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Solar event of May 11, 2024 some conclusions on the behavior of cosmic rays

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On May 11 2024 a train of at least three magnetic cloud connected to fast coronal mass ejections impacted Earth during a very short period of less than 24 hours. In this so complicated solar wind conditions around Earth, a ground level enhancement was observed by neutron monitors the same 11 May at 2 AM just in between of the first magnetic cloud and the second one. In this time, two twin detectors with the capabilities of measuring neutron and muon fluxes and muon incoming directions, located at Livingston Island (Antartica) and Tenerife Island (Spain) respectively, observed this complex event as a deep and wide Forbush decrease including a ground level enhancement weak signature in the detector at Livingston Island. A complete study of the solar wind conditions including the measurements of both detectors is presented in this work. Conclusions about cosmic ray spectrum variations and local and temporal cosmic ray anisotropies are inferred from the unique data of these detectors.

Collaboration(s)

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