

Ionospheric fluctuation study over mid-latitude during one large magnetic storm based on GPS observation

D. Zhang Q. Li Z. Xiao

Department of Geophysics, Peking University, Beijing, P.R. China

From Nov. 5 to Nov. 10, 2004, a large number of solar events occurred that triggered many solar flares and CMEs. These CMEs caused two large geomagnetic storms and continuous energy proton event. During this period, one large positive ionospheric storm happened over the East-Asian region on Nov 08, 2004. On Nov 10, 2004, a strong spread-F was observed by the ionosonda located in the mid-latitude region of East china and Japan, and the ionospheric fluctuation over the ionosonda station derived from GPS observation was also obvious. In this report, the characteristics of the spatial distribution of the ionosphere fluctuation and its temporal evolution using the parameter of ROT derived from dual-frequency GPS measurement are studied. It is found that the ionosphere over the mid-latitude region in southern and northern hemisphere between the longitude of 100° E and 180° E behaves strong fluctuating activity during the magnetic storm period on Nov 10, 2004, a regular movement of the disturbing region is observed, in the end, the reason of the ionospheric fluctuation during this magnetic storm is analyzed.