The correlation analysis of ionospheric characteristics and the geomagnetic Sq fields

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This study is trying to analysis variations of ionospheric characteristics and geomagnetic Sq fields. Using hourly data of the H and Z components of the geomagnetic observatories from mid-latitudes to equator over the eastern Asian sector in 1999, to calculate the Sq current. The other hand, we calculated the ionospheric total electron content (TEC) by using global positioning satellite system (GPS) data in 1999. In this investigation, we show the daily, seasonal and annual variations of geomagnetic Sq fields and TEC during the solar quiet period in 1999. Meanwhile, this study also collects ionosonde data in Chung-Li at Taiwan to analysis the cross correlation and discussion the possible physics processes for the variation of ionosphere corresponding to the geomagnetic Sq fields.

Keywords: ionospheric dynamo, geomagnetic field, Sq current

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