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Longitudinal features of November 2004 storm in TEC

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The storm-time behavior of the ionosphere depends on different geophysical conditions. The occurrence of longitudinal effects of the ionospheric storm essentially is related to local time of storm offset. The severe geomagnetic storm of 7-10 November 2004 caused strong changes of the ionosphere. The response of TEC to this storm for three longitudinal sectors of the northern hemisphere was analyzed: American, European and Asian sectors, respectively. The TEC data using GPS observations of IGS and EUREF networks were obtained.

To reconstruct the global picture of TEC distribution during storm regional TEC maps over North America, Europe and Asia were produced. The worldwide and dense network of GPS stations provides the high spatial and temporal resolution of TEC measurements. TEC maps with 15 min interval and diurnal variations of TEC over individual stations were used for detailed analysis of TEC response on the planetary scale. The global and regional features of storm-time TEC behavior were found out during the development of the severe storm. In this paper the longitudinal effects observed in the ionosphere in TEC variations are discussed.