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Precipitation Studies Using UHF Radar /Integrated Sounding System During the South China Sea Monsoon Experiment (SCSMEX) and the Green Island Mesoscale Experiment (GIMEX)

PAY-LIAM LIN[1], YIN-JEN CHIEN[1], HSIN-HON LIN[1]
[1] *National Central University*

The NCU(National Central University) ISS(Integrated Sounding System) was deployed in Dongsha island during May 5 to June 25, 1998 for the SCSMEX and deployed in the southeastern coast of Taiwan(Cheng-Kung station) during May 5 to June 30, 2001 for the GIMEX. The primary goal of these deployments were to measure the mesoscale structure of convective weather system associated with the onset, maintenance and variability of the monsoon over the South China Sea area and the southeastern coast area of Taiwan. A wide variety of convective systems were observed during SCSMEX and GIMEX. The ISS observations provide a detail kinematic and thermodynamic structure change of the monsoon flow and the local circulations. The UHF profiler radar that operates at 915 MHz in ISS are useful for precipitation structure measurement because of its sensitivity to hydrometers. The identification and classification of the falling particles associated with precipitation is very helpful for the understanding of the stratiform and the convective characteristics, and the cloud physics and dynamics of the convective systems. The three moments of the Doppler Spectrum provide us with information about the hydrometers in the mesoscale convective systems. Correlations between vertical radial velocity and range corrected signal power of 915 MHz radar wind profiler can be used to determine weather or not precipitation is present and what type of precipitation it is. Several major convective events occurred in SCSMEX and GIMEX will be discussed and compared in this investigation.