

Occultation Observation Manual (Digest) *

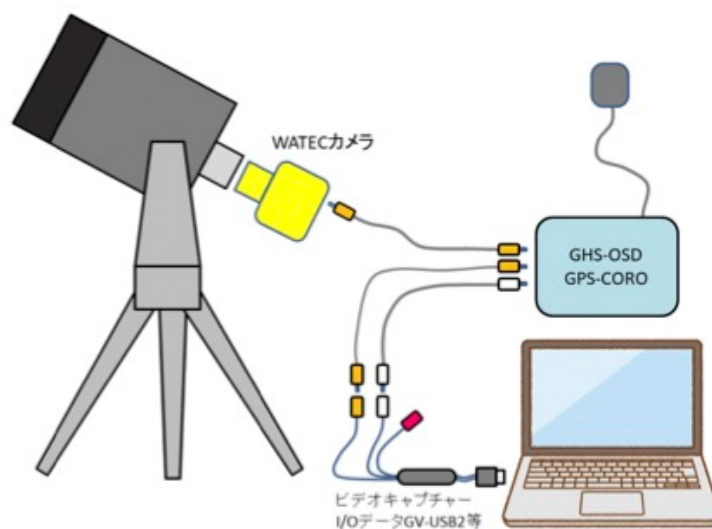
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1 Using the WATEC camera

This is a method of recording analog video signals through a GPS time imposer (such as GHS-OSD). It is very simple.

1.1 Equipment configuration



Video capture GV-USB2 is commercially priced at about 3000 yen (JPN).

*Translation by Fumi Yoshida (UOEH). From Japanese manual to English.

1.2 Install the computer software “Limovie”

You can download from the following URL.

<https://astro-limovie.info/limovie/limovie.html>

From the menu of “Limovie”, and select to be able to record video.

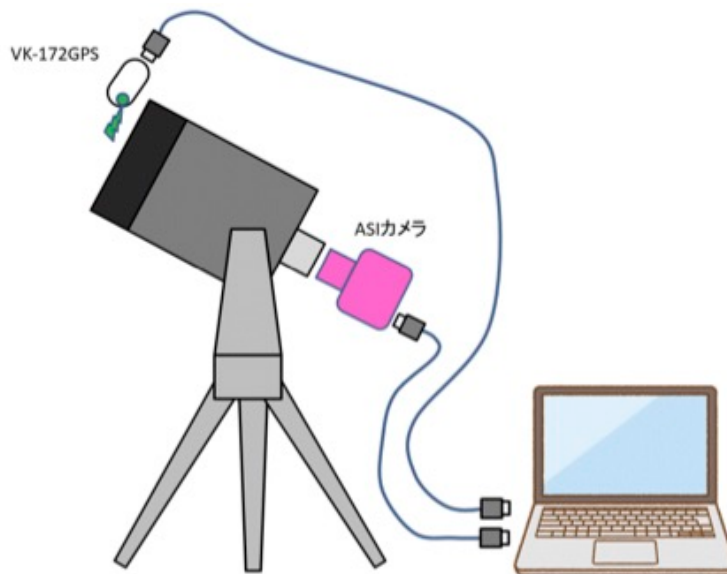
1.3 Tips for successful observation

Use a reducer to shorten the focal length and brighten the F value as much as possible.

2 Using an ASI camera

This is a method of recording ASI or other digital video signals to a PC. It requires some procedures to obtain accurate time signals. Currently, it is the most sensitive and precise method for stellar occultation observation.

2.1 Equipment configuration



GPS synchronization VK-172GPS is commercially priced at about 1000 yen (JPN). The VK-172GPS emits extremely accurate (uncertainty is less than microsecond) second signals synchronized with GPS by green LED.

2.2 Install the capture software “SharpCap”.

You can download from the following URL.
<https://downloads.sharpcap.co.uk>

2.3 SharpCap settings

Important setting : You must set as follows.

Format Mode : MONO8,
 Binning : 2,
 Output Format : AVI,
 Image Info Time Stamp : On,
 Camera Control Frame Rate : Max.

If possible, please consider the following points for preventing frame dropout.

Format Image Range = “as small as possible”.

2.4 Observation procedure

1. Set up equipments and put the target star in the field of view.
2. Adjust the clock on your PC as accurately as possible. It is recommended to use the Internet synchronization of Japan Standard Time.
<https://jjy.nict.go.jp/ntp/>
This is for observers in Japan. If you observe in different country/region, please find a proper site in the country/region.
Using the above method, your PC clock will be set with the accuracy of $< \sim 0.2$ seconds.
3. From the end of the telescope tube, irradiate 1PPS-irradiation of the VK-172GPS, before and after the occultation observation.

Model case:

30 sec. irradiation / 1 min. observation / 30 sec. irradiation

2.5 Supplement

The VK-172 GPS illuminate a green LED lamp exactly with the 1PPS signal per second, which is synchronized with the world time. The latest VK-172GPS has a red LED that lights up even when the 1PPS is off. This red LED is not necessary for our observation, rather it bothers the observation. So, the red LED should be destroyed by nippers or some equivalent tools.

2.6 Tips for successful observation

Use a reducer to shorten the focal length and brighten the F value as much as possible.