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Measurements of aerosols at the Pierre Auger Observatory

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Abstract content

The air fluorescence detectors (FDs) of the Pierre Auger Observatory are vital for the determination of the energy scale. To compensate for variations in atmospheric conditions that affect shower energy determination, Auger has instituted an extensive atmospheric monitoring program. The program includes a Central Laser Facility (CLF) and an Extreme Laser Facility (XLF) to provide the FDs with calibrated laser shots, and a set of four independent scanning backscatter lidar stations. The aerosol phase function is measured on an hourly basis using two Aerosol Phase Function (APF) light sources. The resulting data are used to create hourly snapshots of weather conditions across the Auger site, whose total area exceeds 3000 km². This paper will focus on the data recorded by the lidar stations and by the CLF, namely the observation of cloud conditions and aerosol distributions. In particular, we will discuss and compare vertical aerosol optical depth measurements obtained by different instruments.

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 355-358

Primary author(s) : THE PIERRE AUGER COLLABORATION, - (The Pierre Auger Observatory); Mr. BEN ZVI, Seveg (Columbia University, New York)

Presenter(s) : Mr. BEN ZVI, Seveg (Columbia University, New York)

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