

## Cloud observation in the tropical middle troposphere by VHF wind profiler and Mie lidar

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Features of vertical wind in and around non-precipitating clouds in the tropical middle troposphere over Sumatra, Indonesia are presented using data observed by a VHF wind profiler (Equatorial Atmosphere Radar; hereafter EAR), a Mie lidar, and radiosondes. Observations were carried out at Kototabang, West Sumatra, Indonesia (0.2degS, 100.32degE). During 9 May 2004, the Mie lidar observed a cloud around 8 km altitude which had a large backscattering ratio of greater than several hundreds. In the region where the cloud was observed, large downward motions of greater than 1 m/s were frequently observed by the EAR. Large variance of vertical wind, which frequently reached larger than 0.5 m/s, was observed in the frequency power spectrum of the EAR though turbulence intensity was significantly weak due to small gradient of specific humidity and static stability. Temperature gradient observed by radiosonde indicated that the air was unstable only for saturated air (conditional instability). Results from detailed data analysis and interpretation for the observed phenomena are shown in the presentation.