

Transient Luminous Events observed with the pinhole camera from Sierra Negra Volcano in Mexico

Abstract content

The next generation of experiments devoted to study extreme energy cosmic rays will be at satellites and space platforms. Recent experiments have shown that UV light background is more complex than previous models. Therefore, the observation of transient luminous events (TLEs) at the upper atmosphere will be important. Information about the time and space evolution of this very fast phenomenon may need to be recorded, this imposes requirements of a wide field of view and large focus depth. The simplest optical design, a pinhole camera fulfills these characteristics. This pinhole camera has as photodetector a multianode photomultiplier (8x8 pixels array) that allows us to register 2-d images of TLEs. In this work we present some events recorded from Sierra Negra Volcano in Mexico and the pinhole camera in order to use it as a monitoring device.

Summary

The pinhole camera design has shown to be a fruitful configuration for studies of background light level distribution presented in the atmosphere. The calibration and performance test at the Mexican Volcano Sierra Negra, shows that it is possible to detect with high confidence level the TLE and UV background light, encouraging us to propose the installation in a future satellite mission.

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