

Physical Research Laboratory
Ahmedabad
Area Seminar

(Space & Atmospheric Sciences Division)

Title: “On the longitudinal variations in the daytime wave dynamics as seen in the optical dayglow emissions”

Speaker: Deepak Kumar Karan

Date: 18 August 2016

Venue: Ground Floor Lecture Hall

Time: 16:00 hrs

Highlight of the talk:

Equatorial dynamical processes in the upper atmosphere show both latitudinal and longitudinal variability as seen from results from several investigations that have been carried out by various research groups internationally. While the variability in latitudes is seen to exist in smaller distances, the longitudinal behaviour is shown over large spatial separations. In order to investigate the longitudinal differences over shorter separations, in the present work, we use optical dayglow emissions as tracers to the wave activity over different separations in azimuth. Systematic investigations on the spatio-temporal variations of optical dayglow emissions using a high resolution slit spectrograph called MISE, from a low latitude station Hyderabad have been carried out. MISE measures three optical dayglow emissions over a large field-of-view (FOV ~ 1400) at OI 557.7 nm, 630.0 nm, and 777.4 nm simultaneously, which emanate from three different altitudes, around 130, 230 and 300 km, respectively. We show that longitudinal differences in upper atmospheric processes can exist at even 3 degree separations. Spectral analyses of the waves that are separated in longitude, propagation characteristics of waves, and the diurnal emission pattern, do support our finding.

All interested are welcome.