

COMMISSIONS 27 AND 42 OF THE IAU  
INFORMATION BULLETIN ON VARIABLE STARS

Number 4021

Konkoly Observatory  
Budapest  
5 May 1994

HU ISSN 0324 - 0676

**POSITIONS OF VARIABLE STARS IN PLAUT'S FIELD 2**

This paper continues the study announced in our previous publication (Antipin *et al.*, 1994) and deals with the variable stars in the Palomar-Groningen Field 2 (Plaut, 1968). 924 variables were discovered by Plaut in the field, 46 of them being rediscoveries. We have compared the finding charts for all of them with corresponding fields of the HST Guide Star Catalog. 67 stars have been identified with the GSC, the results are presented in Table 1. Remarks to the Table are given for stars with the symbol "R" in the last column. Table 1 contains also GSC identifications for 5 GCVS or NSV stars in the field discovered not by Plaut; these stars are indicated by asterisks in the last column.

For those stars not present in the GSC, we have checked the agreement of their positions in the finding charts with co-ordinates published by Plaut. In most cases the agreement is very good. Noticeable discrepancies have been found only in 8 cases presented in Table 2.

Table 1

No. Plaut	GCVS NSV	$\alpha_{2000}$	$\delta_{2000}$	GSC	Remark
4	V1128 Oph	16 <sup>h</sup> 56 <sup>m</sup> 51 <sup>s</sup> .6	-20°06'42"	6227-2446	
6	V1133 Oph	16 56 59.3	-17 53 15	6223-1364	
9	V1135 Oph	16 57 03.6	-18 29 21	6223-1724	
21	V1145 Oph	16 57 40.0	-21 19 40	6231-2187	
30	V1154 Oph	16 58 23.0	-20 01 47	6227-1599	
32	V1157 Oph	16 58 28.9	-17 29 47	6223-0235	
33	V1158 Oph	16 58 33.3	-18 38 02	6223-1616	
44	V1169 Oph	16 59 08.8	-18 40 54	6223-1043	
45	V1171 Oph	16 59 15.6	-18 12 44	6223-1299	
53	V1182 Oph	16 59 25.5	-16 30 41	6219-0888	R
59	NSV 8086	16 59 38.3	-19 56 50	6227-2832	
62	V1187 Oph	17 00 01.6	-20 56 49	6231-0216	
66	V1190 Oph	17 00 06.4	-21 00 28	6231-1254	
	NSV 8094	17 00 07.1	-18 04 56	6223-0374	*
67	V1191 Oph	17 00 10.0	-21 01 09	6231-0033	
75	V1199 Oph	17 00 29.6	-20 30 50	6227-0263	R
79	V1206 Oph	17 00 34.5	-17 10 18	6223-1315	
80	V1203 Oph	17 00 40.3	-21 21 20	6231-2425	
102	V1227 Oph	17 01 22.8	-17 09 36	6223-1009	

Table 1 (continued)

No. Plaut	GCVS NSV	$\alpha_{2000}$	$\delta_{2000}$	GSC	Remark
120	V1245 Oph	17 <sup>h</sup> 02 <sup>m</sup> 06 <sup>s</sup> .4	-18°52'51"	6227-1006	
151	V1275 Oph	17 03 01.2	-19 10 37	6227-1510	
154	V1277 Oph	17 03 16.7	-21 18 53	6231-2410	
158	V1281 Oph	17 03 26.1	-21 48 19	6231-2432	
177	V1301 Oph	17 04 16.4	-18 46 27	6240-0817	
190	V1316 Oph	17 04 42.7	-16 59 58	6236-0400	
201	NSV 8166	17 05 05.0	-22 01 08	6244-0021	
230	V1353 Oph	17 06 00.6	-21 57 41	6244-0168	
248	V1373 Oph	17 06 31.6	-18 05 19	6236-0370	
258	V1381 Oph	17 06 42.6	-16 52 11	6232-1017	
269	V1392 Oph	17 07 05.5	-20 35 14	6240-0819	
298	V1421 Oph	17 07 56.5	-18 48 40	6240-0862	
305	V1427 Oph	17 08 07.8	-20 57 06	6244-0134	R
306	V1428 Oph	17 08 12.6	-22 16 55	6244-0024	R
331	V1451 Oph	17 08 57.1	-21 37 14	6244-0578	
344	V1468 Oph	17 09 14.7	-17 37 46	6236-1084	
359	V1481 Oph	17 09 37.5	-20 01 01	6240-0551	
383	V1503 Oph	17 10 15.0	-19 06 07	6240-0743	
401	V1524 Oph	17 10 38.2	-17 17 27	6236-0303	
415	NSV 8261	17 11 02.4	-16 56 37	6236-0320	
423	V1543 Oph	17 11 18.0	-16 56 52	6236-1140	R
442	V1559 Oph	17 11 52.6	-19 16 12	6240-0349	
461	V1577 Oph	17 12 12.9	-20 01 28	6241-0757	
485	V1602 Oph	17 12 41.7	-17 38 15	6237-0491	
507	V1623 Oph	17 13 09.0	-18 21 08	6237-0425	R
509	V1625 Oph	17 13 20.2	-19 14 27	6241-0841	
520	V1637 Oph	17 13 35.1	-18 05 50	6237-2975	
525	V1645 Oph	17 13 41.3	-16 35 55	6233-0832	R
543	V1658 Oph	17 14 11.8	-20 55 02	6245-0363	
	V448 Oph	17 15 20.8	-18 07 02	6237-1702	*R
587	V1699 Oph	17 15 23.0	-21 26 18	6245-0456	
616	V1733 Oph	17 16 13.2	-17 19 41	6237-2794	R
652	V1764 Oph	17 16 57.8	-17 18 14	6237-2842	
662	V1774 Oph	17 17 16.3	-17 30 44	6237-0492	
677	V2071 Oph	17 17 31.9	-17 52 54	6237-1380	
688	AE Oph	17 17 52.6	-20 01 19	6241-0297	
	NSV 8465	17 17 58.9	-18 06 04	6237-1123	*
705	V1814 Oph	17 18 06.3	-16 58 40	6237-0935	
703	V1810 Oph	17 18 06.4	-18 54 06	6241-0378	
	NSV 8472	17 18 10.0	-17 15 48	6237-0573	*
718	V1828 Oph	17 18 33.0	-16 45 05	6233-0932	
724	NSV 8486	17 18 44.6	-18 56 15	6241-0062	
769	V1872 Oph	17 19 51.4	-18 49 33	6241-0286	

Table 1 (continued)

No. Plaut	GCVS NSV	$\alpha_{2000}$	$\delta_{2000}$	GSC	Remark
773	V742 Oph	17 <sup>h</sup> 19 <sup>m</sup> 56.5	-18°54'11"	6241-0885	
778	V1878 Oph	17 20 02.7	-21 35 24	6246-0162	
815	V441 Oph	17 20 52.8	-17 20 05	6238-1066	
	NSV 8540	17 20 55.0	-21 29 20	6246-0428	*
830	V1930 Oph	17 21 14.1	-16 27 50	6234-0986	
851	V1950 Oph	17 21 39.9	-18 56 57	6242-0035	R
872	V1972 Oph	17 22 15.0	-18 21 06	6238-0396	
873	V1970 Oph	17 22 23.7	-22 30 56	6825-0189	
878	V1978 Oph	17 22 30.1	-17 34 31	6238-2620	
898	V1999 Oph	17 22 56.1	-17 14 05	6238-1136	

Remarks. V1182 Oph. Double; the GSC star is the red, brighter, following component that presumably varies. V1199 Oph. Double; the GSC star is the redder, brighter, preceding component that presumably varies. V1427 Oph. Close double. The finding chart presumably shows the northwestern component to be variable; the southeastern component seems redder on Palomar prints. It is not clear which of the components is present in the GSC. V1428 Oph. Possibly multiple. The GSC star is, most probably, the brightest and the reddest component which varies. V1543 Oph. Multiple; the brightest component enters the GSC. V1623 Oph. Double; the brighter component enters the GSC. V1645 Oph. Double; the northwestern component marked by Plaut as variable. We are not sure which component is in GSC, but maybe the southeastern one. V448 Oph (SVS 431). The finding chart (Shajn, 1934) is rather bad, and the published position is wrong by 1° in declination. Our identification with GSC refers to a star actually found by us to be variable on Moscow plates. The mistake in the published position was originally communicated to us by A. Paschke (Zürich), but he apparently identified the variable with another GSC star. V1733 Oph. Double; the redder, northwestern component varies. We are not sure which component is in GSC. V1950 Oph. Close double; Plaut marked the preceding, slightly redder component as variable. We are not sure which component is in GSC.

Table 2

No.	GCVS	$\alpha_{2000}$	$\delta_{2000}$
5	V1129 Oph	16 <sup>h</sup> 56 <sup>m</sup> 47.0	-18°25'56"
98	V1224 Oph	17 01 14.9	-16 23 06
429	V1548 Oph		
484	V1596 Oph	17 12 46	-21 48.2
497	V1611 Oph	17 12 59.3	-19 00 57
574	V1689 Oph	17 14 51.0	-16 19 24
732	V1839 Oph	17 18 54.0	-21 01 23
881	V1979 Oph	17 22 36.7	-20 51 54

The co-ordinates for six of them have been measured by us relative to neighboring GSC stars. There was a misprint by 1° in the declination of No. 484 = V1596 Oph in Plaut (1968); the  $l$  and  $b$  values given by Plaut for this star correspond to the correct declination. It is very difficult to explain the great difference (about 4°) between the co-ordinates measured by us and published by Plaut for the Mira variable No. 732 = V1839 Oph. The variable star is clearly marked in the chart, with comparison stars indicated.

We tend to adopt our co-ordinates for this star. No confusion with other designated variables occurred in any of these cases as a result of changed co-ordinates. The finding chart for No. 429 = V1548 Oph shows the star identical with No. 408 = V1528 Oph, though their published co-ordinates differ considerably (the co-ordinates published for V1528 Oph agree with the position in the chart). V1528 Oph is a Mira variable, and V1548 Oph is a doubtful Nova discovered on two plate pairs, on both of which V1528 Oph was also discovered. So the two stars are, most probably, really different. The finding chart for V1548 Oph does not show comparison stars, while that for V1528 Oph shows them. We conclude that we have no reliable finding chart for V1548 Oph and cannot improve its position.

Finally, several notes on three more variables in the field. We have not been able to identify finding charts for NSV 8077 (Shajn, 1934) and NSV 8305 (Strohmeier *et al.*, 1966) with star fields around published positions; probably the co-ordinates are largely in error, or the charts are wrong. The position of Nova V906 Oph has been measured by us on prints sent to our group by W. Wenzel (Sonneberg) and found to be  $17^{\text{h}}26^{\text{m}}09^{\text{s}}.7$ ,  $-21^{\circ}54'28''$ , 2000.0, with probable accuracy about  $\pm 5''$ . These co-ordinates differ considerably from those published by Solovyov (1956) and Khatsov (1971).

We are very grateful to Dr. W. Wenzel and Mr. A. Paschke for sending us their unpublished materials. This study was partially supported by the European Southern Observatory through grant No. A-02-047.

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