Department of Geography
David C. Lam Institute for East-West Studies

Public Seminar Series

Monitoring and Prediction of low level windshear and turbulence at the Hong Kong International Airport

Speaker: Dr CHAN Pak-wai, JP, FRMetS, FHKMetS
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Permanent Representative of Hong Kong, China with the World Meteorological Organization
Chairman, Hong Kong Meteorological Society

Date: 9 May 2024 (Thursday)
Time: 14:30 – 16:00 (HKT)
Venue: AAB1312, HKBU
Zoom Link: https://hkbu.zoom.us/j/970 3370 4075

Abstract

Low level windshear and turbulence could be hazardous to the departing and arriving aircraft at the airport. At the Hong Kong International Airport, the major kind of windshear is due to terrain disruption of the airflow. This report focuses on the effort of the Hong Kong Observatory in the monitoring and prediction of low level windshear and turbulence. Since the windshear mostly occurs in clear air conditions, the Observatory introduced the world's first Light Detection And Ranging (LIDAR) system to the airport in 2002 for operational alerting purpose. The LIDAR reveals many interesting features of wind changes at the airport, including mountain wake flow, mountain wave, tiny vortices, etc. The predictability of such features is also studied by running Weather Research and Forecasting (WRF) model at large eddy simulation model with a spatial resolution down to 40 m. Some recent results of the modelling of windshear features as well as turbulence intensity would be covered in the lecture.

Biography

Dr. CHAN Pak-wai, a veteran meteorologist at the Hong Kong Observatory since 1994, focuses on airport meteorological instrumentation, windshear alerting, and numerical weather prediction at the Hong Kong International Airport. Noteworthy achievements include developing the world's first LIDAR windshear alerting system and enhancing tropical cyclone monitoring in the South China Sea. Appointed Director of the Hong Kong Observatory in March 2023, Dr. Chan is dedicated to advancing artificial intelligence in meteorological research for improved weather forecasting, particularly for severe weather events like typhoons. Actively engaged with the WMO and ICAO, he serves as vice-chair of the WMO's Standing Committee on Measurement, Instrumentation, and Traceability and chairs the ICAO meteorology subgroup in the Asia Pacific Region. With a PhD in wind engineering from the City University of Hong Kong, Dr. Chan is a visiting professor at several mainland Chinese universities and a respected author of approximately 400 SCI journal papers on meteorological instruments.