

PDC2019
Washington, DC, USA

X Public Education & Communication

CHRONOFLASH, A SIMPLE DEVICE FOR ASTEROID OCCULTATIONS TIMING

Jean-Yves Prado

PLATINEO, Suite C201 14 rue Henri AMEL, 17000 La Rochelle FRANCE

Keywords: *Time tagging, image, telescope, asteroid*

ABSTRACT

An asteroid occultation, for a specific location, occurs when an asteroid passes in front of a star seen from this place. As it is exceptional that an occultation can be observed with a fixed professional telescope, asteroid occultation events provide a unique opportunity for amateur astronomers, dispersed along the planned occultation path, to determine the asteroid size, its geometry and even whether it is a single or binary system.

These activities have been initiated by the IOTA (International Occultation Timing Association) and are becoming more and more popular within the amateur astronomer community worldwide.

A major issue that has to be solved to process the observational data is to bring timing accuracy within a few 1/100 seconds. Several methods can be used to provide the requested accuracy but all of them are hardware and/or software dependent. On the contrary, the Chronoflash system which has been designed for the timing of photometric data collected in different sites during total solar eclipses, is totally hardware and software-independent.

Chronoflash is an optical time-stamping accurate device which produces a luminous flash at predefined times referenced to the GPS time, considered as the absolute time reference. Placing Chronoflash in the field of view of any telescope before or after the expected time of the planned event makes it possible to time-stamp the recorded video stream with accuracy brought under a millisecond. The Chronoflash 2.0 that is presently in preparation will deliver a luminous flash every 10 seconds based on the minute.

When processing the video streams, it is straightforward to identify the frames where the Chronoflash light appears and thus to synchronize the data.
