

Recurrence of galactic cosmic rays - diffusion and convection effects

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Corotating interaction regions affecting galactic cosmic rays are the origin of the 27-day GCR recurrence detected by neutron monitors on the ground, and in space, by spacecraft. The GCR recurrent variation during the solar cycles 24 and 25 based on the 3-d Parker transport equation is the subject of our studies. We investigate convection and diffusion effects on the structure of this variability. We present that the most realistic description of the heliospheric GCR transport gives combination of the temporal changes of heliospheric magnetic field strength and solar wind velocity incorporated into the mathematical modeling.

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