

Doppler radar study on the precipitation systems at Koto Tabang, and their relation to the phase of MJO.

Masayuki Kawashima[1]

[1] Inst. of Low Temperature. Sci., Hokkaido Univ.

In order to understand the hierarchical structure of equatorial convective activities and the behavior and mechanism of convection -origin atmospheric waves, X-band Doppler radar (XDR) observations were carried out in April and May 2004 during the CPEA (Coupling Processes in the Equatorial Atmosphere) intensive observation period at Koto Taban, Sumatera island.

In this paper, we investigate the properties of the precipitation systems observed by XDR and their relations with the phase of MJO.

The active phase of MJO passed over the Sumatera island from 23 April to 6 May 2004. During the inactive phase of MJO, the observed precipitation systems were dominated by convective type which showed significant diurnal variations. Scattered convective clouds start to develop in the afternoon, and they are organized into active convective systems with radar reflectivities greater than 40dBZ by the early evening. The echo tops were generally high (about 17km).

In the middle of the active phase of MJO, the diurnal variations of precipitation systems become less distinct, and the observed systems were dominated by the stratiform type clouds associated with super clusters. Observed radar echoes were generally widespread and homogeneously distributed, and echo top heights were relatively lower than that observed during inactive phase of MJO.

As a westerly wind burst (WVB) started on 5 May, the lower atmosphere became stable, and very few convective systems developed.