**Statistical study of the frozen-in condition of magnetic field based on satellite data from the THEMIS mission**

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**Abstract.** The frozen-in condition (FIC) is fundamental in magnetichydrodynamics and space plasma physics and can be expressed as follows: , where E is the electric field, u is the transverse component of the vector of the average mass velocity of the particle flow, and B is the magnetic field. In this paper, we conducted a statistical study of this condition based on data obtained from the THEMIS-A satellite for the period from January 2017 to February 2018. As a result, we developed parameter for evaluating the feasibility of FIC and obtained the spatial distribution of this parameter. It was found that FIC is most often observed in the morning part of the magnetosphere (3-9 MLT), while the opposite result is observed on the evening side (15-21 MLT). This indicates that FIC does not occur uniformly over the entire magnetosphere, and when studying magnetic field disturbances, it is necessary to consider such distributions.

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