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Systematic study of atmosphere-induced influences and uncertainties on shower reconstruction at the Pierre Auger Observatory

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Abstract content

The Pierre Auger Observatory employs a wide range of atmospheric monitoring instruments: two laser facilities; elastic lidar stations; aerosol phase function monitors; a horizontal attenuation monitor; star monitors; weather stations; and balloon soundings. Using all available analyzed atmospheric data we tested the impact on the shower reconstruction, namely on the shower energy and the position of shower maximum (Xmax). We focused on identifying the impact of different atmospheric conditions on the reconstruction of "golden hybrid" events. These events, which can be independently reconstructed by the fluorescence detector and the surface detector, are of particular importance for the energy calibration. The results of this study are given in this paper.

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

The Pierre Auger Collaboration

Summary

Reference

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, 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 351-354

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