Theoretical model of SEP's during Halloween storms

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Abstract

Halloween storms event occurred during the decline phase of solar cycle 23, starts from 28 October 2003 to 4 November 2003. The solar energetic particles (SEP's) could be accelerated to higher energies of order of MeV per nucleon. A modified model for SEP's acceleration has been given and applied for that event.

The estimated values of the solar magnetic field during the solar particle event were introduced. The applications of the suggested model on the solar particle event show that a homogeneous structure is in agreement with the observations. The SEP and CME events lead to severe effects in geo-space and on earth, such as power blackouts, disruption of communications, and damage to satellites. Daily Geomagnetic storm changes, during Halloween storms were studied

Keywords: solar energetic particles, Halloween storms, Geomagnetic storm changes