

## CW CAS - A PERIOD UPDATE

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### Abstract

Visual times of minima of CW Cas observed since 1977 show a large discrepancy vs. the *General Catalogue of Variable Stars* (Kholopov *et al.* 1985) period.

The fourth edition of the *General Catalogue of Variable Stars* (GCVS)(Kholopov *et al.* 1985) describes CW Cas as an EW type star with a magnitude range of 11.0 - 11.6 V. Visual observations of this system were begun in 1977 at the Milwaukee Astronomical Society (MAS) Observatory. The elements from the third edition of the GCVS (Kukarkin *et al.* 1969)(equation 1) were used to predict eclipses.

$$JD_{(\min)} = 2435745.6163 + 0.318865 E. \quad (1)$$

During the reduction process the observed times of minima were compared with the elements from the fourth edition of the GCVS (equation 2):

$$JD_{(\min)} = 2441649.40322 + 0.3188449 E. \quad (2)$$

The source of equation 2 is IBVS No. 962 (Burchi and deSantis 1975), which lists seven photoelectric times of minima observed in 1972, all within 26 days (82 cycles). Table 1 gives times of minima for CW Cas. The O-C values for the visual times of minima observed by the MAS are very large.  $N$  is the number of observations in a particular eclipse.

All of the available times of minima were then compared with equation 1, and a much better agreement was found. However, there is a slight negative slope on the O-C diagram (Figure 1). Equation 3 was calculated as a best fit to the available data. With this equation, future times of minimum for CW Cas can be calculated with reasonable accuracy:

$$JD_{(\min)} = 2441632.185 + 0.3188641 E. \quad (3)$$

In conclusion, although photoelectric observations are much more accurate than visual observations, a reasonably long-time database is still required to determine an accurate period for this type of star.

Table 1. Times of minima for CW Cas.

$JD_{(\min)}$ Hel.	Equation 1 Cycle	O-C	Equation 2 Cycle	O-C	Equation 3 Cycle	O-C	$N$	Observer
2441632.3450	18461.5	0.003	-53.5	-0.000	0.5	0.001	-	IBVS No. 962, 1975
2441634.4176	18468	0.003	-47	0.000	7	0.001	-	IBVS No. 962, 1975
2441649.4034	18515	0.002	0	0.000	54	-0.000	-	IBVS No. 962, 1975
2441650.3595	18518	0.001	3	-0.000	57	-0.001	-	IBVS No. 962, 1975

Table 1 continued.

JD (min) Hel.	Equation 1		Equation 2		Equation 3		N	Observer
	Cycle	O-C	Cycle	O-C	Cycle	O-C		
2441650.5189	18518.5	0.001	3.5	-0.000	57.5	-0.001	-	IBVS No. 962, 1975
2441658.3308	18543	0.001	28	-0.000	82	-0.001	-	IBVS No. 962, 1975
2441658.4906	18543.5	0.001	28.5	0.000	82.5	-0.001	-	IBVS No. 962, 1975
2443351.821	23854	-0.001	5339	0.105	5393	0.002	10	G. Samolyk
2443432.811	24108	-0.003	5593	0.108	5647	0.000	10	G. Wedemayer
2443705.761	24964	-0.001	6449	0.127	6503	0.003	11	G. Samolyk
2444081.696	26143	-0.008	7628	0.144	7682	-0.003	12	G. Samolyk
2444474.852	27376	-0.013	8861	0.164	8915	-0.006	12	G. Samolyk
2444522.695	27526	0.001	9011	0.180	9065	0.007	13	G. Samolyk
2444808.710	28423	-0.006	9908	0.192	9962	0.001	10	G. Samolyk
2445836.724	31647	-0.013	13132	0.250	13186	-0.003	11	G. Samolyk
2446028.686	32249	-0.008	13734	0.267	13788	0.003	10	G. Samolyk
2446713.595	34397	-0.021	15882	0.297	15936	-0.008	12	G. Samolyk
2448415.703	39735	-0.014	21220.5	0.252	21274	0.003	13	G. Samolyk
2448697.577	40619	-0.017	22104.5	0.267	22158	0.001	14	G. Samolyk

## References

- Kholopov, P. N., *et al.* 1985, *General Catalogue of Variable Stars*, Fourth Edition, Moscow.
- Kukarkin, B. V., *et al.* 1969, *General Catalogue of Variable Stars*, Third Edition, Moscow.
- Burchi, R., and de Santis, R. 1975, *Inform. Bull. Var. Stars*, No. 962.

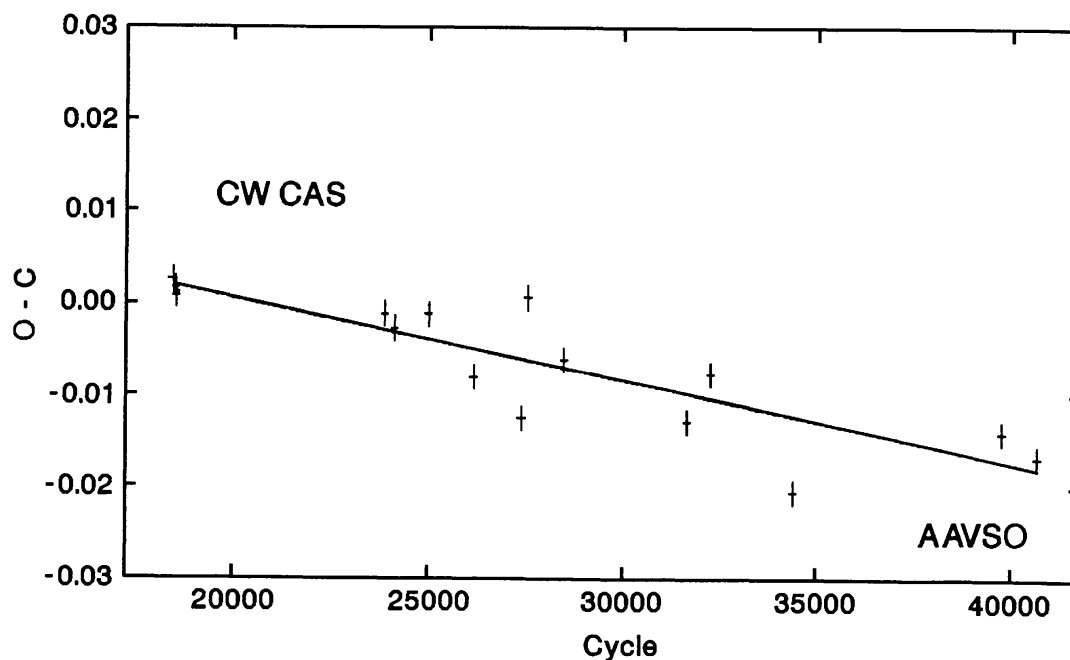


Figure 1. O-C plot of times of minima for CW Cas per equation 1. The line represents equation 3.