Physical Research Laboratory
Ahmedabad
Area Seminar

(Space & Atmospheric Sciences Division)

Title: **"Effect of equatorial electrodynamics on optical neutral dayglow emissions"**

Speaker: **Deepak Kumar Karan**

Date: **27 June 2016**

Venue: **Ground Floor Lecture Hall**

Time: **16:00 hrs**

Highlight of the talk:

Equatorial electrodynamical processes are quite intriguing and their manifestations in the low latitudes are varied. Both ionospheric and thermospheric measurements are used to understand the various modes of coupling between the neutrals and the plasmas. We have carried out systematic investigations on the variations in the optical dayglow emission intensities from a low latitude station Hyderabad, using a high resolution slit spectrograph, called MISE, which enables simultaneous measurements of dayglow emissions at OI 557.7 nm, 630.0 nm, and 777.4 nm over large field of view. These emissions that originate from different altitudes have been used to obtain neutral wave characteristics in the recent past. With respect to the diurnal behaviour in dayglow intensities, a solar zenith angle dependence (symmetric with respect to local noon) is expected as the production mechanisms are photochemical in nature. However, deviations from such solar zenith angle dependence (asymmetric with respect to local noon) have been observed. Detailed investigations on the neutral and electrodynamical parameters have been carried out to explain these deviations in the diurnal behaviour of emission intensities. It is found that the equatorial electrodynamics has a significant role to play in governing these deviations. Further, on the days when asymmetric behaviour in dayglow emissions are seen, longitudinal differences in the equatorial electrodynamical processes are found to exist. This is in contrast to the days when the diurnal behaviour is symmetric. These spatio-temporal differences in the daytime airglow emission intensities and their dependence on the equatorial electrodynamics will be presented.

All interested are welcome.