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Editors: Mario Armando Higuera Garzón & Santiago Vargas Domínguez

THE CALIBRATION OF THE GUANE ARRAY: EXTENSIVE AIR SHOWERS RECONSTRUCTION AND SPACE WEATHER STUDIES

H. Asorey[1], A. Jaimes-Motta[2], L. A. Núñez[2,3], J. Peña-Rodríguez[2], C. Sarmiento-Cano [2], and M. Suárez-Durán[2] for the LAGO Collaboration[4]

We discuss the calibration scheme and the resulting acceptance of the Guane Array (GA) of Water Cherenkov Detectors (WCD). This array is part of the Latin American Giant Observatory (LAGO) project, having singles and small arrays particle detectors, covering a huge range of geomagnetic rigidity cutoffs and atmospheric absorption/reaction levels.

GA is compose of three WCDs placed at the vertices of an equilateral triangle ($\sim$ 105 meters), at Bucaramanga, Colombia, (N 7^o 8' 40.1959", W 73^o 7' 30", 956 m a.s.l.). It is designed to study the flux of Cosmic Rays between ~ 10 GeV to $\sim 10^6$ GeV and their modulation by Space Weather phenomena. GA is thought to operate in two modes simultaneously: Single Particle Mode and Cascade Mode.

The calibration of GA is based on two steps: The first step is based on Geant4 simulations, to estimate the response of each WCD to the background radiation and the second step is related to the response in coincidence as an array, through simulations of secondary particle flux and their modulation using CORSIKA and MAGNETOCOSMICS codes.

As a result of these calibration steps we have characterized the response of each WCD in terms of the Vertical Equivalent Muon –Energy deposited by a Muon entering at the top and exiting from the bottom of the detector– and estimate the response of the GA for different background fluctuations.

[1] Laboratorio Detección de Partículas y Radiación, Instituto Balseiro y Centro Atómico Bariloche, S. C. de Bariloche, Argentina.
[2] Escuela de Física, Universidad Industrial de Santander, Bucaramanga, Colombia.
[3] Departamento de Física, Universidad de Los Andes, Mérida Venezuela.
[4] lagoproject.org, see the full list of members and institutions at lagoproject.org/collab.html (lago-pi@lagoproject.org).

THE TF1 RADIO ASTRONOMY WORKING GROUP IN THE ANDEAN ROAD: GOALS AND CHALLENGES FOR 2025

G. Chaparro Molano[1] and the Andean ROAD Radio Astronomy WG collaboration

Since the creation of the Andean Regional Office of Astronomy for Development (OAD) of the International Astronomical Union, one of the main goals has been to foster a scientific culture of radio astronomy in countries of the central and northern Andes (Bolivia, Colombia, Ecuador, Perú, and Venezuela). For this reason, Andean ROAD Task Force 1 (Research and Education in Universities) created the Radio Astronomy Working Group to set a path along which collaborative endeavors can grow and yield scientific results. The first official meeting of the Working Group took place in Bogotá, Colombia during the 2nd Astronomá en los Andes Workshop (2015) where scientists actively developing projects in radio astronomy set goals for the near future, such as improving mobility for researchers and students, developing collaborations in related areas such as engineering and data science, and building transnational collaborations aiming at developing VLBI across the countries of the Andean ROAD and beyond.

In this poster, I present current projects and associated research groups (ROAS - Perú, SiAMo - Colombia, Alfa-Orion UTP - Colombia, RAIG - Chile) and discuss goalposts and current challenges in the development of transnational radioastronomical projects. As a case study, I present the development and early astronomical results of the privately funded UECCI 4m Radio Telescope for 21 cm line observations in Bogotá, Colombia.

[1] Vicerrectoría de Investigación, Universidad ECCI, Bogotá, Colombia (g.chaparrom@ecci.edu.co).