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## FEATURES OF LONG PERIOD VARIATIONS OF GALACTIC COSMIC RAY INTENSITY IN RELATIONS WITH THE TURBULENCE OF THE INTERPLANETARY MAGNETIC FIELD in 1968-2014

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Data of super neutron monitors, Bx, By, Bz components of the Interplanetary Magnetic Field (IMF) have been used to study relations of the long-period variations of the Galactic Cosmic Rays (GCRs) intensity with IMF turbulence for the period of 1968-2014. We find that the changes of the rigidity spectrum exponent  $\gamma$  of the GCR intensity variations and the exponents  $v_y, v_z, v_x$  of the Power Spectral Density (PSD) of the By, Bz, Bx components show a radical alternation of the large-scale structure of the IMF turbulence in considered period. We have studied the properties of the Probability Distribution Function (PDF) of the Bx, By, Bz components and their differences  $\delta B_i = B_i(t+\tau) - B_i(t)$  ( $i=x, y, z$ ) of the IMF, over the varying time scales  $\tau=1,2,3,4,5$  days. We find that for the time scales  $\tau > 4$  days the skewness and kurtosis of the IMF turbulence almost equal zero. So, at first approximation, one can state that the PDFs are almost Gaussian and anisotropy and inhomogeneous of the IMF turbulence can be ignored in large vicinity of space ( $>10^{13}$  cm). However, for smaller vicinity of space ( $<10^{13}$  cm) the turbulence of the solar wind plasma can be an anisotropic. As a result, for large part of space one can state that IMF turbulence could be fully described by the parameters of PSD (P-power and  $v$ -exponent) and employ for the calculation of transport coefficients of GCR in heliosphere. We suppose that the changes of the turbulence in the range of frequencies  $[10^{(-6)}-10^{(-5)}]$  Hz (responsible for the scattering of the GCR particles of the energies 5-50 GeV) and the module B of the IMF versus solar activity can be considered as the general reasons of the long period variations of the GCR intensity.

### Collaboration

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