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The background conditions of cosmic ray ion charge measurements in MONICA experiment

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The present contribution is dedicated to the investigation of background conditions for cosmic ray ion ionization state measurements in MONICA experiment. The future experiment MONICA is aimed to study the cosmic ray ion fluxes from H till Ni in energy range 10-300 MeV/n. The experiment main scientific objective is the measurement of ion ionization state, as well as elemental, isotope composition and energy spectra of Solar Energetic Particle (SEP), Anomalous (ACR) and Galactic (GCR) cosmic ray fluxes. The observation of ion fluxes will be carried out with high acceptance multilayer semiconductor telescope-spectrometer MONICA installed onboard satellite. The satellite orbit parameters (circular, altitude is about 600 km, polar) were chosen for the realization of unique method for the measurement of charge state of ions at energies >10 MeV/n based on the usage of Earth magnetic field as a separator of ion charge. To realize the method of geomagnetic separator it is necessary to detect ions in Earth magnetosphere in the interval of geomagnetic L-shells from 1.5 to 6. In this interval of L-shells the MONICA detectors will be loaded by the trapped energetic particles in the Earth's outer and inner radiation belts. In present work we have carried out the analysis of background particle fluxes with taking into account the recent data of satellite experiments and known AE-8, AP-8 models and formulated the recommendations to improve the background conditions for the MONICA experiment.

Collaboration

– not specified –

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