PROCEEDINGS OF SCIENCE

Time-dependent modeling of the solar modulation of cosmic rays

N.E. Engelbrecht*
South African National Space Agency (SANSA)
E-mail: n.eugene.engelbrecht@gmail.com

M. Potgieter
North-West University (Potchefstroom campus)
E-mail: Marius.Potgieter@nwu.ac.za

X. Luo
North-West University (Potchefstroom campus)
E-mail: luoxi1000@gmail.com

R.D. Strauss
North-West University (Potchefstroom campus)
E-mail: dutoit.strauss@gmail.com

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.

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*Speaker.

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