LIGHT CURVES FROM A PERMANENT METEOR CAMERA STATION IN THE CANARY ISLANDS.

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Introduction: ESA's Meteor Research Group has recently installed a double-station meteor camera setup on the Canary islands called CILBO (Canary Island Long Baseline Observatory) which is using intensified video cameras. This presentation will give first results of this setup.

Observational setup: Two meteor camera stations were installed on the Canary islands, Spain, in 2011. One station is located close to the Optical Ground Station, ESAs 1-m telescope on Tenerife at Izaña Observatory (CILBO-T). The other one is located close to the Automated Transit Circle of the observatory on La Palma (CILBO-L). CILBO-T houses two camera systems with DEP-1700 image intensifiers fiber-coupled to the CCD of a Sony PAL video camera. A Fujinon 25 mm f/0.85 lens (used at f/1.2) yields a field of view of 22 x 28 deg^2. The cameras record stars down to ca. 7 mag; the estimated fainted meteor magnitudes are around 5 mag, depending on the apparent velocity.

One of the cameras is equipped with a Zeiss objective grating (651 lines/mm) to obtain spectra of the brightest meteors.

CILBO-L houses an identical camera system. The cameras are pointed such that they allow double-station observations of a point half way between the two islands in 100 km altitude. Combining the data of the two systems will allow trajectory and orbit determination.

The cameras are mounted in an automated roll-off roof. A weather sensor determines cloud conditions, rain, and wind. A scheduling software controls the setup such that operations is fully autonomous.

First results: The complete system has been operational since December 2011. A typical night without any major showers yields about 60 to 80 meteors. In the month of January 2012, the camera at CILBO-T detected more than 1200 meteors. Three meteors were found to have a double peak (see *e.g.* Figure 1 and 2), *i.e.* after a first maximum and a subsequent brightness decrease, the brightness increased again. A significant number of meteors show a very unsymmetrical light curve with the brightest point at the onset of the meteor. This indicates very fragile meteoroids. In this paper, we will provide a first analysis of the measurements obtained so far, in particular focussing on the light curve properties of sporadic meteors.

Conclusions: We have successfully set up a permanent meteor observatory studying meteors in the magnitude range down to about 5 mag in the Canary islands. The setup will allow determining orbits, light curves as a function of height, and, for the brightest objects, allow spectral analysis. In this paper we present first results focusing on the light curves of sporadic meteors.

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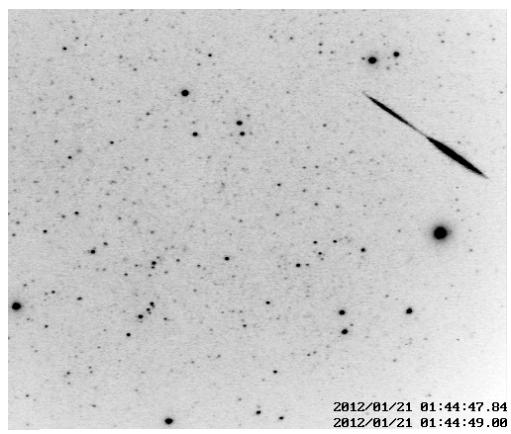

Figure 1: The double-peaked meteor of 21 Jan 2012, in the constellation Auriga. Field of view ~18 x 22 deg^2. North is to the right. The meteor was moving from right to left.

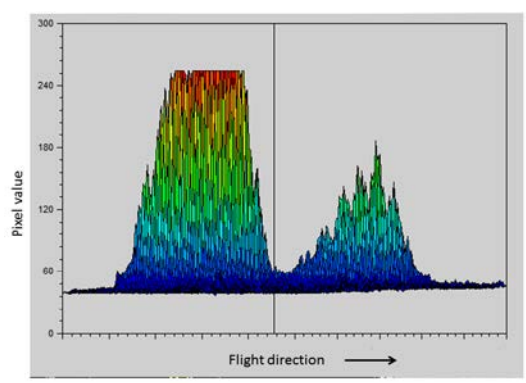

Figure 2: Brightness profile of the meteor. The first peak is level on top due to saturation.