**Climate Change Corner**

**An analysis of cold winter days in Hong Kong**

Hong Kong, located at the coastal margin of the Asian continent, is particularly sensitive to wind circulation changes. Winters are colder because the sun is over the southern hemisphere while the influence of southerly movement of the high pressure cold and dry air from Siberia over the city may fluctuate from year to year.

The Hong Kong Observatory’s website provides record on the number of cold days – those with daily minimum temperature of 12 degrees Celsius or less each month at the Hong Kong Headquarters Station since January 1884. Conclusions drawn from an analysis of cold days each winter are:

(1) The longest and coldest winter is 1884 (51 days), the year following the eruption of the Krakatau volcano in Indonesia, the largest volcanic eruption in the past 150 years.

(2) The second and third longest and coldest winters are 1917 (49 days) and 1929 (46 days) also years after major volcanic eruptions.

(3) The four equal fourth longest and coldest winters with 44 cold days are 1892, 1904, 1966 and 1967. While volcanic eruptions may provide some explanation, French atomic tests in Mururoa Atoll during 1966 may also have caused two consecutive cold winters in 1966 and 1967.

(4) Based on the study of Leong and Hart (2013), the most representative urban and rural station was found to be the Observatory’s Headquarters Station and the Pak Tam Chung Station respectively. The former station is at least 1.8 degrees Celsius warmer than the latter because of the growing influence of the urban heat island effect.

(5) Winter 2013 with 25 cold days are ranked fifty-sixth. Without the urban heat island effect the number of cold days must surely be higher.

Natural forcing through volcanic eruptions and possible anthropogenic forcing through nuclear test(s) are identified as possible causes for colder and longer winters. The increasing heat discharge from human activities is the obvious reason for the declining number of cold winter days within the Victoria Harbour Basin.

Reference

Leong WS & Hart MA (2013). Quantifying urban heat island intensity in Hong Kong SAR, China. Environmental Monitoring & Assessment 185: 4383-4398.

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