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Cosmic muon distributions at the Sea level obtained by CORSIKA code using different models

We present a study of cosmic proton interactions with air in the atmosphere using COsmic Ray Simulation for KAscade (CORSIKA) code. The CORSIKA simulation uses various hadronic interactions models for the secondary particle production in the air. The secondary particles mostly pions and kaons decay to muons which finally reach the Earth. The muon energy and zenith angle distributions are then obtained with CORSIKA code using different hadronic interaction models. The muon distributions are then compared with the experimental data measured at the Sea level. CORSIKA is very efficient in producing muon distribution at the Sea level and gives a good description of experimental data although it underestimates the muon flux in low energy region. The SIBYLL and GHEISHA gives the best description of the measured vertical muon momentum distribution and muon distribution at higher zenith angles.

Mini-abstract

The study of CORSIKA code models for the description of muon momentum distribution.

Primary author: Mr SOGARWAL, Hariom (Nuclear Physics Division, Bhabha Atomic Research Centre Mumbai 400085, India)

Co-author: Prof. SHUKLA, Prashant (Nuclear Physics Division, Bhabha Atomic Research Centre Mumbai 400085, India)

Presenter: Mr SOGARWAL, Hariom (Nuclear Physics Division, Bhabha Atomic Research Centre Mumbai 400085, India)

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