

SIX VARIABLE STARS IN SAGITTARIUS

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Abstract

Finder charts and updated periods are given for six long period variables.

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During the summer of 1977, while working as an undergraduate research participant, under the direction of Dr. Dorrit Hoffleit, I re-examined six previously known long period variables. All six stars, listed in Table 1, are located in the region of λ Sagittarii. All except the last three columns are taken from the General Catalogue of Variable Stars. The stars were studied on Nantucket plates taken from 1957 through 1977 to determine if any significant changes in period had occurred over the last twenty years.

For the four variables, V1653, V1669, V1701, and V1708 Sgr, the previous published results, based on Harvard plates taken between 1924 and 1953, were either completely confirmed or only slightly revised as indicated in column 5 of Table 1. V1661 Sgr proved to be more complex. The Nantucket plates did not confirm the published period of 275 days, nor was any one period found that would fit all of the Nantucket observations. It was concluded that the period of V1661 Sgr is variable. A period of 277 days satisfied the observations from JD 2424000 to 2428000 and 273 days from JD 2436770 to 2444000.

V1699 Sgr also proved to be interesting. The period appears to be the same as the published value of 203.6 days, but with a phase-shift of approximately 100 days. The O-C curve is given in Figure 2. More observational data are needed to decide between a sudden change of phase or a progressive change in period.

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TABLE I

Six Sagittarius Variables

STAR Sgr	POSITION (1900)		MAGNITUDE (pg)		GCVS PERIOD (days)	NEW PERIOD (days)	EPOCH (JD2400000+)	CHART
	RA	DEC	Max	Min				
V1653	18 ^h 15 ^m 56 ^s	-26°33'.4	14 ^m	16 ^m	304	306	42684	1
V1661	18 20 59	-21 11.7	13.6	16.0	275	277* 273*	26850 36770	2
V1669	18 24 13	-25 09.5	12.3	13.6	176 SR	175 SR	42265	3
V1699	18 30 50	-22 37.1	13.2	(16.4)	203.6	same (see text)	25410	4
V1701=BT	18 37 43	-24 32.6	13.6	(16)	253	252	41932	5
V1708	18 36 33	-21 49.6	13.8	16.3	167 SR	same	26130	6

*277 from 24000-26850; 273 from 36770-44000

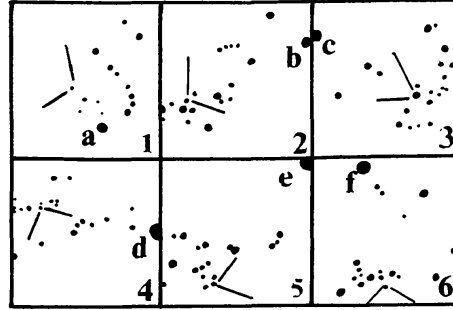


Figure 1. Finder charts, approximately 10' x 10', South at top.
 1- V1653 Sgr, a=CoD $-26^{\circ}13081$ 4- V1699 Sgr, d=BD $-22^{\circ}4808$
 2- V1661 Sgr, b=BD $-21^{\circ}5015$ 5- V1701 Sgr, e=CoD $-24^{\circ}14555$
 3- V1669 Sgr, c=CoD $-25^{\circ}13170$ 6- V1708 Sgr, f=BD $-22^{\circ}4831$

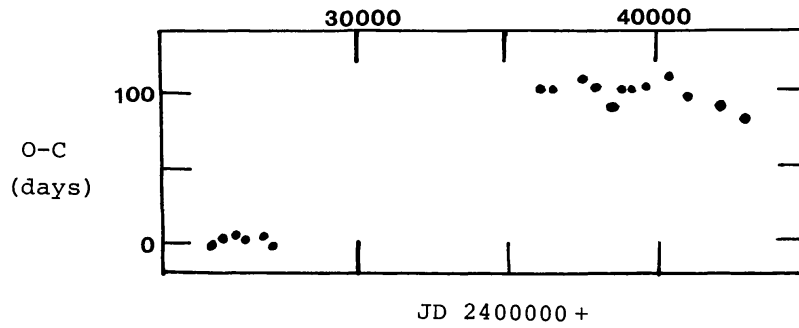


Figure 2. O-C plot of times of maxima for V1699 Sgr.