

3D simulation of galactic cosmic ray modulation: comparison with experimental data

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3D steady state transport equation of galactic cosmic rays with drift included is solved in four cases: 1) standard Parker heliospheric magnetic field (HMF), 2) HMF modified by Smith and Bieber, 3) HMF modified by Kota and Jokipii, 4) Fisk's type of HMF generated at two polar coronal holes. The spherically symmetric heliosphere bounded at the distance of 100 AU is assumed. The parallel and perpendicular diffusion coefficients are proportional to $1/B$, anti-symmetric element of diffusion tensor has the form derived under the assumption of weak-scattering. The magnetic axis perpendicular to heliospheric current sheet offsets from the solar rotation axis by angle of 10 grad. Calculation are provided for two polarity epochs ($A > 0$ and $A < 0$). The computed modulated spectra are compared with experimental data (IMP3, IMP8, CAPRICE) for the minimum period of solar activity. The best fit is obtained when the index of the power in rigidity in diffusion coefficient formula is less equal 0.78. The role of drifts in every simulation is discussed.