Contribution ID: **14** Type: **not specified**

FRAM Next Generation: cloud monitoring in the age of CMOS cameras

Monday, 15 July 2024 17:45 (30 minutes)

The visibility of stars is often used for cloud detection using all-sky cameras, which have however only a limited reach and resolution near the horizon due to the lack of detectable stars. At the Pierre Auger Observatory, it is also used by the current generation of FRAM robotic telescopes, but –due to their limited field of view –only for a small number of selected showers. Thanks to the recent development in astronomical CMOS cameras, we are able to propose a new type of device, specifically tailored to the field of view of the fluorescence detectors (FD) of the Pierre Auger Observatory. The sub-second readout times available with CMOS cameras allows the efficient use of short exposures, and so the field of view of one FD can be covered within half a minute with resolution and reach sufficient to detect small clouds with a setup that is significantly smaller, simpler and cheaper than the current FRAMs. The FRAM Next Generation (framNG) device will be able not only detect clouds, but also assess their optical thickness, provide information on aerosol extinction, sky brightness and possible even record atmospheric phenomena and astrophysical transients. The main challenge lies in the large data volume produced which necessitates reliable real-time data processing.

Primary author: EBR, Jan (Institue of Physics, Prague)

Presenter: EBR, Jan (Institue of Physics, Prague)

Session Classification: Analysis techniques and simulations for atmospheric characterization