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Evidences for the Influence of the Earth's Magnetic Field on EAS Muon Component

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Abstract content

The dependence of the intensity of muon bundles detected at the Earth's surface by means of the coordinate-tracking detector DECOR on the angle between muon arrival direction and geomagnetic field vector (pitch angle) has been analysed. It is found that muon bundle intensity decreases with the increase of the transverse component of the magnetic field in comparison with calculations performed under assumption of azimuthal symmetry of the flux, the effect being enhanced with the increase of zenith angle. Comparison with CORSIKA-based simulations has shown that this effect is explained by changes in EAS muon lateral distribution functions caused by propagation of particles in the Earth's magnetic field. Another effect - appearance of a coplanar component in directions of EAS muons in a plane determined by shower axis and Lorentz force vector - has been also observed.

If this papers is presented for a collaboration, please specify the collaboration

DECOR Collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olive, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 4 (HE part 1), pages 95-98

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