Dynamical Regional Climate Downscaling in East Asian Tropics using WRF

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Weather Research and Forecasting (WRF) model has been used to dynamical downscale the 1.25deg Japan Re-Analysis (JRA) data into fine resolution (25 km) over the region of East Asian Tropics. By applying large-scale interior nudging, WRF is able to well capture regional-scale atmospheric primitive variables (e.g. air temperature, pressure, wind, and moisture). Here we focus on investigating the model capability in downscaling and simulating the precipitation which probably is one of the most challenging work in current NWP community. We use TRMM (Tropical Rainfall Measuring Mission) satellite observation to evaluate the model performance and uncertainty. Results show the quality of JRA precipitation would unlikely satisfy the regional-scale application. We will discuss the improvement of the downscaled precipitation and the importance of readapting the WRF configurations for East Asian Tropics.