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A NEW PERIOD CHANGE OF SW LACERTAE

SW Lac (BD+37°4717) is a well-known W UMa-type binary with occasional period changes (see e.g. Mikolajewska and Mikolajewski, 1981).

UBV photometry of SW Lac was carried out during ten nights between 29 June and 14 July, 1986. The observations were made with the 74-inch reflector at the Kottamia Observatory, Egypt. Two primary and three secondary minima were observed during that time. Table I contains the times of minima, the number of cycles and the O-C values as calculated from the ephemeris given by Bookmyer (1965):

$$H.J.D.=2437572.57231+0.^d_32072811 \cdot E$$

Table I

H.J.D.	E	O-C
2446613.5361	28189.5	-0. <sup>d</sup> 2013
614.4973	28192.5	-0.2023
619.4704	28208	-0.2004
620.4321	28211	-0.2009
624.4404	28222.5	-0.2017

The Figure shows the O-C diagram of SW Lac covering 25 years (from E=0). The points in the Figure were taken from Lafta and Grainger (1985; and references therein), Niarchos (1985), Evren et al. (1985), and Table I. The points represent averages when there have been more than one O-C values during 100 cycles.

Lafta and Grainger (1985) used all the then available photoelectric minima in constructing their diagram, and they used Bookmyer's ephemeris. In order to make the comparison of the two O-C diagrams easier, the same ephemeris was used in this paper, too.

The right hand side of the Figure shows that SW has had another period change since 1985 (~~E=~~ 27100). The exact time of the change is uncertain because of the large gap between the O-C values of Evren et al. (1985) and those in the present paper. A new period can, however, be determined from the Figure using the last two sets of data:  $P = 0.^d_320706586$ .

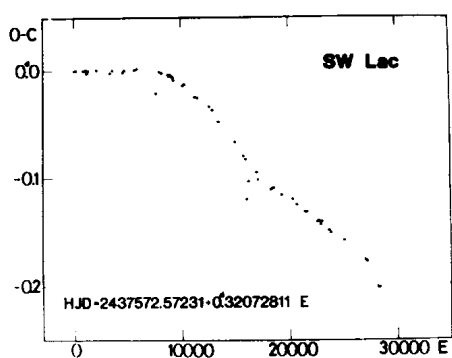


Figure 1

Frasinska and Kreiner (1977) listed the periods of SW Lac since 1893.

Table II shows an updated version of their Table I.

Table II

Years	Period	$\Delta P$	Ref.
1893-1914	$0.3207124^d$		Frasinska and Kreiner (1977)
1914-1928	$0.3207151$	+0.23	- " -
1928-1951	$0.3207166$	+0.13	- " -
1951-1960	$0.3207213$	+0.41	- " -
1960-1968	$0.3207282$	+0.60	- " -
1973-1977	$0.3207144$	-1.19	- " -
1977-1979	$0.3207229$	+0.73	Evren et al. (1985)
1980-1985	$0.3207198$	-0.24	- " -
	$0.3207204$		Niarchos (1985)
1986-	$0.3207066$	-1.17	present paper

Frasinska and Kreiner (1977) mentioned two possible causes for this period change: (i) the presence of a third body in the system, (ii) intrinsic variations due to mass exchange processes in the system. As there is little evidence for periodicity in the period change, the second explanation seems more probable.

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