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Geomagnetic Storms Predictions

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There have been many studies on the relationship between cosmic ray parameters and geomagnetic effects. This was an attempt to see if cosmic ray neutron monitor data can be used as a proxy for determining the space weather events and especially if there is any predictive information in neutron monitor data regarding geomagnetic storms. The premise is that cosmic ray neutron monitor data are modulated by shocks associated with Coronal Mass Ejections (CME) and the cosmic rays arrive at Earth before the CME. The goal of the project is to use neutron monitor data (from four neutron monitors in Southern Africa: Hermanus (oldest in the world), Potchefstroom, Sanae (Antarctica), and Tsumeb (Namibia)) in combination with the other standard geomagnetic activity parameters (Magnetic field readings, Solar wind data, and the Dst and Kp indices) to see if there exists a statistical relationship and whether this can be used as a proxy to predict the pre-geomagnetic storm conditions over southern Africa. If this is possible, this information would be used by the SANSA space weather prediction service to help mitigate against the harmful effects of geomagnetic storms on communications, navigation and power grid.

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No

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