observatory Hong Kong From 1884 to 1947*, Hong Kong, Noronha Co. Ltd., 1951, p. 4.

The records of the Hong Kong Observatory indicate that during the 57-year period from 1946 to 2002, a total of 347 tropical cyclones occurred, giving an annual average of 6.1 (see Table 2.3).

Table 2.3 Statistics on Monthly Distribution of Tropical Cyclones Affecting Hong Kong (1946–2002)

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total count for the month	–	–	–	3	11	41	76	71	86	49	9	1
%	–	–	–	0.9	3.2	11.8	21.9	20.5	24.8	14.1	2.6	0.3

Source:

Internal records of the Hong Kong Observatory.

During the 1946 to 2002 period, warning signals were hoisted by the Observatory for a total of 14,629 hours due to tropical cyclones, or an annual mean of 257 hours.³⁶

根據中國古代方志的記載，吹襲中國的颶風，各地次數不一，《嶺表錄異》載：「或三、二年一風，或一年兩、三風。」至於颶風發生的季節和月份，《南越志》載：「常以五、六月發」；又云：「常以六、七月興」。明方以智《通雅》謂：「春、夏、秋之分，見斷帆狀，名曰颶母。」《航海風信引》記述：「海中之颶，四時皆發，夏秋為多。」可見古書對颶風每年發生的次數，沒有統一的想法，但大抵上也同意其蓬勃於夏秋之際。

最強勁的颶風

香港天文台自 1884 年成立後，已開始紀錄吹襲本港的熱帶氣旋的每小時平均最高風速。1911 年天文台更開始量度每小時最高陣風風速。1931 年起天文台於本地風暴信號中加設「十號」颶風信號，以提高公眾對颶風的警覺性。以下是有關 1884 年至 2002 年最強勁颶風紀錄，1884 至 1911 主要選取每小時平均最高風速達 118 公里 (64 海里) 以上，1911 至 1930 年則以每小時最高陣風紀錄達 220 公里 (120 海里) 以上，1930 至 2002 年的 73 年間選取須要發出 10 號颶風信號的熱帶氣旋。1884 至 2002 年的強勁颶風共有 21 個³⁸ (參閱附表 2.5)；換句話說，平均每 5.7 年，就有一次相當強大的風暴吹襲香港。



Fig. 2.1 Aberdeen was extensively damaged by the typhoon on 22 September 1874. Courtesy Hong Kong Museum of History

圖 2.1 1874 年 9 月 22 日颶風過後的香港仔。香港歷史博物館館藏

The year 1964 had the highest number of tropical cyclones entering the warning zone for shipping in Hong Kong (10–30° North, 105–125° East). During that year, in the period between 25 May and 23 October, there were a total of 26 tropical cyclones occurring in that warning zone. Ten of these tropical cyclones necessitated the Observatory to hoist local warning signals for a total of 42 times, lasting 570 hours (see Table 2.4). In 1974, a total of 11 tropical cyclones affected Hong Kong, the highest number on record. Among all the tropical cyclones affecting Hong Kong, Typhoon Wayne (1986) had the longest duration. It lasted over 19 days and traversed the South China Sea three times between 19 August and 5 September. The first passage was between 19 and 21 August and the Observatory hoisted Signals No. 1, 3 and 8. The second passage took place on 25 to 26 August and the Observatory hoisted the No. 1 signal. The third passage occurred on 4 to 5 September and Signals No. 1 and 3 were hoisted.³⁷ Judging from the frequency of occurrence of typhoons and the duration of the tropical cyclone warning signals, it can be seen that typhoons can pose serious threats to Hong Kong in the summer.

Table 2.4 Tropical Cyclones Affecting Hong Kong in 1964

Date Tropical Cyclone Passed Through Hong Kong	Name of Tropical Cyclone	Warning Signal Hoisted
25–28 May	Viola	1, 3, 7, 8
30 Jun–3 Jul	Winnie	1, 3
7–8 Aug	Ida	1, 3, 6, 7, 8, 9
4–6 Sep	Ruby	1, 3, 7, 8, 9, 10
9–11 Sep	Sally	1, 3, 5, 6, 7
15–21 Sep	Tilda	1, 3
30 Sep–1 Oct	Billie	1, 3
5–7 Oct	Clara	1, 3
11–13 Oct	Dot	1, 3, 6, 7, 9, 10
22–23 Oct	Georgia	1

Source:

Watts, I. E. M., (Director of the Royal Observatory), *Hong Kong Annual Departmental Report for the Financial Year 1964–65*, Hong Kong, Government Printer, 1965, pp. 8–14.

According to ancient local gazettes, the number of *jufeng* that struck China varied from one region to another. The book *Lingpiao Luyi* (Records of Abnormal Phenomena in Lingnan) stated that strong winds can occur once every two to three years, it can also happen two to three times a year. *Nanyue zhi* recorded that strong winds usually start to occur in the fifth or sixth month and become more frequent by the sixth and seventh months. In the book, *Tongya* (Introduction to Elegance), Fang Erzhi of the Ming Dynasty writes that between spring, summer and autumn, there are strong winds known as *jumu*. The book, *Hanghai tongxinyin*



Fig. 2.2 One of the strongest typhoons in history struck Hong Kong on 22 September 1874, causing the loss of more than 2,000 lives. This postcard shows the vessel Pacific Mail SS Alaska and a Chinese junk blown ashore by the ravaging typhoon. Courtesy Dr Tong Cheuk-man

圖 2.2 1874 年 9 月 22 日襲港的颱風是本港有史以來最強勁的颱風之一，死亡人數最少有 2,000。明信片攝錄了太平洋郵輪阿拉斯加號及一艘中國帆船擱淺的實況。唐卓敏醫生珍藏



Fig. 2.3 A typhoon struck on 18 September 1906, causing the loss of more than 15,000 lives, wrecking ships and inflicting widespread damage to property. The photograph shows Victoria Harbour and the waterfront. Courtesy Hong Kong Museum of History

圖 2.3 1906 年 9 月 18 日的颱風釀成 15,000 人死亡，輪船及財物損失無數。圖片所見維多利亞港驚濤駭浪。香港歷史博物館館藏

(A Directory for Navigation and Windstorms), states that big sea storms could appear at any time, but mainly in summer and autumn. These indicate that while ancient records do not have a consensus on the annual frequency of storms, they basically concur that storms are more active in the summer and autumn.

Deadliest Typhoons

Since its establishment in 1884, the Hong Kong Observatory has been recording the maximum hourly mean wind speed of the tropical cyclones affecting Hong Kong. From 1911 onwards, it also recorded the speeds of the hourly maximum gust. The Observatory added the No. 10 signal to the warning signal system in 1931 to promote public awareness of typhoons. The following is a record of the deadliest typhoons that struck Hong Kong from 1884 to 2002. In the period of 1884 to 1911, tropical cyclones with a maximum hourly mean wind speed exceeding 118 km/h (64 knots) were selected. For the period of 1911 to 1930, those with the hourly maximum gust reaching 220 km/h (120 knots) or above were selected. From 1930 to 2002, tropical cyclones requiring the hoisting of No. 10 warning signal were chosen. In total, 21 typhoons³⁸ (see Table 2.5) were selected from 1884 to 2002. On average, there was one intense typhoon hitting Hong Kong every 5.7 years.



Fig. 2.4 Connaught Road Central during the onslaught of a typhoon (18 September 1906). Courtesy Hong Kong SAR Public Records Office

圖 2.4 颱風吹襲下的干諾道中海旁 (1906年9月18日)。香港特別行政區歷史檔案館館藏



Fig. 2.5 A typhoon struck in September 1937, causing the loss of more than 11,000 lives. The Kowloon – Canton Railway track at Sha Tin was damaged during the typhoon. Courtesy Hong Kong SAR Public Records Office

圖 2.5 1937年9月的颱風釀成11,000人死亡。圖為廣九鐵路沙田一段被颱風吹至脫軌情況。香港特別行政區歷史檔案館館藏



Fig. 2.6 Hillier Street looking south from near Wing Lok Street after the typhoon in September 1937. Courtesy Hong Kong SAR Public Records Office

圖 2.6 禧利街以南近永樂街一段在1937年9月颱風襲港後的實況。香港特別行政區歷史檔案館館藏

Table 2.5 Deadliest Typhoons (1884–2002): Wind Speeds as Recorded at the Hong Kong Observatory Headquarters

Name of Typhoon	Hoisting of Tropical Cyclone Warning Signal		Hoisting of Tropical Cyclone Signal No. 10		Mean Maximum Hourly Wind Speed (knot)	Maximum Gust (knot)
	Date	Duration	Date	Duration		
	–	8–10 Aug 1896	–	–		
–	18–29 Sep 1906	–	–	–	50	–
–	17–22 Aug 1923	95 hr 56 min	–	–	67	113
–	19–20 Aug 1927	–	–	–	53	101
–	21–22 Aug 1929	28 hr 15 min	–	–	57	102
–	31 Jul–2 Aug 1931	–	–	–	60	118
–	16–17 Aug 1936	34 hr 38 min	–	–	62	115
–	1–2 Sep 1937	34 hr 9 min	2 Sep 1937	–	59	130
–	16–19 Jul 1946	53 hr 50 min	18 Jul 1946	4 hr 45 min	–	95
Gloria	21–23 Sep 1957	60 hr 55 min	22 Sep 1957	7 hr 55 min	59	101
Mary	4–9 Jun 1960	127 hr 25 min	9 Jun 1960	9 hr 10 min	50	103
Alice	18–20 May 1961	34 hr	19 May 1961	2 hr 30 min	43	89
Wanda	30 Aug–2 Sep 1962	53 hr	1 Sep 1962	8 hr	68	140
Ruby	4–6 Sep 1964	42 hr 35 min	5 Sep 1964	3 hr 55 min	58	122
Dot	10–13 Oct 1964	79 hr 10 min	13 Oct 1964	8 hr 15 min	46	94
Shirley	20–22 Aug 1968	54 hr	21 Aug 1968	7 hr 35 min	34	72
Rose	13–17 Aug 1971	67 hr	16–17 Aug 1971	5 hr 50 min	53	121
Elsie	12–15 Oct 1975	51 hr 15 min	14 Oct 1975	2 hr 50 min	31	76
Hope	1–3 Aug 1979	38 hr	2 Aug 1979	3 hr 45 min	38	94
Ellen	7–10 Sep 1983	64 hr 20 min	9 Sep 1983	8 hr	46	100
York	13–17 Sep 1999	86 hr	16 Sep 1999	11 hr	33	74

Sources:

Chin, P. C., *Tropical Cyclone Climatology for the China Seas and Western Pacific from 1884 to 1970*, Hong Kong, Royal Observatory, 1972, pp. 169, 174–175, 178, 182, 186, 190, 200.

Heywood, G. S. P., *Hong Kong Typhoons*, Hong Kong, Noronha & Co. Ltd., 1950, pp. 8–9, 12–13, 19–20. Hong Kong Observatory, *Tropical Cyclones in 1999*, Hong Kong, 2000, pp. 72–73.

Starbuck, L., *A Statistical Survey of Typhoons and Tropical Depressions in the Western Pacific and China Sea Area From Observations and Tracks Recorded at the Royal Observatory Hong Kong From 1884 to 1947*, Hong Kong, Noronha & Co. Ltd., 1951, pp. 4–6.

Of the 21 typhoons listed above, the one that had warning signals hoisted for the longest period (127 hours 25 minutes) was Typhoon Mary in 1960. The typhoon that resulted in the longest duration of 11 hours for the No. 10 signal was Typhoon York in 1999. One can appreciate from these figures that typhoons pose a threat to Hong Kong for long durations in the summer.

表 2.5 最強勁的颱風紀錄 (1884–2002 年)：天文台總部紀錄的風速

颱風名稱	懸掛熱帶氣旋警告信號		懸掛十號颶風信號		每小時平均最高風速 (海里 / 小時)	最高陣風紀錄 (海里 / 小時)
	日期	歷時	日期	歷時		
–	1896 年 8 月 8 至 10 日	–	–	–	69	–
–	1906 年 9 月 18 至 29 日	–	–	–	50	–
–	1923 年 8 月 17 至 22 日	95 小時 56 分	–	–	67	113
–	1927 年 8 月 19 至 20 日	–	–	–	53	101
–	1929 年 8 月 21 至 22 日	28 小時 15 分	–	–	57	102
–	1931 年 7 月 31 至 8 月 2 日	–	–	–	60	118
–	1936 年 8 月 16 至 17 日	34 小時 38 分	–	–	62	115
–	1937 年 9 月 1 至 2 日	34 小時 9 分	1937 年 9 月 2 日	–	59	130
–	1946 年 7 月 16 至 19 日	53 小時 50 分	1946 年 7 月 18 日	4 小時 45 分	–	95
姬羅莉亞	1957 年 9 月 21 至 23 日	60 小時 55 分	1957 年 9 月 22 日	7 小時 55 分	59	101
瑪麗	1960 年 6 月 4 至 9 日	127 小時 25 分	1960 年 6 月 9 日	9 小時 10 分	50	103
愛麗斯	1961 年 5 月 18 至 20 日	34 小時	1961 年 5 月 19 日	2 小時 30 分	43	89
溫黛	1962 年 8 月 30 至 9 月 2 日	53 小時	1962 年 9 月 1 日	8 小時	68	140
露比	1964 年 9 月 4 至 6 日	42 小時 35 分	1964 年 9 月 5 日	3 小時 55 分	58	122
黛蒂	1964 年 10 月 10 至 13 日	79 小時 10 分	1964 年 10 月 13 日	8 小時 15 分	46	94
雪麗	1968 年 8 月 20 至 22 日	54 小時	1968 年 8 月 21 日	7 小時 35 分	34	72
露絲	1971 年 8 月 13 至 17 日	67 小時	1971 年 8 月 16 至 17 日	5 小時 50 分	53	121
愛茜	1975 年 10 月 12 至 15 日	51 小時 15 分	1975 年 10 月 14 日	2 小時 50 分	31	76
荷貝	1979 年 8 月 1 至 3 日	38 小時	1979 年 8 月 2 日	3 小時 45 分	38	94
愛倫	1983 年 9 月 7 至 10 日	64 小時 20 分	1983 年 9 月 9 日	8 小時	46	100
約克	1999 年 9 月 13 至 17 日	86 小時	1999 年 9 月 16 日	11 小時	33	74

資料來源:

香港天文台，《一九九九熱帶氣旋》，香港，2000 年，頁 72–73。

Chin, P. C., *Tropical Cyclone Climatology for the China Seas and Western Pacific from 1884 to 1970*, Hong Kong: Royal Observatory, 1972, pp. 169, 174–175, 178, 182, 186, 190, 200.

Heywood, G. S. P., *Hong Kong Typhoons*, Hong Kong: Noronha & Co. Ltd., 1950, pp. 8–9, 12–13, 19–20.

Starbuck, L., *A Statistical Survey of Typhoons and Tropical Depression in the Western Pacific and China Sea Area from Observations and Tracks Recorded at the Royal Observatory Hong Kong from 1884 to 1947*, Hong Kong: Noronha Co. Ltd., 1951, pp. 4–6.

正面襲港的 21 個颱風中，以 1960 年的瑪麗影響香港的時間最長，達 127 小時 25 分；而懸掛十號風球最久者，則為 1999 年的約克，共計 11 小時。可想而知颱風在夏季對本港的威脅時間相當長。



Fig. 2.7 From 30 August to 2 September 1962, Typhoon Wanda caused 183 deaths, 388 injuries and 108 were missing. This photograph shows Central after the devastation. Courtesy Hong Kong SAR Information Services Department

圖 2.7 1962年8月30日至9月2日的溫黛風災造成183人死亡，388受傷及108人失蹤，圖為中區於颱風過港後的景象。香港特別行政區政府新聞處檔案



Fig. 2.8 The passage of the No.10-signal Typhoon York in 1999 had not posed serious threat, as seen in Tsim Sha Tsui where youngsters were bicycling in the rain for fun.

圖 2.8 1999年襲港的颱風約克，十號風球並沒有對市民造成太大威脅。圖中的青少年在風雨中以腳踏車自娛的情景，可見一斑。



Fig. 2.9 Sha Tin was the most affected area, with 150 people killed, 100 injured and 100 missing during the 1962 onslaught of Typhoon Wanda. Streets and houses were flooded and destroyed. Boats were used to ferry families and their possessions. Courtesy Hong Kong SAR Information Services Department

圖 2.9 1962年颱風溫黛對沙田造成極大破壞，當中有150人死亡、100人受傷及100人失蹤。房屋與道路盡為暴風潮淹蓋，小船被用作拯救居民及運載財物。香港特別行政區政府新聞處檔案

Toll

Human Casualties

According to newspaper reports, the typhoons that struck in 1867, 1870 and 1874 were the most destructive storms before 1884.³⁹ Over 2,000 people were killed by the typhoon in 1874 alone. Information on the typhoons in 1867 and 1870 was vague and incomplete, and it is impossible to come up with a clear picture of the events. Table 2.6 lists the number of casualties caused by typhoons from 1884 to 2002 with Hurricane Warning Signal No. 10 (or equivalent) hoisted.

Table 2.6 Human Casualties Caused by Typhoons with Hurricane Signal No. 10 or Equivalent Hoisted (1884–2002)

Name of Typhoon	Date Warning Signal Hoisted	Human Casualties		
		Number of Deaths	Number of People Injured	Number of People Missing
—	8–10 Aug 1896	NA	NA	NA
—	18–29 Sep 1906	about 15,000	220	1,349
—	17–22 Aug 1923	100	NA	1
—	19–20 Aug 1927	15	22	NA
—	21–22 Aug 1929	7	13	NA
—	31 Jul–2 Aug 1931	6	4	10
—	16–17 Aug 1936	20	179	1
—	1–2 Sep 1937	about 11,000	88	182
—	16–19 Jul 1946	NA	5	NA
Gloria	21–23 Sep 1957	9	100	0
Mary	4–9 Jun 1960	45	127	11
Alice	18–20 May 1961	5	20	0
Wanda	30 Aug–2 Sep 1962	183	388	108
Ruby	4–6 Sep 1964	38	300	14
Dot	10–13 Oct 1964	26	85	10
Shirley	20–22 Aug 1968	0	4	0
Rose	13–17 Aug 1971	110	286	50
Elsie	12–15 Oct 1975	0	46	0
Hope	1–3 Aug 1979	14	260	1
Ellen	7–10 Sep 1983	10	333	12
York	13–17 Sep 1999	3	500	0

Sources:

Hong Kong Observatory, *HKO Warnings and Signals Database*, <www.hko.gov.hk>.

Hong Kong Observatory, *Tropical Cyclones in 1999*, Hong Kong, 2000, pp. 72–73.

Reports on the day of the incidents in *Gongshang ribao* (Industrial and Commercial Daily), *Huazi ribao* (Huazi Daily), *Huazi wanbao* (Huazi Evening Post), *South China Morning Post*, *Wah Kiu Yat Po*, etc.

Royal Observatory Hong Kong, *Typhoons*, Hong Kong Observatory, 1992.

風災所造成的破壞

人命傷亡

據報章所載，1884年以前的風災以1867年、1870年及1874年最為嚴重³⁹——單是1874年，粗略估計死亡人數達2,000多人，而有關1867年及1870年的情況的紀錄就相當模糊和零碎，根本無法知道這兩次風災的具體情況。在1884年至2002年期間，必要發出十號颶風信號或同等警告信號之颱風所造成的人命傷亡情況大抵如附表2.6。

表 2.6 十號颶風或同級警告信號傷亡統計 (1884–2002 年)

颶風名稱	懸掛熱帶氣旋警告信號日期	傷亡紀錄		
		死亡人數	受傷人數	失蹤人數
—	1896年8月8至10日	不詳	不詳	不詳
—	1906年9月18至29日	約15,000	220	1,349
—	1923年8月17至22日	100	不詳	1
—	1927年8月19至20日	15	22	不詳
—	1929年8月21至22日	7	13	不詳
—	1931年7月31至8月2日	6	4	10
—	1936年8月16至17日	20	179	1
—	1937年9月1至2日	約11,000	88	182
—	1946年7月16至19日	不詳	5	不詳
姬羅莉亞	1957年9月21至23日	9	100	0
瑪麗	1960年6月4至9日	45	127	11
愛麗斯	1961年5月18至20日	5	20	0
溫黛	1962年8月30至9月2日	183	388	108
露比	1964年9月4至6日	38	300	14
黛蒂	1964年10月10至13日	26	85	10
雪麗	1968年8月20至22日	0	4	0
露絲	1971年8月13至17日	110	286	50
愛茜	1975年10月12至15日	0	46	0
荷貝	1979年8月1至3日	14	260	1
愛倫	1983年9月7至10日	10	333	12
約克	1999年9月13至17日	3	500	0

資料來源：

香港天文台，《一九九九熱帶氣旋》，香港，2000年，頁72–73。

《華字日報》，《華字晚報》，《工商日報》，《華僑日報》，*South China Morning Post*等，於相關日期的報導。

皇家香港天文台，《颶風》，香港，1992年。

Hong Kong Observatory, *HKO Warnings and Signals Database*, <www.hko.gov.hk>.

In terms of casualties, the typhoons in 1906 and 1937 caused the highest death toll. Over 10,000 people were killed in each incident. The casualties due to the typhoon in 1906 were tremendous. The number of fatalities reached 5% of the 320,000-strong population in Hong Kong at that time. In 1937, a typhoon resulted in 11,000 deaths, which accounted for about 1% of a population of 1,000,000. When compared with these two, Typhoon Wanda, which killed 183 people in 1962, can only claim third place. This clearly shows the destruction being inflicted on Hong Kong by typhoons in the first half of the twentieth century. These three deadliest typhoons have one thing in common, which is the abnormal rise in sea level caused by the typhoon — a phenomenon called storm surge — drowning a lot of people living along the coast. In view of the dire consequences of storm surges, the Observatory



Fig. 2.10 Workers collected the typhoon victims that lay around after the passage of the typhoon (September 1906). Courtesy Dr Tong Cheuk-man

圖 2.10 颱風過後，屍橫遍野（1906年9月）。唐卓敏醫生珍藏



Fig. 2.11 Typhoon victims that were not claimed were wrapped with straw mats and given sea burials (September 1906). Courtesy Dr Tong Cheuk-man

圖 2.11 颱風後無人認領的屍首，用草蓆包裹後，施以海葬（1906年9月）。唐卓敏醫生珍藏



Fig. 2.12 Rescuers digging through the rubble (1930). Courtesy Dr Tong Cheuk-man

圖 2.12 救亡隊伍作出最後搶救（1930年）。唐卓敏醫生珍藏

introduced a computerised objective forecasting tool in the late 1970s to enhance its capability to forecast this terrible phenomenon. From the latter part of the 1970s onwards, both the living conditions and the public's awareness of destructive typhoons have improved in Hong Kong, and the threat posed by typhoons has been reduced significantly. In the 27 years between 1975 and 2002, the four typhoons that required the hoisting of Hurricane Warning Signal No. 10 — Elsie, Hope, Ellen and York — caused a combined death toll of 27. The deaths were mainly due to avoidable accidents including electrocution, or being hit by falling objects. For Typhoon York in 1999, the death toll dropped significantly to three.

Destruction and Damage of Vessels

Further investigations of the causes of deaths and injuries revealed that victims of the 1906 and 1937 typhoons were mostly fishermen. In the 1906 typhoon, 2,983 fishing boats and 670 ocean-going vessels were lost.⁴⁰ According to the estimates made by Tung Wah Hospital, boats and ships with a combined value of HK\$81,000⁴¹ were reported missing and 90% of the casualties were boat people.⁴² In the 1937 typhoon, 1,855 fishing boats and 28 ocean-going ships capsized. Most of the corpses were found around the piers or at sea, and the majority of the victims were drowned when their boats or ships were hit by the storm. This was related to the fact that most of the fishermen were living in their boats at that time. They could not get onshore in time to seek shelters from the unexpected strong winds and heavy rain. Some fishermen were not aware of the impending storm and set sail, eventually losing their lives at sea.

In 1962, when Typhoon Wanda struck, apart from drowning 150 people in the Sha Tin area, 2,053 fishing boats and 36 ocean-going vessels were also destroyed. Typhoons since then have generally taken a toll of about 300 ships per typhoon. In 1964, Typhoon Ruby destroyed or damaged 314 fishing boats and 20 ocean-sailing vessels. In 1971, a total of 303 fishing boats and 35 ocean-going vessels were either destroyed or damaged by Typhoon Rose, including the capsizing of the Hong Kong–Macau ferry *Fat Shan* which killed 88 sailors. In August 1979, Typhoon Hope damaged and destroyed 374 fishing boats and 29 sea-faring ships. In September 1983, 360 fishing boats and 44 ocean-going vessels were damaged or destroyed during the passage of Typhoon Ellen. As shown in Table 2.7, typhoons have long wreaked havoc on ships and boats in the harbour and the situation only started to improve in the 1990s.

從傷亡數字來看，1906年與1937年的颱風是歷年來人命損失最嚴重的風災，單是死亡人數已超過一萬多，其中又以1906年的傷亡最為慘重，死亡人數佔同年全港32萬總人口的百分之五，受傷及失蹤人數眾多；1937年全港總人口約有一百萬，是年的風災也有一萬一千多的死亡人數，約佔同年全港總人口的百分之一；1962年造成183人死亡的溫黛風災，只能屈居第三，可見颱風在二十世紀上半期對香港的破壞極大。這三次傷亡人數最多的風災有一共通點，就是由風暴所引起的異常高漲的潮水——簡稱風暴潮——令沿岸居民或漁民慘被淹死。有鑑於此，天文台在1970年代後期引進客觀風暴潮預報工具，提升預測風暴潮的能力。1970年代後期香港的居住環境改善，居民的防風意識提高，颱風對香港社會的威脅明顯減少：1975至2002年的27年間，四個必須懸掛十號颶風信號的颱風愛茜、荷貝、愛倫和約克釀成的死亡人數共計有27人，造成死亡的主要原因如觸電、被重物擊中等，都是一些可以避免的意外。1999年的風災死亡人數字更大大減低至3人。

船隻損毀

如果再進一步分析造成傷亡的原因，便會發現在1906及1937年的兩次颱風中的遇難者多為漁民。1906年的風災中，共有2,983艘漁船和670艘遠洋輪船沉沒。⁴⁰ 根據當時東華醫院粗略估計，報失的船艇約值8.1萬港元，⁴¹ 死難者有九成為水上人。⁴² 1937年則有1,855艘漁船和28艘遠洋輪船沉沒，由於遇險者的屍體多在碼頭或海面發現，可見因船隻被暴風吹襲而溺斃者佔甚大比例；這與早期漁民以船為家、未及上岸躲避突如其來的風雨有關，漁民甚至不察覺風雲乍起，仍然出海捕魚謀生，以至葬身大海。

1962年溫黛風災期間，除沙田區被淹死者超過150人外，被吹毀的漁船也有2,053艘、遠洋輪船達36艘。溫黛風災以後，船隻被吹毀的數量一直維持在300多艘左右：1964年露比風災吹毀了314艘漁船、遠洋輪船20艘；1971年露絲吹襲遠洋輪船佛山號，88名船員全部在海上遇難，是年被吹毀的漁船有303艘、遠洋輪船達35艘；1979年8月的荷貝吹毀了374艘漁船、遠洋輪船29艘；1983年9月颱風愛倫使360艘漁船和44艘遠洋輪船損毀。可見颱風對港口的船隻造成極大的損失；情況要到1990年代才有所改善（請參閱附表2.7）。

Table 2.7 Statistics of Destroyed and Damaged Vessels (1884–2002)

Name of Typhoon	Date Tropical Cyclone Warning Signal Hoisted	Ocean-going Vessels	Fishing Boats	Total
–	8–10 Aug 1896	6	7	13
–	18–29 Sep 1906	670	2,983	3,653
–	17–22 Aug 1923	11	10	21
–	19–20 Aug 1927	2	9	11
–	21–22 Aug 1929	3	11	14
–	31 Jul–2 Aug 1931	3	1	4
–	16–17 Aug 1936	22	about 40	about 60
–	1–2 Sep 1937	28	1,855	1,883
–	16–19 Jul 1946	2	2	4
Gloria	21–23 Sep 1957	3	3	6
Mary	4–9 Jun 1960	6	814	820
Alice	18–20 May 1961	1	9	10
Wanda	30 Aug–2 Sep 1962	36	2053	2089
Ruby	4–6 Sep 1964	20	314	334
Dot	10–13 Oct 1964	2	90	92
Shirley	20–22 Aug 1968	4	26	30
Rose	13–17 Aug 1971	35	303	338
Elsie	12–15 Oct 1975	7	3	10
Hope	1–3 Aug 1979	29	374	403
Ellen	7–10 Sep 1983	44	360	404
York	13–17 Sep 1999	1	many	many

Sources:

Hong Kong Observatory, *Tropical Cyclones in 1999*, Hong Kong, 2000, pp. 72–73.Reports on the day of the incidents in *China Mail*, *Gongshang ribao*, *Huazi ribao*, *Ming Pao*, *Sing Tao Daily*, *Wah Kiu Yat Po*, etc.**表 2.7** 船隻損毀統計 (1884–2002 年)

颶風名稱	懸掛熱帶氣旋警告信號日期	遠洋輪船	漁船	合計
–	1896 年 8 月 8 至 10 日	6	7	13
–	1906 年 9 月 18 至 29 日	670	2983	3653
–	1923 年 8 月 17 至 22 日	11	10	21
–	1927 年 8 月 19 至 20 日	2	9	11
–	1929 年 8 月 21 至 22 日	3	11	14
–	1931 年 7 月 31 至 8 月 2 日	3	1	4
–	1936 年 8 月 16 至 17 日	22	約 40 艘	約 60 餘艘
–	1937 年 9 月 1 至 2 日	28	1855	1883
–	1946 年 7 月 16 至 19 日	2	2	4
姬羅莉亞	1957 年 9 月 21 至 23 日	3	3	6
瑪麗	1960 年 6 月 4 至 9 日	6	814	820
愛麗斯	1961 年 5 月 18 至 20 日	1	9	10
溫黛	1962 年 8 月 30 至 9 月 2 日	36	2053	2089
露比	1964 年 9 月 4 至 6 日	20	314	334
黛蒂	1964 年 10 月 10 至 13 日	2	90	92
雪麗	1968 年 8 月 20 至 22 日	4	26	30
露絲	1971 年 8 月 13 至 17 日	35	303	338
愛茜	1975 年 10 月 12 至 15 日	7	3	10
荷貝	1979 年 8 月 1 至 3 日	29	374	403
愛倫	1983 年 9 月 7 至 10 日	44	360	404
約克	1999 年 9 月 13 至 17 日	1	多艘	多艘

資料來源：

《工商日報》，《明報》，《星島日報》，《華字日報》，《華僑日報》，*China Mail* 等，於相關日期的報導。

香港天文台，《一九九九年熱帶氣旋》，香港，2000 年，頁 72–73。



Fig. 2.13 The vessel Tai Kwong No.1 ran aground and damaged the pier (September 1937). Courtesy Hong Kong SAR Public Records Office

圖 2.13 大廣壹號擱淺撞毀碼頭（1937年9月）。香港特別行政區歷史檔案館館藏



Fig. 2.14 Between 7 and 10 September 1983, Typhoon Ellen caused the destruction of 360 fishing boats and 44 sea-faring vessels. Courtesy Hong Kong Museum of History

圖 2.14 1983年9月7至10日襲港的颱風愛倫吹毀了360艘漁船及44艘遠洋輪船。香港歷史博物館館藏



Fig. 2.15 Typhoon Clara caused the collision of two vessels (1981). Courtesy Hong Kong Museum of History

圖 2.15 1981年颱風嘉麗導致兩艘輪船撞擊。香港歷史博物館館藏



Fig. 2.16 Two steamships, Leonor and Albay, owned by Douglas Lapraik & Co. (later registered as Douglas Steamship Co.) and other sunken vessels at the Hong Kong Central waterfront (September 1874). Courtesy Hong Kong Museum of History

圖 2.16 德忌利士·立柏克公司（後改稱德忌利士輪船公司）的兩艘輪船利奧港號、阿比爾號及其他輪船於中環海旁受颱風吹襲而沉沒（1874年9月）。香港歷史博物館館藏



Fig. 2.17 French destroyer Fronde was wrecked and brought ashore at Yau Ma Tei in Kowloon (18 September 1906). Courtesy Dr Tong Cheuk-man

圖 2.17 法國驅逐艦颶風後損毀嚴重，擱淺於九龍油麻地（1906年9月18日）。唐卓敏醫生珍藏



Fig. 2.18 Soldiers and civilians worked together to remove a wooden boat blown ashore at the Sha Tin Theatre (September 1937). Courtesy Hong Kong SAR Information Services Department

圖 2.18 軍民合力將一被吹到沙田戲院的木船搬走（1937年9月）。香港特別行政區政府新聞處檔案



Fig. 2.19 Boat people attempted to salvage valuables from their wrecked fishing boats (September 1962). Courtesy Hong Kong SAR Information Services Department

圖 2.19 船民奢望在盡被損毀的漁船找回財物（1962年9月）。香港特別行政區政府新聞處檔案

Collapse of Houses

Following the population boom after the Second World War, the number of temporary shelters increased significantly in the 1950s and 1960s. At that time, Hong Kong was still at an early stage of development, and shelters built by newly arrived immigrants were mostly made of wood or iron sheets. Sixty per cent of Hong Kong's area is hill slopes and much of the highland is steeply sloped; these slopes are covered by a thick layer of wind-eroded loose materials. When typhoons hit, the bottom soil layers of the unstable slopes will shift gradually, which may lead to the rapid subsidence of loose soil or even large collapses of rock.⁴³ Such phenomena are often observed in landmasses formed by granite and volcanic rocks, as in the case of the hilly region on Hong Kong Island.

Temporary shelters that were built on these slopes were structurally unsafe and could not withstand the ferocious winds and rain. Fatalities and property damage caused by collapsed houses during typhoons were most serious in the 1950s and 1960s. Tragic examples include Typhoon Gloria in 1957 and Typhoon Mary in 1960. The situation started to improve by the late 1970s. From the 1950s to the 1970s, over 100 temporary shelters were destroyed each time a typhoon struck. The most destructive typhoon was Typhoon Gloria that hit Hong Kong on 21 to 23 September 1957. About 900 temporary shelters were destroyed, mainly in Tsuen Wan and the eastern part of the New Territories. Over 10,000 people became homeless, including 1,822 in Sham Shui Po and 1,109 in Chai Wan.⁴⁴ Table 2.8 summarises the property loss and damage in the wake of Signal No. 10 typhoons.



Fig. 2.20 A matshed, totally destroyed by the force of the gale. Lamma Island could be seen at a distance (September 1874). Courtesy Hong Kong Museum of History

圖 2.20 茅草搭建成的平房盡為颱風所毀，遠處隱約可見南丫島 (1874年9月)。香港歷史博物館館藏



Fig. 2.21 Chinese boats and junks were wrecked at East Point (now Causeway Bay) during the typhoon (September 1906). Courtesy Dr Tong Cheuk-man

圖 2.21 東角 (即現時的銅鑼灣) 的漁船盡遭颱風摧毀 (1906年9月)。唐卓敏醫生珍藏

房屋倒塌

戰後隨著都市人口膨脹，臨時興建的房屋日益增多。1950至1960年代香港的經濟條件仍相當落後，新移入的居民多以木材或鐵片搭建住房，由於香港的地形有60%的面積由山坡組成，大部份高地為陡坡地，坡面上風化碎屑較厚，坡面的不穩定性被颱風吹襲後，底土緩慢蠕動，引起快速的地表物質流及泥流，或礫石降落，以至岩屑大面積崩塌，⁴³ 這些現象以花崗岩與火山岩相接觸的崩積帶如港島的山區尤其明顯。蓋建於斜坡之上的臨時房屋，結構上根本抵擋不住風雨，因颱風侵襲香港而引起房屋倒塌的情況自然是多不勝數；損失以1950年代及1960年代最為嚴重。導致大量房屋倒塌的颱風有1957年的姬羅莉亞和1960年的瑪麗，到了1970年代末期情況才有所改善。1950年代至1970年代颱風吹毀的臨時房屋每次均超過一百之數，其中又以1957年9月21日至9月23日吹襲的颱風所造成的破壞最大，估計約有超過900間木屋被毀；新界東部及荃灣區損毀程度最大，家園被毀的災民人數超過1萬人，深水埗區災民多達1,822人，柴灣區災民約有1,109人。⁴⁴ 有關各十號風球的颱風對房屋所造成的破壞請參閱附表2.8。

Table 2.8 Property Loss and Damage in the Wake of Signal No. 10 Typhoons (1884–2002)

Name of Typhoon	Date Tropical Cyclone Warning Signal Hoisted	Details
–	18–29 Sep 1906	In Tai Po, 38 buildings collapsed. West Point Godown, Blake Pier, Queen's Pier, Star Ferry Pier, Pedder Street, Supreme Court and the bamboo scaffolding of the new Post Office suffered damage. A conservative estimate of loss amounted to HK\$20 to 30 million.
–	17–22 Aug 1923	Destruction in the New Territories and the outlying islands was particularly serious. In Tai O, at least 52 buildings were destroyed. In Hong Kong and Kowloon, many buildings were either blown away, destroyed, or seriously damaged.
–	19–20 Aug 1927	The Kowloon area was particularly hard hit. In Cheung Sha Wan, 120 or more buildings collapsed. In Kowloon Tong, the entire squatter area was blown away. In Yau Ma Tei, Temple Street, Canton Road and Sham Shui Po, there were reports of collapsed buildings.
–	21–22 Aug 1929	The collapse of buildings in Hong Kong and Kowloon was serious. Shau Kei Wan, Hung Hom and Sham Shui Po were the hard-hit areas. The canopy of the Mong Kok Pier was blown off and the ticketing office collapsed. On Hong Kong Island, some buildings in Douglas Street, and on Connaught Road and Queen's Road Central (including Ko Shing Theatre) collapsed.
–	31 Jul–2 Aug 1931	The rooftops of the South China Football Club, the YMCA and four houses in Sai Wan Ho were completely destroyed. Buildings in Main Street, Ap Lei Chau, and one building in Sai On Street, Aberdeen, were blown down. Many crossbeams at Yau Ma Tei Ferry Pier, Blake Pier and Chiu On Pier toppled and their roofs were destroyed by the violent windstorms.
–	16–17 Aug 1936	Some buildings in Jardine's Bazaar in Causeway Bay and Fa Yuen Street in Mong Kok were destroyed, as were Shing Mun Hospital, Lai Chi Kok Prison and Tsuen Wan Police Station. Two-, three- or four-storey buildings, western-style houses, scaffolding factories, temporary shelters and stone huts were also damaged.
–	1–2 Sep 1937	A whole village in Tai Po Market was swept away. In Sha Tau Kok, half of the squatter huts and small houses were destroyed. On Connaught Road West, seven shops caught fire because of the typhoon. The high walls and gardens of houses in Kowloon Tong and the garage of the Police Training School collapsed. Many buildings, scaffolding factories and wooden huts in Hung Hom, Tuen Mun, Tsuen Wan, Kam Tin, A Kung Ngam, Sai Ying Pun, Shau Kei Wan, Kowloon City, Sham Shui Po, Cheung Sha Wan, Sha Tin and Fanling and on Hollywood Road were partially or wholly destroyed.
–	16–19 Jul 1946	The disaster-struck areas were concentrated on Hong Kong Island: Wan Chai, Sai Ying Pun and Des Voeux Road West.
Gloria	21–23 Sep 1957	The financial losses in the New Territories reached several million dollars. In Tsuen Wan, 400 houses were destroyed while 500 houses in Castle Peak, Yuen Long, Sha Tin and Sheung Shui collapsed. Wooden huts in various regions, such as those in Sham Shui Po, Chai Wan, Lo Fu Ngam and Fu Mei Village of Kowloon City, Hung Hom, Shau Kei Wan, and Chai Wan Kok Village were seriously damaged. The number of disaster victims reached 10,367.
Mary	4–9 Jun 1960	The areas most severely hit were the New Territories and Cheung Chau Island. Ten shops and houses and three memorial arches were destroyed. Over 30 wooden huts in Shau Kei Wan, A Kung Ngam, Valley Road and Lo Fu Ngam were destroyed. Altogether 330 huts collapsed in Hong Kong.

表 2.8 十號風球下本港房屋損毀狀況 (1884–2002 年)

颶風名稱	懸掛暴風警告信號日期	詳細損毀情況
–	1906 年 9 月 18 至 29 日	大埔市內有 38 間房屋倒塌。西角貨倉、碼頭 (卜公碼頭、皇后碼頭、天星碼頭)、畢打街、法院大樓、新郵政局之大棚亦受損毀。最保守估計損失達 2 千至 3 千萬港元。
–	1923 年 8 月 17 至 22 日	新界及離島地區尤為嚴重，大澳被風吹塌屋宇最少有 52 間。香港及九龍地區亦有多座屋宇被吹走、吹塌或嚴重受摧毀。
–	1927 年 8 月 19 至 20 日	九龍地區塌屋尤為嚴重，長沙灣有 120 餘座房屋倒塌，九龍塘之寮仔全部被風吹走。油麻地、廟街、廣東道、深水埗都有塌屋事件。
–	1929 年 8 月 21 至 22 日	九龍及香港地區房屋倒塌事件嚴重。紅磡、九龍、筲箕灣、深水埗、旺角之碼頭蓬蓋被吹去，賣票室亦倒塌。香港德忌利士街、干諾道、高陞戲院、皇后大道中的屋宇均有倒塌。
–	1931 年 7 月 31 至 8 月 2 日	南華足球會、青年會會所 (YMCA) 屋頂、西灣河 4 間屋全被風吹毀，鴨脷洲大街、香港仔西安街一樓宇被風全座吹塌。油麻地小輪碼頭、卜公碼頭、趙安上落貨碼頭多條橫樑塌下，屋頂亦被強風吹毀。
–	1936 年 8 月 16 至 17 日	銅鑼灣渣甸街、旺角花園街、城門醫院、荔枝角監獄、荃灣警署、很多 2、3、4 層高的屋宇皆全座塌下，西洋樓房亦無一倖免。棚廠、寮仔、石屋均受毀壞。
–	1937 年 9 月 1 至 2 日	嚴重被摧毀的區域包括大埔墟整條村落被風捲走；沙頭角超過一半的寮仔及小屋被吹毀；干諾道西 7 間店戶焚燒；九龍塘各住宅之花園圍牆、警察學堂之汽車房全數傾塌。其他地區如紅磡、屯門、荃灣、錦田、亞公岩、西營盤、筲箕灣、荷李活道、九龍城、深水埗、長沙灣、沙田、粉嶺有很多屋宇、棚廠、木屋被風吹毀或全座倒塌。
–	1946 年 7 月 16 至 19 日	重災區主要集中在香港島地區，灣仔、西營盤、德輔道西。
姬羅莉亞	1957 年 9 月 21 至 23 日	新界損失達數百萬元，荃灣一區毀屋 400 間；青山、元朗、沙田、上水區毀屋 500 間。各地區の木屋、徙置區如深水埗木屋、柴灣木屋、九龍城老虎岩與虎尾村、紅磡、筲箕灣區、柴灣角村等被風嚴重吹毀，災民人數達 10,367 人。
瑪麗	1960 年 6 月 4 至 9 日	新界長洲風災最為慘重，店屋吹毀者大小 10 多間，牌坊 3 座。筲箕灣、老虎岩、山谷道，最少有 30 多間木屋受毀，各地被毀木屋總數逾 330 間。
愛麗斯	1961 年 5 月 18 至 20 日	何文田文華村受損嚴重，該村最少有 6 間村屋倒塌。
溫黛	1962 年 8 月 30 至 9 月 2 日	港九新界的災民人數超過 3 萬，沙田墟房屋及店舖盡毀，災民約有 3,000 餘人。土瓜灣亦有 30 多間木屋倒塌，界限街、砵蘭街天台木屋亦盡吹毀。其他地區災民人數：大坑西 (5,500)、大埔 (2,000 餘)、筲箕灣 (4,500)、何文田 (3,000 餘)、京士柏 (3,000 餘)。
露比	1964 年 9 月 4 至 6 日	受災最嚴重的是大埔七區鄉村，被毀臨時木屋及鄉村式屋宇數千間；港九及荃灣三地被颶風波及木屋共有 1,368 間，災民共達 8,500 人；離島梅窩住屋全部毀塌者 30 間，吹掉屋頂之住屋 180 間。

Alice	18–20 May 1961	Man Wah Village of Ho Man Tin was hit hard with at least six village houses destroyed.
Wanda	30 Aug–2 Sep 1962	Over 30,000 people were affected all over Hong Kong, Kowloon and the New Territories. All houses and shops in Sha Tin Market were completely destroyed, with 3,000 victims. In To Kwa Wan, more than 30 huts were pulled down. Rooftop huts in the Boundary Street and Portland Street were all blown away. People affected included 5,500 in Tai Hang Sai, over 2,000 in Tai Po, 4,500 in Shau Kei Wan, and over 3,000 in both Ho Man Tin and King's Park.
Ruby	4–6 Sep 1964	The worst hit area was the seven villages of Tai Po, with thousands of temporary shelters and village houses destroyed. Another 1,368 houses on Hong Kong Island, in Kowloon and in Tsuen Wan were affected. Disaster victims numbered 8,500. The number of houses completely destroyed in Mui Wo on Lantau Island was 30. Houses with their roofs blown off amounted to 180.
Dot	10–13 Oct 1964	The hardest hit areas were the wooden huts located at Sha Tin's Sai Lam Monastery, the squatter area of Shau Kei Wan's A Kung Ngam, and the Lower Kwai Chung Estate of Sha Tin. Houses also collapsed in Sham Tseng, Ho Man Tin, Sha Tau Kok and on Castle Peak Road.
Shirley	20–22 Aug 1968	Sixty of the squatter huts situated near the Tai Wo Hau resettlement area were blown down. Inside the resettlement area, 27 wooden huts were destroyed. Eighty other wooden huts or stone huts in other areas such as Kowloon Bay, King's Park, Ho Man Tin, Chuk Yuen, Sha Tin and Tai Po were also destroyed.
Rose	13–17 Aug 1971	Over 1,000 wooden huts were destroyed in squatter and resettlement areas, and the number of disaster victims of the winds exceeded 4,500. The area most seriously affected was Sam Ka Tsuen. Then came Kowloon Bay. Other areas hit were Kowloon Tsai; 67 houses situated at Shan Shui Hau on Lantau Island, 14 houses in Tung Wan and Chang Sha, 16 apartment units in Kwai Chung's Kwai Hing Estate, two building blocks in Chai Wan's new area, one building block in Sau Mou Ping new area, and two apartment units in Tsz Wan Shan collapsed.
Elsie	12–15 Oct 1975	One village house in Tai Ah Chau on Lantau Island collapsed.
Hope	1–3 Aug 1979	In Nga Choi Hang of North Point, over 50 wooden huts were blown down. In Shau Kei Wan, wooden huts of the Holy Cross Path Village were buried by sand and mud. In Yau Ma Tei, 16 huts on building roof tops were blown down. In Pak Tin Pa Tsuen of Tsuen Wan and the Han Shui Lung Tsuen of Tai Po, more than 10 huts were covered by floodwaters.
Ellen	7–10 Sep 1983	Mei Foo Sun Chuen was inundated and the situation was most serious. In Kong Sin Wan Tsuen of Western District and the seaside village at Mount Davies, 219 wooden huts were destroyed, and 340 households with 1,198 residents adversely affected.
York	13–17 Sep 1999	Two Sheung Shui villages were inundated — Shek Wu Sun Chuen and Tin Ping Shan Chuen. In Wan Chai, the Inland Revenue Tower and the Immigration Tower had more than 400 plate glass panels damaged.

Sources:

Hong Kong Observatory, *Tropical Cyclones in 1999*, Hong Kong, 2000, p. 73.
 Li, Wood Yee, 'The Typhoon of 18 September 1906', Occasional Paper No. 36, Royal Observatory, 1976, pp. 4–5.
 Reports in *China Mail*, *Gongshang ribao*, *Huazi ribao*, *Ming Pao*, *Sing Tao Daily*, *Wah Kiu Yat Po*, etc.

黛蒂	1964年10月10至13日	受災最嚴重的區域有沙田西林寺半山木屋、筲箕灣亞公岩木屋區、沙田下葵涌村。其他地區亦有房屋倒塌意外，如深井、青山道、何文田、沙頭角。
雪麗	1968年8月20至22日	荃灣大窩口徙置區附近，共有60間木屋被吹毀，而徙置區內亦有27間木屋被毀。其他地區如九龍灣、京士柏、何文田、竹園、沙田、大埔亦有80多間木屋、石屋被毀。
露絲	1971年8月13至17日	木屋區與安置區有超過1,000間木屋被毀，災民有4,500人之多，受襲擊損失最嚴重的是三家村，其次是九龍灣，其他地區包括九龍仔、大嶼山山水口67間房屋、東灣及長沙14間房屋、荃灣葵涌葵興村廉租屋16個單位、柴灣新區兩座大廈、秀茂坪新區一座大廈及慈雲山兩個單位均出現倒塌。
愛茜	1975年10月12至15日	大嶼山大鴉洲一間村屋倒塌。
荷貝	1979年8月1至3日	北角芽菜坑50多間木屋被颱風吹毀。筲箕灣聖十字徑村的木屋被滾下的沙泥壓塌。油麻地有16間天台木屋被大風吹倒。荃灣白田壩村、大埔鹹水龍村全村有10多間木屋被淹浸。
愛倫	1983年9月7至10日	美孚新邨被水淹浸，最為嚴重。西區鋼線灣村及摩星嶺海傍村幾覆滅，共219間木屋被毀，340戶共1,198居民受影響。
約克	1999年9月13至17日	上水石湖新村及天平山村發生嚴重水浸，兩村淹浸。灣仔稅務大樓及入境事務大樓外牆400多塊玻璃幕牆崩裂。

資料來源：

《工商日報》、《明報》、《星島日報》、《華字日報》、《華僑日報》、*China Mail*等，於相關日期的報導。
 香港天文台，《一九九九年熱帶氣旋》，香港，2000年，頁73。
 Li, Wood Yee, 'The Typhoon of 18 September 1906', Occasional Paper No. 36, Royal Observatory, 1976, pp. 4–5.



Fig. 2.22 The damaged Blake Pier after the typhoon (September 1906). Courtesy Dr Tong Cheuk-man

圖 2.22 颱風過後的中環卜公碼頭 (1906年9月)。唐卓敏醫生珍藏

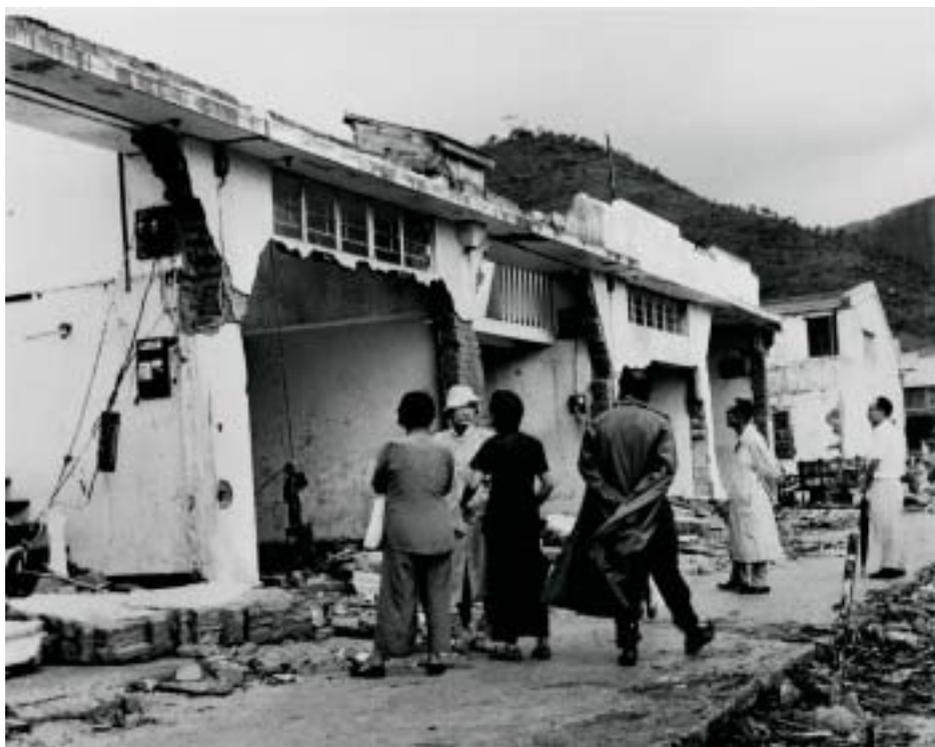


Fig. 2.23 Severe damage caused to houses after the passage of the typhoon (September 1962). Courtesy Hong Kong SAR Public Records Office

圖 2.23 颱風過後民房盡毀 (1962年9月)。香港特別行政區歷史檔案館館藏



Fig. 2.24 Luckily escaping Typhoon Rose's onslaught in August 1971, a girl surveys the wrecked remains of her home in despair. The photograph was taken at Sam Ka Tsuen near Kwun Tong. Courtesy Hong Kong SAR Information Services Department

圖 2.24 颱風露絲襲港後，女孩劫後餘生，慘見家園盡毀。1971年8月攝於觀塘附近的三家村。香港特別行政區政府新聞處檔案



Fig. 2.25 The typhoon in September 1874 damaged many ships and buildings along the waterfront. Courtesy Hong Kong Museum of History

圖 2.25 1874年9月的風災對沿岸船隻及建築物破壞嚴重。香港歷史博物館館藏



Fig. 2.26 Scene of devastation – houses were torn down by the typhoon (September 1906). Courtesy Dr Tong Cheuk-man

圖 2.26 民房慘遭颱風蹂躪，滿目瘡痍(1906年9月)。唐卓敏醫生珍藏

一般來說，十號風球對全港破壞的範圍相當廣泛，倘細心翻閱資料，不難發現不同年代，各地區的受災情況略有不同，這也直接影響到各區域的發展。在十九世紀末二十世紀初，損失較嚴重的地點，以漁民聚居的區域如筲箕灣、油麻地和長洲等為重災區；二十世紀上半期，以中下階層密集的地區如西環、灣仔和深水埗等損毀程度較大；戰後受風災嚴重破壞的區域，則以新發展的工業及住宅區如大埔和沙田為多（參閱上表2.8）。縱覽十九世紀末至二十世紀初颱風所造成的意外，大多集中在整個香港的東部，包括港島、九龍半島及新界的東部。



Fig. 2.27 View of the Tsim Sha Tsui clock tower through the twisted rubble of Star Ferry Pier, which was damaged by a container ship during the passage of Typhoon Hope (August 1979). Courtesy Hong Kong SAR Information Services Department

圖 2.27 颱風荷貝襲港後，被貨櫃船撞毀的天星碼頭，遠處隱約可見尖沙咀鐘樓（1979年8月）。香港特別行政區政府新聞處檔案

In general, the destruction brought by typhoons that necessitated the Warning Signal No. 10 was widespread. A careful review of data reveals that damages inflicted by typhoons on various places changed in different time periods and affected the development of the region. In the late nineteenth and early twentieth centuries, areas where the fishermen lived, such as Shau Kei Wan, Yau Ma Tei and Cheung Chau, suffered more serious losses. In the early part of the twentieth century, the hardest hit areas were the populous districts where the middle and lower classes lived, such as Western District, Wan Chai and Sham Shui Po. After the Second World War, the seriously devastated areas were the newly developed industrial or residential districts such as Tai Po and Sha Tin (see Table 2.8). On the whole, from the late nineteenth to early twentieth centuries, it was the eastern part of Hong Kong (including Hong Kong Island, Kowloon and the New Territories) that was most badly hit.

Economic Losses

Every time a typhoon struck, Hong Kong was paralysed and most daily activities stopped. The most direct impact on people's lives were the chaotic traffic conditions and steep increases in commodity prices. The blocking of roads and streets due to landslides induced by the typhoon was particularly serious in the northern parts of Hong Kong Island, Central and Western District, and eastern Kowloon. Due to high population densities and dilapidated drainage systems, these areas were often affected by flooding. During the passage of a typhoon, the cross-harbour ferry services were suspended and the traffic between Hong Kong Island, Kowloon and the outlying islands were cut off. Before the construction of the cross-harbour tunnels, ferries were the only means of public transport that linked Hong Kong Island and Kowloon. Even today, the link between Hong Kong Island and the outlying islands still relies heavily on ferry services.⁴⁵ For those people who failed to catch the last ferry home, they would have to stay with their relatives or friends or to take shelter at the piers until the ferry services resumed.⁴⁶ During the onslaught of a typhoon, normal public transport services could not be maintained and people had to pay fares up to a few times higher than normal. In 1973, it was reported that public light buses raised their fares from the original HK\$0.50 to HK\$1.50 or even HK\$3.⁴⁷ Typhoons also greatly disrupted aviation services. It affected not just the communications between Hong Kong and other places, but could also indirectly cause breakdowns in telecommunications networks. In an era when speedy communication was very much part of one's life, the congestion of telecommunications systems caused by typhoons was a prime concern.

經濟損失

每次颱風吹襲，香港全城便陷入癱瘓狀態，所有的日常活動被迫停止；直接影響民生的莫如混亂的交通狀況和急升的物價。由於颱風造成山泥傾瀉阻塞道路的情況，以港島的北部、中西區及九龍半島東部最嚴重，這些區域因人口擠迫，排水系統老化，常出現水浸的情況。颱風襲港期間，渡海小輪停航，中斷了港島、九龍及離島間的聯繫，在海底隧道尚未興建之前，港島及九龍半島之間的交通完全依賴渡海小輪，而離島的交通時至今日仍以小輪為主；⁴⁵ 須要利用渡海小輪的市民如趕不上暴風抵港前的尾班船，有家歸不得的話，只好寄居在親友家，甚至滯留在碼頭，直至小輪復航才可回家。⁴⁶ 颱風期間，在公共交通未能維持正常服務的情況下，市民必須支付比平日高出多倍的车資，1973年有報導小巴的價格從原來的5角漲至1元5角或3元不等。⁴⁷ 而颱風對航空服務所造成的不便，不但直接影響香港對外聯絡，更可間接導致電訊網絡系統中斷，在重視資訊傳遞速度的年代，颱風所引起網絡系統交通擠塞的問題，是急需解決的。

新界許多農產區如元朗、大埔、上水、沙田、粉嶺、荃灣和離島的大嶼山等受颱風沖擊，生產便會被迫停頓。而鄰近地區如廣東省等亦同樣受颱風困擾。⁴⁸ 日常生活的用品因交通癱瘓，無法如期運送到市場，造成貨品供不應求，價格上漲，最明顯的是食物的價格，如菜蔬、魚類、肉類等。⁴⁹ 根據不同年代的紀錄，



Fig. 2.28 A fire at Connaught Road West during the typhoon (2 September 1937). Courtesy Hong Kong SAR Public Records Office

圖 2.28 干諾道西於 1937 年 9 月 2 日颱風襲港期間發生火警。香港特別行政區歷史檔案館館藏



Fig. 2.29 The last ferry before the suspension of services. A scene during the passage of Typhoon Viola on 27 May 1964. Courtesy Hong Kong SAR Information Services Department

圖 2.29 停航前的最後一班船。1964年5月27日維奧娜風姐襲港期間天星碼頭一景。香港特別行政區政府新聞處檔案



Fig. 2.30 Neon signs, ripped from supporting structures by Typhoon Wanda, almost crashed onto the street (September 1962). Courtesy Hong Kong SAR Information Services Department

圖 2.30 皇后大道霓虹燈廣告牌，颱風溫黛過後搖搖欲墜（1962年9月）。香港特別行政區政府新聞處檔案

颱風肆意破壞新界農地以後，造成日常食品漲價的升幅由三分之一至三倍以上。⁵⁰ 戰前，農業生產仍佔本港經濟相當大比重，因此颱風後的連場暴雨對農業的沖擊所造成的影響尤其重大。1910年代末、1920年代初，因颱風襲港，本地稻米失收，其他地區稻米未及運抵本港應急，導致米價急升，產生搶米風潮，⁵¹ 市面一度陷入混亂狀態。

在一段短時間內接踵而來的颱風，對工商業帶來的損失尤其明顯：零售業被迫暫停營業，金融市場被迫暫停交易，⁵² 經濟活動長時期不能正常運作，元氣大受傷害；遇上經濟不景氣的年頭，物價更藉口上漲。低下階層的生活受颱風襲港影響，可謂雪上加霜：每次風災吹塌的木屋，90%為低收入工人、苦力等的居所，據統計1959年居住在木屋的工人有30萬。⁵³ 最不幸者當然是颱風期間家園被毀、喪失親人者，而僥倖生還者仍須面對收入減少、經濟拮据的問題：1970年代以前，大部份工人工資仍是以件計酬，或以日計薪，因颱風導致停工，工人的收入自然減少；而颱風過後，部份工作仍未能回復正常，受影響較嚴重的行業，以建築、泥水、木業、油漆、搬運及扎鐵等工人為代表。⁵⁴



Agricultural production in the New Territories, such as Yuen Long, Tai Po, Sheung Shui, Sha Tin, Fanling, Tsuen Wan and the outlying island of Lantau, was hampered when typhoons struck. Neighbouring regions such as Guangdong were also affected by typhoons.⁴⁸ Daily necessities could not be delivered to Hong Kong on time due to paralysed traffic, resulting in supply shortages. Most affected by price rises were food items such as vegetables, fish and meat.⁴⁹ According to the records in different periods, after the typhoon's ravaging of the agricultural regions in the New Territories, the prices of daily food items would increase anywhere from one-third to more than 300%.⁵⁰ The torrential rain in the aftermath of typhoons also had a very serious impact on local agriculture, especially in the pre-war era when



Fig. 2.31 Advertising signs torn down during the passage of Typhoon Rose in August 1971. Courtesy Hong Kong SAR Information Services Department

圖 2.31 颱風露絲席捲市區，不少廣告牌被吹倒（1971年8月）。香港特別行政區政府新聞處檔案



Fig. 2.32 A scene at Chatham Road, Hung Hom after Typhoon Hope's passage (August 1979). Courtesy Hong Kong SAR Information Services Department

圖 2.32 紅磡漆咸道於1979年8月颱風荷貝過港後實況。香港特別行政區政府新聞處檔案

local agricultural production still played an important role in Hong Kong. From the end of the 1910s to the early years of the 1920s, as crops in Hong Kong were seriously damaged by typhoons and imported rice failed to arrive in time, the price of rice rose sharply and resulted in a scramble for rice.⁵¹ This caused havoc in Hong Kong.

When typhoons came one after another within a short period of time, the losses sustained by the commerce and industry were even more noticeable.

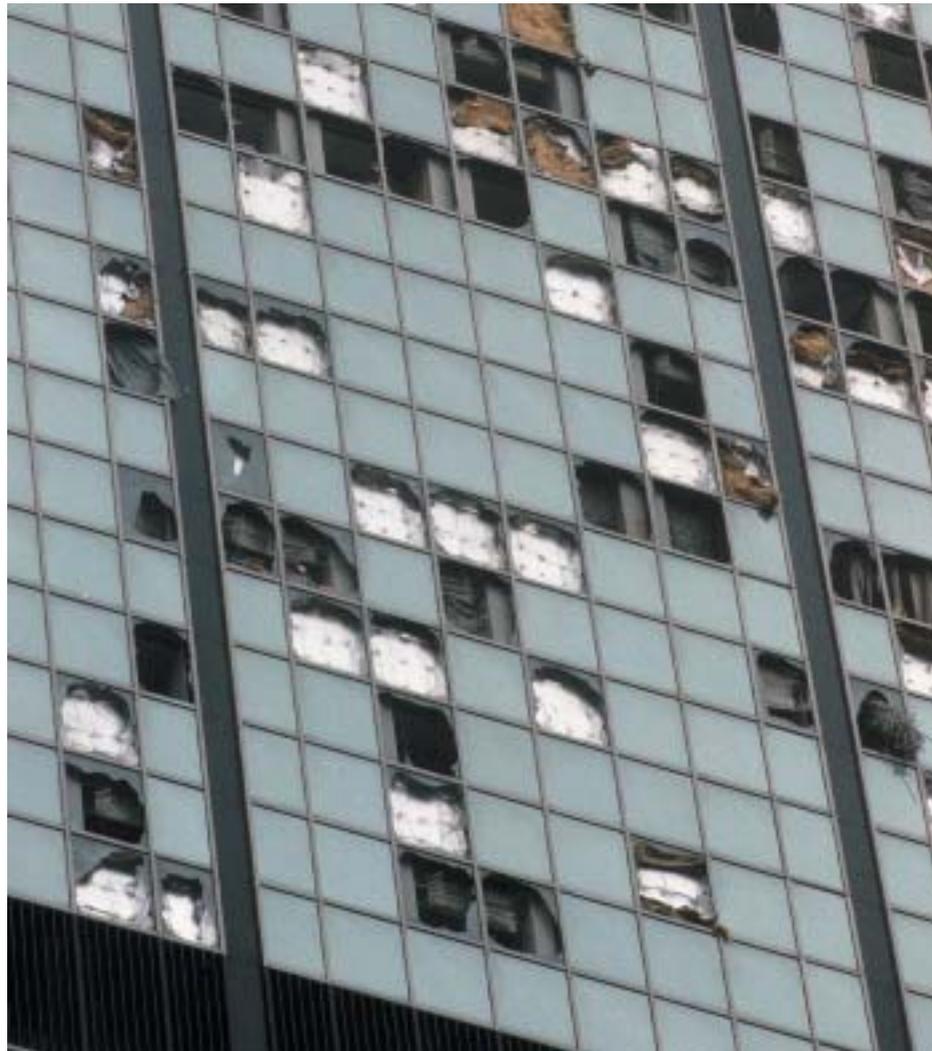


Fig. 2.33 Typhoon York, the most recent typhoon requiring the hoisting of No. 10 typhoon signal, hit Hong Kong on 16 September 1999. One-third of the window panels of the Inland Revenue Tower in Wan Chai were destroyed. Courtesy Sing Tao Daily

圖 2.33 近年最強勁的10號颱風約克於1999年9月16日襲港，灣仔人民入境事務處大樓三分之一的一窗戶被吹毀。星島日報



Fig. 2.34 Typhoon Ellen hit Hong Kong in September 1983, killing 10 people and injuring 333. Courtesy Hong Kong Museum of History

圖 2.34 1983年9月7至10日襲港的颱風愛倫導致10死333傷。香港歷史博物館館藏

Retail activities temporarily came to a halt and financial markets were also closed down.⁵² Economic activities were disrupted for a prolonged period of time and the economy suffered badly as a result. During economic downturns, commodity prices rose on the pretext of typhoon. The life of the lower classes became more difficult. Ninety per cent of the occupants of wooden huts struck down by typhoons were low-paid workers and coolies, and there were 300,000 workers living in wooden huts in 1959.⁵³ The most unfortunate victims were those who lost both their homes and family members. The survivors still had to face reduced incomes and economic hardships. Before the 1970s, most of the workers were paid by piece or daily rates. Suspension of work caused by typhoons reduced their wages correspondingly. Even after the passage of the typhoon, some of the businesses could not return to normal immediately. Workers in the trades of building construction, bricklaying, carpentry, painting, transportation and steel fixing were most affected.⁵⁴

Workers involved in repairs and maintenance were among the few that benefited from typhoons. Many damaged bamboo scaffoldings, advertisement boards, neon lights, doors and broken windows required immediate repairs. Scaffolding workers were in great demand. According to newspapers, after the devastation of Typhoon Wanda in 1962, the daily wages of a scaffolding worker increased from HK\$15 to HK\$30, a 100% rise.⁵⁵ Public transport like taxis and light buses or businesses selling dried food and miscellaneous items were in great demand during the typhoon periods.

In 1938, the Hong Kong Observatory compiled a comprehensive report on the damage caused by typhoons and heavy rain during the 10-year period of 1928 to 1937. In this report, Hong Kong was divided into four regions. They were Hong Kong Island, Kowloon, New Kowloon and the New Territories. Among the four regions, Hong Kong Island suffered most from the typhoons and rainstorms. The economic cost of typhoons for Hong Kong Island accounted for 54% of the total cost for Hong Kong. The corresponding percentages of typhoon cost for the New Territories, Kowloon and New Kowloon were 25%, 9% and 12% respectively. Looking at the expenditure caused by typhoons of each year, the most severe economic losses occurred in 1937. Including the provision of the HK\$220,000 made in the 1938 fiscal year, the amount of money spent in repairing the damage inflicted by the typhoon and rainstorms of 2 September 1937 amounted to HK\$585,734, equivalent to 39% of the total expenditure for the 10-year period from 1928 to 1937. Table 2.9 shows the details of the economic losses caused by the typhoons and associated rainstorms for the 1928 to 1937 period.

風雨襲港後，一些負責善後維修的行業，可以說是少數的得益者，不少棚架、招牌、光管、門面裝飾、以至窗戶等被毀壞後急需維修，搭棚工人變得十分忙碌。據報載 1962 年溫黛風災後，搭棚工人的日薪從 15 港元漲至 30 港元，工資升幅高達一倍。⁵⁵ 而提供交通服務的行業，如的士和小巴等，或出售乾糧雜貨等行業，由於需求增加，在颱風期間亦是較吃香的。

1938 年香港天文台曾就 1928 至 1937 年十年間，因颱風及暴雨導致的損毀，作一全面報導。該報告將香港分為港島、九龍、新九龍及新界四區，其中以港島區在風災及雨災期間損毀最嚴重，經濟支出佔總支出的 54%，而新界、九龍、新九龍則分別各佔 25%、9% 及 12%。倘以每年的支出來看，以 1937 年的經濟損失最大，連同 1938 財政年度為 1937 年 9 月 2 日撥備的 22 萬在內，是年共為風災及雨災支出 585,734 元，佔十年來總支出的 39%；1937 年各區因風雨導致的經濟損失也是 1928 至 1937 年以來最嚴重的一年。有關 (1928 至 1937 年) 風災及雨災導致有關的財政損失詳細情況可參閱下表 2.9:

表 2.9 風災及雨災導致的經濟支出 (1928–1937 年)

(單位：港元)

年份	港島	九龍	新九龍	新界	全港
1928	35,182 (36%)	3,361 (3%)	25,015 (25%)	35,677 (36%)	99,235
1929	41,344 (39%)	11,246 (10%)	21,566 (20%)	32,623 (31%)	106,779
1930	60,335 (54%)	2,408 (2%)	22,325 (20%)	26,286 (24%)	111,354
1931	56,486 (40%)	19,574 (14%)	11,838 (8%)	52,937 (38%)	140,835
1932	33,384 (74%)	3,896 (9%)	3,245 (7%)	4,689 (10%)	45,214
1933	16,935 (75%)	1,099 (5%)	1,458 (6%)	3,216 (14%)	22,708
1934	102,156 (76%)	14,069 (11%)	9,525 (7%)	7,699 (6%)	133,449
1935	27,163 (69%)	3,306 (8%)	4,449 (11%)	4,684 (12%)	39,602
1936	96,528 (45%)	31,990 (15%)	26,589 (13%)	57,622 (27%)	212,729
1937*	215,994 (59%)	29,268 (8%)	31,035 (9%)	89,437 (24%)	365,734
共計	685,507 (54%)	120,217 (9%)	157,045 (12%)	314,870 (25%)	1,277,639

* 1937 年總支出並未包括是年 9 月 2 日風災所造成的經濟損失在內：港島區 (10 萬元)、九龍區 (3.6 萬元)、新九龍區 (5.7 萬元) 及新界區 (2.7 萬元)，全港共計損失 22 萬元，該款項將在 1938 年財政年度支取。

資料來源：

Hong Kong Observatory, 'Letter from Director of Royal Observatory to Mr M. C. Hart', File No. 32, *Meteorological Messages & Storm Warnings* (Typhoon Signals), Hong Kong, 4 April 1938.

Table 2.9 Expenditure Caused by Typhoons and Rainstorms (1928–1937)

(Unit: Hong Kong dollar)

Year	Hong Kong Island	Kowloon	New Kowloon	New Territories	Hong Kong
1928	35,182 (36%)	3,361 (3%)	25,015 (25%)	35,677 (36%)	99,235
1929	41,344 (39%)	11,246 (10%)	21,566 (20%)	32,623 (31%)	106,779
1930	60,335 (54%)	2,408 (2%)	22,325 (20%)	26,286 (24%)	111,354
1931	56,486 (40%)	19,574 (14%)	11,838 (8%)	52,937 (38%)	140,835
1932	33,384 (74%)	3,896 (9%)	3,245 (7%)	4,689 (10%)	45,214
1933	16,935 (75%)	1,099 (5%)	1,458 (6%)	3,216 (14%)	22,708
1934	102,156 (76%)	14,069 (11%)	9,525 (7%)	7,699 (6%)	133,449
1935	27,163 (69%)	3,306 (8%)	4,449 (11%)	4,684 (12%)	39,602
1936	96,528 (45%)	31,990 (15%)	26,589 (13%)	57,622 (27%)	212,729
1937*	215,994 (59%)	29,268 (8%)	31,035 (9%)	89,437 (24%)	365,734
Total	685,507 (54%)	120,217 (9%)	157,045 (12%)	314,870 (25%)	1,277,639

* The 1937 expenditure did not include the economic losses caused by the typhoon on 2 September: Hong Kong Island (HK\$100,000); Kowloon (HK\$36,000); New Kowloon (HK\$57,000); New Territories (HK\$27,000); totalling HK\$220,000 for the whole of Hong Kong. This amount was reflected in the 1938 financial year.

Source:

Hong Kong Observatory, 'Letter from Director of Royal Observatory to Mr M. C. Hart', File No. 32, *Meteorological Messages & Storm Warnings* (Typhoon Signals), Hong Kong, 4 April 1938.

Today, the damage to Hong Kong caused by typhoons is largely restricted to the economic level, such as temporary suspension of internal and external transport services and the economic activities coming to a standstill. As the government and the people have become quite aware of the possible damage of typhoons and have taken adequate preventive measures, casualties since the 1980s have been much reduced. People are much less fearful of typhoons. A close approaching typhoon merely means an extra day of holiday to students and workers alike, which reflects the prosperity and development of Hong Kong.

Heavy Rainstorms

Tropical cyclones, apart from causing strong winds, also bring plenty of rain. Statistics indicate that damage brought by heavy rainstorms is comparable to that caused by typhoons. As the temporal distribution of rainfall in Hong Kong is very uneven, a day's rainfall can amount to a quarter of the annual average rainfall of 2,221 mm. Some severe rainstorms, such as those which caused serious landslides at the Mid-Levels on Hong Kong Island, Kwun Tong and Shau Kei Wan in 1972, still evoke great fear among those who have witnessed such disasters. Thus, every summer, adequate precautions must be taken against typhoons and rainstorms. Table 2.10 records the highest daily rainfall during the period of 1884 to 2002.

在今天的香港社會，颱風所造成的破壞，只停留在經濟層面，諸如對內及對外交通的中斷、經濟活動暫時停止等。由於政府與市民對颱風襲港的警覺性相當高，預防的措施準備充足，因此自 1980 年代以後，人命傷亡的數字大幅下降，市民對颱風的恐懼明顯減少；颱風襲港，反而為莘莘學子及部份上班一族平添了一天假期，這現象正正反映了社會的富庶及進步。

暴雨

熱帶氣旋除了帶來強勁的風暴外，更會帶來大量的雨水，根據資料顯示，歷來暴雨造成的災禍，並不比颱風少。由於香港的降雨量分佈極不均勻，有時一天的降雨量可相等於全年平均降雨量 2,221 毫米的四分之一，對於一些嚴重的雨災，如 1972 年的雨災所造成港島半山、觀塘、筲箕灣等地區的山泥傾瀉，曾親身經歷者，至今仍猶有餘悸。因此每年的夏季，香港市民必須做好預防風雨侵襲的準備。天文台自 1884 至 2002 年錄得歷年來單日降雨量最多的紀錄分列如表 2.10。



Fig. 2.35 Central after a rainstorm in May 1889. Courtesy Hong Kong Museum of History

圖 2.35 1889 年 5 月暴雨後的中環。香港歷史博物館館藏

Table 2.10 Ten Days With the Highest Daily Rainfall (1884–2002)

Order	Date	Daily Rainfall (mm)
1	19 Jul 1926	534
2	30 May 1889	521
3	9 Jun 1998	411
4	12 Jun 1966	383
5	17 Jun 1983	347
6	15 Jul 1886	342
7	16 Aug 1982	334
8	27 Sep 1965	326
9	8 May 1992	324
10	20 May 1989	323

Source:
Hong Kong Observatory meteorological records.

表 2.10 十大單日降雨量最多紀錄 (1884–2002 年)

序列	日期	單日降雨量(毫米)
1	1926年7月19日	534
2	1889年5月30日	521
3	1998年6月9日	411
4	1966年6月12日	383
5	1983年6月17日	347
6	1886年7月15日	342
7	1982年8月16日	334
8	1965年9月27日	326
9	1992年5月8日	324
10	1989年5月20日	323

資料來源：
香港天文台氣象紀錄。



Fig. 2.36 The aftermath of a rainstorm in May 1889. Courtesy Hong Kong Museum of History

圖 2.36 1889年5月暴雨後的香港。香港歷史博物館館藏

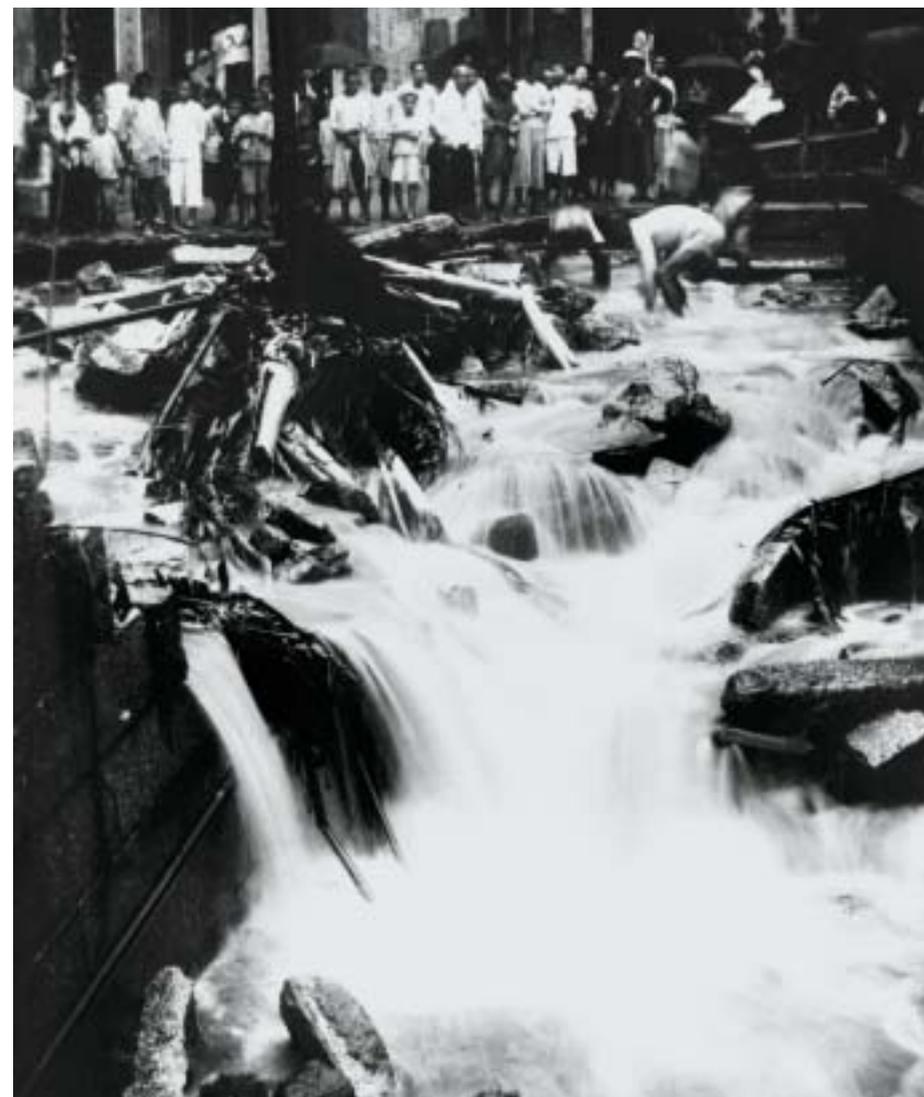


Fig. 2.37 A road surface collapsed under the force of floodwaters (July 1926). Courtesy Hong Kong Museum of History

圖 2.37 洪水對道路造成的嚴重破壞 (1926年7月)。香港歷史博物館館藏

The day with the highest rainfall was 19 July 1926 with 534 mm of rain. The tenth highest rainfall for a single day was 20 May 1989, when 323 mm of rainfall was recorded due to heavy downpours brought by the onslaught of Typhoon Brenda. On 17 August 1971, Typhoon Rose dumped 288 mm of rain, and Typhoon York brought 276 mm of rain on 16 September 1999. Although these rainstorms with record-high rainfall caused considerable inconvenience to people's daily lives, they did not necessarily result in heavy human casualties. Rather, some sudden downpours or continuous rainy days were the main culprits of disasters. To support these statements, Table 2.11 lists those rainy days with the highest casualty figures.

Table 2.11 Casualties Caused by Heavy Rainstorms (1884–2002)

Order	Date	Amount of Rainfall (mm)	Number of Deaths	Number of People Missing	Number of People Injured	Number of Disaster Victims
1	16–18 Jun 1972	16th : 206 17th : 214 18th : 233	150	–	93	4,845
2	11–13 Jun 1966	11th : 78 12th : 383 13th : 34	64	48	29	6,183
3	12–15 Jun 1959	12th : 97 13th : 176 14th : 182 15th : 270	46	21	60	11,729
4	28–30 May 1889	28th : 14 29th : 321 30th : 521	27	17	6	–
5	8–10 May 1992	8th : 324 9th : 16 10th : 9	8	1	11	2,000
6	16–18 Aug 1982	16th : 334 17th : 80 18th : 48	7	8	16	1,460
7	22–24 Jul 1994	22nd : 297 23rd : 195 24th : 119	6	2	3	20,000
8	27–28 Sep 1965	27th : 326 28th : 16	5	3	8	3,000
9	12–13 Jul 1885	12th : 321 13th : 13	2	–	1	–
10	17–18 Jun 1983	17th : 347 18th : 4	1	–	22	579

Sources:

Rainfall records are provided by the Hong Kong Observatory. For human casualty figures, see Chen T. Y., *The Severe Rainstorms in Hong Kong During June 1966: Supplement to Meteorological Results, 1966*, Hong Kong Government Printer, 1969, p. 45 (The economic losses in 1966 included \$31,000,000 maintenance expenses, \$409,000 compensation sums paid to farmers, collapsed houses and sunken vessels valued at \$4,070,000); Chan Kin Shek, *The Safety of Hong Kong Slopes*, Geotechnical Engineering Office, 2001, p. 3.

本港單日錄得最多的雨量紀錄為 1926 年 7 月 19 日的 534 毫米，而排列第十位 1989 年 5 月 20 日的降雨量也有 323 毫米；因颱風襲港而造成一連串暴雨的有排列第十位 1989 年 5 月 20 日的颱風布倫達、1971 年 8 月 17 日的露絲（單日降雨紀錄為 288 毫米）、1999 年 9 月 16 日的約克（單日降雨紀錄為 276 毫米）。根據歷史資料所載，這些有史以來所錄得的單日降雨量最多的日子，雖為市民日常生活帶來諸多不便，但並不一定會造成嚴重的人命傷亡，反而一些突如其來的暴雨或連續不斷的天雨，才是雨災的主因。為印證上述說法，茲將香港歷年雨災傷亡最嚴重的日子列於表 2.11。

表 2.11 歷年雨災造成嚴重傷亡紀錄統計 (1884–2002 年)

	日期	降雨量 (毫米)	死亡人數	失蹤人數	受傷人數	災民人數
1	1972 年 6 月 16 至 18 日	16 日: 206 17 日: 214 18 日: 233	150	–	93	4,845
2	1966 年 6 月 11 至 13 日	11 日: 78 12 日: 383 13 日: 34	64	48	29	6,183
3	1959 年 6 月 12 至 15 日	12 日: 97 13 日: 176 14 日: 182 15 日: 270	46	21	60	11,729
4	1889 年 5 月 28 至 30 日	28 日: 14 29 日: 321 30 日: 521	27	17	6	–
5	1992 年 5 月 8 至 10 日	8 日: 324 9 日: 16 10 日: 9	8	1	11	2,000
6	1982 年 8 月 16 至 18 日	16 日: 334 17 日: 80 18 日: 48	7	8	16	1,460
7	1994 年 7 月 22 至 24 日	22 日: 297 23 日: 195 24 日: 119	6	2	3	20,000
8	1965 年 9 月 27 至 28 日	27 日: 326 28 日: 16	5	3	8	3,000
9	1885 年 6 月 12 至 13 日	12 日: 321 13 日: 13	2	–	1	–
10	1983 年 6 月 17 至 18 日	17 日: 347 18 日: 4	1	–	22	579

資料來源：

降雨量紀錄由香港天文台提供，傷亡紀錄可參考：Chen, T. Y., *The Severe Rainstorms in Hong Kong During June 1966, Supplement to Meteorological Results 1966*, Hong Kong: Government Printer, 1969, p. 45 (1966 年經濟損失包括政府需支出 3,100 萬港元維修費，農民補償金 40.9 萬港元，另房屋倒塌、沉船 407 萬港元)；陳健碩，《香港的斜坡安全》，香港土力工程處，2001 年，頁 3。

From the above statistics, it can be seen that the rainstorms, occurring between 16 June and 18 June 1972 exacted the highest death toll, with 150 people killed and 93 injured.⁵⁶ The number of people affected came to 4,845. The week of continuous heavy rain led to flash floods and landslides that buried the densely populated but flimsily built squatter areas in Sau Mau Ping, Gai Liu Resettlement Area and Shau Kei Wan, claiming a total of 76 lives. A 13-storey building on Kotewall Road and Po Shan Road also toppled over in the heavy rain, killing 71 people. This heightened the awareness of the government and the public towards the safety of hill slopes and led to the establishment of the Geotechnical Engineering Office, which is responsible for the management of unstable slopes.⁵⁷

從上表的統計數字可見，歷來連場暴雨造成的人命傷亡，以1972年6月16日至6月18日的雨災最為嚴重，死亡人數高達150人，受傷者93人，⁵⁶ 災民人數達4,845。整整一個星期的連場暴雨導致山洪暴發、山泥傾瀉，活埋了人口密集、住屋建築材料單薄的木屋區如觀塘的秀茂坪及雞寮安置區、筲箕灣的木屋區共76條性命。而地處半山的旭龢道、寶珊道，同樣亦經不起風雨，整幢十三層的高樓大廈倒塌，71人犧牲。雨災過後，喚起政府及市民對斜坡的關注，專責管理危險斜坡安全的土力工程處亦因而成立。⁵⁷



Fig. 2.38 Debris of a collapsed street after a landslide in Tai Ping Shan (now western Mid-Levels) in July 1926. Courtesy Dr Tong Cheuk-man

圖 2.38 太平山 (即現時半山區西) 於山洪暴發後的景象 (1926年7月)。唐卓敏醫生珍藏



Fig. 2.39 Workers clearing the debris of collapsed buildings (July 1926). Courtesy Dr Tong Cheuk-man

圖 2.39 工人忙於清理山洪暴發後的災區 (1926年7月)。唐卓敏醫生珍藏



Fig. 2.40 Burst nullah on Hill Road, Shek Tong Tsui (18 July 1926). Courtesy Hong Kong SAR Public Records Office

圖 2.40 石塘咀區山道明渠損毀實況 (1926年7月18日)。香港特別行政區歷史檔案館館藏



Fig. 2.41 Extensive flooding caused by a rainstorm (18 July 1926). Courtesy Hong Kong SAR Public Records Office

圖 2.41 1926年7月18日的暴雨造成嚴重水浸。香港特別行政區歷史檔案館館藏



Fig. 2.42 Workers making emergency repairs while women used the water to wash clothing (July 1926). Courtesy Hong Kong SAR Public Records Office

圖 2.42 工人們忙於重修明渠，婦女們卻忙於利用雨水洗衣裳 (1926年7月)。香港特別行政區歷史檔案館館藏



Fig. 2.44 Flooding in Happy Valley (19 July 1926). Courtesy Hong Kong SAR Public Records Office

圖 2.44 跑馬地於1926年7月19日暴雨後頓成澤國。香港特別行政區歷史檔案館館藏



Fig. 2.43 St Francis Street in Wan Chai after a rainstorm (19 July 1926). Courtesy Hong Kong SAR Public Records Office

圖 2.43 灣仔聖佛蘭士街於1926年7月19日暴雨後情景。香港特別行政區歷史檔案館館藏

Between 11 and 13 June 1966, heavy rainstorms resulted in 64 deaths, 48 persons missing, and 29 injured. The number of affected people amounted to 6,183 and the affected areas included Tsuen Wan, Tai Po, Castle Peak, Yuen Long, the outlying islands, Shau Kei Wan, Aberdeen, Causeway Bay, Kennedy Town and Ngau Tau Kok in Kowloon. The situation was more serious on Hong Kong Island. In the Aberdeen area alone, 1,200 people were affected.⁵⁸ In the New Territories, particularly in Tai Po and Yuen Long, farmland was seriously damaged. According to newspapers, 95% of the paddy



Fig. 2.45 Landslide on Hong Kong Island on 20 June 1972. Courtesy Hong Kong SAR Information Services Department

圖 2.45 1972年6月20日港島區斜坡損毀情況。香港特別行政區政府新聞處檔案

fields and 50% of the vegetable fields in Tai Po were flooded and destroyed. In Yuen Long, 35% of the rice fields were flooded. As agricultural products suffered severe losses, food prices rose accordingly.⁵⁹

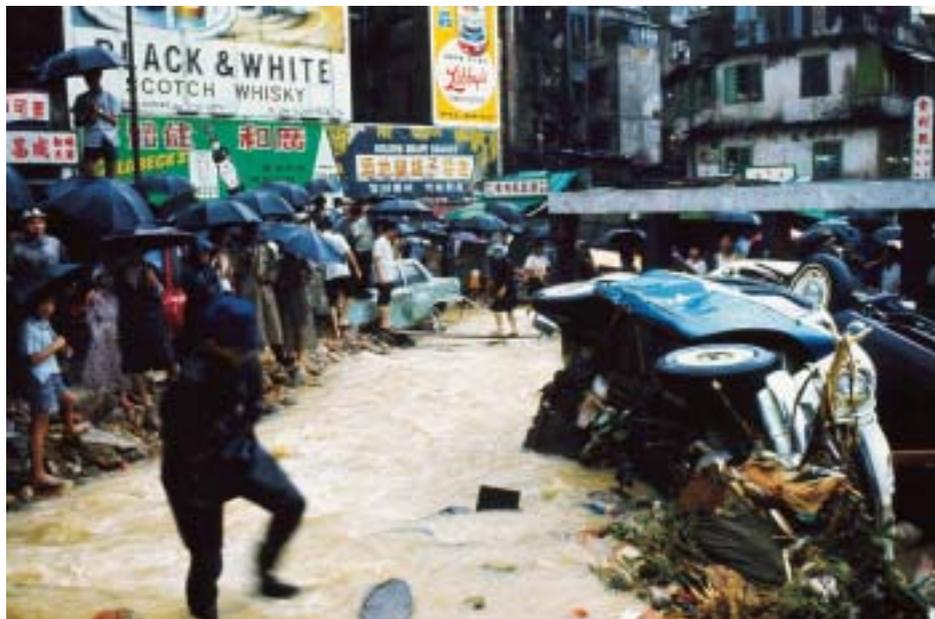


Fig. 2.46 Queen's Road East strewn with wrecked cars (12 June 1966). Courtesy Hong Kong SAR Information Services Department

圖 2.46 皇后大道東於1966年6月12日暴雨期間實況。香港特別行政區政府新聞處檔案

During the rainstorms of 12 to 15 June 1959, 46 people were killed, 21 missing, and 60 injured. The number of affected people reached a historical high of 11,729.⁶⁰ Affected areas concentrated in Shau Kei Wan, Kennedy Town, Western District, Aberdeen and Tai Hang of Causeway Bay on Hong Kong Island; in Sham Shui Po, Hung Hom, Kowloon City and Yau Ma Tei in Kowloon; and in Yuen Long in the New Territories.

During the 56-year period of 1947 to 2002, over 470 people were killed in landslides.⁶¹ Landslides can be caused by different reasons. Prolonged heavy rain is only a trigger. The main causes of landslides after severe rainstorms are the geological and natural climate conditions. The annual rainfall in Hong Kong is about 2,221 mm. It is unevenly distributed during the year and most of the rainfall occurs between May and September. Rainfall can exceed 500 mm in a single day. According to investigations conducted by the Geotechnical Engineering Office, when rainfall reaches 175 mm within a 24-hour period or 70 mm within a one-hour period, the probability of landslides is very high.⁶²



Fig. 2.47 Landslide on Peak Road at Magazine Gap, one of many which paralysed traffic and stranded residents on the Peak (1966). Courtesy Hong Kong SAR Information Services Department

圖 2.47 山頂道山洪暴發，導致山頂區交通癱瘓 (1966年)。香港特別行政區政府新聞處檔案

1966年6月11日至13日的雨災導致64人死亡，48人失蹤，29人受傷，災民人數達6,183人，災區遍及荃灣、大埔、青山、元朗、離島、筲箕灣、香港仔、銅鑼灣、堅尼地城，以至九龍的牛頭角，而其中又以港島災情較為嚴重，單是香港仔一區的災民已達1,200人。⁵⁸ 新界方面，大埔及元朗區農田損毀的情況惡劣，根據報章報導，大埔有95%的稻田被水淹死、50%的菜田被淹壞，而元朗的稻田亦有35%被水淹；農作物遭受破壞，食物的價格亦隨之上漲。⁵⁹

1959年6月12日至15日的暴雨，導致46人死亡，21人失蹤，60人受傷，災民數字是有史以來最多，高達11,729人，⁶⁰ 災區主要集中在筲箕灣、堅尼地城、西環、香港仔及銅鑼灣的大坑，九龍半島則以深水埗、紅磡、九龍城及油麻地受影響較大，新界方面則以元朗災情最嚴重。

1947年至2002年的50多年間，有超過470人因山泥傾瀉而死亡，⁶¹ 造成山泥傾瀉的原因有多種，連場暴雨只是災難的導火線，而客觀的地理環境及自然氣候因素，才是暴雨後山泥傾瀉的主因。由於香港降雨量分佈不均，年降雨量約為2,221毫米，雨季集中在5至9月，有些日子，單日降雨量可高達500多毫米。根據土力工程處的調查，每當24小時雨量達到175毫米或每小時降雨量超過70毫米時，發生山泥傾瀉的機會便相當高，⁶² 另一方面，香港有60%的面積由山坡組成；構成香港大部份高地的陡坡地，坡面上風化碎屑在暴雨沖擊下，容易導致快速的地表物質流及泥石流或礫石降落以至岩屑大面積崩塌，⁶³ 這些現象尤以花崗岩與火山岩相接觸的崩積帶的山區最明顯。



Fig. 2.48 Landslide in Kwun Tong. A total of 150 people were killed and 93 injured territory-wide in the rainstorms occurring on 16 to 18 June 1972. Courtesy Hong Kong SAR Information Services Department

圖 2.48 1972年6月16至18日的雨災全港造成150人死、93人受傷，圖為雨災後的觀塘。香港特別行政區政府新聞處檔案



Fig. 2.49 An aerial view of the Kwun Tong-Sau Mau Ping landslide area (18 June 1972). Courtesy Hong Kong SAR Information Services Department

圖 2.49 觀塘秀茂坪1972年6月18日雨災後的鳥瞰圖。香港特別行政區政府新聞處檔案

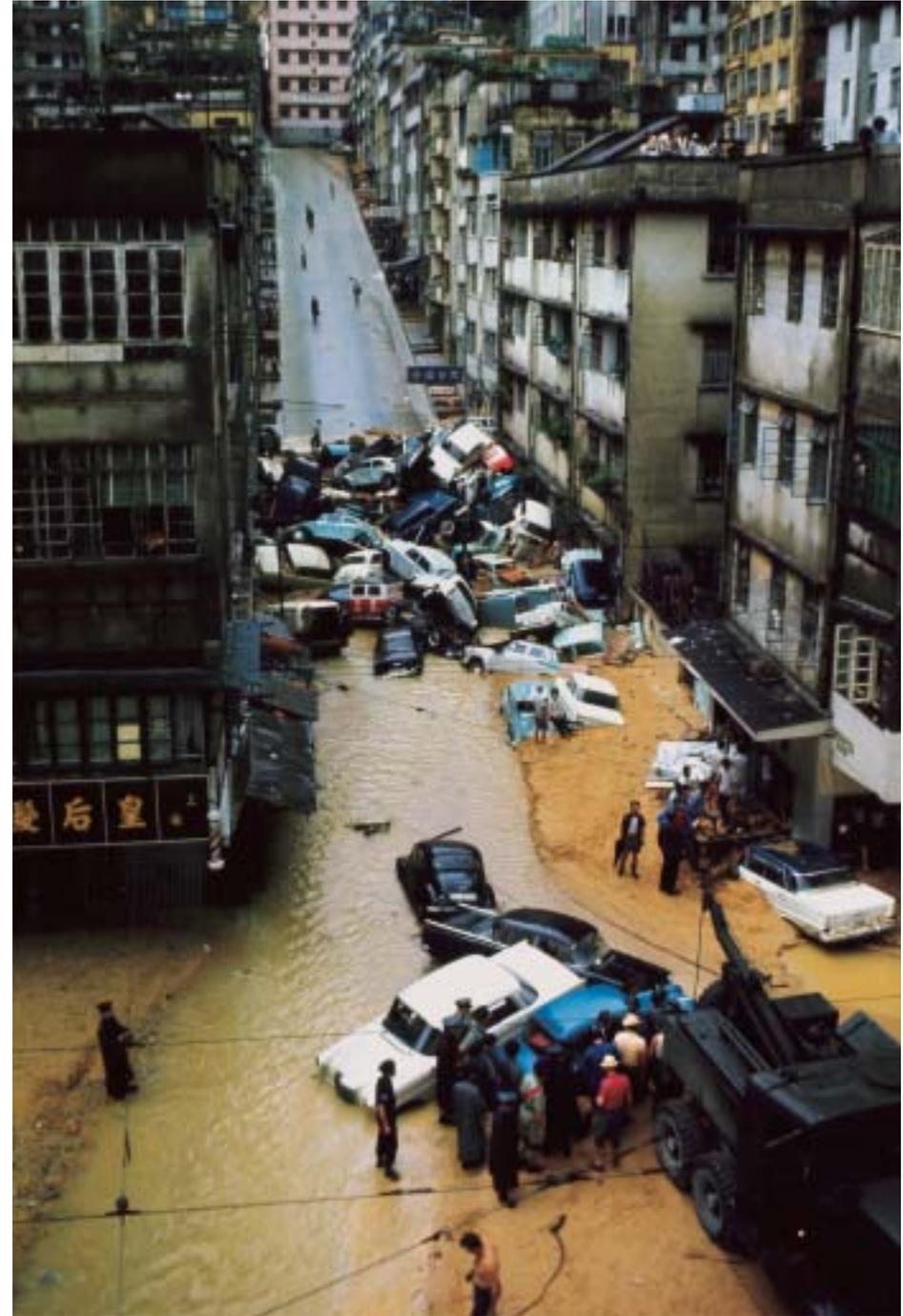


Fig. 2.50 A rare sight of motor vehicles swept down the slope in Ming Yuen Street, North Point (12 June 1966). Courtesy Hong Kong SAR Information Services Department

圖 2.50 北角明園街1966年6月12日雨災導致大量汽車翻側，堆積在斜坡中央的奇景。香港特別行政區政府新聞處檔案



Fig. 2.51 A 13-storey building on Kotewall Road was swept away by the landslide, killing 71 people (18 June 1972). Courtesy Hong Kong SAR Information Services Department

圖 2.51 旭龝道的一幢13層高的大廈在1972年6月18日的雨災中倒塌，釀成71人死亡。香港特別行政區政府新聞處檔案



Fig. 2.52 Only half of another building on Kotewall Road remained intact after being struck by the toppled building higher up the slope (18 June 1972). Courtesy Hong Kong SAR Information Services Department

圖 2.52 旭龝道另一幢大廈被斜坡上倒塌下來的大廈猛撞之後的損毀實況 (1972年6月)。香港特別行政區政府新聞處檔案

除天然的因素外，有些雨季中的意外是人為造成的，例如為應付急劇增長的人口，大量挖土、填土的工程，破壞了斜坡的穩固性，而興建在不穩固滑坡之上的房屋，都是誘發成山泥傾瀉的另一原因。1972年6月寶珊道的山泥傾瀉，以及秀茂坪的坡面災害性土崩，都是與過份輕率開發土地有關。⁶⁴ 在2002年本港面積較大的人造斜坡仍有 54,000 幅。



Fig. 2.53 Rescue workers excavating frantically at a landslide site (25 August 1976). Courtesy Hong Kong SAR Information Services Department

圖 2.53 拯救隊伍在山洪暴發後找尋生還者實況 (1976年8月25日)。香港特別行政區政府新聞處檔案

Moreover, 60% of Hong Kong's land area is made up of hill slopes. In Hong Kong, most of the high ground consists of steep hilly terrains. The wind-eroded loose materials on the slopes, after being hit by strong winds and severe rainstorms, will slide down quickly as loose rubble and soil, causing the collapse of large areas of rock surfaces.⁶³ Such a phenomenon is more significant in the colluvium belt of hilly areas where granite rocks come into contact with volcanic rocks.

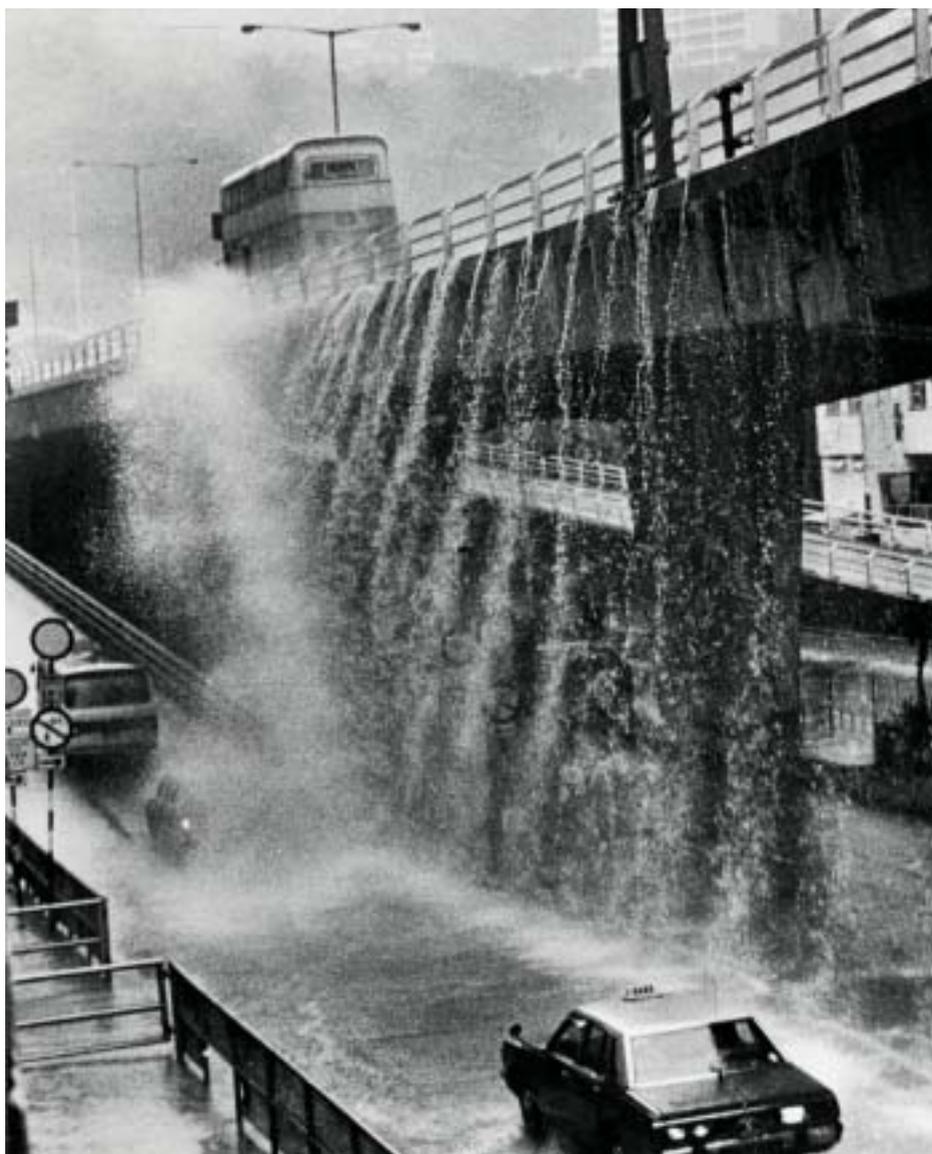


Fig. 2.54 347 mm of rainfall was recorded on 17 June 1983. One person was killed and 22 were injured during this rainstorm. Courtesy Hong Kong Museum of History

圖 2.54 1983 年 6 月 17 日本港錄得 347 毫米雨量紀錄，是次雨災導致 1 人死亡，22 人受傷。香港歷史博物館館藏



Fig. 2.55 The thunderstorms in May 1984 caused widespread flooding. This photograph shows a lane awash in the Mid-Levels on Hong Kong Island. Courtesy Hong Kong SAR Information Services Department

圖 2.55 1984 年 5 月的暴雨造成廣泛地區水浸，圖為港島半山區水浸一景。香港特別行政區政府新聞處檔案

1980 年代在政府及市民多方面預防下，暴雨的威脅性大大減少：1998 年 6 月 9 日至 12 日，本港暴雨持續不止；1998 年 6 月 9 日單日降雨紀錄就有 411 毫米，是 1884 至 2002 年以來第三多雨的一天，但是次雨災只有一名因英勇救人而犧牲的市民，並沒有造成太大的損失。1990 年代後期，雨災對城市最大的影響，只限於因排水系統淤塞而造成的水浸，其中以九龍半島的旺角及新界北區最為嚴重。

嚴寒

香港全年的平均溫度為攝氏 23 度，月平均氣溫介乎攝氏 15.8 至 28.8 度。但一些突如其來的嚴寒日子，卻足以造成人命損失。根據天文台的紀錄，自 1884 至 2002 年，香港最寒冷的日子的氣溫為攝氏 0 度（參閱表 2.12）。

Apart from natural factors, some of the accidents during the rainy seasons are due to man-made factors, which destabilise the hill slopes. Examples are the large-scale soil excavation and land reclamation works carried out to cope with the rapidly expanding population. Buildings constructed on unstable slopes also induce landslips. The landslides which occurred in different places in June 1972, including Po Shan Road, and the large-scale collapse of slope surfaces in Sau Mau Ping were caused by excessive and reckless land development.⁶⁴ In 2002, Hong Kong still has 54,000 sizeable man-made slopes.

In the 1980s, due to the multiple preventive measures undertaken by the government and the public, the threat of landslides arising from rainstorms was greatly reduced. In 1998, there was prolonged heavy rain between 9 and 12 June. The torrential rain on 9 June resulted in 411 mm of rainfall, the third highest daily rainfall between 1884 and 2002. There was no major damage caused by this rainstorm; only one brave citizen was killed while trying to save another person. In the late 1990s, the most adverse influence caused by heavy rain was flooding due to blocking of drainage systems. Flooding was particularly serious in Mong Kok, Kowloon, and in the northern part of the New Territories.

Very Cold Weather

The annual mean temperature of Hong Kong is around 23°C and the monthly mean temperatures range from 15.8 to 28.8°C. However, some sudden cold spells can cause loss of life. According to the Observatory, from 1884 to 2002, the lowest temperature ever recorded was 0°C (see Table 2.12).

Table 2.12 Lowest Minimum Temperatures (1884–2002)

Order	Date	Temperature (°C)
1	18 Jan 1893	0.0
2	17 Jan 1893	0.3
3	16 Jan 1893	0.8
4	15 Jan 1893	2.2
5	11 Feb 1957	2.4
6	19 Jan 1893	3.1
6	9 Jan 1900	3.1
6	11 Jan 1955	3.1
7	5 Feb 1901	3.6
8	9 Jan 1917	3.8
8	26 Jan 1948	3.8
8	10 Feb 1957	3.8
8	9 Feb 1972	3.8

Source:
Hong Kong Observatory meteorological records.

表 2.12 香港歷年最低氣溫紀錄統計 (1884–2002 年)

序列	日期	氣溫 (攝氏度)
1	1893 年 1 月 18 日	0.0
2	1893 年 1 月 17 日	0.3
3	1893 年 1 月 16 日	0.8
4	1893 年 1 月 15 日	2.2
5	1957 年 2 月 11 日	2.4
6	1893 年 1 月 19 日	3.1
6	1900 年 1 月 9 日	3.1
6	1955 年 1 月 11 日	3.1
7	1901 年 2 月 5 日	3.6
8	1917 年 1 月 9 日	3.8
8	1948 年 1 月 26 日	3.8
8	1957 年 2 月 10 日	3.8
8	1972 年 2 月 9 日	3.8

資料來源：
香港天文台氣象紀錄。

綜合報章記載有關寒冷氣候所帶來的災害，則發現因天氣寒冷所造成的傷亡紀錄，遠不及風災和雨災。而寒冷氣候導致人命傷亡的情況，如雨災一樣，多發生在連續數天氣溫寒冷的時間（參閱表 2.13）。

表 2.13 香港歷年寒冷氣候傷亡紀錄統計 (1884–2002 年)

序列	日期	最低氣溫 (攝氏度)	死亡人數	受傷人數
1	1996 年 2 月 24 日	8.1	19	1
2	1999 年 12 月 21 日	8.3	14	—
3	1996 年 2 月 25 日	10.7	12	—
4	1996 年 2 月 23 日	8.5	11	2
4	1999 年 12 月 19 日	12.3	11	1
5	1996 年 2 月 22 日	7.1	10	—
6	1957 年 2 月 11 日	2.4	7	—
6	2001 年 12 月 23 日	11.3	7	—
7	1999 年 12 月 22 日	6.7	6	1
8	1975 年 12 月 16 日	4.8	5	—
8	1999 年 12 月 20 日	10.4	5	1
9	2001 年 12 月 22 日	8.9	4	—

資料來源：
《大公報》，《明報》，《星島日報》，《華僑日報》等，於相關日期的報導。
香港天文台氣象紀錄。

According to figures from newspapers, the casualties caused by cold weather are far less than those caused by typhoons and heavy rainstorms. Deaths due to very cold weather, as in the case of rainstorms, usually occur when a cold spell lasts for a few days (see Table 2.13).

Table 2.13 Human Casualties Caused by Very Cold Weather (1884–2002)

Order	Date	Temperature (°C)	Number of Deaths	Number of Injuries
1	24 Feb 1996	8.1	19	1
2	21 Dec 1999	8.3	14	–
3	25 Feb 1996	10.7	12	–
4	23 Feb 1996	8.5	11	2
4	19 Dec 1999	12.3	11	1
5	22 Feb 1996	7.1	10	–
6	11 Feb 1957	2.4	7	–
6	23 Dec 2001	11.3	7	–
7	22 Dec 1999	6.7	6	1
8	16 Dec 1975	4.8	5	–
8	20 Dec 1999	10.4	5	1
9	22 Dec 2001	8.9	4	–

Sources:

Hong Kong Observatory meteorological records.

Reports on the day of the incidents in *Ming Pao*, *Sing Tao Daily*, *Ta Kung Pao*, *Wah Kiu Yat Po*, etc.

Fifty-two people died and three were injured during the four cold days between 22 and 25 February 1996. In fact, the temperatures during this cold spell were around 8°C which were much higher than the coldest record of 0°C. Another period of very cold weather that caused considerable deaths occurred on 19 to 22 December 1999, with a death toll of 36 and three injured persons. On 22 to 23 December 2001, 11 people were killed by a cold spell. It is quite surprising that deaths caused by cold weather were still happening even in the late twentieth century. According to newspapers, most of the victims of the cold spells in 1996, 1999 and 2001 (all in the month of December) were elderly people and babies. The elderly have weaker immune systems and the cold weather often induces fatal respiratory problems. This phenomenon reflects the ageing Hong Kong population, with increasing numbers of old people living alone, or receiving insufficient care. In 1996, Hong Kong had 30,000 old people living alone in about 100 housing estates. The responsibility of caring the elderly is gradually shifting from society to the government. The traditional idea of raising children as insurance for a comfortable retirement has gradually faded out due to the ascendance of individualism and the emphasis placed on the nuclear family.

1996年2月22日至2月25日一段共四天的短暫寒冬，共造成52人死亡，3人受傷，其實該段日子的氣溫也有攝氏8度，與1884年以來最冷日子攝氏0度，相距尚遠。另一段因寒冷氣溫而冷斃人數較多的日子為1999年的12月19日至22日，共有36人凍死，3人受傷。而2001年12月22日至23日的寒冷氣溫，亦造成11人冷斃的情況。讓人感到驚奇的是寒冷氣溫導致意外死亡的日子，卻都發生在二十世紀末期，如1996年的12月，1999年的12月及2001年的12月，根據報章記載，這三段日子因氣候寒冷而冷斃的受害者，大都為老年人及嬰兒。老邁者抵抗力弱，每因氣候寒冷，誘發身體內呼吸系統的毛病而斃命。這現象反映了人口老化，獨居老人增加，年老者缺乏照顧的情況日益嚴重：1996年本港有三萬名獨居老人居於一百多個屋村，而社會更日漸將照顧老人的責任推移至政府身上；以往養兒防老的觀念，在個人主義提升及核心家庭佔主導的情況下，逐漸被淘汰。

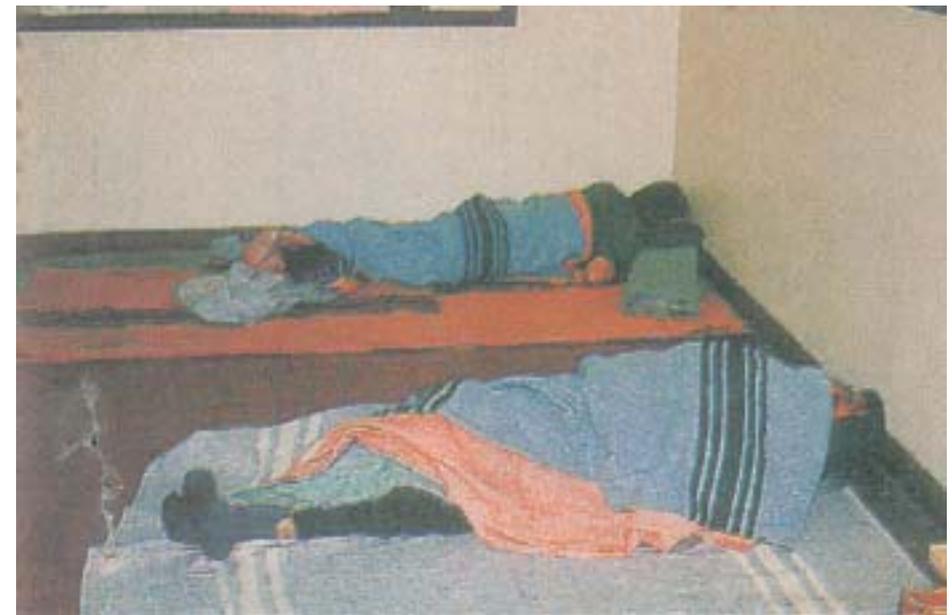


Fig. 2.56 The lowest temperature on 23 February 1996 was 8.5°C and it caused 11 deaths and two injuries. Courtesy Ta Kung Pao

圖 2.56 1996年2月23日的最低氣溫只有攝氏8.5度，是日有11人凍死，2人受傷。大公報

Very cold weather does not only pose a considerable threat to infants and old people with weaker immune systems, it can also cause significant economic losses. Damage to vegetables, flowers and fruits and deaths of poultry and fish are very common under cold weather conditions. As a result, supplies decrease and prices soar due to increased costs. Price increases were more pronounced in the 1950s and 1960s when the prices nearly doubled.⁶⁵ From the 1980s onwards, the price fluctuations of agricultural products were greatly reduced as most of the products including vegetables and meat were imported from mainland China and supplies from local farmers only met a small portion of the total requirements. In the 1990s, vegetable price rises due to very cold weather were limited to 40% on average.⁶⁶

Very Hot Weather

Although summer is the longest season in Hong Kong, with a mean temperature exceeding 25°C for the months of May to October, the hot weather does not inflict as much damage on society as that caused by typhoons, rainstorms or very cold weather. Table 2.14 lists the dates with a maximum temperature above 35°C in 1884 to 2002, as recorded by the Hong Kong Observatory.

Table 2.14 Hottest Days on Record (1884–2002)

Order	Date	Temperature (°C)
1	19 Aug 1900	36.1
1	18 Aug 1990	36.1
2	25 Jul 1968	35.7
3	1 Jun 1963	35.6
4	31 Aug 1962	35.5
4	31 May 1963	35.5
5	22 Aug 1960	35.4
6	18 Aug 1900	35.3
7	26 May 1976	35.2
8	30 May 1963	35.1
8	21 Aug 1999	35.1

Source:
Hong Kong Observatory meteorological records.

For the period 1884 to 2002, there were 11 days with a maximum temperature exceeding 35°C. According to newspapers, casualties due to very hot weather were few and most victims suffered heat strokes when participating in outdoor activities under very hot conditions.⁶⁷ However, from the 1990s

嚴寒的氣溫，不但對抵抗力較弱的老年人或小孩有一定的威脅性，亦造成不少的經濟損失。受天氣的影響，蔬菜、花果、禽畜和魚類等凍壞、凍死的現象相當普遍；漁農作物備受破壞，供應減少，成本上漲，導致價格暴升，而升幅又以1950年代及1960年代較大，漲幅竟高達一倍。⁶⁵ 1980年代以後，大部份的農產品包括蔬菜、肉類多由中國大陸進口，而本地農民的供應量只佔日常必需食品一個較小的比率，故食品價格直接受本地天氣影響而上升者亦隨之減少，1990年代末，蔬菜因寒冷氣溫導致的升幅平均有四成。⁶⁶

酷熱

雖然香港全年的氣候以夏季較長，5月至10月的平均氣溫均高於攝氏25度，但炎熱氣候對社會所造成的破壞，相對風災雨災或寒冷氣候為低。根據天文台紀錄，1884至2002年單日最高氣溫為攝氏35度或超過35度者的紀錄如下表2.14。

表 2.14 香港歷年最高氣溫紀錄 (1884–2002 年)

序列	日期	氣溫 (攝氏度)
1	1900年8月19日	36.1
1	1990年8月18日	36.1
2	1968年7月25日	35.7
3	1963年6月1日	35.6
4	1962年8月31日	35.5
4	1963年5月31日	35.5
5	1960年8月22日	35.4
6	1900年8月18日	35.3
7	1976年5月26日	35.2
8	1963年5月30日	35.1
8	1999年8月21日	35.1

資料來源：
香港天文台氣象紀錄。

1884至2002年間，氣溫達攝氏35度以上的日子共有11天。根據報章資料，由於天氣酷熱而傷亡的例子不多，主要是在酷熱氣溫下仍進行戶外活動者中暑的個案。⁶⁷ 但1990年代以後，因氣候炎熱而導致呼吸系統有毛病的患者病發的個案卻日漸上升⁶⁸——患有氣管敏感及哮喘病的病者不但人數愈來愈多，每逢氣候酷熱，感染流感或呼吸氣道疾病者亦相當普遍。城市因都市化產生的空氣污染問題，在天氣惡劣的情況下也愈趨嚴重。

onwards, increasing numbers of people have suffered from respiratory problems induced by the hot weather conditions.⁶⁸ More and more people have bronchial allergies and asthma. When the weather is very hot, it is also common to find people contracting influenza or respiratory tract diseases. Air pollution problems caused by urbanisation are aggravated by adverse weather conditions.



Fig. 2.57 18 August 1990 was one of the hottest days on record, with the highest temperature reaching 36.1°C. The temperature remained at 35°C at 6 PM. Courtesy Ta Kung Pao

圖 2.57 1990年8月18日為全港最炎熱的其中一天，是日最高氣溫為攝氏36.1度，圖中所見黃昏6時氣溫仍高達35度攝氏。大公報

乾燥與乾旱

香港是一個相當潮濕的地區，據1884至1939年間的統計，月均相對濕度徘徊於51%至92%之間，最乾燥的月份為1918年1月的51%。1947至2002年間，本港月平均相對濕度介乎45%至91%之間，其中又以1963年1月的45%最為乾燥。雖然乾旱的日子並不多見，但歷年來單日相對濕度低於或相等於18%的日子（參見表2.15）有13天。

表 2.15 香港歷年最乾燥紀錄 (1884 至 2002 年)

序列	日期	相對濕度 (%)
1	1973年12月31日	14
2	1965年12月12日	15
3	1971年1月9日	16
3	1973年12月30日	16
3	1977年3月4日	16
4	1971年11月17日	17
4	1975年2月21日	17
4	1995年11月24日	17
5	1969年12月10日	18
5	1971年1月4日	18
5	1973年12月27日	18
5	1976年1月11日	18
5	1981年1月13日	18

資料來源：
香港天文台氣象紀錄。

根據報章資料，在上表天氣特別乾燥的日子，造成人命傷亡的情況並不算嚴重，只有1名女童在1967年1月15日的火災中喪生，⁶⁹ 因火災而受傷的人數則有9人，失蹤者1名。⁷⁰ 由於氣候乾燥導致的山火，影響卻頗巨，1973年12月31日，在14%的相對濕度下，清水灣發生大火，40多間木屋被焚毀。在肇事的前一週，大欖植林區、八鄉的植林區的山火，共焚毀樹木70多萬株，大火波及土地面積達700多英畝，⁷¹ 是有史以來最嚴重的山火。1992年11月10日，相對濕度只有19度，這一天內共發生了68宗山火，大埔新娘潭、西貢及馬鞍山的郊野，共有數千平方米的面積被山火焚毀。⁷² 1976年1月11日相對濕度只有18%，當日就發生了18宗山火，共有400英畝土地受破壞，燒毀的樹木共10萬株。⁷³

Dry Weather and Droughts

The climate of Hong Kong is rather wet. The monthly mean relative humidity ranged between 51% and 92% in the 1884 to 1939 period. The driest month was in January 1918 with a mean relative humidity of 51%. From 1947 to 2002, the monthly mean relative humidity was between 45% and 91%. The driest month was in January 1963 with a mean relative humidity of 45%. Although days with very low relative humidity are uncommon in Hong Kong, there were still 13 days with relative humidity lower than or equal to 18% (see Table 2.15).

Table 2.15 Days with Lowest Relative Humidity (1884–2002)

Order	Date	Relative Humidity (%)
1	31 Dec 1973	14
2	12 Dec 1965	15
3	9 Jan 1971	16
3	30 Dec 1973	16
3	4 Mar 1977	16
4	17 Nov 1971	17
4	21 Feb 1975	17
4	24 Nov 1995	17
5	10 Dec 1969	18
5	4 Jan 1971	18
5	27 Dec 1973	18
5	11 Jan 1976	18
5	13 Jan 1981	18

Source:
Hong Kong Observatory meteorological records.

Based on information gleaned from newspapers, there were not many casualties caused by the very dry days listed in Table 2.15. Only one girl was killed in a fire that broke out on 15 January 1967;⁶⁹ another nine people were injured by fires and one person was reported missing.⁷⁰ However, hill fires caused by dry weather can have serious consequences. On 31 December 1973, with a relative humidity reading of 14%, a fire broke out in Clear Water Bay and over 40 wooden huts were destroyed. A week before that disaster, a hill fire destroyed 700,000 trees in the Tai Lam and Pat Heung afforestation regions and affected more than 700 acres of land.⁷¹ This was the biggest hill fire ever recorded in Hong Kong. On 10 November 1992, the relative humidity was only 19%, and there were 68 reports of hill fires. Affected areas included Bride's Pool in Tai Po and the countryside of Sai Kung and Ma On Shan. Altogether over several thousand square metres of



Fig. 2.58 Fire hazard indicator showing extremely dry conditions (17 July 1972). Courtesy Hong Kong SAR Information Services Department

圖 2.58 火災危險警告信號在乾燥的天氣下發出 (1972 年 7 月 17 日)。香港特別行政區政府新聞處檔案

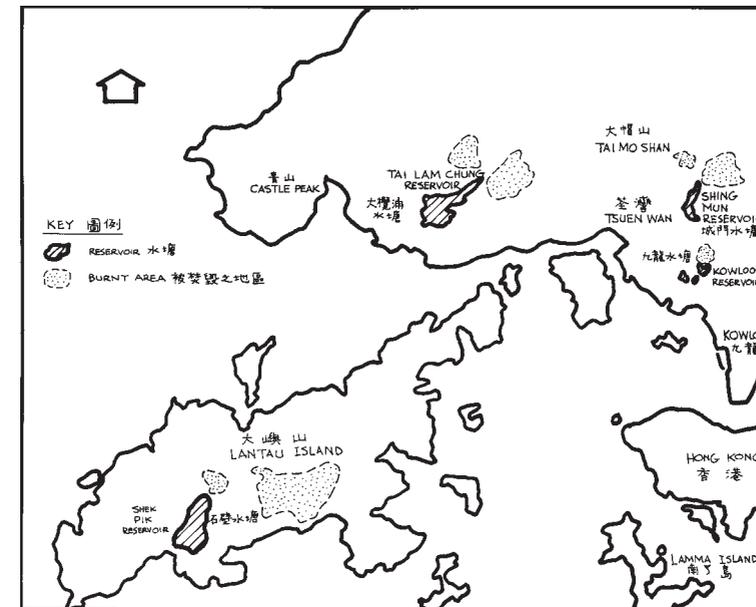


Fig. 2.59 Map showing distribution of hill fire sites on Lantau Island and in the New Territories (December 1973). Courtesy Hong Kong SAR Information Services Department

圖 2.59 新界及大嶼山受山火焚毀地區分佈圖 (1973 年 12 月)。香港特別行政區政府新聞處檔案

land was scorched.⁷² On 11 January 1976, the Observatory recorded a relative humidity of 18%, and on that day 18 hill fires broke out, damaging 400 acres of land and burning down 100,000 trees.⁷³



Fig. 2.60 A Royal Air Force Wessex helicopter dropping some 1,400 litres of water on a fire in the Kowloon Hill area (October 1979). Courtesy Hong Kong SAR Information Services Department

圖 2.60 皇家空軍利用直升機灌救九龍山山火實況。圖中的水桶每次約可載水 1400 公升 (1979 年 10 月)。香港特別行政區政府新聞處檔案

Apart from hill fires during the dry season, the lives of the lower classes can also be endangered. From the 1950s to 1970s, when Hong Kong's population was expanding rapidly and when industries started to take off, people living in wooden huts and factories storing inflammable materials were exposed to high fire risks. It is difficult to estimate the number of people who lost their homes because of fires. To determine whether there is a direct correlation between the outbreak of fires and very dry weather, Table 2.16 lists the fires with the largest number of casualties and the weather conditions at the time of the outbreaks.

除山火外，在氣候乾燥的季節，生活最受威脅的是低下階層的老百姓。1950年代至1970年代，當人口激增及工業剛剛起飛，居住在木屋區的居民及儲有易燃物品的工廠大廈屬高危一族，因火災而無家可歸的災民數目難以統計。到底乾燥氣候與火災是否有直接的關係？以下有關香港有史以來人命傷亡最嚴重的火災及當日天氣情況的紀錄（參閱表 2.16）的資料或可提供一些線索。

表 2.16 香港歷來最嚴重火災發生地點與當日氣候紀錄 (1851 至 2002 年)

日期	火災發生地點	相對濕度 (%)	最高氣溫 (攝氏度)	死亡人數	受傷人數
1918 年 2 月 26 日	賽馬場	89	22	600	—
1947 年 2 月 4 日	西安號輪船	72	18	200	—
1948 年 9 月 22 日	西環永安公司倉庫	95	27	139	—
1996 年 11 月 20 日	佐敦嘉利大廈	57	23	40	80
1971 年 10 月 30 日	珍寶海鮮舫	62	25	34	10
1992 年 2 月 3 日	石崗船民中心	90	21	22	—
1929 年 3 月 11 日	英皇酒店	66	22	死傷 30 餘人	
1851 年 12 月 28 日	香港島	89	—	死傷 20 餘人	
1997 年 1 月 25 日	尖沙咀寶勒巷新一代卡拉 OK 店	71	13	15	—
1972 年 5 月 11 日	西區石塘咀兩幢舊樓	94	29	12	—
1981 年 1 月 20 日	北角七姊妹道一幢工業大廈	70	18	11	—

資料來源：
《大公報》，《明報》，《星島日報》，《華僑日報》等，於相關日期的報導。
李宏，《香港大事記》，北京，人民日報出版社，1988 年。
香港天文台氣象紀錄。
陳昕、郭志坤，《香港全紀錄》，香港，中華書局，1997 年。

從上表可見，因火災而發生嚴重人命傷亡的意外，鮮與乾燥的氣候有直接關係，而歷史上能與乾燥氣候扣上關連的嚴重火災，就只有 1961 年 1 月 16 日於紅磡山谷道的火災。是次火災有 6 人被燒死，11 人受傷，1,200 多間木屋被焚毀，災民人數多達 11,000 多人，而當日的氣溫為攝氏 17 度，相對濕度只有 28%。⁷⁴ 綜合而言，一些造成嚴重損毀的火災，多屬人為疏忽的意外事件。

火災的發生既然受人為因素影響較大，因此人口較密集、居住環境較差的木屋區及工廠區，在 1950 年代至 1970 年代間，發生火災的比率較高。1980 年代以後，同類的意外逐漸減少，1990 年發生的幾宗嚴重火災，問題主要出現在舊式大廈的防火設施陳舊，走火通道設計未能符合消防條例，一遇事故便造成嚴重的人命傷亡。

Table 2.16 Most Serious Fires in Hong Kong and the Prevailing Weather Conditions (1851–2002)

Date	Place	Relative Humidity (%)	Highest Temperature (°C)	Number of Deaths	Number of Injuries
26 Feb 1918	Racecourse	89	22	600	–
4 Feb 1947	Vessel <i>Siam</i>	72	18	200	–
22 Sep 1948	The godown of Wing On Company in Western District	95	27	139	–
20 Nov 1996	Garley Building in Jordan	57	23	40	80
30 Oct 1971	Jumbo Seafood Restaurant	62	25	34	10
3 Feb 1992	Shek Kong Detention Centre	90	21	22	–
11 Mar 1929	King's Hotel	66	22	about 30	
28 Dec 1851	Hong Kong Island	89	–	about 20	
25 Jan 1997	Top One Karaoke on Prat Avenue, Tsim Sha Tsui	71	13	15	–
11 May 1972	Two old buildings in Shek Tong Tsui, Western District	94	29	12	–
20 Jan 1981	An industrial building on Tsat Tsz Mui Road, North Point	70	18	11	–

Sources:

Chen, Xin and Guo, Zhikuan, *Xianggang quan jilu* (The Full Records of Hong Kong), Hong Kong, Zhonghua shuju, 1997.

Hong Kong Observatory meteorological records.

Li, Hong, *Xianggang dashiji* (Records of Major Events of Hong Kong), Beijing, *Remin ribao* (People's Daily), 1988. Reports on the day of the incidents in *Ming Pao*, *Sing Tao Daily*, *Ta Kung Pao*, *Wah Kiu Yat Po*, etc.

From Table 2.16, it can be seen that fires that cause severe human casualties bear very little relation to dry weather conditions. Throughout Hong Kong's history, the only fire that was linked to dry weather conditions was the one that broke out on 16 January 1961 on Valley Road, Hung Hom. Six people were burnt to death, 11 were injured and 1,200 wooden huts were razed to the ground. Up to 11,000 people were affected. The temperature on that day was 17°C with a relative humidity of 28%.⁷⁴ Most of the devastating fires were largely due to human negligence.

Since fire outbreaks were usually due to man-made factors, thus densely populated areas with unfavourable living conditions, such as the squatter and the factory areas, had high incidence of fires in the 1950s and 1960s. From the 1980s onwards, the incidence of similar accidents was gradually reduced. Of the few serious fires in the 1990s, the problem was largely due to ageing fire prevention facilities in the old-style buildings and fire exit design that did

雖然香港的天氣大部份時間潮濕多雨，但一些乾早的年頭，對社會亦會造成重大的破壞。由於本港境內缺乏天然淡水資源供市民飲用，為解決水的資源不足，政府於1863年開始建造人工水庫，儲存天然雨水，以應付市民日常之需。自十九世紀中期以來，香港的人口不斷增長，政府興建水庫的龐大工程，在年降雨量達到平均水平即 2,221 毫米或以上的年份，僅夠供應是年所需。但在一些天公不造美的早年，偌大的水庫，也變得大而無當。1884至2002年間，低於 1,600 毫米降雨量的比率雖只佔 7% 般低，雨水可說是相當充沛，但以 1960 年超過 300 萬的人口，倚賴存水量只有 7,006 萬立方米的水庫去供給全港市民飲用水所需而言，天早就變成了上天對市民最大的懲罰。以下有關最乾早年份的降雨量及每人日均用水量可反映當中的苦況（參閱表 2.17）。

表 2.17 香港降雨量最低十年 (1884–2002 年)

年份	全年降雨量 (毫米)	全港總人口 (百萬)	水塘總存量 (百萬立方米)	每人日均用水量 (立方米)
1963	901	3.55	25.47	0.020
1895	1,164	0.24	4.31	0.049
1954	1,367	2.40	54.02	0.062
1938	1,406	1.03	31.73	0.084
1901	1,419	0.28	5.85	0.057
1870	1,424	0.12	–	–
1865	1,431	0.13	–	–
1898	1,448	0.25	5.42	0.059
1967	1,571	3.80	100.54	0.072
1933	1,585	0.92	22.54	0.067

資料來源:

何佩然，《香港供水一百五十年歷史研究報告》，香港，政府印務局，2001年，附表 I-3，I-5，II-1，II-4，III-1，III-5。

Census and Statistics Department, *Hong Kong Statistics 1947–1967*, Hong Kong, 1961, p. 14.Hong Kong Observatory, *Monthly Total Rainfall (mm) at the Hong Kong Observatory*, Hong Kong Government, 1884–2001.Water Supplies Department, *Hong Kong's Water*, Hong Kong, Government Printer, 1996, p. 93.

根據政府紀錄（表 2.17），1884 至 2002 年香港最乾早的年份為 1963 年，全年總降雨量只有 901 毫米，較每年平均降雨量少 59%，而是年全港主要水塘的總存量為 2,547 萬立方米，以當時 355 萬的人口計算，每人每日平均只獲 0.020 立方米的食水供應，比 1990 年代的港人每人每日平均用水量的 0.409 立方米少 19.5 倍。由於久旱無雨，政府實施四天供水四小時的措施，全港的工、商業發展陷入極度困難的境況，很多耗水量較大的行業如飲食、漂染及建築等被迫停業，一切正常的社交活動，因缺乏飲食水而暫停。市民每天為食水奔波，許多人因爭食水發生衝突而受傷、為爭食水而意外死亡的例子，亦屢見不鮮。⁷⁵

not meet fire-safety regulations. Once a fire breaks out, heavy human casualties may result.

Although Hong Kong's climate is mainly humid and rainy, there were years of drought that threatened people's livelihoods and inflicted serious damage on society. To solve the problem of insufficient natural fresh water resources in Hong Kong, the government started to build reservoirs since 1863, with the objective of storing rainwater to meet the daily needs of the people. The reservoirs could only provide adequate water supplies when the rainfall for the year reaches or exceeds the average annual level of 2,221 mm. Taking in account that Hong Kong's population has continually increased since the mid-nineteenth century, even the big reservoirs were rendered inadequate during the drought years. From 1884 to 2002, rainfall was abundant throughout, with only 7% of the years in this period having annual rainfall below 1,600 mm. However in 1960, over 3,000,000 Hong Kong people had to rely on the reservoirs with a mere capacity of 70,060,000 cubic metres to meet their daily fresh water needs. Droughts became the biggest threat for the people. The driest years and the average daily water available per person as detailed in Table 2.17 vividly portray the suffering of the people in those days.

Table 2.17 Ten Years With Lowest Recorded Rainfall

Year	Annual Rainfall (mm)	Population (million)	Reservoir Capacity (million m ³)	Daily Water Consumption per Person (m ³)
1963	901	3.55	25.47	0.020
1895	1,164	0.24	4.31	0.049
1954	1,367	2.40	54.02	0.062
1938	1,406	1.03	31.73	0.084
1901	1,417	0.28	5.85	0.057
1870	1,424	0.12	–	–
1865	1,431	0.13	–	–
1898	1,449	0.25	5.42	0.059
1967	1,571	3.80	100.54	0.072
1933	1,584	0.92	22.54	0.067

Sources:

Census and Statistics Department, *Hong Kong Statistics 1947–1967*, Hong Kong, 1961, p. 14.

Ho Pui Yin, *Hong Kong 150-year Water Supply Research Report*, Hong Kong Government Printer, 2001, Table I–3, I–5, II–1, II–4, III–1, III–5.

Hong Kong Observatory, *Monthly Total Rainfall (mm) at the Hong Kong Observatory*, Hong Kong Government, 1884–2001, Hong Kong Observatory.

Water Supplies Department, *Hong Kong's Water*, Hong Kong, Government Printer, 1996, p. 93.

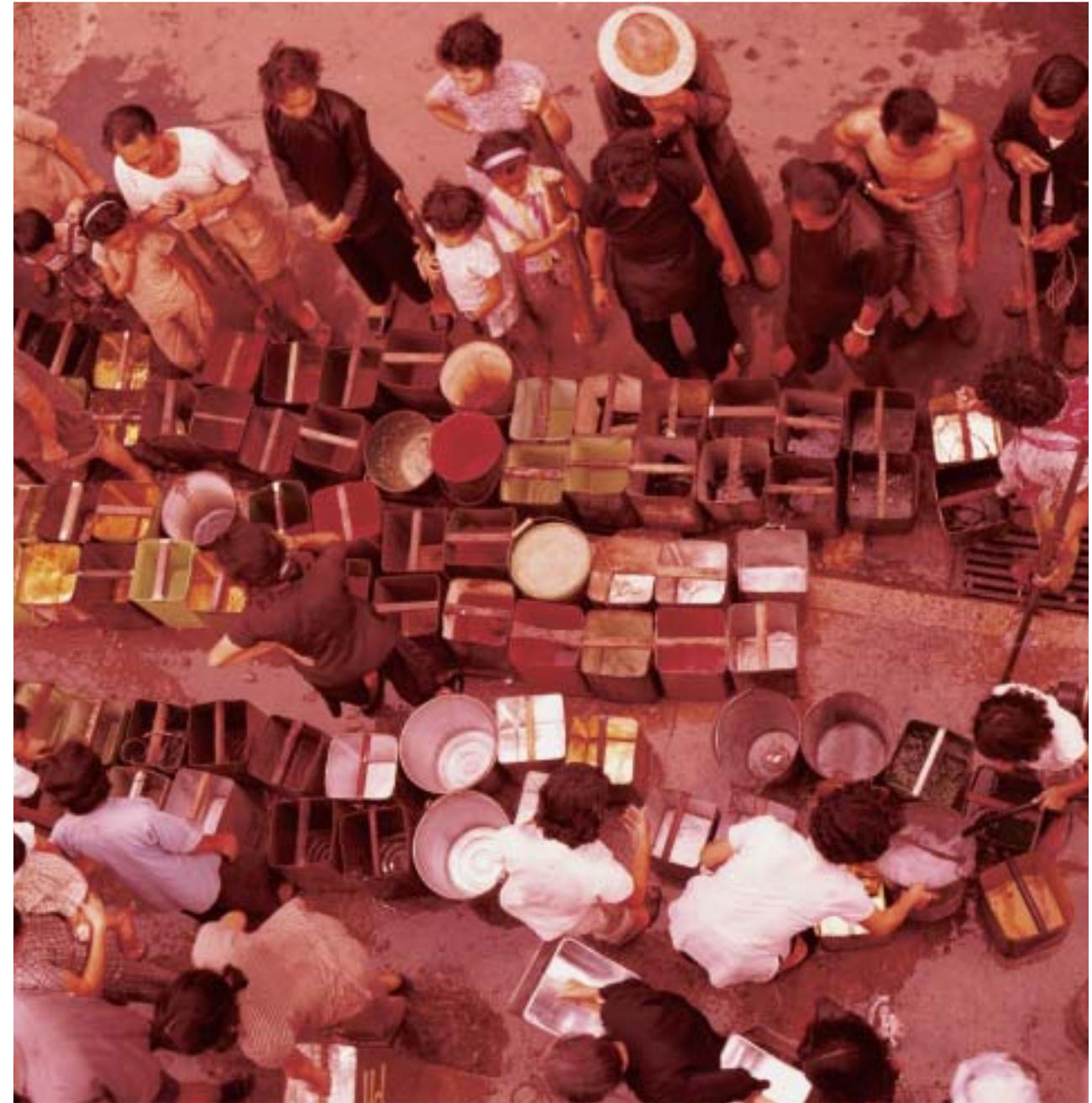


Fig. 2.61 1963 was the driest year on record and water supply was restricted to four hours every four days. This photograph shows the long queue for fresh water. Courtesy Hong Kong SAR Information Services Department

圖 2.61 1963 年為香港有史以來最乾旱的年份，政府為節省食水，實施 4 日 4 小時供水。圖為居民排隊輪候食水苦況。香港特別行政區政府新聞處檔案

According to government records (Table 2.17), 1963 was the driest year in Hong Kong for the period of 1884 to 2002. In that year, the total rainfall was only 901 mm, 59% less than the normal annual precipitation. The reservoirs only had a capacity of 25,470,000 cubic metres of water. With a population of 3,550,000, each person only received a daily supply of 0.020 cubic metres on average. This compared to the average daily water consumption per person figure of 0.409 cubic metres in the 1990s — a difference of 20.5 times. Owing to the persistent drought, the government had to restrict water supply to four hours every four days. The development of industry and commerce in Hong Kong was mired in an extremely difficult situation. Many businesses that required substantial water consumption, such as restaurants and catering, dyeing and construction, were forced to close down. All normal social activities were temporarily suspended due to drinking water shortages. Every day, people had to desperately look for drinking water and many people suffered injuries as a result of fights over it. Accidental deaths in brawls over fresh water were also rather common.⁷⁵

Conclusion

Throughout history, the development of Hong Kong society has resembled a series of responses to the never-ending list of natural disasters, with typhoons, rainstorms and droughts being the most destructive. The disasters brought on by the ferocious typhoons of 1874, 1906, 1937 and 1962, by the rainstorms of 1972, and by the droughts of 1895 and 1963, not only took many lives but also brought incalculable economic losses.

Successive years of natural disasters have affected the lower classes the hardest. In the late nineteenth and early twentieth centuries, many of the victims were itinerant fishermen. Between the 1950s and 1970s, people living in cottage areas were the main sufferers. After the mid-1970s, when Hong Kong's economic conditions improved and the Hong Kong government's capacity to prevent disasters increased, people's lives became more stable. In response to such natural catastrophes, Hong Kong society has evolved from passively accepting them as punishments from Heaven to positively understanding the characteristics and patterns of nature and taking preventive measures. This symbolises the scientific and technological advances made in a modern society, of which the Hong Kong Observatory has played an indispensable role. The next chapter will discuss the establishment of the Observatory and its functions.

小結

自古以來，香港社會的發展就好像是面對不斷入侵的自然災害的回應。歷來破壞力最強的天災以風災、雨災、旱災為主：1874、1906、1937、1962年的風災，1972年的雨災，1895、1963年的旱災，不但奪去無數居民的寶貴性命，對社會所造成的經濟損失更是無法估計。

連年天災，對低下階層的打擊尤深。在十九世紀下半期、二十世紀初期，天災的犧牲者多為居無定所的漁民。1950年代至1970年代，受打擊最大者則為居住在木屋區的貧苦大眾。到了1970年代中期以後，當香港經濟的條件有較大改善，政府預防天災的能力提升，人民的生活才趨向穩定。面對天災的挑戰，香港社會從無奈地接受上天的懲罰，到掌握大自然的特性與規律而積極防禦，這道路是相當漫長的，同時也象徵著現代社會科學技術的進步。當中天文台擔當了相當吃重的角色，以下有關天文台的創立與功能，也許能給予我們一些啟示。