

# Observational study on convective activities over Sumatra Indonesia in the rainy season with the Equatorial Atmosphere Radar

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The maritime continent is the region where convective activities are very active, because of a strong solar radiation and abundant water vapor supply from the ocean. We investigated convective activities over Sumatra Indonesia during November, 2001. November is a main rainy season in Sumatra Indonesia. We used three-dimensional wind velocities data obtained by the Equatorial Atmosphere Radar (EAR), Blackbody Temperature (Tbb) data obtained by Geostationary Meteorological Satellite (GMS), National Centers for Environmental Prediction (NCEP) / National Centers for Atmospheric Research (NCAR) reanalyses data and surface rainfall data.

We find that convective activities over Sumatra were mainly modulated by diurnal variations caused by land-sea interaction,

eastward propagating Super Cloud Clusters (SCCs) and Rossby-type westward propagating disturbances which developed over the west of Sumatra (90-100 degrees east). Land-sea interactions were observed under the condition of low-surface pressure and weak zonal wind at 2-4 km. These convective activities accompanied with land-sea interaction were seen at the beginning and the end of November, 2001, when low surface pressure associated with Kelvin-wavelike structure of intraseasonal variation (ISV) prevailed. Eastward propagating SCCs were strengthened by cold surges intermittently intruded to the maritime continent region from the northern hemisphere. SCCs, which developed near 90 degrees east at the equator, moved eastward accompanying with the strong westerlies and passed over Sumatra. Rossby-type westward propagating disturbances, which developed near 120 degrees east, propagated from the Western Pacific to the Indian Ocean. These disturbances became active by combining with the Kelvin-Rossby type disturbances in the Indian Ocean around 90 degrees east, and activated the convection over Sumatra.

We will show the detailed case study of three kinds of convective activities shown above in the presentation.