

Measurement of the Muon Content of Air Showers with IceTop

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IceTop, the surface component of the IceCube detector, has measured the energy spectrum of cosmic ray primaries in the range between 1.58 PeV and 1.26 EeV. This measurement was done by sampling the lateral distribution function at distances from the shower axis where the signal does not depend strongly on systematic variations in the muon content of the air showers. Since May 2010, an improvement in optical modules' readout enables the detection of muons at large distances from the shower axis. Using this feature, and detailed knowledge of the detector response, one can derive the average lateral distribution function of low energy muons at large distances from the shower axis. We will discuss how the resulting muon lateral distribution function compares with previous measurements and current air shower simulations.

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