

Dynamics of galactic cosmic ray intensity in the presence of interplanetary shocks.

I.S. Petukhov, S.I. Petukhov

Yu.G.Shapher Institute of Cosmophysical Research and Aeronomy, 31 Lenin ave., 677980 Yakutsk, Russia. (i_van@ikfia.ysn.ru/7(4112)33-55-51)

Trajectory set of the relativistic protons (CR) in the interplanetary magnetic field with regard to the current sheet for the different magnetic cycles of the Sun, for different position of the Earth in undisturbed conditions and in the presence of moving interplanetary shock too have been calculated. We have determined the form of volume in interplanetary space occupied by CRs arriving to the Earth's magnetosphere from different directions. In the presence of a shock the CR trajectories are subdivided into three types: 1) CR trajectories going to the Sun from external region with respect to the Earth's orbit and from the Sun after their reflection from a magnetic plug; 2) CR trajectories going from the Sun after their reflection from the shock front; 3) CR trajectories going from the Sun after their going out of internal disturbance region and crossing the shock front. The CR trajectories of 1-st type are not connected with the disturbance; the trajectories of 2-nd type provide the CR pre-increase and those of 3-rd type provide the CR pre-decrease. The dynamics of CR intensity caused by the movement of shock consists of the change of configuration of areas occupied trajectories of different types on the magnetosphere surface.