

RESULTS OF THE OBSERVATION OF PARTIAL SOLAR ECLIPSE ON
MAY 11, 1975

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Summary: In this paper results of contact times determination of the partial solar eclipse observed photographically on the Hvar Observatory on May 11, 1975, are presented. Classical way of chord measurements from negatives is rather imprecise, so that measurements of isophotometric copies are expected to yield much better results. This work is in progress and together with ephemeris time correction should be published later.

Partial solar eclipses are very suitable for determination of ephemeris time correction. Unfortunately, exact coordinates of Hvar Observatory still are not known, so that final results will be published later.

Plan of observation of May 11, 1975, partial eclipse contained frequent photographing of beginning and end of eclipse (10 minutes after I contact and before II contact). Predominantly good weather conditions made possible collecting of wealth observational material. Eclipse was recorded on photoheliograph of a double solar telescope of Hvar Observatory. Pentacon camera and Agfa Copex Pan film with exposures of 1/1000 s were used. Times of exposures were automatically recorded by printing chronograph together with two-second impulses of Electrochron clock and time signals from receiver.

Times of contacts were determined by well known Innes method in which we have neglected quadratic term. Bouška (1970) has showed that it has no influence on final results and even to the magnitude of error in determination of times of contacts. Much more important are measurements of chord.

Chord measurements were made at Institute for Physics of Zagreb University by means of precise measuring microscope IZA 2. Quality of negatives of the first contact is lower, because of misty weather and lower altitude of the Sun

above horizon. That resulted in much larger error in determination of time of *I* contact.

After taking into account clock correction according to time signals, following results were obtained:

$$T_I = 5^h 16^m 42^s 82 \pm 2^s 65 \text{ UT}$$

$$T_{II} = 6^h 56^m 41^s 52 \pm 1^s 14.$$

Ephemeris time correction will be given later, when precise coordinates of Hvar Observatory will be known.

As continuation of this work, isophotometrical copies were made in order to achieve better resolution of the ends of a chord, which will undoubtedly improve accuracy of time determination. Because of great number of negatives, this work takes much more time to achieve final results, which will give insight in improvements of accuracy in time determination of solar eclipses.

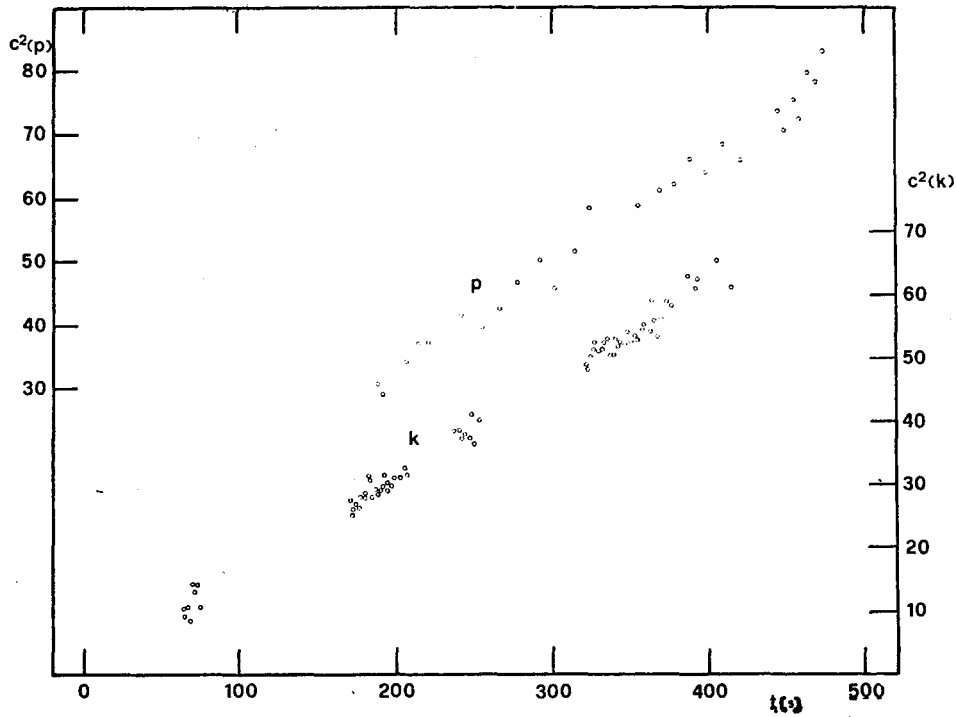


Fig. 1 Caption. Squares of the chords c^2 vs. the time after the first contact (p) and before the last contact (k).

Dr. V. Letfus from Astronomical Institute of Czechoslovak Academy of Sciences has paid attention to the possibility of use of photographic isophotometry in precise determination of times of contacts. Dr. V. Vujnović (Institute for Physics) has taken part in observations, while Mr. Z. Ivanović of Hvar Observatory

has prepared apparatus for registration. Professor B. Makjanić (Geophysical Institute of Zagreb University) has kindly sent us corrections of times of signals we used in this work. Without understanding of Professor V. Petković, Director of Hvar Observatory, this work could not be realized. To all those persons we are deeply grateful.

R E F E R E N C E S

Bouška, J.: 1970, *Bull. Astron. Inst. Czech.* **21**, 379.