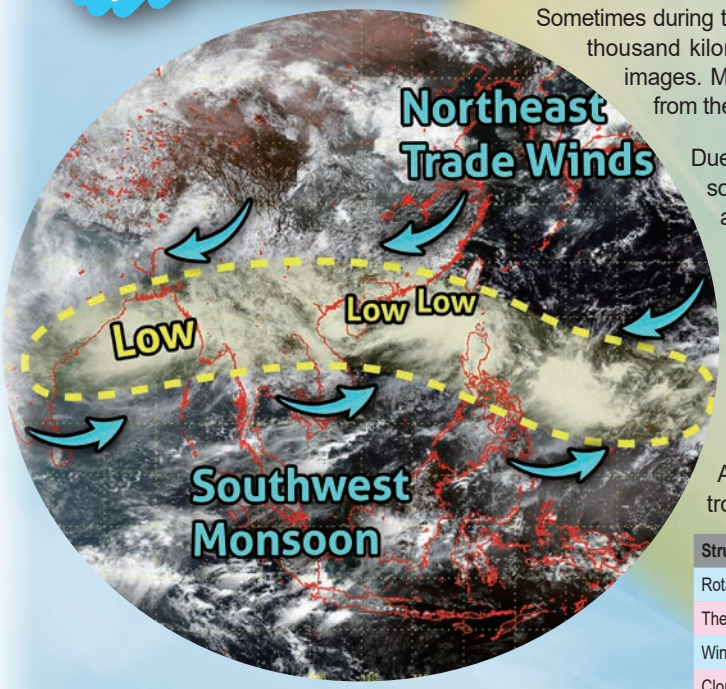
Public Education

Monsoon Lows and Tropical Cyclones

YEUNG Hon-yin



Satellite Imagery at noon on 16 August (source: Japan Meteorological Agency)

Sometimes during the Northern Hemisphere summer, an elongated region of dense clouds several thousand kilometres long (the area circled by yellow dotted line) appears on the satellite images. Meteorologists call this the "Intertropical Convergence Zone", while the section from the South China Sea to the Indian Ocean is also known as the "monsoon trough".

Due to the converging winds from opposite directions - southwest monsoon from the south and the northeast trade winds from the north (see blue arrows), convective activity can easily be triggered along the monsoon trough and low pressure areas can develop. The resulting phenomena are referred to as monsoon lows.

Although a monsoon low and a well-developed tropical cyclone both have rotational circulations, there are obvious differences in structure (see table). Whether the former will develop into the latter depends on the atmospheric environment, such as vertical variations in winds, transport of moisture, sea surface temperature, and high altitude divergence. The tropical depression forming over the coastal waters of western Guangdong on the morning of 17 August was an example of a successful evolution from a monsoon low to a tropical cyclone.

Structural Characteristics	Monsoon Low	Well-developed Tropical Cyclone
Rotating circulation	May have more than one centre	Has only one centre
The region of strongest winds	Usually along the periphery	Concentrated near the centre
Wind speed near the centre	Relatively low	Strongest
Cloud clusters near the centre	Developing and dissipating without much organization	Intense and persistent; and organised in spirals

Director Shun and Rebecca Lee on Climate Change

LEE Sai-ming

Mr SHUN Chi-ming (fourth from the left, front row) and Dr Rebecca LEE (fourth from the right, front row) with the organisers and participants of "Green Leadership Camp 2016".

Climate change has become a major challenge for humanity, requiring sustained efforts to deal with the issues arising. But how serious is global warming? What are the impacts on Planet Earth and humans? And what can we do about it?

The Jockey Club Initiative GAIA, under the Chinese University of Hong Kong, organised a "Green Leadership Camp 2016" in July and aimed to train secondary students to become leaders in carbon reduction and environmental protection. The organiser invited Mr SHUN Chi-ming, Director of the Hong Kong Observatory, and Dr Rebecca LEE, a renowned polar explorer, to deliver climate change talks and to provide background knowledge on the subject to the participating students.

Mr SHUN presented evidence for and consequences of global warming, the impacts on Hong Kong, along with information on inter-governmental cooperation to deal with the problem and Hong Kong government's work on climate change. Dr LEE shared her experience of polar expeditions and reflected on her observations of the changing climate. During the discussion session, the students discussed how to cope with the impacts of climate change. In view of the educational value of the seminar, Radio Television Hong Kong compiled an audio recording of the seminar into four segments for broadcast. The recording can also be accessed through the following link: http://www.hko.gov.hk/climate_change/audio_e.htm (Cantonese only).

Collaborating with EMSD to Promote Climate Change Awareness among Youngsters

SHAM Fu-cheung

To promote awareness of climate change and knowledge of energy efficiency among young people, the Observatory joined hands with the Electrical and Mechanical Services Department (EMSD) to organise school talks and arrange for E&M Young Ambassadors to visit the Observatory on 12 August. Through these activities, climate change messages and mitigation actions were explained to the young people.