Department of Atmospheric Sciences
Seminar Announcement

Applications of a New Tropical Cyclone Initialization Scheme on Improving TC Track, Intensity and Structure Forecasts

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Date: **Wednesday, February 4, 2015**
Refreshments: **3:00pm – 3:30pm at MSB Lanai**
Free Cookies, Coffee & Tea Provided
Seminar Time: **3:30pm**
Location: **Marine Sciences Building, MSB 100**

Abstract:

The TC initialization scheme developed by Nguyen and Chen (2011) (NC2011) was used to produce the initial TC structure and intensity in the model for 18 TCs (2004−2013) over the Northwestern Pacific using the Weather and Research Forecast Model (WRF). For these storms, the initial storm structure and intensity in the model agrees well with observations. These results attest that the environment, including SST, in which the storm is embedded has a significant impact on the intensity and rainband patterns of these well-developed TCs.

Nguyen and Chen (2014) (NC2014) applied the updated version of the TC initialization scheme and show significant improvements in the track and intensity TC forecasts during the first 48 h of model runs for landfalling TCs, which occurred in the South China Sea in 2006, as compared with the runs without TC initialization. Recently, the scheme was used throughout the entire life cycle of super typhoon Jelawat (2012), which underwent a rapid intensification (RI) stage, and a few other storms including Haiyan (2013) and Iniki (1992). The NC2014 scheme was also tested in a real-time experiment forecast for a Category 1 hurricane (Ana 2014) over the Hawaiian islands and compared with the performance of the Hurricane WRF model (HWRF) and the Coupled Ocean/Atmosphere Mesoscale Prediction System (COAMPS). For all cases considered, the scheme works well in predicting track, intensity and structure for storms with different intensities at different stages of their life cycle. This is because at the model initial time, the initial storm intensity and structure are well adjusted to the environmental conditions in which it is embedded and well adapted to the model employed.