

# Features of the galactic cosmic ray 3-d anisotropy during the Forbush effects

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We study the temporal changes of the three dimensional (3-D) anisotropy of galactic cosmic rays (GCR) for different recurrent and sporadic Forbush effects. Temporal changes of the  $A_r$ ,  $A_\varphi$  and  $A_\theta$  components of the 3-D anisotropy of GCR were calculated by means of the hourly data of the worldwide network of neutron monitors using the Global Spectrographic Method. A new steady-state model based on the Parker's transport equation has been developed to describe the expected distributions of the radial, latitudinal and heliolongitudinal gradients and 3-D anisotropy of GCR during the recurrent Forbush effect. The changes of the interplanetary magnetic field (IMF) turbulence in the range of the frequencies  $10^{-6} - 10^{-5}$  Hz and the magnitudes of the IMF in the vicinity of the disturbances in the interplanetary space are considered as the general cause of the recurrent Forbush effect. It is shown that the anomaly behavior of the 3-D anisotropy during several Forbush effects is reasoned by the extreme changes of the spatial gradients of GCR.