

Observations of total electron content enhancements in equatorial anomaly region in China

Y. Chen , G. Ma , H. Shen , W. Huang

Center for Space Science and Applied Research, Chinese Academy of Science, Beijing
100080, China (cyh@earth.sepc.ac.cn / Fax: +86-10-62542551 / Phone: +86-10-62582955)

A GPS receiver chain has been established at equatorial anomaly region in China. The chain is composed of 4 GPS receivers located at Fuzhou (26.1°N, 119.3°E), Xiamen (24.5°N, 118.1°E) and Guangzhou (23.1°N, 113.2°E) and Nanning (22.8°N, 108.3°E). The aim is to study the TEC and ionospheric scintillation at equatorial anomaly in China area. This paper presents the observation of an isolated and localized TEC enhancement using the GPS TEC data. The TEC enhancements always appear in nighttime, even after midnight and during geomagnetic quiet time and low solar activity. The occurrence is more often in autumn than in winter. The cases studied here occur near the equatorial anomaly region, $\sim 15^\circ$ to 20° from magnetic equator. In some cases, the density observations from DMSP satellites at about 800km reveal the similar ion density enhancements.