# POLARIZATION OF ARTIFICIAL MAGNETIC PULSATIONS OH THE GROUND

E. Belova, W.Lyatsky, A.Pashin and E.Pchelkina *(Polar Geophysical Institute, Apatity 184200, Russia; 815-55-37285; e-mail: belova@apgi.murmansk.su)*

Results of numerical modelling of artificial magnetic pulsation polarization generated by Heating Facility operated at Tromso (Norway) demonstrate significant discrepancy with experimental data (Maul et al. 1991). Possible cause of this may be that the experiment was carried out under conditions of horizontal inhomogeneous ionosphere. We have developed the model of the artificial magnetic pulsation generated in the vicinity of ionospheric inhomogeneities usually observed (in auroral zone. Ionosphere is assumed to be consisting of two parts with different conductivity separated by any line or to be homogeneous with a strip of enhanced conductivity. For the first case the analytical expression for magnetic on the ground was obtained. For the latter case which may be associated with auroral arc numerical solution was calculated. Two pulsation periods were taken: 10 sec and 120 sec, for which in the case of the homogeneous ionosphere the polarization being elliptic and linear, respectively. The space distribution of the magnetic field vectors and of the equivalent current lines on the ground was obtained. The linear polarization seems to keep the linear type of polarization even in presence of the ionospheric inhomogeneity. For elliptic polarization the ellipticity changes in this case. For both types of the polarization the orientation of the polarization ellipses on the ground changes. The dependencies of the polarization characteristics such as ellipticity and angle between major axis of the magnetic field ellipse and the external ionospheric electric field, on sizes and parameters of the ionospheric inhomogeneity were obtained.