Contribution ID: **1102** Type: **Talk**

The azimuthal distribution of thunderstorm events recorded by the GRAPES-3 experiment

Monday 19 July 2021 19:18 (12 minutes)

The GRAPES-3 experiment reported the measurement of 1.3 GV potential across one of the massive thunderclouds recorded on 1 December 2014 by making use of the muon imaging technique. This measurement is ten times larger than the maximum potential reported previously by balloon and rocket sounding measurements, verifying the almost a century old prediction by C.T.R. Wilson. These measurements rely on the precise estimate of the change in the angular muon flux caused by the acceleration of muons during their passage through the charged layers of thunderstorms. The electric potential is estimated with the help of Monte Carlo simulations by using CORSIKA and other in-house tools. A study of the thunderstorms events recorded since April 2011 displays an asymmetry in their azimuthal distribution which can be understood to be caused by the ratio of μ^+/μ^-.

Keywords

GRAPES-3, Thunderstorm, Muon, Monte Carlo

Collaboration

other (fill field below)

other Collaboration

GRAPES-3

Subcategory

Experimental Results

Primary author: Mr HARIHARAN, Balakrishnan (Tata Institute of Fundamental Research)

Presenter: Mr HARIHARAN, Balakrishnan (Tata Institute of Fundamental Research)

Session Classification: Discussion

Track Classification: Scientific Field: CRI | Cosmic Ray Indirect