

# MM5 Simulation of the Near-Equatorial Typhoon Vamei

FREDOLIN TANGANG<sup>1</sup>, LIEW JUNENG<sup>1</sup>, CHRIS REASON<sup>2</sup>

<sup>1</sup>*Faculty of Science and Technology, National University of Malaysia*

<sup>2</sup>*Department of Oceanography, University of Cape Town*

This paper describes the capability of the PSU/NCAR Fifth Generation Mesoscale Model (MM5) to simulate a rare tropical cyclone case – Vamei that was generated on 26 December 2001 in the South China Sea close to the equator. The 36 h control forecast of 15 km resolution utilizing the Kain-Fritsch subgrid convective scheme reproduced the episode accurately. The forecasted track and the typhoon intensity as well as the rapid deepening of the system near the coast of southern Peninsular Malaysia during early 27 December 2001 were comparable to the Joint Typhoon Warning Center best track database. The simulated structure of the eye wall and the spiral convective cloud band were also found to be comparable to the satellite observation. Extra experiments with Betts-Miller (BMEX) and Grell (GREX) cumulus schemes were also conducted. It was found that the successful simulation of the storm track and storm intensity depend critically on the subgrid cumulus parameterization used in the model. Both BMEX and GREX simulated weaker structure of the eye wall and hence produced weaker storm intensity compare to the control simulation.