

The Impact of Sea Surface Temperature on the Southwest Monsoon Rainfall over western Philippines

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This study uses a 5-km-resolution regional climate model (WRF-ARW; the Advanced Research Weather Research and Forecasting Model) to quantify the impact of sea surface temperature (SST) west of the Philippines on the summer monsoon rainfall on the western coast the country. A set of control simulations (CTL) driven by ERA Interim reanalysis and daily NOAA OISST dataset is performed for August for the years 2001-2010. A second set of simulations driven with climatological SST values is also done for the same time period. The difference between these two sets of simulation is analyzed to determine the sensitivity of rainfall to the variations of SST. This study does not use cumulus convective parameterization (CCP) because the result of preliminary test calculations with CCP shows unrealistically high rainfall simulated over the whole domain. In addition, comparison with multiple observational datasets shows that the spatial pattern of rainfall is not well simulated when we use CCP over this region. The performance of the model in simulating spatial and temporal variation of rainfall is also presented.

Key words: regional climate model, monsoon rainfall, oceanic impact