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The effects of particle drifts on the modulation of galactic electrons in the global heliosphere

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The fundamental process of global curvature, gradient and current sheet drifts in the heliosphere is still not fully understood, especially how solar wind and magnetic field turbulence could affect the magnitude of drifts on a global scale. General consensus is that the so-called weak scattering drifts is giving too large modulation effects as follows from the application of numerical drift models to solar modulation, when compared to observations from the Earth to the outer heliosphere. The effects of drifts on the global modulation of electrons are revisited by studying different modulation scenarios using a three-dimensional steady state numerical model for solar minimum conditions, for both magnetic polarity epochs. A straight forward approach is followed to illustrate how reducing drifts can affect the modulation of galactic electrons on such a global scale.

Collaboration

– not specified –

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