

## True height description of equatorial F-layer over Parit Raja, Batu Pahat, Malaysia

*Zeti Akma Rhazali ; Ahmad Faizal Mohd Zain*

<sup>a</sup>Electronics and Communication Engineering, College of Engineering, Universiti Tenaga Nasional, Kajang, Selangor, Malaysia

<sup>b</sup>Faculty of Manufacturing Engineering, Universiti Malaysia Pahang, Lebuhraya Tun Razak, Kuantan, Pahang, Malaysia

### **ABSTRACT**

Digisonde ionograms recorded at Parit Raja, Malaysia (Lat. 1°52'N, Long. 103°48'E, Magnetic dip 14.3°) have been used to study the variations of ionospheric F-layer true height density peak ( $h_{\max}$ ). Hourly and daily patterns of  $h_{\max}$  as deduced from January 2005 ionograms were analysed and studied to determine the actual F-layer peak height over Malaysia. Initial observations revealed that typical height of equatorial F-layer peak was slightly higher compared to other higher latitude regions. The altitude was found to be around  $550 \pm 50$  km during daytime and 300 km from midnight till pre-sunrise hours.

### **KEYWORDS:**

equatorial ionosphere; F-layer peak; True height

## **ACKNOWLEDGMENT**

The authors acknowledge the Wireless and Radio Access Centre (WARAS) of the Universiti Tun Hussein Onn Malaysia for the ionosonde data for this study.

## **REFERENCES**

1. Davies, K., *Ionospheric Radio*, Peter Peregrinus Ltd., London, United Kingdom, 1990.
2. Rishbeth, H., "The equatorial F-layer: progress and puzzles," *Annales Geophysicae*, 18, pp. 730-739, 2000.
3. Abdu, M. A., "Equatorial ionosphere-thermosphere system: Electrodynamics and irregularities," *Adv. Space Res*, 35, pp. 771-787, 2005. (Pubitemid 40851893)
4. Balan, N., Batista, I. S., Abdu, M. A., Macdougall, J., and Bailey, G.J., "Physical mechanism and statistics of occurrence of an additional layer in the equatorial ionosphere," *J. Geophys. Res.*, 103, pp. 29169-29181, 1998. (Pubitemid 128665134)
5. Jenkins, B., Bailey, G. J., Abdu, M. A., Batista, I. S., and Balan, N., "The formation of an additional layer in the equatorial topside ionosphere," *Adv. Space Res*, 20 (6), pp. 1137-1140, 1997.

