



## **Wave variations in the middle-latitude ionosphere during geomagnetic perturbations**

I. Karpov, I. Shagimuratov, and G. Yakimova

Pushkov Institute of Terrestrial Magnetism, Ionosphere and Radiowave Propagation Russian Academy Science, West Department, Kaliningrad, Russia(ivkarpov@inbox.ru)

In observations of signals GPS it is established, that during geomagnetic perturbations and after their ending in the ionosphere unusual variations are observed. Features of these variations consist in the following: the amplitude grows from high latitudes to low, the periods of variations make 4-6 hours, the phase of variations poorly depends on latitudes, disturbances of have planetary character and strong dependence on a longitude. We assume that these features are not connected with IGW which are propagating from a polar cap during geomagnetic perturbations. Similar ionosphere effects should cause waves propagating along a longitude. It is supposed, that the planetary Poincare waves propagating in east and western directions are generated in the atmosphere. Reaction of an ionosphere is determined by standing Poincare waves. The analysis of observations at various latitudes has revealed variations ionosphere drift with the periods appropriate to Poincare waves. Changes of the periods of such variations with latitudes also are similar to changes of the periods of these waves. It is noted, that during geomagnetic storms the periods of variations considerably can grow up to 8-10 hours. It is supposed, that this effect can be connected with increasing of width of the channel of Poincare waves propagation during a geomagnetic storm. Estimations of characteristics of variations confirm the assumption that such TEC variations at middle latitudes during geomagnetic perturbations are determined by Poincare waves.