TMSI
Tropical Marine Science Institute
National University of Singapore

RESEARCH SEMINAR

Refining early warning systems - raising the bar on weather related disaster response mechanisms and support systems

The role of Numerical Weather Prediction models in forecasting weather extremes

Date: Tuesday 19 Sept 2024
Time: 3:00PM
Format: Online

Registration: https://nus-sg.zoom.us/webinar/register/WN_VgkTHRo_RayVAJl10REC6g

ABSTRACT

The ability to predict High Impact Weather events is of utmost importance to agencies involved in providing Weather and Climate Services. In the tropics, where humidity and temperature remain high throughout the year, forecasting these events remains a challenge. Rainfall modulating factors in the tropics are based on the seasonal weather patterns namely, the monsoons indicative of large-scale rainfall episodes and the inter-monsoon period where sudden mushrooming convective storms gives rise to intense rainfall. Numerical Weather Models play a significant role in predicting these events ahead of time and is crucial in providing timely weather warnings for disaster management. Improving the understanding and representation of weather models of the tropical weather systems and how the weather of the Maritime Continent/SE Asia interacts with large scale atmosphere of the tropics is vital. The spatial and temporal variability on the High Impact Weather Events need to be modelled accurately. High Performance Computing Systems and very high-resolution weather models of up to 300 m resolution are required for this purpose. The predictability of extreme weather events due to climate variability and climate change require close monitoring. Understanding of these extreme events is crucial to quantify the uncertainties associated with weather forecasting. The need for geospatial modelling coupled with a dynamical weather prediction model is important as a part of the decision support system. The cycle involving disaster preparedness, disaster response, disaster recovery, disaster prevention and disaster mitigation has to be synchronised with weather models and warning mechanisms.

ABOUT THE SPEAKER

Mr. Muhammad Firdaus Ammar Bin Abdullah is a Subject Matter Expert in Numerical Weather Prediction at the Malaysian Meteorological Department. He has significant experience as a Weather Forecaster and in monsoon research, and over fifteen years of experience in the development and operations of the Malaysian Meteorological Department's Numerical Weather Prediction (NWP) models.

HOST: Dr Srivatsan Vijayaraghaven