

Space Studies of the Upper Atmospheres of the Earth and Planets including Reference Atmospheres (C)

Recent Advances in Equatorial, Low- and Mid-latitude Mesosphere, Thermosphere and Ionosphere Studies (C1.1)

OCCURRENCES OF SPORADIC-E LAYER OF AURORAL TYPE (ESA) IN THE SOUTH AMERICAN MAGNETIC ANOMALY DURING GEOMAGNETICALLY QUIET CONDITIONS

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The precipitation of energetic particles from the outer radiation belt can produce very diffuse (spread) traces in ionograms collected at high latitudes. These traces are generally classified as sporadic (Es) layers of auroral type (Esa). However, previous works have also reported the presence of Esa in the ionograms obtained in the low and middle latitudes regions in Brazil during geomagnetic storms. Such behavior was explained in terms of energetic particle precipitation from the inner radiation belt in the region with the global minimum in the geomagnetic field total intensity that characterizes the South American Magnetic Anomaly (SAMA). In the present work, data from a Digisonde installed in Santa Maria (SMK29; 29.7° S, 53.8° W, dip: -37°), near the SAMA's center, is used to investigate the occurrences and characteristics of Esa under geomagnetically quiet conditions. The results demonstrate that the occurrence of Esa over SMK29 shows a strong dependence on local time and season of the year.