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NEW PHOTOELECTRIC OBSERVATIONS AND PERIOD OF RS LEPORIS

The first photoelectric observations of the eclipsing system RS Lep (BD−20°1245) were made by Wood (1959). Over the years, Klepczynski and Wood (1964) determined the improved light elements by means of the available published minimum times. The present observations were carried out with the single channel photoelectric photometer in BV bands at Yunnan Observatory. The 60cm reflecting telescope was employed on three nights in December 1993 and the 100cm reflecting telescope was employed on the three nights in February 1994. The star BD−20°1244 and the star BD−20°1253 were used as the comparison star and check star, respectively. From our observations 286 points in B and 290 points in V shown in Figures 1 and 2 were obtained. From these data moments of two primary minima were determined which are included in Table 1.

The new observations show a different amplitude for the primary minimum from that determined by the previous observer, the present depths of primary minimum are about $1^m.7$ in B band and about $1^m.6$ in V band, while those of the previous observer are about $1^m.6$ in B band and about $1^m.4$ in V band. All available minimum times were introduced into a least squares solution to derive the new light elements:

$$\text{Min. I}=\text{JD(Hel.)}2427386.5282+1^d.28854391\times E$$
$$\pm 22 \qquad \pm 19$$

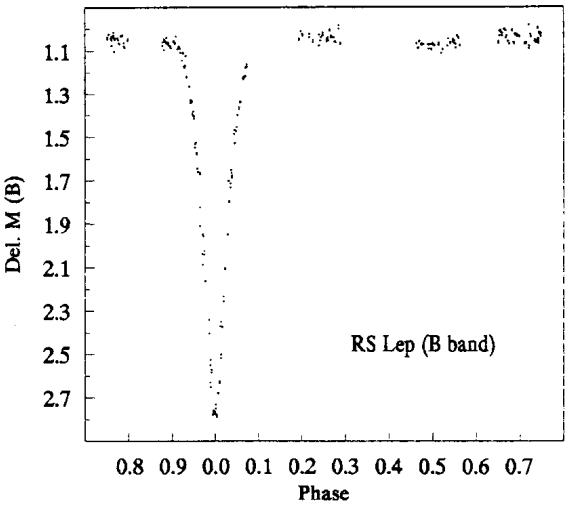

Figure 1. The blue individual observations of RS Lep.

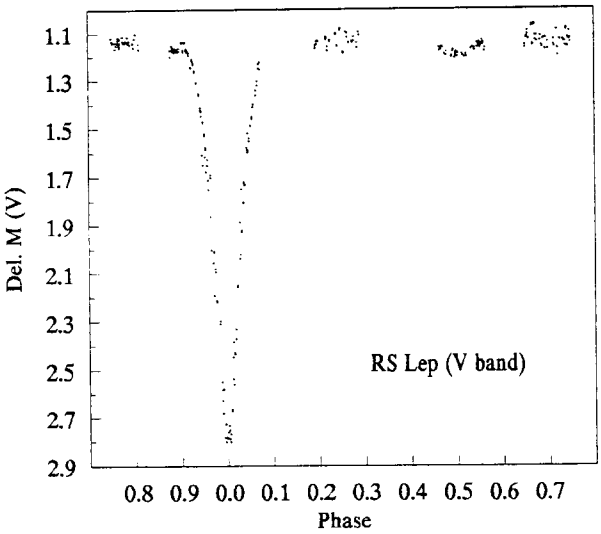

Figure 2. The yellow individual observations of RS Lep.

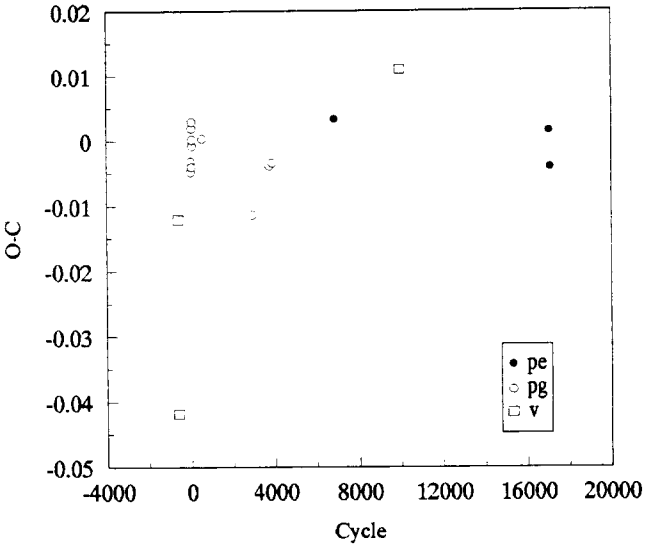

Figure 3. The O−C diagram.

Table 1. Minimum times of RS Lep

JD.(Hel.)	Cycle	O−C	Weight	Source
2426596.6090	−613	−0.0418	1	S
2426604.3700	−607	−0.0121	1	Z
2427386.5250	0	−0.0032	3	S
2427390.3890	3	−0.0048	3	Z
2427438.0660	40	−0.0040	3	S
2427443.2260	44	0.0019	3	S
2427443.2270	44	0.0029	3	Z
2427461.2630	58	−0.0008	3	S
2427461.2640	58	0.0002	3	Z
2428091.3620	547	0.0003	3	G
2431163.2390	2931	−0.0114	3	Z
2432235.3150	3763	−0.0039	3	S
2432409.2690	3898	−0.0034	3	S
2436191.1520	6833	0.0033	30	W
2436204.0375	6843	0.0033	30	W
2440207.5510	9950	0.0109	1	F
2449334.2981	17033	0.0015	30	This paper
2449396.1426	17081	−0.0041	30	This paper

S=Soloviev, Z=Zessevich, G=Gaposchkin, W=Wood, F=Flin

In our calculation weight 1 was assigned to the visual minimum times, weight 3 to the photoelectric minimum times and weight 30 to the photoelectric ones.

Using this new formula we have calculated the O−C values listed in Table 1 and plotted the O−C diagram displayed in Figure 3. From the O−C diagram it is seen that the period of RS Lep does not vary. Further observations of the system will be made during the next observing season and the final analysis and discussion will be published elsewhere.

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References:

Flin, P., 1969, *IBVS*, No. 328
Gaposchkin, S., 1953, *Harvard Ann.*, **113**, (2)
Klepczynski, W. J. and Wood, F. B., 1964, *Astron. J.*, **69**, 92
Soloviev, A., 1938, *Nishni-Novgorod Var. Stars*, **5**, 174
Soloviev, A. 1947, *Kazan Astron. Circ.*, **61**, 8
Wood, F. B., 1959, *Astron. J.*, **64**, 56
Zessevich, V. P., 1943, *Kazan Astron. Circ.*, **18**, 5
Zessevich, V. P., 1954, *Odessa Izv.*, IV (2), 189