

Investigation of local deformations of muon flux angular distribution during CME with GSE-mapping technique

Wednesday, 24 October 2018 17:15 (15)

Coronal mass ejections (CME) have an impact on the flux of cosmic rays that penetrate the disturbed areas in the heliosphere and the near-terrestrial space. Unlike most ground-based cosmic ray detectors, the URAGAN muon hodoscope (MEPhI) allows to investigate both the integrated counting rate of registered particles and the spatial and angular characteristics of the muon flux at the ground level. To select the local areas with statistically significant intensity changes, the angular distributions for the last hour and preceding it 24 hours corrected for the barometric effect are used. Angular distributions are smoothed, and the matrix relative changes of the angular distribution in units of statistical errors is formed. Using the asymptotic directions calculated in advance, the angular cells of the matrix are mapped from the local coordinate system to the GSE coordinate system. The results of the study of GSE-mapping of local deformations of the angular distribution for different types of CMEs are discussed.

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Session Classification : Particle Physics: Astroparticle physics

Track Classification : Particle physics: astroparticle physics