

## **Abstract**

The equatorial ionosphere lies between the geomagnetic latitude  $\pm 20^\circ$  and the region is characterised with a number of anomalies. This work is aimed at studying the diurnal and seasonal variation of peak electron density ( $N_mF2$ ), the corresponding peak of ionization height ( $h_mF2$ ) during magnetic quiet days. Data from three equatorial stations namely; Ilorin, Nigeria (Geo. lat.  $8.5^\circ\text{N}$ , Geo. long.  $4.5^\circ\text{E}$ ) Fortaleza, Brazil (Geo. lat.  $3^\circ\text{S}$ , Geo. Long.  $38^\circ\text{W}$ ) and Jicamarca, Peru (Geo. lat.  $12^\circ\text{S}$ , Geo. long.  $76.8^\circ\text{W}$ ) were used for this study.

The result obtained showed that the  $h_mF2$  rises sharply within the time interval of 0600-1000 LT. It has a smaller range of variation between 1100-1400 LT and after 1400 LT, it begins to decrease and usually get to a minimum around 1700-1900 LT. The maximum day time peak varies from 300-319 km and that of the night is about 312-417 km. The  $h_mF2$  at Fortaleza shows no prominent pre-noon peak. Generally, the  $N_mF2$  diurnal variations are similar to those of  $h_mF2$  and the general departure of the F2-layer from the simple Chapman layer from the height of 190-230 km from the three stations studied.

In this study, it was observed that the characteristics of  $h_mF2$  and  $N_mF2$  at Ilorin and Jicamarca have similar variation and that of Fortaleza are different from those of the other two stations. The peculiarity of the F2 layer at Fortaleza is due to its difference in its geomagnetic coordinate compared with the other two stations.

**Key words:** Ionosphere, Quiet days, Equatorial region