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The ~ 2300 year Modulation of the Galactic Cosmic Radiation

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Abstract content

This paper examines the properties of the ~2300-year periodicity in the galactic cosmic radiation, previously recognized in power spectra of cosmogenic ^{10}Be and ^{14}C . It shows that the periodicity consists of short episodes (50-100 year) of high cosmic ray intensity, such as accompanied the Spörer and Maunder Minima, separated by long intervals (>1000 years) of low intensities similar to, or lower than those observed by cosmic ray instruments since 1936. Assuming that the cosmic ray modulation process is similar to that observed since 1936, the cosmic ray data are used to investigate the long-term variation in the strength of the heliospheric magnetic field (HMF). It is concluded that the 22-year average HMF varies by a factor of ten over the course of the 2300-year periodicity. The terrestrial and solar implications are discussed.

If this paper 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 549-552

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