

## Observation of the tropical lower atmosphere with the Equatorial Atmosphere Radar

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In the western Pacific region, strong convective clouds associated with an Asian monsoon occur but those mechanism is not so clear. We installed the Equatorial Atmosphere Radar (EAR) at Bukittinggi, West Sumatera, Indonesia (100.32E, 0.20S, 865 m ASL) in March, 2001. The EAR can observe the clear air motion in the height range from 2 to about 20 km. The operating frequency is 47 MHz and the phased-array antenna system is adopted to steer the direction of an antenna beam quickly. Its time and height resolutions are approximately 1.5 min and 150 m, respectively. GPS sondes were launched near the EAR site for about one month each in August and November, 2001.

We investigated the followings:

1. The horizontal distributions of cloud-tops near the EAR site using IR data obtained with the Geostationary Meteorological Satellite (GMS).
2. The relation between the wind behavior corresponding to the convective clouds and the temperature and humidity profiles observed with GPS sondes.

First, the diurnal variation of cloud height is observed. In November, 2001, the clouds along the mountains are observed during 18-24 LT, which are associated with the daily variation. On the other hand, in August, there are few clouds along the mountains.

Second, we examine the wind behavior corresponding to the diurnal variation. We found the large variances of vertical winds,

the strong echo intensity, and the strong westerly wind, in convective clouds at 2-4 km heights, which is associated with the convection.