
MMM SEMINAR NCAR

Tropical, Convective-Scale NWP for the Singapore Region – The SINGV Project

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The Met Office and the Meteorological Service Singapore (MSS) have embarked on a 5-year collaboration to develop and implement a convection-permitting NWP system for the Singapore region. The SINGV project (2013-2018) has so far focussed on the development of km-scale configuration of the Unified Model (UM), which is now being run in real-time in Singapore. Collaborations between the Met Office and MMM Division of NCAR have contributed to increased understanding of the relative impact of driving model and regional model in high-resolution simulations as well as the nature of climatological error covariances for tropical, high-resolution data assimilation.

This talk will provide an overview of the SINGV project to date, including an initial assessment of the relative impact of driving model for high-res UM/WRF simulations, as well as a 'clean' (i.e. same driving model, resolution, domain, etc) appraisal of the relative performance of the UM and WRF models to predict rainfall in the Singapore region. Results indicate that the impact of driving model is at least as large as differences between regional model simulations using the same driving data.

Initial SINGV data assimilation capabilities, based around the three-dimensional variational (3DVar) technique have also been tested, using a wide range of observations from both conventional in-situ sources as well as a wide range of satellites (e.g. winds, radiances, scatterometer). Preliminary results from nascent data assimilation activities will be presented.

Further work is required to improve aspects of the high-resolution models to give forecasters confidence to use them, e.g. conservation of moisture, representation of the diurnal cycle, structure of convective-cells, advanced data assimilation of local data e.g. radar, etc. Efforts to address these challenges will be briefly described.

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Refreshments 3:15 PM

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