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REVISED BLUE MOUNTAIN OBSERVATORY TIMINGS

Recent reports (Chambliss et al. 1979; Olson 1980) have shown that published eclipse timings of RZ Cassiopeiae from the Blue Mountain Observatory (Margrave et al. 1975; Margrave 1978) are systematically earlier than those of most other observers. The search for the cause of these discrepancies has resulted in the elimination from the computer program used to reduce the photometry data of two problems which gave rise to systematic errors in the calculated Heliocentric Julian Dates of the observations. It was the nature of the two problems that they generated errors sometimes of the same sign and sometimes of opposite sign. The net effect varied from star to star and from week to week.

Consequently, all published eclipse timings (Margrave et al. 1975; Margrave 1978; Margrave 1979a; Margrave 1979b) and times of maxima of BW Vulpeculae (Margrave and Mefford 1975; Margrave 1979c) have been recalculated and are given in Table I. The ephemerides used to calculate the residuals for the eclipsing binaries are the same as those used originally, while that used for BW Vulpeculae is from Tunca (1978).

The revised minima of RZ Cas are in complete accord with the trend illustrated by Chambliss (1979). A period decrease between September 1975 and September 1976 is exhibited by the Blue Mountain photoelectric times of minimum light. There are three RZ Cas minima in common with those of Olson (1980), namely, 3796.7352, 4121.8434, and 4127.8197, for which the differences in the sense (Olson - Margrave) are  $-0.0003^d$ ,  $-0.0002^d$ , and  $-0.0007^d$ , respectively. The revised minimum of AT Peg at 2661.8136 is also now in accord with the other

Table I. Revised Heliocentric Julian Dates

<u>Star</u>	<u>Hel. JD - 2,440,000</u>	<u>O-C</u>
KO Aql	2637.8563	+0.0090 <sup>d</sup>
	4135.7552	+0.0202
44 i Boo	2619.8309	-0.0011
RZ Cas	1954.8616	+0.0022
	2339.7312	+0.0022
	2633.7617	+0.0018
	2664.8386	+0.0023
	2670.8163	+0.0038
	3049.7055	-0.0004
	3723.8240	-0.0014
	3729.8012	-0.0004
	3760.8786	+0.0005
	3772.8299	-0.0007
	3790.7582	-0.0011
	3796.7352	-0.0003
	3803.9071	+0.0001
	4096.7436	+0.0010
4121.8434	+0.0006	
4127.8197	+0.0007	
TV Cas	3786.7841	-0.0111
	3795.8481	-0.0101
	4094.9264	-0.0119
	4114.8657	-0.0113
TW Cas	2666.8447	+0.0005
	3096.7675	-0.0034
	3103.9179	+0.0053
	3803.7959	+0.0026
	4110.8769	-0.0069
	4123.7345	-0.0043
	4130.8748	-0.0056
DO Cas	2636.7816	+0.0041
	2664.8505	+0.0017
	3728.8203	+0.0006
	3795.9199	+0.0029
	4095.8017	+0.0010
XX Cep	2663.7526	+0.0112
	4133.9311	+0.0218
AT Peg	2661.8136	-0.0131
	3728.8093	-0.0412
	4089.8270	-0.0465
	4128.7925	-0.0486
	4136.8149	-0.0489

Table I, (cont.)

BW Vul	2350.7826	+0.0016
	2356.8079	-0.0044
	2678.8813	+0.0018
	3002.9597	+0.0026
	3012.8135	+0.0054
	3060.6542	-0.0016
	3724.8889	-0.0054
	3729.9214	+0.0011
	3755.8520	-0.0026

times cited in SAC 51 (1979).

The provisional ephemerides suggested by Margrave (1979b) for KO Aql, TV Cas, TW Cas, and AT Peg have been redetermined using the revised times with the following results.

$$\begin{aligned}
 \text{KO Aql:} \quad \text{Hel. JD (Min)} &= 2,441,887.4724 + 2.^{\text{d}}864055 \bullet \text{E} \\
 \text{TV Cas:} \quad \text{"} &= 2,441,595.3582 + 1.^{\text{d}}8125944 \bullet \text{E} \\
 \text{TW Cas:} \quad \text{"} &= 2,442,008.3873 + 1.^{\text{d}}4283240 \bullet \text{E} \\
 \text{AT Peg:} \quad \text{"} &= 2,440,407.4365 + 1.^{\text{d}}14611064 \bullet \text{E} - 6.2110 \times 10^{-9} \bullet \text{E}^2
 \end{aligned}$$

The mean residuals for these ephemerides are  $0.^{\text{d}}0010$ ,  $0.^{\text{d}}0008$ ,  $0.^{\text{d}}0028$ , and  $0.^{\text{d}}0017$ , respectively. The quadratic ephemeris for AT Peg implies a continuous period decrease since 1969 of 17.1 seconds per century.

The author deeply regrets any confusion or inconvenience that the erroneous timings have caused. He also expresses his sincere gratitude to C. R. Chambliss and E. C. Olson for pointing out the systematic deviation of the RZ Cas eclipse timings from this observatory.

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## References:

- Chambliss, C. R. et al. 1979, IBVS No. 1619.
- Margrave, T. E. et al. 1975, IBVS No. 1019.
- \_\_\_\_\_ 1978, IBVS No. 1478.
- Margrave, T. E. and Mefford, J. W. 1975, IBVS No. 1051.
- Margrave, T. E. 1979a, IBVS No. 1631.
- \_\_\_\_\_ 1979b, IBVS No. 1694.
- \_\_\_\_\_ 1979c, Publ. Astron. Soc. Pacific 91, 666.
- Olson, E. C. 1980, IBVS No. 1840.
- Rudnicki, K. 1979, SAC 51, p. 100.
- Tunca, Z. 1978, IBVS No. 1386.