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Improvements to the Infrared Cloud Detection System at the Pierre Auger Observatory

Atmospheric cloud cover is an important parameter for many scientific experiments. At the Pierre Auger Observatory the precise locations of clouds, in the field of view of fluorescence detectors, is required to accurately reconstruct the energies and directions of cosmic ray air showers. To improve the current cloud detection system at the Pierre Auger Observatory, Gobi-384 uncooled radiometric microbolometer array infrared cameras, are being Implemented. These radiometric infrared cameras allow for sky and cloud brightness temperature measurements, which can be used to improve cloud detection methods by taking advantage of the absolute infrared signal and not just the differential signal. The possibly of understanding aspects of the physical structure and properties of the atmosphere at the Observatory may also be possible with these new cameras.

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