

## **OBSERVATION OF DAY-TO-DAY VARIABILITY IN EQUATORIAL SPREAD-F**

PAULO R. FAGUNDES<sup>1</sup>, Abalde JR<sup>1</sup>, Sahai Y<sup>1</sup>, Bittencourt JA<sup>2</sup>.

1- Universidade do Vale do Paraíba – UNIVAP, São José dos Campos, SP, Brazil

2- Instituto Nacional de Pesquisas Espaciais – INPE, São José dos Campos, SP, Brazil

It is well established that Rayleigh -Taylor instability mechanism is fundamental for the generation of large scale equatorial ionospheric irregularities. The pre-reversal enhancement (PRE) of zonal electric field, which uplifts the ionosphere after the sunset, is one of the most important ingredients in the day-to-day variability of equatorial spread-F (ESF). Although, ESF have been studied since late 1930s, nevertheless it continues to attract considerable attention because still debate is going on regarding the onset conditions and their influence on trans-ionospheric radio-wave communications, location and navigation systems in the equatorial and low latitude regions. However, up to now there is not a good explanation for the day-to-day ESF variability during geomagnetically quiet and disturbed conditions. Observations from mult-instruments both ground (optical, ionosondes, and radars) and space (satellites) have been utilized for these studies. In this paper we show that a planetary wave type oscillation affects the PRE and then consequentially the variability of ESF. Also, the strength of the PRE plays an important role in the generation of “fresh” spread-F, where “fresh” spread-F are those observed between 19:00 and 21:00 LT (post-sunset conditions).

Ionosphere, Spread-F, Equatorial region

Paulo Fagundes - UNIVAP, Av. Shishima Hifumi, 2911, Sao Jose dos Campos – SP, Brazil, CEP: 12244-000, e-mail: fagundes@univap.br