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ICaRO: a new cosmic ray detector at Izaña Atmospheric Observatory

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A twin detector of ORCA, the cosmic ray detector operating at Juan Carlos I Spanish Antarctic Base, is foreseen to be installed at Izaña Atmospheric Observatory (IZO) during the second part of 2021. IZO belongs to the State Meteorological Agency of Spain (AEMET) and it is located at the top of a mountain plateau in Teide volcano at Tenerife Island (28°18'N, 16°29'W, 2373 m a.s.l.) at vertical cut-off rigidity of 11.5 GV. ICaRO (Izaña Cosmic Ray Observatory) is composed of a BF3-based 3NM64 (ICRO), 3 bare BF3 counters (ICRB). The neutron monitor is complemented by a muon telescope sharing a common room in a single stack. The muon telescope follows the MITO approach, and thus is composed of two scintillator layers, Top and Bottom. It is able to provide muon counting rate and muon impact points on the scintillator layers. MITO's layers are 1.365 m apart with the two BF3 sets, ICRO and ICRB, in between. As such, the lead surrounding ICRO acts as filter for particles traversing throughout Top and Bottom. ICaRO will provide counting rates of neutrons in two energy thresholds, muon counting rate and muon incoming directions throughout the detector volume.

Keywords

Neutron Monitor; Solar Activity; Cosmic Ray; Solar Energetic Particles

Collaboration

other Collaboration

Subcategory

Experimental Methods & Instrumentation

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