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Origin of solar diurnal variation of galactic cosmic rays above 100 GV

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Abstract content

Recent observations of the Matsushiro deep underground muon telescope indicate that, the solar diurnal variation (after correcting for the Compton-Getting anisotropy due to the Earth's orbital motion) has a solar cycle variation and a 0.04\% wave extends to rigidities as high as several hundreds of GV during solar maximum. We construct a simple model to simulate the motion of high-rigidity particles in the heliosphere assuming different heliospheric current sheet (HCS) configurations. The model includes regular motion and scattering due to magnetic field irregularituies. We find that a highly tilted and warped sheet may result in an anisotropy, comparable to that observed at Matsushiro around 600GV. The phase of the observed and simulated anisotropies will be compared and discussed.

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 589-592

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