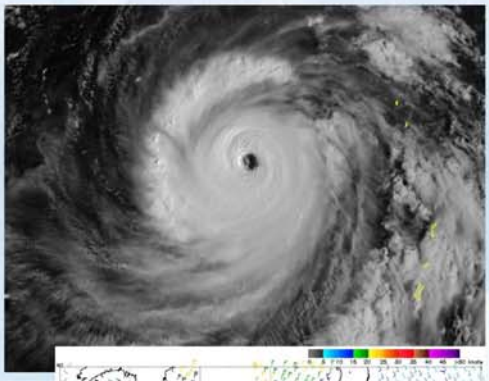
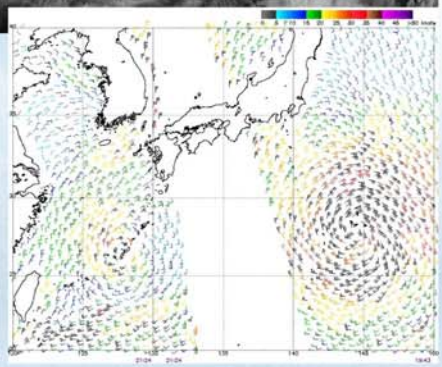
香港城市大學 City University of Hong Kong

Department of Physics and Materials Science
Laboratory for Atmospheric Research

Typhoon Studies





Ensemble Forecasting of Tropical Cyclone Motion

MPhil Student: Li Kwun Kau
Supervisor: Prof. Johnny C L Chan

Ensemble forecasting technique is applied in the prediction of tropical cyclone motion. The tropical cyclone motion can be predicted by a "control model". However, the atmosphere is a chaotic system. The prediction could have a large discrepancy due to the initial data error or model deficiencies. The ensemble numbers generated by perturbation method can be added into the initial data to simulate the error distribution and improve the forecast of the model.

Large-scale and Track Characteristics Associated with Tropical Cyclones of Different Sizes

MPhil Student: Yip Ka Man
Supervisor: Prof. Johnny C L Chan

During the lifetime of a tropical cyclone, its size may increase or decrease apparently in response to the large-scale flow changes. Theoretical studies have found that the size of a tropical cyclone can affect its movement. The objective of this project is to determine the large-scale and track characteristics associated with tropical cyclones of different sizes.

Monsoon Studies

Predictability of the South China Sea Summer Monsoon

PhD Student: Zhou Wen
Supervisor: Prof. Johnny C L Chan

The onset of the South China Sea (SCS) summer monsoon is a very important event in the annual cycle of the general circulation in Asia because the switch of the atmosphere from the winter to the summer regime begins over the IndoChina and SCS region. In this project, precursors are identified to predict the occurrence of this reversal and the accuracy of this prediction is also examined.

The Northward March of the East Asian Summer Monsoon

MPhil Student: Lee Wai Pong
Supervisor: Prof. Johnny C L Chan

The East Asian monsoon is the largest monsoon system in the world. Not only does it affect weather in the Asian region, its large extent also influences the global circulation. The summer monsoon starts from the South China Sea and migrates to the South China region. A northward jump to the Changjiang region then occurs, forming the so-called Mei-Yu. A second jump to northern China also takes place about a month later. The objective of this project is to investigate the physical mechanisms for the two northward jumps of the rain band.

The Onset of the Western North Pacific Monsoon

MPhil Student: Guan Bin
Supervisor: Prof. Johnny C L Chan

The western North Pacific monsoon differs from the East Asia monsoon because it all occurs over the ocean without any land influence. The mechanism of its formation is therefore of significant interest. The objective of this project is first to investigate the climatological features and interannual variability of the onset of western North Pacific monsoon. The associated physical mechanisms will then be examined.