

## **A recent rainstorm in May 2017**

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Rainstorms are common in Hong Kong in spring and summer. They are usually accompanied by thunderstorms and severe squalls. While rainstorms may bring floods and landslips, resulting in severe traffic disruption over land, the inclement weather associated with rainstorms may also affect the shipping community significantly. Occasionally, a squall line, which is a band of severe thunderstorms or storm cells embedded in the rainstorms, may be fast-moving and destructive, with sudden changes in the wind direction and an abrupt increase in wind speed. Such a phenomenon is commonly known as ‘Shi Hu Feng’ in southern China, particularly in the Pearl River Estuary. The following paragraphs describe the weather changes over the Hong Kong waters during a recent rainstorm.

A trough of low pressure formed over the northern part of south China on 23 May. It gradually moved south and reached the coastal areas of Guangdong on 24 May 2017 (Figure 1), bringing heavy showers and squally thunderstorms to Hong Kong that day and necessitating the issuance of the first Black Rainstorm Warning in the year. Over 300 millimetres of rainfall were recorded in parts of the territory (Figure 2), resulting in serious flooding over many places.

Radar imagery showed that scattered areas of rain began to affect Hong Kong around daybreak before the arrival of the trough. The rain gradually intensified and spread across the territory during the morning (Figure 3) as the trough moved across Hong Kong.

Over the Hong Kong waters, the rainstorm resulted in a significant variation in visibility, dropping below 3000 m most of the time during the rainstorm and reaching a minimum of about 500 m (Figure 4). The wind was gusty, with instantaneous wind speed reaching near-gale force in some places (Figures 5 - 6). Wind direction also changed rapidly during the passage of the rainbands.

In the past, severe gusts up to hurricane force have been experienced during the passage of squalls. One such case occurred in May 2005 with severe gusts reaching 135 km/h (73 knots) at Kwai Chung during the passage of a trough of low pressure, causing the collapse of some stacked containers in the container terminals in Kwai Chung and Tsing Yi. One person was killed and two others injured. A waterspout was also observed the following day off the coast of Chai Wan as the rainy and thundery conditions continued. As such, operations that are weather sensitive, such as container terminals and people working on small vessels, should take precautions against the threats posed by rainstorms and related

hazards,.

日期/Date: 24.05.2017 香港時間/HK Time: 08:00 香港天文台 Hong Kong Observatory

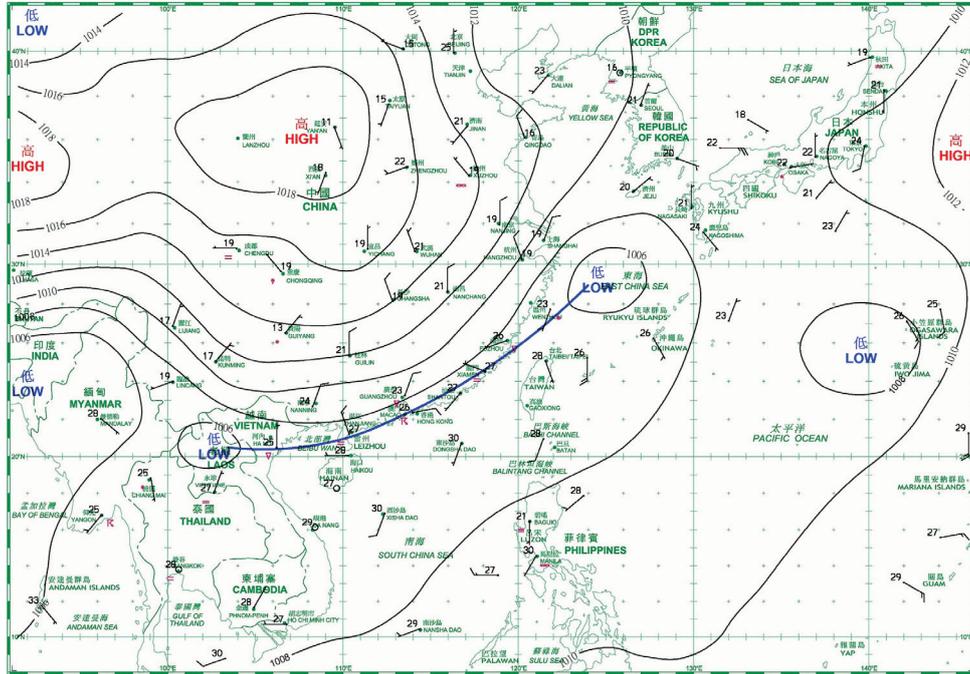


Figure 1. Surface weather map at 8 a.m. on 24 May 2017.

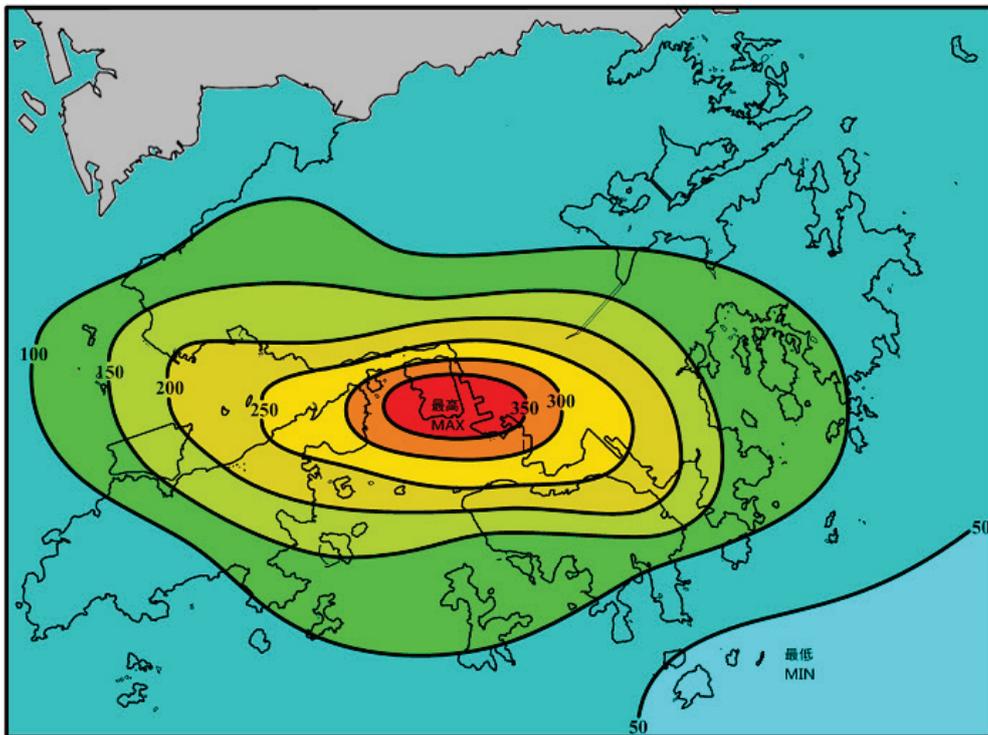


Figure 2. Rainfall distribution map over Hong Kong for 24 May 2017 (isohyets in millimetres)

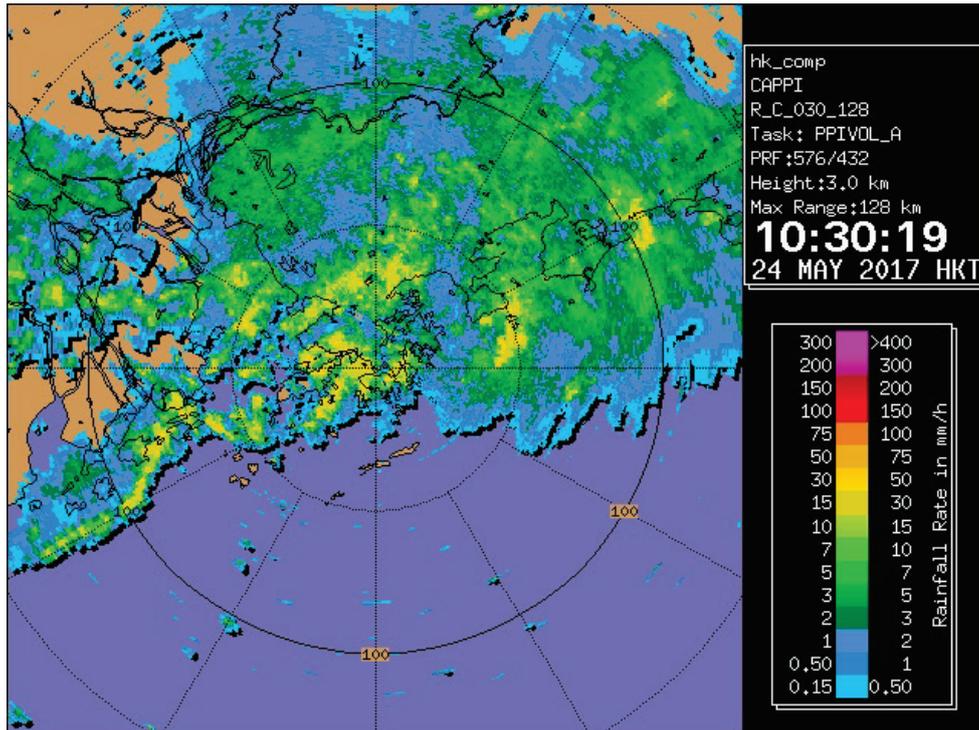


Figure 3. Radar imagery on the morning of 24 May 2017.

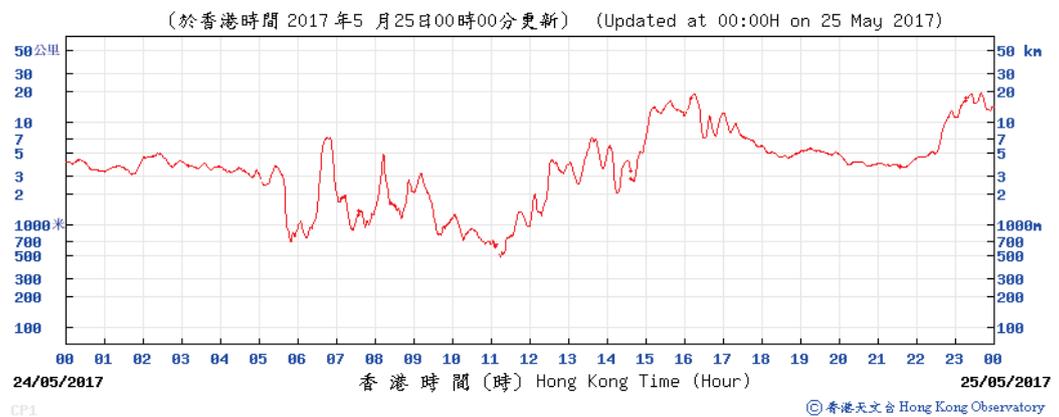
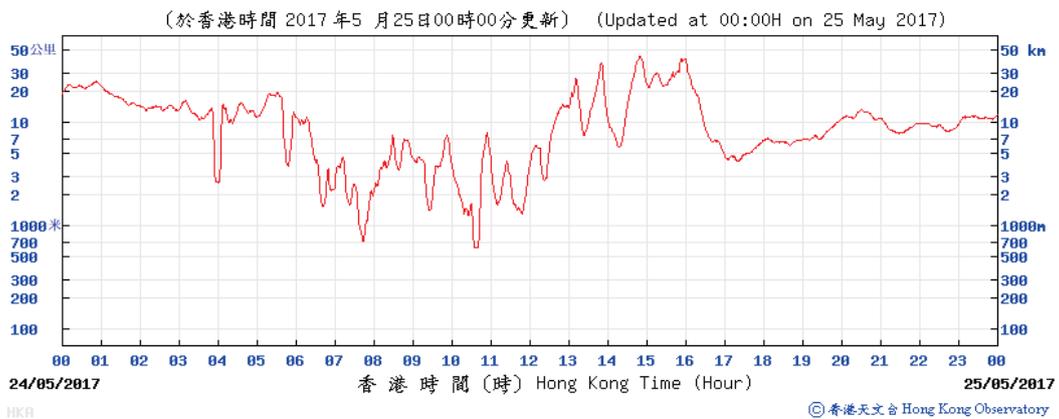


Figure 4. Visibility changes at the Hong Kong International Airport at Chek Lap Kok (top) and Central Pier (bottom).

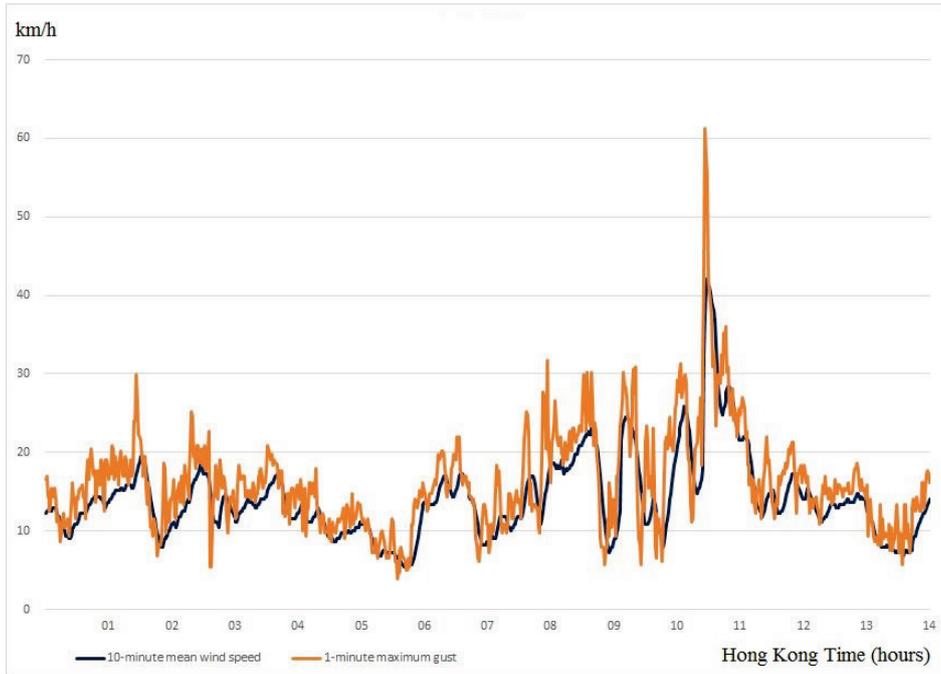


Figure 5. Time series of mean wind speeds and maximum gusts at the Hong Kong International Airport at Chek Lap Kok on 24 May 2017. The maximum gust recorded was 61 km/h (33 knots).



Figure 6. Maximum gusts recorded at various locations in Hong Kong at 10:30 a.m. on 24 May 2017. (▽ : Station higher than 500 metres above mean sea level).