

## Investigation of Pc5 geomagnetic pulsations on two-dimensional network of stations

Valery S. Ismagilov<sup>1</sup>, Yury A. Kopytenko<sup>1</sup>

<sup>1</sup> St. Petersburg branch of Institute of terrestrial magnetism, ionosphere and radio waves Russian Academy of sciences (SPbF IZMIRAN)

[ivs@izmiran.spb.ru](mailto:ivs@izmiran.spb.ru)

Based on data from a two-dimensional network of magnetic stations, a detailed study of geomagnetic pulsations Pc5 with a frequency of  $\sim 2.8$  MHz, which arose in the afternoon sector against the background of a magnetic storm on August 27, 2014, was carried out. Two-dimensional distributions of magnetic field components Pc5 on the earth's surface were constructed in two intervals (at the beginning of the storm and during the period of maximum magnetic activity). It has been established that ionospheric Pc5 sources (Hall current vortices) have an elliptical shape with a larger axis in the south-north direction. At the beginning of the magnetic storm, the center of a single burst of Pc5 pulsations was located at a geomagnetic latitude of  $\sim 67.5^\circ$  ( $L \sim 6.8$  Re) and shifted westward at a speed of  $\sim 0.7$  km/s. The estimated size of this ionospheric source is  $\sim 150$  km in the west-east direction and  $\sim 330$  km in the south-north direction. During the maximum period of a magnetic storm, Pc5 pulsations are created by two ionospheric sources following one another. These ionospheric sources have a more elongated elliptical shape with axes in the west-east direction  $\sim 250$  km and in the south-north direction  $\sim 680$  km. The centers of these sources shifted by  $4^\circ$  to a more southern geomagnetic latitude  $\sim 63.5^\circ$  ( $L \sim 5$  Re) and moved westward at a speed of  $\sim 1.7$  km/s.