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Time-dependent modeling of the solar modulation of cosmic rays

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The stochastic approach to solving the Parker transport equation has relatively recently become a popular means of furthering the numerical study of cosmic ray modulation. This is in part due to the fact that this approach allows for three-dimensional, time-dependent simulations over a range of energies that could not be performed using earlier finite difference techniques. We present here preliminary results from one such study, showing galactic cosmic ray proton intensities computed using a time-dependent stochastic modulation code, employing observationally motivated solar cycle-dependent expressions for the heliospheric magnetic field, tilt angle, and solar wind speed. Qualitative comparisons with spacecraft observations of cosmic ray intensities will also be made.

Collaboration

– not specified –

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Author: ENGELBRECHT, Nicholas Eugene (SANSA)**Co-authors:** LUO (North West University, South Africa); POTGIETER, Marthinus (North-West University); STRAUSS, Roelf Du Toit (North-West University, Potchefstroom)**Presenter:** ENGELBRECHT, Nicholas Eugene (SANSA)**Session Classification:** Poster 3 SH**Track Classification:** SH-TH