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 Ob-
servatory (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 deg². 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 i-
slands in 100 km altitude. Combining the data of the
two systems will allow trajectory and orbit determina-
tion.

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

First results: The complete system has been ope-
rationalsince 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 mete-
or. 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 per-
manent 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 pre-
sent first results focusing on the light curves of sporad-
ic 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 deg². 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.