**The geomagnetic pulsations with a period about 30-minute observed on the dayside of the magnetosphere by the GOES satellites**

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For the first time, geomagnetic pulsations with a period of ~30 minutes were discovered on the dayside of the magnetosphere at geostationary orbit. The pulsations were recorded during the recovery phase of the magnetic storm on January 7, 2015, according to data from the GOES-13 (MLT=UT-5), GOES-14 (MLT=UT-7) satellites. The pulsations are most pronounced in the radial (br) and field-aligned (b||) components of the geomagnetic field. The pulsations modulate the flows of electrons and protons in a wide range of energies, while anti-phase geomagnetic pulsations and pulsations in the flows of charged particles are observed. Analysis of data from ground-based magnetometers shows that these oscillations are not visible on the earth's surface. This indicates the small-scale nature of these oscillations and their attenuation as they pass through the ionosphere. There are no similar fluctuations in the parameters of the solar wind and IMF according to the ACE satellite data. These properties indicate that the source of these oscillations is located inside the magnetosphere, and not in the solar wind.

In terms of their characteristics, the recorded oscillations are very similar to compression Pc5 pulsations (storm-time Pc5), except for a very long period and not a very regular shape. These long-period pulsations cannot be Alfven waves due to the limited length of the magnetic field line on the dayside of the magnetosphere. The antiphase of pulsations in the magnetic field and in particle flows suggests that these pulsations represent slow magnetosonic waves. An increase in energetic proton fluxes (95 keV) was detected according to GOES satellite data during the period of pulsation appearance. It is assumed that the excitation of pulsations is caused by kinetic instabilities of energetic protons.

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