

RECURRENT VARIATIONS AND FORBUSH DECREASES IN GALACTIC COSMIC RAY INTENSITY

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Solar wind and interplanetary magnetic field (IMF) structures that recur with the period of solar rotation generate 27-day recurrent variations of galactic cosmic rays (CR). Although these recurrent variations have been studied for about half a century, their importance for the understanding of the global modulation of CR was realized only a few years ago. The recent Ulysses observations in the polar regions of the heliosphere generated new ideas about the role of 27-day recurrent phenomena in the solar wind and IMF with respect to galactic CR modulation effects. Based on data of the worldwide neutron monitor network and the Nagoya meson telescope we investigated 27-day variations and recurrent Forbush decreases (Fds) during 1986-1996. We determined the rigidity spectrum parameters and found a clear difference between the two types of CR intensity variations. This result fits into the general ideas about the 27-day CR variations at high heliolatitudes as observed by the Ulysses spacecraft and explained in theoretical models by several authors.