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Results from A Simple Infrared Atmospheric Radiometer

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Longwave radiation (wavelength 4.0–100 μm) is a key term in the surface energy budget and is vitally important for meteorology, climatology, remote sensing, and the study of radiative cooling of buildings, solar energy collection, and vegetation.

Detailed data of this radiation is of great importance but it requires costly equipments. We have developed a single pixel infrared (IR) detector based on commercial IR thermopile sensors. The detectors are developed with different fields of view (FOV) and have a spectral response which extends from 5.5 μm to above 20 μm. These detectors were used for different atmospheric applications and studies. This paper aims to give a detailed description of these detectors, and the methodology followed to construct and calibrate them. Results from observations with these detectors will be given.