Comparison between ionospheric character parameters retrieved from FORMOSAT3 measurement and ionosonde observation over China

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Abstract
This study aims to compare of the ionospheric character parameters (NmF2, hmF2) from Digisondes over China with data from the FORMOSAT-3/COSMIC satellites during 2012 (the solar maximum). Data from three Chinese Ionosonde stations located in Mohe (52.0°N, 122.5°E), Zuoling (31.0°N, 114.5°E) and Fuke (19.4°N, 109.0°E) were used in the comparison. The results show that the correlations of the corresponding ionospheric parameters is pretty good and the NmF2 has a better correlation than hmF2, and the correlation coefficient changes with the latitude and season. With the decrease of the geomagnetic latitude, the correlations gradually debase. The correlations coefficient in equatorial ionization anomaly are lower than those values in other seasons. The possibly reason is that the electron density gradient during winter in the equatorial ionization anomaly is stronger than other seasons.

Keywords COSMIC, Ionosonde, the peak electron density, the peak height