Contribution ID: **888** Type: **Poster**

Search for seasonal variations of the horizontal muon rate with the HAWC observatory

The High-Altitude Water Cherenkov (HAWC) observatory was designed to study gamma-ray sources in the energy range between a few hundred GeV up to few hundred TeV. It is composed of 300 Water Cherenkov Detectors (WCDs) that cover a surface of approximately 22,000 m^2, at 4100 m. a.s.l. In this study, we use the HAWC WCDs as a very large horizontal particle tracker, searching for horizontal muon rate variations by season using 1.5 years of HAWC data. We look for a possible correlation between the effective temperature and the horizontal muon rate. In order to do this, we developed a method to calculate the effective temperature for the horizontal propagation of muons. This is the first time that a search for seasonal variations in the high-altitude horizontal muon rate is reported.

Collaboration(s)

HAWC

Authors: LEÓN VARGAS, Hermes (Instituto de Física, UNAM); CASTELLÓN SALGUERO, Cindy (Instituto de Física, UNAM)

Presenter: LEÓN VARGAS, Hermes (Instituto de Física, UNAM)

Session Classification: PO-1

Track Classification: Cosmic-Ray Indirect