

Interaction of convection over the Maritime Continent - SCS with large-scale flow

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The atmospheric Sciences community in Taiwan is carrying out an integrated project "Interaction of convection over the MC - SCS with large-scale flow". The scientific issues and research approaches of all projects are organized and linked under three areas of study: convective processes, large-scale processes, observations. The major observational task is the SCS Two-Island Monsoon Experiment (SCSTIMX) that includes field campaigns at Taiping and Dongsha islands along with the measurements by ocean research vessels (RV) and satellite observations. To prepare for the SCSTIMX, a pre-experiments has been completed during December 11-21, 2016, through the research cruise to Taiping Island by the NTU RV OR1 voyage 1156. The cruise took place during the La Nina phase following the warm winter of 2015/2016 El Nino/Southern Oscillation (ENSO) event. The equatorial eastern and central Pacific was about 0.5-2°C colder than the climate mean. We developed a method of monitoring the climate background and high frequency (weather and intraseasonal) disturbances in time and applied it to Outgoing Longwave Radiation (OLR) data. Combining NCEP FNL assimilation (Wind, pressure, temperature, water vapor), surface observations at the two islands, ship soundings and satellite data, a preliminary analysis was conducted. The La Nina condition causes a warmer and more humid SCS-MC region, and colder and drier central and eastern equatorial Pacific. Accompanied by this background, synoptic and intraseasonal oscillations are more energetic in the SCS and NW Pacific warm pool area. The research team of the integrated project will continue to explore the multi-scale interaction processes and its impact on forecasts through analysis and modeling.

Keywords: convection, tropical waves, MJO