

Statistical study on daytime Es observed by ground-ionosonde and RO-COSMIC in magnetic Equator region in 2010

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Scintillations under 150 km height shown by radio occultation (RO) of COSMIC are considered to be associated with ionospheric sporadic E (Es) layer. In this paper, we make a Statistical study on daytime Es observed by ground-ionosonde at five stations in magnetic Equator region in 2010, and make a comparison with S4 index from RO-COSMIC within 6 degree of each station. The results show that: At each station the diurnal variation of foEs from ionosonde decrease a little around LT 0600 and then increase, having maximum around LT 1200, decrease around LT 1800 and then increase near LT 2000-2200; All the $S4 \geq 0.3$ observations during daytime come from RO-COSMIC under 150 km height; The diurnal variation of S4 index under 150 km height from RO-COSMIC over each station has similar trend with that of foEs at the same station; S4 index over 150 km height from RO-COSMIC is only high during nighttime; For the stations at different longitudes, Es occurrences from ionosonde are positively associated with $S4 \geq 0.3$ from RO-COSMIC. The comparison shows that the S4 index from RO-COSMIC could show some features of daytime Es layer in magnetic Equator region without the location limitation of ground stations.

Keywords: daytime ionospheric sporadic E, ground-ionosonde , radio occultation of COSMIC , magnetic Equator region