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A PHOTOELECTRIC TIME OF MINIMUM OF TV Cas IN FOUR COLOURS

During the winter of 1980-1981 TV Cas was observed at the wavelengths 4720, 6720, 7820 and 8710 Å of the Utrecht Photometric System (Provoost, 1980) using the 40 cm f/12.5 reflector of the Astronomical Institute at Utrecht. This telescope is located at the Dutch Observatory in Ausserbinn, Switzerland ( $\lambda = -8^{\circ}8'44''$ ,  $\phi = 46^{\circ}23'05''$ , alt. = 1350 m) and is equipped with a single-channel photometer containing a refrigerated RCA 31034 A tube. The data were reduced with the comparison star BD+58<sup>o</sup>0024. The primary minimum of J.D. 2444602 (28/29 Dec. 1980) is recorded approximately from phase 0.92 to 0.06. In each colour 34 observations are available.

Several methods (e.g. Gauss-curve fit, parabolic fit) were used to find the time of minimum light in each wavelength. Although these methods all yield practically the same value, the error is hard to determine. This is due to model-dependence and the small number of points. The best way to arrive at a good estimation of the error in a time of primary minimum is to compare independent measurements of that minimum, for instance by taking those obtained in several colours. The results presented in Table I were determined by a "folding-method", which is in principle a midpoint-method. This table also shows the standard deviation and the number of observations involved. Of course this can only be done on the assumption of wavelength-independence of the time of minimum.

The ephemeris of Margrave (1980)  $2441595.3582 + 1.8125944 \cdot E$  was used to calculate the O-C values for the most recent photoelectric timings of primary minimum in Table II. These results seem to indicate a slight increase in period of TV Cas.

Table I

An Observed Heliocentric Time of Minimum of TV Cas

filter $\lambda_0$	Hel. JD. - 2,444,000.0	Number of observations used
4720	602.4530 ( $\pm$ .0008)	29
6720	602.4538 ( $\pm$ .0009)	29
7820	602.4539 ( $\pm$ .0012)	29
8710	602.4528 ( $\pm$ .0013)	31
mean	602.4534 $\pm$ .0004	118

Table II

O-C Values of the Most Recent Timings of Primary Minimum of TV Cas

Hel. JD. - 2,440,000.0	E	O-C	Source
3786.7841	1209	-.0007	IBVS 1869
3795.9491	1214	+0.0003	"
4094.9264	1379	+0.0005	"
4114.8657	1390	+0.0013	"
4453.8209	1577	+0.0013	IBVS 1930
4602.4534	1659	+0.0011	this paper

A more thorough investigation of this problem will be published separately (De Landtsheer, 1981). In the meantime it is clear continuous observation of TV Cas is needed.

A.C. DE LANDTSHEER

The Astronomical Institute at  
Utrecht  
Zonnenburg 2  
3512 NL Utrecht  
The Netherlands

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