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Storm-Time Evolution of High- Latitude GPS TEC Fluctuations at Geomagnetic Conjugate Points

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The GPS measurements of northern and southern magnetic hemispheres were used to study the storm-time development of TEC fluctuations at conjugate area in the polar, auroral and subauroral ionosphere. During storms the intensity of irregularities essentially increases and the auroral oval expands to the equator. The maximal activity of TEC fluctuations took place when IMF Bz component was negative. The storm-time development of TEC fluctuations caused by ionospheric irregularities was controlled by UT. At polar stations MCM4 (-80.0 CGL-Corrected Geomagnetic Latitude) and RESO (83.1CGL), strong TEC fluctuations were observed during the storm, and they were more pronounced at southern (winter) hemisphere. Considering two auroral stations: SYOG (-66.6 CGL) and REYK (65.0 CGL) the fluctuations were more expressed at the northern hemisphere station - REYK. At subauroral station KERG (58.3 CGL), the differences of TEC fluctuations occurrence were less expressed. During the storm, the strong TEC fluctuations can be registered at latitudes lower than 55 CGL. The analysis of TEC fluctuations derived using GPS shown that this technique can permanently provide effective information on the oval irregularities of the high- latitude ionosphere.