

An exceptionally cloudy and wet October

With more than usual moisture in the lower atmosphere over southern China, October 2023 was much cloudier than usual in Hong Kong. The mean amount of cloud in the month was 79 per cent, 21 per cent above the normal of 58 per cent and the second highest on record for October. The duration of bright sunshine in the month was only 138.9 hours, about 30 per cent lower than the normal figure of 197.8 hours and the fourth lowest on record for October. Mainly attributing to the record-breaking rainfall associated with tropical cyclone Koinu on October 8 and 9, the month was also much wetter than usual. The monthly total rainfall was 546.0 millimetres, more than four times the normal figure of 120.3 millimetres and the fifth highest on record for October. The accumulated rainfall this year up to October was 2770.3 millimetres, about 17 per cent more than the normal figure of 2363.1 millimetres for the same period. Despite the below normal sunshine, the month was warmer than usual. The mean temperature of 26.4 degrees was 0.7 degrees above the normal and one of the fourth highest for October on record. There were three very hot days in the early part of the month, the highest on record for October.

Under the influence of an anticyclone aloft, apart from a few showers and isolated thunderstorms, it was very hot with sunny periods during the day on the first three days of the month. Meanwhile, severe typhoon Koinu over the western North Pacific moved northwestwards towards the Luzon Strait. It turned to move westwards on October 4 and skirted past the southern part of Taiwan on the morning of October 5. Koinu moved slowly across the northern part of the South China Sea and edged towards the Pearl River Estuary in the next two days. Koinu weakened into a typhoon on October 8 and skirted past about 70 kilometres to the south of Hong Kong that night. It continued to move across the coastal waters of Guangdong the next day and weakened progressively into an area of low pressure over the coastal waters of Yangjiang on that night.

Under the influence of the outer subsiding air of Koinu, it was generally fine and very hot during the day in Hong Kong on October 4 and 5. The maximum temperature at the Observatory soared to 34.6 degrees on the afternoon of October 4, the highest of the month and the highest monthly absolute maximum temperature on record for October. Moreover, the daily mean temperature on that day reached 30.8 degrees, the highest on record for October. With Koinu edging closer to the coast of Guangdong, while there were sunny periods during the day, winds over Hong Kong picked up gradually and there were a few showers on the night of October 6. Local wind strength increased further on October 7 with strong winds offshore and occasional gales on high ground. The weather also turned cloudy with a few squally showers on that day.

With Koinu moving towards the vicinity of the Pearl River Estuary, the

weather of Hong Kong deteriorated significantly on October 8 and the Gale or Storm Signal No. 8 was issued on that afternoon. Local winds strengthened significantly and reached storm force offshore and on high ground that night. The Increasing Gale or Storm Signal No. 9 was also issued that night when the compact eyewall of Koinu bearing hurricane-force wind skirted closely the south of Hong Kong. With Koinu weakening and departing from Hong Kong, local winds moderated later on October 9. Koinu brought squally heavy showers to Hong Kong on October 8 and 9, and necessitated the issuance of the Black Rainstorm Warning on the morning of October 9. The rainfall recorded at the Observatory on October 9 reached 369.7 millimetres, more than three times October's monthly total normal figure of 120.3 millimetres and the highest daily rainfall on record for October. Moreover, the 24-hour rainfall from 3pm on October 8 to 3pm next day reached 439.8 millimetres, breaking the highest record for October. Overall, more than 300 millimetres of rainfall were recorded over most parts of the territory and the rainfall even exceeded 600 millimetres in Central and Western, Wan Chai, Wong Tai Sin and Kwun Tong Districts on October 8 and 9.

Under the influence of the outer rainbands associated with the remnant of Koinu, it was cloudy with a few showers on October 10. With the thinning out of the cloud bands, there were sunny periods in Hong Kong from October 11 to 15. It was also dry during the day from October 13 to 15. Affected by a fresh to strong northeast monsoon, there were sunny intervals and a few showers on October 16 and 17. Meanwhile, an area of low pressure over the central part of the South China Sea intensified into a tropical depression on October 17 and was later named as Sanba. It moved northwards slowly towards Beibu Wan and intensified into a tropical storm on October 18. Sanba lingered over the vicinity of Beibu Wan and Hainan Island on October 19 and dissipated gradually over there the next day.

Affected by the rainbands associated with Sanba, the weather of Hong Kong was cloudy with occasional showers on October 18 and 19. More than 20 millimetres of rainfall were recorded over most parts of the territory and the rainfall even exceeded 80 millimetres over Sha Tin and Causeway Bay on these two days. Local weather remained cloudy with a few showers on October 20. Meanwhile, a cold front moved across the coast of Guangdong later on that day. Under the influence of the associated northeast monsoon, the weather of Hong Kong became slightly cooler on the next two days. The temperatures at the Observatory fell to a minimum of 22.0 degrees on October 21 under rain patches, the lowest of the month. The weather became dry with sunny intervals on October 22.

With the prevalence of the anticyclone aloft, apart from a few light rain patches on the morning of October 23, it was mainly fine from October 23 to 27. Affected by a fresh to strong northeast monsoon and a broad band of clouds, local weather turned mainly cloudy with a few showers on October 28 and 29. With the clouds thinning out, it was mainly fine and dry on the last two days of the month.

Three tropical cyclones occurred over the South China Sea and the western North Pacific in October 2023.

Details of issuance and cancellation of various warnings/signals in the month are summarised in Table 1. Monthly meteorological figures and departures from normal for October are tabulated in Table 2.