

#23 Received 01/05/2015

Su, Shin-Yi<sup>1</sup>; Liu, Chao Han<sup>2</sup>

1. National Central University

2. Academia Sinica

## **On Seasonal/longitudinal Distributions of Post-midnight Quiettime Equatorial Ionospheric Irregularities**

Abstract:

The seasonal/longitudinal (s/l) distributions of post-midnight quiet time equatorial ionospheric irregularity occurrences are studied for a better understanding of the irregularity occurrences and seeding mechanism of the Rayleigh-Taylor (RT) instability process. The s/l distributions of irregularity occurrences are found to have high occurrences clustered between longitudes of  $-60^\circ$  and  $+60^\circ$  for every season. These high occurrence longitudes all have a negative magnetic declination with the dip equator located in the northern hemisphere.

The densities in these longitude regions are higher than that in other longitude regions indicating an ionospheric condition that is susceptible to the RT instability process similar to the conditions in the post-sunset ionosphere for the occurrences of irregularities. In addition, large variations in density and vertical drift also imply the possible existence of electrodynamic perturbations to serve as seeds for the RT instability in the post-midnight ionosphere.