

THE MODULATION FEATURES OF THE LONG - PERIOD COSMIC RAY
VARIATIONS IN CONNECTION WITH THE SING CHANGE OF THE
GENERAL MAGNETIC FIELD OF THE SUN

Iskra K. Agriculture - Teacher University, Physics and
Biophysics Dep. 08-110 Siedlce, ul. 3 Maja 54 POLAND

In the paper on the basis of the model and experimental investigations the spatial distribution of cosmic ray anisotropy for the different epochs of solar activity is studied.

A solution is offered to the anizotropic diffusion equation with regard to the electro-magnetic conditions for the periods of minimum and maximum solar activity and cosmic ray particle drift in a regular interplanetary magnetic field.

It is shown that the long-period changes amplitude and phase of the diurnal variations of cosmic rays is limited not only by convection and diffusion of particles but also by the drift effect before and after the sing change of the general magnetic field of the sun.

The calculated model is compared with the results obtained on the basis of an analysis of the experimental data from the neutron super-monitor station at Kiel, and it is shown that for the periods when the lines of magnetic force of the sun come from the northern hemisphere the phase of the first harmonic diurnal variation is shifted forwards to an earlier time.

It can be argued that the 22-year change in the diurnal variation of cosmic rays is generally caused by cosmic-ray particle drift in a regular magnetic field.

The 22-year change of shift in the first harmonic diurnal variation is of 2-3 hours and the change of amplitude between twenty and thirty percent.