

Bursts of 1-2 Hz dayside micropulsations of rising frequency during sudden impulses of large amplitude

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We present several cases of unusual response of the dayside magnetosphere to sudden changes in solar wind dynamic pressure (SI) observed at auroral magnetic stations Lovozero and Sodankyla. Each event is a series of short living bursts of the Pcl frequency range pulsations (SB -events) with the repetition period of about 15 minutes. The frequency of a single burst increases two times faster than for well known pulsation of "pearl" type. Although the probability of the SB excitation increases with the SI intensity, not every impulse of large amplitude caused the phenomena. It was found, that the SB-event occurred when the spectrograms of the DMSP satellites showed a signature of 1-10 keV ions in vicinity of observatory magnetic flux tubes. An interesting feature of the phenomena is 1-3 minute delay between the bay in the auroral riometric absorption and beginning of the first burst.

The possible mechanism of SB-event generation is discussed in the frame of ion-cyclotron (IC) waves excited in compressing magnetosphere. The SB-event may be an indicator of the hot plasma in the dayside magnetosphere. In combination with riometer data, it may be also a tool for estimation of propagation velocity of IC waves in the magnetosphere.