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THE ARCADE PROJECT

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The Atmospheric Research for Climate and Astroparticle Detection (ARCADE) project aims to a better comprehension of the limits of applicability, systematics and possible enhancements of the typical techniques used for the measurement of the aerosol attenuation profiles of UV light in cosmic rays and gamma rays experiments. Aerosols are indeed the most variable component in the atmosphere on a short time scale, and experiments based on the detection of the UV light in atmosphere need a continuous monitoring of the aerosol stratification to obtain a reliable evaluation of the properties of the primary particles. The ARCADE project is measuring the aerosol attenuation of UV light due to aerosols with multiple techniques and instruments simultaneously on the same air mass. For this purpose, a Raman + elastic Lidar with a laser source at 355 nm has been built and is currently taking data in Lamar, Colorado together with the Atmospheric Monitoring Telescope (AMT) to detect UV light at a distance of 40 km from the Lidar laser source. The system has been installed on site in 2014 and is currently taking data every month during moonless nights. A full simulation of the AMT system has been developed, calibration campaignes based on a near laser system have been performed and the data analysis has started. The setup of the system is described and preliminary results are shown.

Collaboration

- not specified -

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