



## **Wave signature of substorms during strong magnetic storm on 15th May 2005**

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We have used the ground-based geomagnetic data, collected from 158 magnetic observatories for analysis of geomagnetic disturbances observed on the earth's surface during the strong magnetic storm on May 15, 2005. The global and local special features of the time-spatial dynamics of the geomagnetic wave phenomena in the range of the frequencies of 1-6 MHz (Pi3 geomagnetic pulsations) during the substorms in different phases of the magnetic storm have been revealed. The initial phase of this storm was characterized by the strong solar wind dynamic pressure and very intense fluctuations of the interplanetary magnetic field (IMF). It was shown, that the strong substorm (up to ~1000 nT), developing during the storm initial phase in the night and morning sectors, was accompanied by intensive Pi3-type geomagnetic pulsations with the amplitude maximum at the latitudes of the polar cap. The wavelet structure of the discussed pulsations showed the similarity with the wavelet structure of the fluctuations in the By IMF with the intensity maximum near 2 mHz. This fact supposes the idea of the possibility of the wave penetration from the solar wind. During the main and recovery phases of this storm the several intensifications of substorm activity, accompanied by Pi3 pulsations, were observed in the night and evening sectors. The dynamics of Pi3 pulsations fits the dynamics of substorm activity. The morphological characteristics and special features of the time-spatial distribution of Pi3 pulsations, accompanied of the different substorms were compared.