



Numerical Modeling of Multi-scale Organized Convection and an Inertia-gravity Wave Observed during YOTC

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A multi-scale organized convection event was observed in the eastern Indian Ocean during 9-11 April, 2009. This system initiated near the western coast of Sumatra, was embedded in an active MJO, traveled westward at roughly 10 m/s, and lasted for about 2 days. To investigate the thermodynamic and kinematic structure of this multi-scale system, cloud-system resolving simulations were conducted using the Weather Research and Forecasting (WRF) model forced by ERA-Interim reanalysis. Results indicated that the WRF model accurately reproduced many features documented by TRMM observations, such as the timing and location, the propagation behavior, the life cycle, and in particular, the multi-scale structure consisting of a westward-propagating synoptic-scale organization (envelope) and a series of oppositely propagating mesoscale convective systems as well as the embedded small-scale convective elements. Preliminary analysis suggests that the organized convection is coupled to a lower-tropospheric equatorial inertia-gravity wave of approximately 12-degree zonal wavelength. Moreover, the associated perturbations evince rearward (eastward) tilting with respect to the propagation direction. More detailed analysis, including the energetics, presently under way will be presented in the meeting.