



Storm-time occurrence of TEC fluctuations in northern and southern high-latitude ionosphere using IGS network of GPS stations

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In report it is discussed the occurrence of TEC fluctuations in high latitude ionosphere during 22-27 July 2007 storm. The TEC fluctuations under consideration were caused by middle and large scale irregularities. The latitudinal location of TEC fluctuations was associated with auroral oval and polar cap. For analysis of the temporal variations of TEC along individual GPS satellite passes were used. As the measure of the TEC fluctuations activity the rate of TEC on 1 min interval (ROT) and index ROTI were used. Activity of TEC fluctuations was controlled by geomagnetic activity. Maximal intensity of the fluctuations was observed in polar GPS stations. Strong TEC fluctuations were occurred on 25 and 27 July when K_p index reached the value of 9.

The occurrence of TEC fluctuations at different stations (longitude spaced) took place at same UT (UT control). The difference in occurrence of TEC fluctuations for both hemispheres was found out which can be related with seasonal effect as well as difference between geomagnetic and geographic coordinates of GPS stations used in the analysis. It was shown that IGS network can be effectively used for dynamics and structure of irregularities oval to monitor.