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Corsika based studies of secondary muon's impact on DEASA detectors.

The earlier studies in Corsika predicted the primary particle energy spectrum, densities, and time of arrival of secondary cosmic particles at the ground detectors [1]. Recently the emphasis has shifted to how the atmosphere thickness, the environmental effects due to atmospheric conditions, and geomagnetic fields can affect the number of secondary particles produced in the air shower. The relation between attenuation length and asymmetry parameter n(X) is studied at different atmospheric depths for pure and mixed primary particle compositions in Corsika [2]. The second discussion is based on how the hadronic models and geomagnetic fields affect the positive and negative muons produced in the air showers. The muon charge ratios at different angles and energies lead toward an east-west anisotropy [3]. Finally, a method is discussed to simulate the atmospheric pressure coefficient for the array based on the simulations in Corsika and Geant4 [4]. The DEASA detectors have been simulated in Geant4 and Corsika simulation results shall be presented.

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