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## Measuring Cloud Base Height and Cloud Coverage using Elastic Multiangle Lidars at Pierre Auger Observatory

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Cloud features above the Pierre Auger Observatory (Mendoza Province, Argentina) produce significant effects on the reconstruction of Extensive Air Showers.

In this work, we present seasonal variations of cloud-base height, cloud coverage, and correlation between different sites using the information of elastic multiangle lidar data.

This system locates the presence of clouds by measuring the spikes in the backscattered photons detected in the direction of the sweep performed during each lidar scan, outside the field of view (FOV) of the fluorescence detectors. Horizontal homogeneity should be assumed to translate these results to the full array. This ansatz is verified by a set of dedicated horizontal lidar shots performed for a few seconds every hour inside the FOV of the fluorescence detectors.

Here we present the results for the period 2007 to 2018, using all the continuous lidars scan available in the lidar database. The analysis algorithm used for the cloud retrieval has been upgraded and based on a different concept than the previous one.

How clouds parameters vary across seasons are investigated, and conclusions about cloud homogeneity across the Pierre Auger array are given.

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