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Simultaneous observation of solar neutrons at the International Space Station and high mountain observatories in association with a flare on July 8, 2014

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An M6.5-class flare was observed at N12E56 on the solar surface at 16:06 U on July 8, 2014. In association with the flare, two neutron detectors located at high mountain locations, Mt. Sierra Negra in Mexico and Mt. Chacaltaya in Bolivia, recorded two neutron pulses, separated approximately by 30 min. Moreover, enhancements were also observed by the solar neutron detector onboard the International Space Station. We analyzed these data and contrasted them with solar images from the Atmospheric Imaging Assembly (AIA) onboard the Solar Dynamics Observatory. From the existing evidence, we noticed that the production mechanism of neutrons cannot be explained by a single model; at least one of the enhancements can be explained by an electric field generated by the collision of magnetic loops and the other by the shock acceleration mechanism at the front side of the CME.

Biography

Jose F Valdés-Galicia has dedicated most of his career to create and consolidate a group on experimental Cosmic Ray Physics. He is the PI of a Neutron Monitor and a Muon Telescope operating continuously since 1990 at the National University Campus in Mexico City. He has produced many papers on Cosmic Ray Variations caused by solar activity; in that field his group discovered the 1.6y cosmic ray variation (Valdés-Galicia et al, 1996) that opened the path for a new research line on cosmic ray mid-term variations. He is a Member of the Pierre Auger Collaboration operating an observatory in Argentina dedicated to Ultrahigh Energy Cosmic Rays.

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