

Disturbances of the topside ionosphere during magnetic storms

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The measurement by the KOMPSAT-1, which has a sun-synchronous orbit with descending node at 22:50LT and the altitude of 685 km, has been analyzed to determine the effect of magnetic storms on the topside ionosphere at pre-midnight. The electron density and temperature were disturbed during magnetic storms depending on the Dst index. During the main phase the electron density significantly increased over the mid-latitude region equatorward from the ionospheric trough. Also, the ionospheric trough became apparent implying the enhancement of recombination. On the other hand, the electron temperature increased over the equatorial region and the ionospheric trough region, but decreased over the mid-latitude region where the electron density increased. The density enhancement near the magnetic equator lasted to the late recovery phase, even more increasing during the early recovery phase. However, the mid-latitude enhancement was soon restored to the quiet time level. These disturbances also showed longitudinal variations. We will present a qualitative interpretation on the disturbances.