More than just pretty pictures

What does weather mean to you? Most people in Singapore would immediately think of the heat or rain. But weather here is more varied than that. There have been interesting weather events and optical phenomena that have captured the public's attention.

Water spouts

- This is a rotating column of wind associated with intense thunderstorms over the sea which has a thin column-like or funnel appearance. While it may appear to be drawing water into its column, it is actually water droplets in a rotating vortex of air. As the air rotates and rises, the humid air cools and vapour condenses, making the whirling mass visible.

WEATHER VS CLIMATE

The main difference is the timescale involved. Weather refers to conditions of the atmosphere that we experience over a short period of time. This includes things like changes in temperature, humidity, rainfall and wind. Often, it is a confluence of these factors that result in beautiful phenomena such as rainbows. Climate, however, refers to how the atmosphere behaves over a longer period of time.

WEATHER EVENTS

Tropical cyclones

- Tropical cyclones are very rare in our equatorial region as their formation requires a rotational force, which is not present along the Equator. However, rare occurrences of two colliding weather systems can lead to a cyclone development near the Equator. In December 2001, Typhoon Vamei formed when strong winds from a North-east Monsoon surge interacted with an intense circulation system in the South China Sea, and brought windy and wet conditions to Singapore.

Hailstones

- Hailstones form within thunderstorm clouds. It usually consists of balls or irregular lumps of ice (hailstones). Hailstones usually consist mostly of water ice and measure between 5mm and 50mm in diameter, with the larger stones coming from severe thunderstorms.

Cool spells

- Singapore experienced an unusual cool spell in January, which was the result of a monsoon surge. These surges are sudden increases in wind speed that cause cold air in the Northern Hemisphere to surge southwards into the South China Sea. As the cool air moves south, it warms and gathers moisture, resulting in rain over the equatorial region, including in Singapore. Evaporating rain and cloud cover helped keep Singapore cool.

OPTICAL PHENOMENA

Double rainbows

- This optical phenomenon occurs when light undergoes refraction then total internal reflection twice inside raindrops instead of once, giving rise to a primary rainbow from one internal reflection and a fainter (or secondary) rainbow from two internal reflections.

Iridescent clouds

- An iridescent cloud forms when sunlight bends or diffracts around water droplets or ice particles rather than passing through them, then recombines to give pastel-like colours in the sky.

Sources: ST FILE, NATIONAL ENVIRONMENT AGENCY PHOTOS: JUSTIN LOW, ALVIN HO, TERENCE YEO, AARON TOH STRAITS TIMES GRAPHICS