

Nighttime electron density enhancements in East Asia

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The critical frequency of F2-layer (foF2) and other ionosonde data observed at stations, Okinawa, Yamagawa, Kokubunji, Wakkanai, and Sanya in East Asia sector have been collected to study the nighttime behavior of ionospheric F layer at middle and low latitudes. Enhancements in nighttime electron density are frequently present at these stations in pre-midnight and post-midnight intervals. The results show obvious seasonal and solar activity dependencies in the pattern of the nighttime ionospheric electron density enhancements. The pre-midnight enhancements have larger occurrence probability in summer months than in winter months, and the post-midnight enhancements have an opposite trend: more likely in winter months than in summer months. Nighttime enhancement in electron density tends to occur under lower solar activity. Analysis reveals that the effect of neutral winds is in reasonable agreement with the seasonal and solar activity variations of the nighttime electron density enhancements.

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