



Research Report

ICRR Inter-University Research Program 2019

<p>Research Subject:</p> <p style="text-align: center;">Study for Galactic CR origin using the ALPACA air shower array in Bolivia</p>
<p>Principal Investigator:</p> <p style="text-align: center;">Pedro Miranda</p>
<p>Participating Researchers:</p> <p>Pedro MIRANDA, Rolando TICONA, Hugo RIVERA, Martin SUBIETA, Mirko RALJEVICH (Universidad Mayor de San Andres)</p> <p>Yoshiki Tsunesada (Osaka City University)</p> <p>Masato Takita, Takashi Sako, Munehiro Onishi, Kazumasa Kawata, Takashi Sako, Sei Kato (ICRR, University of Tokyo)</p>
<p>Summary of Research Result :</p> <p>Construction of a prototype ALPACA array, ALPAQUITA, has progressed. From August to November, Japanese and Bolivian members installed the base and stand of all 97 surface detectors at the site. Among them, 20 scintillating counters are placed on the stands (Fig.1).</p> <p>Following infrastructures became ready for service.</p> <ul style="list-style-type: none"> • Electronics hut housing DAQ room, workshop, storage room, kitchen, bathroom and bedroom (Fig.2). • Electric power line. • Lightning rod • Cable drains in the field (under construction) <p>A geographical survey for the underground water is performed and a water layer at 60m below the ground level was confirmed. Photo tubes for spare were purchased and being tested at ICRR. It will be shipped to Bolivia.</p> <p>Because of the COVID-19, installation of the rest counters are pending.</p>
<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;">  <p>Fig.1 Photo of the installed counters. Red structure is a stand of the counter.</p> </div> <div style="text-align: center;">  <p>Fig.2 (Left) electronics hut built at the center of ALPACA site. (Right) DAQ room in the hut.</p> </div> </div>

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