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# The effect of the heliospheric diffusion tensor on 26-day recurrent cosmic-ray variations

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## Abstract content

A linear relationship between the observed 26-day recurrent cosmic-ray intensity variations and the global latitudinal gradient was first reported by Zhang (1997, ApJ, 488). Burger and Hitge (2004, ApJL, 617) used a three- dimensional steady-state numerical modulation model and showed that a Fisk- type (Fisk 1996, JGR, 101) heliospheric magnetic field (HMF) can in principle explain these observations, at least at high latitudes. Burger and Engelbrecht (2006, AGU Fall meeting abstracts SH53B-1505) used a refinement of the Fisk- Parker hybrid HMF model by Kruger (2006, MSc dissertation, NWU University) to study these 26-day recurrent variations in more detail with the same modulation code. They reported that a single second-order fit to the amplitude of the recurrent variations as function of latitudinal gradient gives better results than a first-order fit and that there is a difference in the amplitudes for high- and for low rigidities at the same the latitudinal gradient. In the ecliptic at 1 AU the amplitude of the recurrent variations at high rigidity is larger during qA $>$ 0 polarity epochs than during qA $<$ 0 epochs, in agreement with observational results (Richardson et al. 1999, JGR, 104). In the present study we show how changes in the diffusion tensor (and the associated turbulence quantities) could affect 26-day recurrent cosmic-ray variations during periods of low to moderate solar activity.

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

## Summary

## Reference

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