

CORRELATIONS BETWEEN THE IONOSPHERIC AND GEOMAGNETIC DATA VARIATIONS RECORDED AT TEHRAN STATION FOR SOME GEOMAGNETIC STORMS DURING 2006 AND 2007

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The present paper addresses the result of the ionospheric effects of some geomagnetic storms during 2006 and 2007. The theoretical and experimental studies of the ionosphere during magnetic storm made it possible to find the main physical processes determining the electron concentration distribution in the ionosphere at various latitudes and to present the most general picture of an ionospheric storm manifestation (Romanova et al. 2007). We compared the variations of F2 layer critical frequency during these times with quiet times in Tehran geomagnetic and ionospheric observatory of institute of Geophysics of University of Tehran located in mid latitude.

We analyzed the magnetographs of selected days which contains, quiet and storm time due to index diagrams. Then by calculating deviation of critical frequency of F2 layer of those day, we concluded that there are two different types of responses that called negative phase and positive phase. In mid latitudes the positive phase is a main phase during geomagnetic storm, but in quiet days the negative phase is observed. The sounding method was vertical sounding of high frequency radio wave in range of 3-30 MHz. By the use of this method we can just study temporal variations of ionosphere. Derivating the contour maps of the deviation of the critical frequency of the F2 layer over the geomagnetic storm time, and its comparison with the variations of the horizontal component of geomagnetic field and also geomagnetic index variations, represents the positive phase over a geomagnetic storm time.

Geomagnetic storm, Ionosphere, Positive phase

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