30th International Cosmic Ray Conference



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Stochastic simulation of cosmic ray modulation including a wavy HCS

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Abstract content

We present a new method to include a wavy heliospheric current sheet into a 2D numerical model of the heliospheric transport of galactic cosmic rays. Since the wavy current sheet has essentially 3D structure, we have developed an approach of averaging the corresponding drift effect over all longitudes for an axisymmetric model. First, an analytical solution is found for the flat sheet, this model then is applied to a wavy sheet assuming its local quasi-flatness. We study cosmic ray modulation in different solar modulation conditions and waviness of the current sheet. We discuss changes in the cosmic ray spectrum and the dominant streaming patterns of cosmic rays in the heliosphere for different solar polarities and HCS tilt angles.

If this papers is presented for a collaboration, please specify the collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 1 (SH), pages 459-462

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