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MINIMUM TIMES AND PERIOD BEHAVIOUR OF THE NEGLECTED ECLIPSING BINARY WZ CYGNI

The variable star WZ Cyg (BD +38°4262) is an eclipsing binary exhibiting a β Lyrae-type light curve. It is a poorly observed system (Koch et al. 1979) and for this reason it was included in our observational program of 1993 and 1994.

WZ Cyg was observed photoelectrically with the two-beam, multi-mode, nebular-stellar photometer attached to the 1.20m Cassegrain reflector at the Kryonerion Astronomical Station of the National Observatory of Athens, Greece.

Observations were made during 5 nights (24/25, 25/26, 28/29, 29/30 June and 30 June/1 July 1993) and 7 nights (11/12, 15/16 & 17/18 May, 25/26 & 26/27 June; 11/12 & 12/13 September) in 1994.

From our observations seven new minima times were derived which are given in Table 1, where the C's have been computed using Kholopov's (1985) ephemeris formula:

$$\mathrm{MinI} = \mathrm{J.D.}\,2440825.475 + 0^{\mathrm{d}}.5844659 \times \mathrm{E} \qquad (1)$$

and are the mean values of our B and V observations.

Table 1

Hel JD 2440000.+	Min Type	Filter	E	O−C days
9163.5002	I	B,V	14266	0.0347
9164.3800	II	B,V	14267.5	0.0378
9168.4685	II	B,V	14274.5	0.0350
9169.3457	I	B,V	14276	0.0355
9490.5083	II	B,V	14825.5	0.0341
9529.3778	I	B,V	14892	0.0366
9530.5466	I	B,V	14894	0.0364

Moreover, from the photographic and photoelectric minima times of WZ Cyg found in the literature (Kurzemniece, 1950; Hanzl, 1991) and our new ones, given in Table 1, the O−C diagram of the system was constructed and is presented in Figure 1. Most of the minima times presented in this figure are primaries. From the data available up to now both primaries and secondaries seem to behave in a similar way.

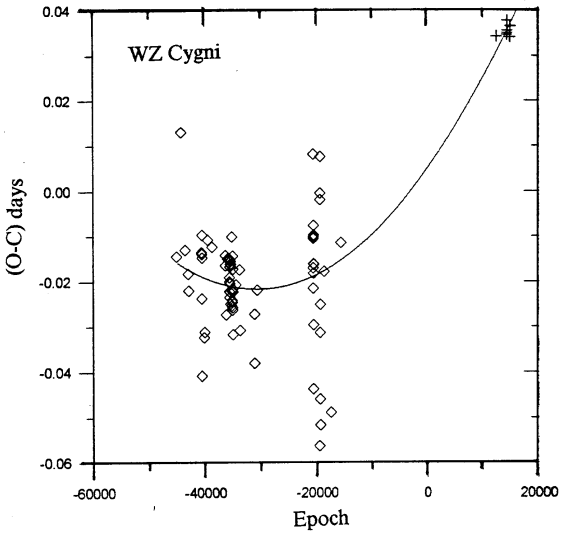

Figure 1. The O−C diagram of WZ Cyg based on photographic (diamonds) and photoelectric (crosses) minima times only. The C's have been calculated according to ephemeris given in the GCVS. The continuous line presents the quadratic least squares fitting.

As it was pointed out, WZ Cyg is a poorly observed system and much more data are needed for a complete study of its orbital period, which has been certainly increasing. Here, we only try to fit a least squares second order polynomial and improve Kholopov's (1985) ephemeris, although there are not much data for long periods of time. We find:

$$\text{Min I} = \text{J.D.}2440825.47999 + 0^{\text{d}}.58446763 \times \text{E} + 2.82 \times 10^{-11} \times \text{E}^2 \qquad (2)$$

considering the photographic data with the weights given by Kurzemniece (1950). Figure 1 presents the quadratic least squares fitting, as well.

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