



Tragaldabas: a muon ground-based detector for the study of the solar activity; first observations

Juan José Blanco and the Tragaldabas Team
University of Alcalá, Alcalá de Henares, Spain

A new RPC-based cosmic ray detector, TRAGALDABAS (acronym of "TRAsGo for the AnaLysis of the nuclear matter Decay, the Atmosphere, the earth's B-field And the Solar activity") has been installed at the Univ. of Santiago de Compostela, Spain (N:42°52'34",W:8°33'37"). The detector, in its present layout, consists of three 1.8 m² planes of three 1mm-gap glass RPCs. Each plane is readout with 120 pads with grounded guard electrodes between them to minimize the crosstalk noise. The main performances of the detectors are: an arrival time resolution of about ~ 300 ps, a tracking angular resolution below 3° , a detection efficiency close to 1, and a solid angle acceptance of ~ 5 srad. TRAGALDABAS will be able to monitor the cosmic ray low energy component strongly modulated by solar activity by mean the observation of secondary muons from the interaction between cosmic rays and atmospheric molecules. Its cadence and its angular resolution will allow to study in detail, small variations in cosmic ray anisotropy. These variations can be a key parameter to understand the effect of solar disturbances on the propagation of cosmic ray in the inner heliosphere and, maybe, provide a new tool for space weather analysis. In this work first TRAGALDABAS observations of solar events are shown