Radar Observations of Atmospheric Waves in the Tropical MLT Region

S.Kovalam[1,2], T.Tsuda[1], R.A.Vincent[2], I.M.Reid[2] and S.Gurubaran[3]
[1]*Research Institute for Sustainable Atmosphere, Kyoto University, Kyoto, Japan*
[2]*School of Chemistry and Physics, University of Adelaide, Adelaide, Australia*
[3]*Equatorial Geophysical Research Laboratory, IIGM, Tirunelveli, India*

Waves are the primary means through which various regions of the atmosphere couple. Equatorial mesosphere and lower thermosphere (MLT) contain a rich spectrum of atmospheric waves ranging from global-scale tides and planetary waves to meso-scale gravity waves. In the low-latitude MLT region several instruments are being installed to investigate the nature of these coupling processes. These instruments include the MF radar, the meteor radar, the Lidar, the air-glow imager. Together these instruments provide the means to determine the mean fields, and wave signatures associated with tides, planetary waves and gravity waves from the stratosphere to the mesopause region. Using horizontal wind measurements from MF and Meteor radar we examine the variability of planetary, tidal and small scale motions in the equatorial lower and middle atmosphere. Interpretation of the results will be supported with model results so that a global view of these processes in the equatorial middle atmosphere can be developed.