Calibrating Balloon EUSO

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Extreme Universe Space Observatory

The International EUSO project aims to study the highest energy particles in the Universe by looking at how they interact with the Earth’s atmosphere. The prototype, Balloon-EUSO, flew on a stratospheric balloon in August 2014.

To calibrate Balloon-EUSO, a helicopter carrying specially designed light sources, flew under Balloon EUSO and fired calibration pulses up at the instrument. UAH students designed the tracking system used to position the helicopter and worked on the calibration light sources as well.

Results of the Maiden Flight

Data collected from the tracking system shows that the helicopter was in the field of view of EUSO for >60 minutes, twice the mission requirement. Preliminary data from EUSO shows that it did see the light sources.

The Future of EUSO

The successful calibration flight of Balloon-EUSO paves the way to flying JEM-EUSO on ISS. From Station, JEM-EUSO will be able to map the trajectories of the most extreme particles in the Universe, giving us new insights into the Extreme Universe we live in.

Broad Implications of EUSO

The EUSO project pushes the limits on what is technologically possible and, once on orbit, will shed some light on the mystery of cosmic rays. The calibration of Balloon-EUSO was a critical stepping stone on the path to orbit.

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