

THE PERIOD OF SOME DAHLMARK - VARIABLES

Recently, Dahlmark (IBVS 2157, 1982) published a list of 58 new variables in Cygnus, which he had discovered photographically. He kindly provided me with his observations. Some of these stars have a large B-V and a large amplitude, which suggests that these stars are Mira or semiregular variables with a long period. There are 19 to 23 observations for each star in the period 1967-1981. In general, this would be sufficient to determine unambiguously an approximate period. However, because all observations are made in the observing season from the end of June, until the beginning of August each year, alias periods, related to the real period by the formula:

$$1/P_{\text{alias}} = | 1/P \pm 1 \text{ year}^{-1} |,$$

or related expressions, are likely to show up in the analysis, and in some cases, one cannot decide which period is the real one, and which is the alias period.

A period search method proposed by Renson (As.Ap. 63, 125, 1978) was used to search for possible periods in the range 80 - 1000 days, the usual limits for periods of Mira variables.

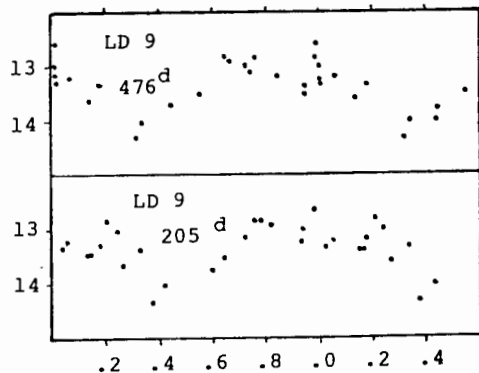
The results for these variables are shown in the table. Where there is no possibility to distinguish between real and alias period, both values are given. The maximum and minimum magnitudes are taken from Dahlmark (IBVS 2157, 1982). The periods found by other investigators, from other observational material, are given in the remarks column.

It should be stressed that these results are preliminary and subject to further refinement or correction by more observations, visual or photographic. A few observations outside the usual observing season could for instance already be sufficient to decide which one of two given periods is the real one.

Phase diagrams are given for LD 9 (both possible periods), LD 36 and LD 39, as examples. (phases are chosen arbitrarily).

I thank Lennart Dahlmark for providing me with his observations and Roland Boninsegna for the information concerning already designated variables.

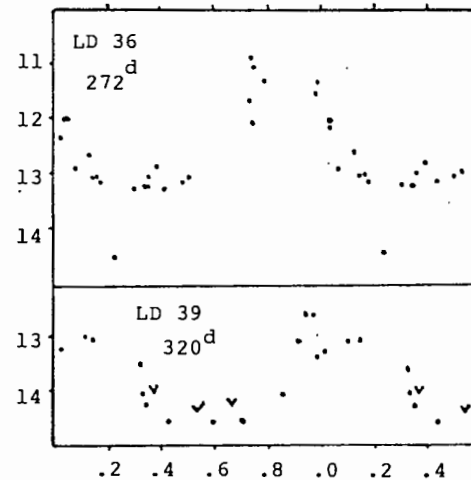
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LD	max <sub>v</sub>	(3) min <sub>v</sub>	P (days)	Remarks
9	12.6	14.3	205 476	
10	11.8	<15.0	164 299	
11	11.6	14.8	517	
12	11.6	<15.0	321	
19	12.2	15.0	415	= V1633 Cyg = M 270 P = 404 <sup>d</sup> (4)
22	12.2	<15.0	433	
31	12.4	<14.8	298 467	= Var 53 P = 448 <sup>d</sup> (5)
34	12.6	15.0	197 427	
36	10.8	14.5	272	
37	12.4	<14.5	211 496	
39	12.5	14.5	320	= NSV 13553
51	12.0	14.8	278 521	
56	11.8	<14.8	309	= V1614 Cyg = SVS 2189 P = 306 <sup>d</sup> (1)
58	11.6	<14.5	304	
59	10.4	<14.0	268 575	= V1615 Cyg = SVS 2190 P = 269 <sup>d</sup> (2)
60	11.8	14.3	189 393	
61	11.6	14.2	132	= V1568 Cyg
64	12.0	<14.5	420	= V1734 Cyg

References:

- (1) O.S. Bartunov, AU Feb 11, 1977, p. 7
- (2) S.M. Bychkov, AU Jul 10, 1977, p. 7
- (3) L. Dahlmark, IBVS 2157 (1982)
- (4) P. Maffei, IBVS 1302 (1977)
- (5) Margoni and Stagni, As.Ap.Suppl. 56, 87 (1984)



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