

The Sq-current and the Ionospheric Profile Parameters during Solar Minimum

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The bottomside electron density profile of ionospheric F2-layer can be described by the peak electron density (NmF2), maximum height of F2-layer (hmF2), bottomside thickness (B0) and shape (B1) parameter. We analyze simultaneous quiet days records of these profile parameters with the solar quiet of geomagnetic H-component (SqH) that was obtained from the Peruvian and Ilorin stations respectively during solar minimum. We observe a midday peak in hmF2 and B0 for all the months under study. At the Peruvian station, a post-sunset peak in hmF2 and B0 during the equinoctial month was observed. For all the seasons, we observe peaks in NmF2 during the midday and post-noon periods. The results further show that the variation in SqH current is mainly responsible for that in hmF2 and B0. Both NmF2 and B1 are observed to be less sensitive to the variations in the Sq-current.

Keywords: Ionosphere, Electron density profiles, Sq-current