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Weather induced effects on extensive air showers observed with the surface detector of the Pierre Auger Observatory

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Abstract content

The rate of events measured with the surface detector (SD) of the Pierre Auger Observatory is found to be modulated by the weather conditions. This effect, observed in different ranges of $S(1000)$, the signal measured at 1000 m from the shower core, is due to the increasing amount of matter traversed by a shower as the ground pressure increases and to the inverse proportionality of the Moliere radius to the air density near ground. The latter effect results in a modulation of the lateral spread of the shower with T and P. Air- shower simulations with different realistic profiles of the atmosphere support this interpretation of the observed effects.

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 319-322

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