Title: Interplanetary Conditions during extreme Geomagnetic Storms (SYM − H < −200nT) & its association with Cosmic Rays

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Abstract:

A geomagnetic storm is a phenomenon of a short-term decrease in Earth's horizontal magnetic field strength. The strength of a storm depends on the ring current intensity which is measured by SYM-H index (1 min resolution) or Dst (hourly index). In our study, we have noted that a storm has distinct phases, namely the sudden storm commencement associated with the initial phase, the main phase (when a large decrease in SYM-H), and the recovery phase. In general, the southward component of the interplanetary magnetic field (IMF-Bz) is responsible for the generation of GS. The ten-strong Geomagnetic Storm events which are ICME induced during the period of 2000 to 2021 have been analyzed. All studied events clearly show a decrease in cosmic ray intensity observed in neutron monitors. This phenomenon is also known as Forbush Decrease. Here the aim is to study the relation of interplanetary conditions with Geomagnetic Storm Phenomena and secondary cosmic rays observed on the surface of the Earth.

References-

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