The asymptotic directions of approach and the magnetic rigidity cutoff of cosmic ray particles calculated for different airports

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The calculation of asymptotic directions of approach of cosmic ray particles is an important tool in the determination of the rigidity cutoff for a given geographical site. We present the computations results of the asymptotic latitude and longitude and the magnetic rigidity cutoff for the airports located in: Apatity, Oulu, Warsaw, Lae, Buenos Aires Wellington and Mc Murdo at different latitudes and longitudes. We study the numerical integration of equations of charged particles motion of cosmic radiation in the Earth’s magnetic field. The initial distance from the center of the Earth was taken as 20 km above the surface. At about this altitude, most cosmic rays undergo nuclear collisions. Calculations were made based on the model of the International Geomagnetic Reference Field (IGRF) in 2015.

Keywords
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Collaboration
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