

# **Onset of Equatorial Plasma Bubbles (EPBs) and its predictive techniques**

The occurrence of Equatorial Plasma Bubbles (EPBs) in the ionosphere severely affects radio wave communication and GPS navigation. While several studies have been conducted in the past to understand them, still day-to-day variability in their occurrence is not yet fully understood. Prominent forces influence the occurrence of these plasma irregularities during the post-sunset hours, such as (a) Post-sunset vertical  $E \times B$  drift or Pre-Reversal Enhancement in the zonal electric field. (b) Amplification of gravity wave seed perturbations prior to their occurrence. (b) Inverse gradient scale length ( $L^{-1}$ ). These factors are responsible for the onset of EPBs, and their utilization in prediction techniques will be discussed. This talk provides insight into the parameters that seed the EPBs within the ionosphere which act as inputs for various predictive techniques. Subsequently, the discussion will delve into the development of predictive techniques, progressing from the past to the current, in forecasting EPBs.