

The Colorado Atmospheric Monitoring Telescope as a detector for Elves?

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The serendipitous observation of atmospheric Elves by the Pierre Auger Observatory has demonstrated that cosmic ray air fluorescence detectors can measure transient luminous events quite well. TLE measurements are also an important component of the science program that is planned for JEM-EUSO. In this talk I will discuss the possibility of using a simplified optical cosmic ray detector, called the Atmospheric Monitoring Telescope (AMT) to measure Elves and other TLEs. The AMT is a stand-alone remotely operated system developed for atmospheric R&D at the Pierre Auger R&D site in south east Colorado USA. (In this work it measured side scattered light from a vertical 355 nm YAG laser 40 km distant.) The AMT features a 3.5 m² mirror that focuses light from the night sky on to a camera of 256 PMTs. Although the field of view is only 15x12 degrees, it could be used to contribute wide separation stereo measurements to contribute to ongoing programs, for example at the Pierre Auger Observatory. The AMT measurement program could be focused on atmospheric TLE's rather than cosmic rays. In this talk, which is intended to stimulate discussion, I will describe the AMT and some of the ways it could be used to measure TLEs.

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