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Peculiarities of galactic cosmic rays anisotropy during solar proton events

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Neutron monitors hourly experimental data have been used to study the temporal changes of the three dimensional anisotropy of galactic cosmic rays (GCR) during the solar proton events. Temporal changes of the radialA_r, longitudinal A_φ and latitudinal A_θ components of the GCR anisotropy (found by the Global Spectrograph Method), and the behavior of the phase of the diurnal variation of GCR intensity for the Ground Level Enhancement (GLE) have been analyzed. We show that, generally at the beginning stage of the GLE the radial A_r component of the GCR anisotropy is significant, while during decay phase of the enhancement the longitudinal A_φ and latitudinal A_θ components play equally the important roles. We estimate the rigidity spectrum of the event of 29 September 1989 using among others data of neutron monitor and multidirectional meson telescopes of the Tbilisi cosmic ray station.