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Gradients of Galactic Cosmic Rays: Ulysses KET Results

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Abstract content

We study the spatial gradients of galactic cosmic rays in the inner heliosphere using data from the Kiel Electron Telescope (KET) aboard Ulysses and the Cosmic Ray Isotope Spectrometer (CRIS) aboard the Advanced Composition Explorer (ACE) for the time period from 1997 to 2007. This covers the solar minimum in the $A > 0$ -solar magnetic epoch, the solar magnetic reversal to an $A < 0$ -magnetic epoch at solar maximum and the declining phase of solar cycle 23. In order to calculate the galactic cosmic ray intensity distribution in the inner heliosphere we used the 125-250 MeV/nuc helium channel from KET and a combination of carbon channels from the CRIS instrument on ACE. Our analysis results in a radial and latitudinal intensity gradient of $G_r = 2.9 \pm 0.8\%/AU$ and $G_\theta = 0.04 \pm 0.06\%/degree$, respectively. Note, that in the current $A < 0$ -solar magnetic epoch a negative gradient was expected from previous observations in the outer heliosphere.

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

KET

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 571-574

Primary author(s) : Prof. HEBER, Bernd (CAU Kiel)

Co-author(s) : Mr. MÜLLER-MELLIN, R. (CAU Kiel); Prof. WIMMER-SCHWEINGRUBER, R. (CAU Kiel); Dr. GOMEZ-HERRERO, R. (CAU Kiel); Prof. MEWALDT, R. A. (Caltech, Pasadena, CA 91125, USA); Mr. GIESELER, J. (CAU Kiel); Mr. DUNZLAFF, P. (CAU Kiel)

Presenter(s) : Mr. MÜLLER-MELLIN, R. (CAU Kiel)

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