

The behaviors of F-region irregularities in Taiwan during 2000, observed by ionosonde and GPS

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This study focus on the irregularities occurrences over Taiwan during high solar activity year (2000). The observation instruments include an ionosonde and a GPS receiver, and both of them are located in north of Taiwan which is closed to equatorial ionization anomaly crest. The irregularities were represented by spread F for ionosonde observation and GPS phase fluctuations for GPS observation. The monthly and hourly occurrence rate were detail investigated. The results show that the shape of spread F monthly occurrence pattern maintain similar features from one high solar activity year to another. Moreover, the irregularities over Taiwan are mainly originated from equatorial region through magnetic flux tube alignment process, and these irregularity occurrence characteristics are consist with upward ExB drift variations over equatorial region. Besides, there may have other sources to cause GPS phase fluctuations over Taiwan in local summer.