



The Cosmic Ray variations during extreme Geomagnetic storm

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Interplanetary coronal mass ejections are large-scale magnetic structures, and when it interacts with the earth's magnetosphere, it causes geomagnetic storm events. During geomagnetic storms, the magnetic field on the surface of the earth decreases due to the development of a westward flowing ring current, which is then followed by recovery. During the Forbush decrease phenomena, also a decrease in the cosmic ray flux is observed followed by recovery. Therefore, studying the relation between Geomagnetic storms and Forbush Decrease is interesting. In this study, we have analyzed ten strong geomagnetic storms (SYM-H \leq -200nT) and associated cosmic ray variation. We observed a decrease followed by recovery in cosmic ray flux during all these events, which is consistent with the literature. Interestingly, we observe that the decrease in SYM-H values and cosmic ray flux are at the commencement of ICME shock. Further, the decrease in SYM-H continued with the southward orientation of the IMF Bz, whereas, at the minimum of SYM-H index we observe an enhancement in the high energy cosmic ray flux. It indicates that SYM-H and Cosmic ray modulation have some relation with each other. The interesting results and detailed analysis will be discussed during the presentation.

References-

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