



Contribution ID: 1158

Type: Poster

Energy Estimation of Cosmic Rays Observed with the ALPAQUITA Array

The ALPACA experiment is currently under construction to achieve the first sub-PeV gamma-ray observations in the Southern Hemisphere. The observatory consists of a surface air shower array and underground muon detectors, following the successful design of the Tibet AS γ experiment. As part of the initial phase, the ALPAQUITA array, comprising 97 surface detectors with 15 m spacing, has been completed and has already begun early observations.

In this study, we will report on the energy estimation methods for cosmic rays observed with the ALPAQUITA array. Several approaches have been widely used for air shower arrays, including the energy estimation based on the total particle density sum ($\Sigma \rho$), the shower size parameter N_e obtained from lateral distribution functions, and lookup tables incorporating particle densities at specific distances from the shower axis and zenith angle dependence, as adopted by experiments such as Tibet AS γ and Telescope Array. We examine the applicability of these methods to the ALPAQUITA array and discuss the resulting energy estimation performance.

Collaboration(s)

ALPACA

Author: FUJITA, Keitaro (Institute for Cosmic Ray Research, The University of Tokyo)

Presenter: FUJITA, Keitaro (Institute for Cosmic Ray Research, The University of Tokyo)

Session Classification: PO-1

Track Classification: Cosmic-Ray Indirect