

# **Vertical and horizontal structure of atmospheric waves observed with the Indonesian regional CPEA radar network**

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Although the global structure of tides and planetary waves in the middle atmosphere including MLT (Mesosphere Lower Thermosphere) has extensively been studied with ground-based and satellite observations, structures of atmospheric waves within thousands of km are rarely reported by observations. Such structures of a regional scale should reflect locality and are expected to include information of wave sources, as well as interactions with smaller scale waves.

We have carried out meteor/MF radar observations in the MLT region at three locations: Kototabang (100E, 0S), West Sumatra, Pontianak (109E, 0N), West Kalimantan, and Pameungpeuk (107.5E, 7.5S), West Jawa, in Indonesia, as an activity of CPEA (Coupling Processes of Equatorial Atmosphere) project. The diurnal variation of wind velocities over the equator at Pontianak and Kototabang (with an average amplitude of 10 - 20 m/s at 86 - 90 km) showed significant difference indicating strong effect of non-migrating diurnal tides. The significant phase difference between the two sites (~9 deg distance) suggesting existence of high zonal wave number (>4) waves. Enhancement of diurnal variation of MLT wind seems to correlate with the enhancement of diurnal oscillation in the OLR (outgoing longwave radiation) of the Asia-Pacific area. Vertical propagation of tides and other atmospheric waves are also addressed by comparing OLR data, radiosonde observations during CPEA campaigns and other observational data.