ANNUAL VARIATION OF GALACTIC COSMIC RAY INTENSITY AND THE ROLE OF THE HELIOSPHERIC CURRENT SHEET

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Data of the Kiel, Tbilisi and Tokyo neutron monitors have been used to study the features of the annual variation of the galactic cosmic ray (GCR) intensity during the last solar cycle (1986-1997). The study was conducted with the original data and with the data excluding Forbush decreases with a high latitude amplitude >3 %. To find the days of the Earth's maximum distance from the heliospheric current sheet, data from the computed source surface field Maps of the Wilcox Solar Observatory were used. An attempt to reliably reveal a drift effect in the neutron monitor data without Forbush decreases was made. The mean free path of GCR drift in interplanetary space for the Parker type spiral magnetic field was calculated. For the qA>0 solar magnetic cycle the expected magnitude of the annual variation and of the bi-directional heliolatitudinal gradient (caused by the gradient and curvature drift of GCR in the interplanetary magnetic field) based on the solution of the steady state Parker 2-D transport equation are in fair agreement with the results deduced from neutron monitors. However, we found noticeable differences between the modelling and the experimental results for the qA< 0 period of the solar magnetic cycle.