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THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS (AAVSO) PHOTOELECTRIC PHOTOMETRY ARCHIVE

The AAVSO photoelectric photometry program was established about ten years ago by Janet A. Mattei and John R. Percy to obtain long-term, high-precision observations of stars with variations too small to be monitored by visual techniques. Some of these stars have larger-amplitude variations on one time scale, and smaller-amplitude variations on another. The original program included 51 semi-regular red variables, 6 yellow supergiants (RV Tau and SRd), and 13 variables of other or unknown kind. A few additional stars have subsequently been added, either by us or at the request of other astronomers. Most of the stars are between magnitudes 4 and 7; Betelgeuse is a very bright exception. They typically have amplitudes of a few tenths of a magnitude, time scales of weeks or months, and generally semi-regular or irregular light curves. All are well suited for long-term monitoring from small "backyard" observatories.

Howard J. Landis chairs the AAVSO's Photoelectric Photometry Committee, and also assists, advises and encourages the observers. He also reduces most of the data and archives it. John R. Percy co-ordinates the scientific aspects of the program, with advice from Janet A. Mattei, and edits the *AAVSO Photoelectric Newsletter* which is published three times a year.

The program has now produced over 7,000 observations. In addition to the observations of the "program stars" listed in Table 1, there are observations of about 30 small-amplitude red variables, obtained as part of "Project SARV" (Percy 1991a). Table 1 gives the name and position (epoch 2000) of each program star, the number of observations obtained in each year (and in total), the spectral type, the variable star type, range and period (from the *General Catalogue of Variable Stars*). The range is visual unless denoted B (blue) or p (photographic). The results of our observations of some of these stars (marked with an * in the last column) have been discussed in a brief review by Percy (1991b).

The following observers have contributed data to the archive:

Paul Beckmann (46), Bill Barksdale (246), Wayne Clark (95), Louis Cox (27), David Curott (402), Robert DeMartino (1), Frank Dempsey (150), Ales Dolzan (3), George Fortier (162), Guillermo Gonzalez (2), Robert Johnsson (54), Koster (deceased) (84), George Kohl (354), Paul Kneipp (82), Kenneth Luedeke (399), Howard Landis (1085), Thomas Langhans (266), Frank Mellilo (8), Russell Milton (688), Donald Pray (362), Mike Potter (17), Harry Powell (144), Luciano Pazzi (12), Gordon Ripley (6), Robert Reisenweber

TABLE 1: AAVSO PHOTOELECTRIC OBSERVATIONS TO DECEMBER 31, 1991

Name	RA (2000)	Dec. (2000)	1983	1984	1985	1986	1987	1988	1989	1990	1991	TOTAL	SpT	Type	Range	Period
T CET	$00^h\ 21.7^m$	-20° 03'						2		10	6	18	M5IIe	SR	5.0-6.9	158.9
AG CET	00 27.7	-11 31						1				1	M4III	SRb	6.99-7.45	90:
TV PSC	00 28.0	+17 52	6			10	17	9	19	74	80	215	M3III	SR	4.65-5.42	49.1
EG AND	00 44.6	+40 40	8	1			6	7	9	7		38	gM2E	ZAnd	7.08-7.8	
Z ERI	02 47.9	-12 27						6	3	14	14	37	M4III	SRb	7.0-8.63B	80
RR ERI	02 52.2	-08 15						3	3	3	7	16	M5III	SRb	7.4-9.20B	97
RZ ARI	02 55.8	+18 18	9	2		20	9	25	25	45	45	180	M6III	SRb	5.62-6.01	30 *
ρ PER	03 05.1	+38 49	10	22		14	23	26	38	41	50	224	M4II-III	SRb	3.30-4.0	50: *
X PER	03 55.4	+31 03	11	5		4	11	25	24	10	10	100	Oe	γCas	6.03-7.0	
CE TAU	05 32.2	+18 35	7	4		28	31	17	54	26	13	180	M2Ib	SRc	4.23-4.54	165
α ORI	05 55.2	+07 23	2	1	10	1	10	19	11	30	22	106	M2Iab	SRc	0.0-1.3	2235
SS LEP	06 05.0	-16 27		2	1		1	46	15	12	4	81	AOVe+gM1	ZAnd	4.82-5.06	
η GEM	06 14.9	+22 30	4	2		23	31	34	39	51	41	225	M3III	SRa	3.15-3.9	232.9 *
IS GEM	06 49.7	+32 37	4	4		2	4	12	24	51	9	110	K0III	SRd	not variable	
V614 MON	07 01.0	-03 13		2			1	7	4	6	47	67	R5	SRb	7.01-7.36	60:
EW CMA	07 14.3	-26 21	1	4					4	7	1	17	Be	γCas	4.42-4.82	
VZ CAM	07 31.6	+82 24								1	1	2	M4III	SR	4.80-4.96	23.7
RU CAM	07 21.7	+69 39					2	3	9	1		15	K0-R2	WVir	8.10-9.79	22*
U MON	07 30.8	-09 46	1	4	9	11	16		12	33	14	100	F8eIb	RVTau	6.1-8.8p	91.32
AK HYA	08 39.9	-17 17		2	1					8	25	36	M4III	SRb	6.33-6.91	(75:)
RS CNC	09 10.6	+30 57	8	3			23	46	53	73	44	250	M6eIb	SRc?	6.2-7.7p	120: *
IN HYA	09 20.5	+00 10	18	5					1	12	20	56	gM4	SRb	6.27-6.87	65:
VY UMA	10 45.1	+67 24				9	56	11	14	24	10	124	C6$_3$(N1)	Lb	5.87-7.0	
VW UMA	10 59.1	+69 58				4	16	7	10	8	4	49	M2	SR	6.85-7.71	610
TV UMA	11 45.6	+35 53	4	3		1		5	1			14	M5III	SRb	6.75-7.34	42
GK COM	12 00.1	+19 25		3			1	9	2	12	6	33	gM4	SRb	6.84-7.13	50
FS COM	13 06.4	+22 37	10	4	58	28	70	77	49	77	55	428	M5III	SRb	5.30-6.1	58: *
SW VIR	13 14.1	-02 47	9	3		7		0	2	9	1	31	M6III	SRb	6.40-7.90	150:
FH VIR	13 16.4	+06 30	8	5				5			24	42	M6III	SRb	6.92-7.45	70:
FP VIR	13 35.9	+08 16	9	3				5	2	23	73	115	M4III	SRb	6.72-7.35	40:
EV VIR	14 13.2	-13 51	4	2							2	8	Mb	SRb	6.74-7.09	120:
W BOO	14 43.4	+26 31	11	10	35	17	44	60	42	119	140	478	M3III	SRb:	4.73-5.4	450: *
τ4 SER	15 36.5	+15 06	13	2		2	14			7	23	61	M4III	SRb	5.89-7.07	100:
ST HER	15 51.8	+48 29		6	4	2	1	15	13	10	2	53	M6III	SRb	8.8-10.3p	148.0
AT DRA	16 17.3	+59 46		2			1				12	15	M4III	Lb	6.8-7.5p	

AAVSO PEP OBSERVATIONS TO JANUARY 1, 1992

Name	RA	(2000)	Dec. (2000)	1983	1984	1985	1986	1987	1988	1989	1990	1991	TOTAL	SpT	Type	Range	Period	
ω SCO	16	29.4	-26 25	2	2				4	5	12	9	34	M1Ib	Lc	0.88-1.16		
AZ DRA	16	40.7	+72 40						1		8	1	10	M2III	Lb	8.0-8.9p		
VW DRA	17	16.5	+60 39					3	19	7	24	6	59	K0III	SRd:	not variable		
V449 SCO	17	37.0	-32 08								2		2	A2V	?	7.1p	constant?	
V533 OPH	17	53.0	-02 35		2						4		6	Me	SR:	8.3-9.3p		
V441 HER	17	55.6	+26 04			9		24	26	58	35	27	180	F2Ia	SRd	5.34-5.54	68:	*
V2048 OPH	18	00.3	+04 22	1				9	16	19	35	22	102	B2Ve	γCas	4.55-4.85		
d SER	18	27.2	+00 12	3					42	24	14	9	92	G0III+A6	?	5.17-5.29	*	
AC HER	18	30.3	+21 52		10	16	17	11	10	10	11	2	87	F8	RVa	6.85-9.0	75.01	
R LYR	18	55.3	+43 57	4	20	1	17	14	78	82	124	100	440	M5III	SRb	3.88-5.0	46:	*
RY SGR	19	16.5	-33 31								39		39	G0 Iacp	RCrB	5.8-14.0	38.5	
CH CYG	19	24.6	+50 15	2	1	1	21	49	55	25	11	4	169	Mb	SRb	5.60-8.49		
V973 CYG	19	44.8	+40 44						1	1	2		4	M3III	ZAnd	7.75-8.6B		
CSV 5011	20	03.0	+57 04					1	2	1	7		11	A0V	?	7.2-7.9p		
27 CYG	20	06.4	+35 58			26	16						42	K0IV	RSCVn?	5.36-5.39		
P CYG	20	17.8	+38 02			42	45	78	64	40	42	38	349	B2pe	SDor	4.70-4.90	*	
EU DEL	20	37.9	+18 17	45	47	34	29	57	68	63	28	39	410	M6III	SRb	5.79-6.9	59.7	*
U DEL	20	45.5	+18 04					2	3	5	24	47	81	M5II-III	SRb	7.6-8.9p	110:	
V832 CYG	20	59.8	+47 32					3		7	8	11	29	B1IVe	γCas	4.49-4.88		
FZ CEP	21	19.7	+55 26						3	1			4	M6III	SR	8.5-9.1p		
V1070 CYG	21	22.9	+40 56					6	2		6	1	15	M7III	SRb	6.5-8.5		
W CYG	21	36.0	+45 22		1	5	19	13	15	24	4	7	88	Me	SRb	6.80-8.9B	131.1	*
AB CYG	21	36.6	+32 07		1	2	1	1	1	1		9	16	M4III	SRb	9.5-10.1p	520	
V1339 CYG	21	42.2	+45 45			4	5	7	16	32	31	21	116	M4III	SRb	5.9-7.1	35:	
μ CEP	21	43.5	+58 47				2	41	39	46	49	22	199	M2Ia	SRc	3.43-5.1	730	
HK LAC	22	04.9	+47 05				15	2	28	2	2	2	51	K0III	RSCVn	6.77-7.04	25.83	
DM CEP	22	08.3	+72 46							1			1	K7III	Lb	8.4-9.6p		
CSV 8775	22	33.7	+56 38					4	1	4	29	18	56	G8III-IV	?	5.6-6.8		
EW LAC	22	57.1	+48 41	2				2	10	15	16	8	53	B4e	γCas	5.22-5.48		
V509 CAS	23	00.1	+56 57				13	22	5	20	30	10	100	G0Ia	SRd	4.75-5.5		
SZ PSC	23	13.4	+02 42				12	2		1			15	F8K+K1	RSCVn	7.18-7.72	3.97...	
χ AQR	23	16.8	-07 44					31	16	9	31	37	124	gM5	Lb	4.90-5.06		
λ AND	23	37.6	+46 27				23	42	52	10	16	37	180	G8III-IV	RSCVn	3.69-3.97	54.20	
TX PSC	23	46.4	+03 30						3	4	32	74	113	C6(2)	Lb	4.79-5.20		
p CAS	23	54.4	+57 29	3	21		28	64	79	65	38	20	318	F8p	SRd	4.1-6.2	320	*
XZ PSC	23	54.8	+00 05				2	3	1	10	23	64	103	Mb	Lb	5.61-5.97		

(190), Donald Shannon (15), Douglas Slauson (16), Mike Smith (672), Lee Snyder (124), Jim Soder (deceased) (10), Hans Sorensen (228), Robert Schmidt (30), Raymond Thompson (387), Jim Waller (9), Paul Werner (1), David Williams (8), Jim Wood (948), Thomas Walker (38), Rick Wasatonic (154).

Copies of the data can be obtained on paper or diskette by writing to AAVSO Headquarters, 25 Birch Street, Cambridge MA 02138-1205, USA (phone (617) 354-0484; Fax (617) 354-0665, e-mail AAVSO@CFA8). There is a nominal charge to cover the handling and mailing of the data.

Acknowledgements. We thank all of the observers listed above for their contribution to the AAVSO Photoelectric Archive.

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