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Forbush-decrease in a Magnetic Cloud

Tuesday 4 August 2015 16:00 (1 hour)

Calculation of cosmic ray intensity in a magnetic cloud is realized. It is supposed that the magnetic cloud near the Sun has the shape of a torus segment with typical structure of the magnetic field (magnetic field rope). The magnetic cloud is located in the coronal mass ejection having distribution of movement velocity by radius. The subsequent propagation of ejection in interplanetary space is determined on the basis of kinematic model. The magnetic field is determined by the freezing-in condition.

It is supposed that the cosmic ray intensity in a magnetic cloud is determined by the large-scale electromagnetic field. The zero, first and second moments of distribution function of cosmic ray with different energies are calculated. It is revealed influence of the regions connecting a magnetic cloud to the Sun on cosmic ray intensity. Comparison of calculation results with measurements is shown.

Collaboration

– not specified –

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Primary author: Dr PETUKHOV, Ivan (Yu.G. Shafer Institute of Cosmophysical Research and Aeronomy SB RAS)

Co-author: Dr PETUKHOV, Stanislav (Yu.G. Shafer Institute of Cosmophysical Research and Aeronomy SB RAS)

Presenter: Dr PETUKHOV, Ivan (Yu.G. Shafer Institute of Cosmophysical Research and Aeronomy SB RAS)

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