Recent Minima of 149 Eclipsing Binary Stars

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Abstract This paper continues the publication of times of minima for 149 eclipsing binary stars from observations reported to the AAVSO EB section. Times of minima from observations received by the author from October 2014 through March 2015 are presented.

1. Recent observations

The accompanying list contains times of minima calculated from recent CCD observations made by participants in the AAVSO's eclipsing binary program. This list will be web-archived and made available through the AAVSO ftp site at ftp://ftp.aavso.org/public/datasets/gsamoj2431.txt. This list, along with the eclipsing binary data from earlier AAVSO publications, is also included in the Lichtenknecker database (Kreiner 2011) administrated by the Bundesdeutsche Arbeitsgemeinschaft für Veränderliche Sterne e. V. (BAV) at: http://www.bav-astro.de/LkDB/index.php?lang=en. These observations were reduced by the observers or the writer using the method of Kwee and van Woerden (1956). The standard error is included when available. Column F indicates the filter used.

The linear elements in the *General Catalogue of Variable Stars* (GCVS; Kholopov *et al.* 1985) were used to compute the O–C values for most stars. For a few exceptions where the GCVS elements are missing or are in significant error, light elements from another source are used: AC CMi (Samolyk 2008), CW Cas (Samolyk 1992a), DF Hya (Samolyk 1992b), EF Ori (Baldwin and Samolyk 2005), GU Ori (Samolyk 1985). The light elements used for QX And, CP Psc, DS Psc, and V1128 Tau are from Kreiner (2004) The light elements used for AG Ari, V610 Aur, V700 Cyg, V2477 Cyg, V2643 Cyg, V740 Per, GR Psc and EQ UMa are from Paschke (2014). O-C values listed in this paper can be directly compared with values published in the AAVSO EB monographs.

References

Baldwin, M. E., and Samolyk, G. 2005, *Observed Minima Timings of Eclipsing Binaries No. 10*, AAVSO, Cambridge, MA.

Kreiner, J. M. 2004, "Up-to-date linear elements of eclipsing binaries," *Acta Astron.*, **54**, 207 (http://www.as.up.krakow.pl/ephem/).

Kholopov, P. N., *et al.* 1985, *General Catalogue of Variable Stars*, 4th ed., Moscow.

Kwee, K. K., and van Worden, H. 1956, *Bull. Astron. Inst. Netherlands*, **12**, 327.

Paschke, A. 2014, "O–C Gateway" (http://var.astro.cz/ocgate/).

Samolyk, G. 1985, *J. Amer. Assoc. Var. Star Obs.*, **14**, 12.

Samolyk, G. 1992a, *J. Amer. Assoc. Var. Star Obs.*, **21**, 34.

Samolyk, G. 1992b, *J. Amer. Assoc. Var. Star Obs.*, **21**, 111.

Samolyk, G. 2008, *J. Amer. Assoc. Var. Star Obs.*, **36**, 171.

Table 1. Recent times of minima of stars in the AAVSO eclipsing binary program.

Star	*JD (min) Hel. 2400000 +*	*Cycle*	*O–C (day)*	*F*	*Observer*	*Error (day)*	*Star*	*JD (min) Hel. 2400000 +*	*Cycle*	*O–C (day)*	*F*	*Observer*	*Error (day)*
AB And	56929.6365	62731.5	–0.0352	V	B. Manske	0.0001	SX Aur	56966.7371	13887	0.0179	V	G. Samolyk	0.0002
AB And	56929.8020	62732	–0.0356	V	B. Manske	0.0001	TT Aur	56976.8754	26813	–0.0046	V	K. Menzies	0.0002
AB And	57061.5624	63129	–0.0364	V	V. Petriew	0.0001	AP Aur	56226.9372	24208	1.4112	V	J. A. Howell	0.0011
AD And	56936.8781	18185.5	–0.0372	V	R. Sabo	0.0002	AP Aur	56998.7449	25563.5	1.5158	V	N. Simmons	0.0004
BD And	56952.5922	47505	0.0184	V	G. Samolyk	0.0001	AP Aur	57019.8107	25600.5	1.5171	V	V. Petriew	0.0002
BX And	57003.5633	33559	–0.0751	V	G. Samolyk	0.0001	AR Aur	57020.5911	4503	–0.1237	V	G. Samolyk	0.0001
CN And	57020.6565	33370	–0.1397	V	V. Petriew	0.0001	CL Aur	56210.9024	18679	0.1559	V	J. A. Howell	0.0007
QX And	56943.8572	10781.5	0.0008	V	K. Menzies	0.0004	CL Aur	56953.8004	19276	0.1683	V	G. Samolyk	0.0001
QX And	56999.7063	10917	0.0006	V	K. Menzies	0.0007	EM Aur	56983.6886	14266	–1.1092	V	K. Menzies	0.0004
CX Aqr	56538.8476	36125.5	0.0131	V	B. Manske	0.0005	EP Aur	56983.8913	51902	0.0121	V	K. Menzies	0.0001
CX Aqr	56573.5958	36188	0.0122	V	B. Manske	0.0001	HP Aur	56226.8905	9467.5	0.0590	V	J. A. Howell	0.0031
CX Aqr	56914.6945	36801.5	0.0134	V	B. Manske	0.0002	HP Aur	56956.7992	9980.5	0.0646	V	G. Samolyk	0.0002
OO Aql	56806.7341	35899.5	0.0589	V	B. Manske	0.0001	IM Aur	57074.5297	13276	–0.1185	V	K. Menzies	0.0002
OO Aql	56807.7473	35901.5	0.0585	V	B. Manske	0.0001	V610 Aur	56961.8117	3364	0.0064	V	V. Petriew	0.0005
OO Aql	56860.7071	36006	0.0589	V	B. Manske	0.0002	V610 Aur	57021.7214	3401	0.0060	V	V. Petriew	0.0003
OO Aql	56913.4139	36110	0.0597	V	L. Corp	0.0001	TU Boo	57082.7738	74059.5	–0.1485	V	K. Menzies	0.0001
V343 Aql	56953.5537	15456	–0.0473	V	G. Samolyk	0.0002	TU Boo	57084.8811	74066	–0.1490	V	K. Menzies	0.0001
V346 Aql	56848.7413	13495	–0.0114	V	B. Manske	0.0001	TZ Boo	57054.9189	58628	0.0634	V	K. Menzies	0.0001
SS Ari	56567.8116	43202	–0.3189	V	B. Manske	0.0001	ZZ Boo	57087.8595	3710.5	0.0742	V	G. Samolyk	0.0001
SS Ari	56908.8333	44042	–0.3318	V	B. Manske	0.0003	AD Boo	57081.8709	15127	0.0329	V	K. Menzies	0.0001
SS Ari	56998.5543	44263	–0.3354	V	N. Simmons	0.0001	AD Boo	57082.9045	15128	0.0321	V	K. Menzies	0.0003
AG Ari	57014.3001	4337	–0.0017	V	L. Corp	0.0003	Y Cam	56260.8679	4023	0.4134	V	J. A. Howell	0.0010

Table continued on following pages

Table 1. Recent times of minima of stars in the AAVSO eclipsing binary program, cont.

Star	JD (min) Hel. 2400000 +	Cycle	O–C (day)	F	Observer	Error (day)
Y Cam	57090.6107	4274	0.4444	V	G. Samolyk	0.0001
AL Cam	57090.6786	23096	–0.0315	V	N. Simmons	0.0001
RT CMa	56263.8334	22909	–0.7363	V	J. A. Howell	0.0004
UU CMa	57081.6053	5762	–0.0887	V	G. Samolyk	0.0001
XZ CMi	57090.5965	25304	–0.0008	V	N. Simmons	0.0001
YY CMi	57095.6437	26574	0.0172	V	G. Samolyk	0.0001
AC CMi	57006.8760	5798	0.0032	V	K. Menzies	0.0001
AK CMi	56225.9434	23192	–0.0234	V	J. A. Howell	0.0011
AK CMi	57019.8996	24595	–0.0214	V	G. Samolyk	0.0001
AM CMi	57081.7087	31237.5	0.2330	V	G. Samolyk	0.0007
TV Cas	57058.5827	6872	–0.0277	V	G. Lubcke	0.0002
TV Cas	57058.5827	6872	–0.0277	Ic	G. Lubcke	0.0003
TV Cas	57058.5830	6872	–0.0273	B	G. Lubcke	0.0002
ZZ Cas	56958.8207	18915	0.0125	V	K. Menzies	0.0004
CW Cas	56557.6561	46808.5	–0.0791	V	B. Manske	0.0004
MM Cas	57003.5820	18647	0.1089	V	G. Samolyk	0.0002
OR Cas	56977.6589	10249	–0.0283	V	K. Menzies	0.0001
OR Cas	56982.6415	10253	–0.0285	V	N. Simmons	0.0001
OX Cas	56998.5823	6318.5	0.0350	V	G. Samolyk	0.0005
PV Cas	56998.6213	9581	–0.0348	V	G. Samolyk	0.0001
DK Cep	56956.5769	23700	0.0322	V	N. Simmons	0.0001
SS Cet	57053.6105	4910	0.0593	V	G. Samolyk	0.0003
TX Cet	56966.7303	18741	0.0089	V	G. Samolyk	0.0004
RW Com	57105.6293	71976	0.0045	V	K. Menzies	0.0001
SS Com	56766.6406	76947.5	0.8259	V	N. Simmons	0.0002
SS Com	57084.9305	77718.5	0.8532	V	K. Menzies	0.0003
TW CrB	57096.8669	32602	0.0525	V	N. Simmons	0.0001
W Crv	57081.9256	44924	0.0164	V	G. Samolyk	0.0001
V Crt	57080.8134	22340	–0.0054	V	G. Samolyk	0.0001
WW Cyg	56943.6279	4993	0.1213	V	K. Menzies	0.0001
ZZ Cyg	56956.5754	19020	–0.0663	V	G. Samolyk	0.0001
BR Cyg	56966.5620	11577	0.0014	V	G. Samolyk	0.0001
GO Cyg	56950.5920	32072	0.0652	V	V. Petriew	0.0003
V401 Cyg	56484.7720	21707.5	0.0752	Ic	G. Lubcke	0.0002
V401 Cyg	56484.7722	21707.5	0.0754	V	G. Lubcke	0.0002
V401 Cyg	56484.7722	21707.5	0.0754	B	G. Lubcke	0.0001
V401 Cyg	56485.6434	21709	0.0725	B	G. Lubcke	0.0005
V401 Cyg	56485.6444	21709	0.0735	V	G. Lubcke	0.0006
V401 Cyg	56485.6446	21709	0.0737	Ic	G. Lubcke	0.0007
V401 Cyg	56538.6725	21800	0.0739	B	G. Lubcke	0.0001
V401 Cyg	56538.6731	21800	0.0745	V	G. Lubcke	0.0002
V401 Cyg	56538.6740	21800	0.0754	Ic	G. Lubcke	0.0002
V401 Cyg	56557.6140	21832.5	0.0769	V	G. Lubcke	0.0002
V401 Cyg	56557.6141	21832.5	0.0770	Ic	G. Lubcke	0.0001
V401 Cyg	56557.6147	21832.5	0.0776	B	G. Lubcke	0.0002
V401 Cyg	56559.6503	21836	0.0737	B	G. Lubcke	0.0004
V401 Cyg	56559.6513	21836	0.0747	Ic	G. Lubcke	0.0003
V401 Cyg	56559.6516	21836	0.0750	V	G. Lubcke	0.0003
V401 Cyg	56561.6928	21839.5	0.0767	V	G. Lubcke	0.0002
V401 Cyg	56561.6930	21839.5	0.0769	B	G. Lubcke	0.0002
V401 Cyg	56561.6933	21839.5	0.0772	Ic	G. Lubcke	0.0002
V401 Cyg	56566.6430	21848	0.0737	B	G. Lubcke	0.0004
V401 Cyg	56566.6438	21848	0.0745	V	G. Lubcke	0.0003
V401 Cyg	56566.6449	21848	0.0756	Ic	G. Lubcke	0.0002
V401 Cyg	56848.6886	22332	0.0819	B	G. Lubcke	0.0003
V401 Cyg	56848.6895	22332	0.0828	V	G. Lubcke	0.0001
V401 Cyg	56848.6904	22332	0.0837	Ic	G. Lubcke	0.0002
V401 Cyg	56929.6894	22471	0.0843	B	G. Lubcke	0.0002
V401 Cyg	56929.6895	22471	0.0844	V	G. Lubcke	0.0002
V401 Cyg	56929.6904	22471	0.0853	Ic	G. Lubcke	0.0001
V456 Cyg	56966.5601	13527	0.0502	V	G. Samolyk	0.0001
V680 Cyg	56948.5825	10948	0.0682	V	V. Petriew	0.0009
V700 Cyg	56951.5892	85754	–0.0073	V	V. Petriew	0.0001
V1425 Cyg	57002.5984	13256	0.0124	V	V. Petriew	0.0004
V2477 Cyg	57021.571	116011.5	0.0000	V	V. Petriew	0.0001
V2643 Cyg	56961.6335	9200	–0.0057	V	V. Petriew	0.0001
YY Del	56527.7430	17108	0.0096	V	B. Manske	0.0002
YY Del	56903.6698	17582	0.0107	V	B. Manske	0.0001
FZ Del	56917.7246	32677.5	–0.0341	V	B. Manske	0.0004
S Equ	56966.5666	4182	0.0659	V	G. Samolyk	0.0001
TX Gem	56956.9598	13253	–0.0377	V	G. Samolyk	0.0001
WW Gem	57096.6739	25135	0.0374	V	G. Samolyk	0.0002
AF Gem	57089.6387	24067	–0.0691	V	G. Samolyk	0.0001
TU Her	57082.8816	5744	–0.2313	V	K. Menzies	0.0001
UX Her	57093.9343	11248	0.1146	V	G. Samolyk	0.0002
HS Her	56769.8283	7090	–0.0199	V	K. Menzies	0.0008
DF Hya	56966.9384	42888.5	–0.0002	V	G. Samolyk	0.0003
DF Hya	57093.5597	43271.5	–0.0007	V	G. Samolyk	0.0001
RT Lac	56913.5380	2373	–0.3092	V	L. Corp	0.0002
SW Lac	56948.3726	36396.5	–0.0933	V	L. Corp	0.0002
SW Lac	56948.5360	36397	–0.0903	V	L. Corp	0.0003
SW Lac	56999.5304	36556	–0.0905	V	K. Menzies	0.0001
CO Lac	57036.5057	19130	0.0034	V	K. Menzies	0.0001
Y Leo	57019.9198	6870	–0.0519	V	G. Samolyk	0.0001
UU Leo	57093.6860	6963	0.1941	V	G. Samolyk	0.0001
UV Leo	57110.6051	31112	0.0411	V	N. Simmons	0.0001
VZ Leo	57017.9172	23721	–0.0590	V	K. Menzies	0.0001
AM Leo	57081.7678	39881	0.0127	V	K. Menzies	0.0001
Z Lep	56232.9230	28991	–0.1796	V	J. A. Howell	0.0007
Z Lep	57080.5545	29844	–0.1870	V	G. Samolyk	0.0001
RR Lep	56238.8812	28251	–0.0372	V	J. A. Howell	0.0010
RY Lyn	56229.9290	9298	–0.0324	V	J. A. Howell	0.0005
RY Lyn	57017.7426	9847	–0.0272	V	K. Menzies	0.0001
UV Lyn	56993.0396	40294.5	0.0893	V	V. Petriew	0.0001
UV Lyn	57004.8672	40323	0.0900	V	V. Petriew	0.0002
UV Lyn	57020.8444	40361.5	0.0905	V	V. Petriew	0.0002
UV Lyn	57021.0518	40362	0.0903	V	V. Petriew	0.0002
EW Lyr	56956.5492	15629	0.2604	V	G. Samolyk	0.0001
Beta Lyr	56826.16	605.5	1.76	V	G. Samolyk	0.06
Beta Lyr	56826.18	605.5	1.78	R	G. Samolyk	0.06
Beta Lyr	56826.20	605.5	1.80	B	G. Samolyk	0.02
Beta Lyr	56832.69	606	1.82	R	G. Samolyk	0.05
Beta Lyr	56832.71	606	1.84	V	G. Samolyk	0.05
Beta Lyr	56832.72	606	1.85	B	G. Samolyk	0.03
RU Mon	57090.6550	4281.5	–0.6425	V	G. Samolyk	0.0001
RW Mon	57079.5780	12276	–0.0815	V	K. Menzies	0.0001
BB Mon	56966.9312	41334	–0.0038	V	G. Samolyk	0.0003
BO Mon	56266.9598	5734	–0.0447	V	J. A. Howell	0.0004
EP Mon	56976.8769	20981	0.0295	V	N. Simmons	0.0003
V508 Oph	56799.7632	33983.5	–0.0231	V	B. Manske	0.0001
V839 Oph	56800.7384	39981	0.2836	V	B. Manske	0.0001
EF Ori	56272.8999	2422	0.0063	V	J. A. Howell	0.0006
EQ Ori	56230.9664	14199	–0.0399	V	J. A. Howell	0.0008
ER Ori	56242.8766	34521.5	0.1034	V	J. A. Howell	0.0014
ER Ori	56956.9540	36208	0.1189	V	G. Samolyk	0.0002
ET Ori	56208.9264	31048	–0.0051	V	J. A. Howell	0.0005
ET Ori	57087.5937	31972	–0.0023	V	G. Samolyk	0.0002
FH Ori	57076.7173	14493	–0.4316	V	R. Sabo	0.0002
FL Ori	56222.9134	7012	0.0407	V	J. A. Howell	0.0001
FL Ori	57080.5979	7565	0.0383	V	G. Samolyk	0.0002
FR Ori	56962.8389	32950.5	0.0448	V	B. Manske	0.0007
FT Ori	56243.8629	4728	0.0176	V	J. A. Howell	0.0010
FT Ori	56977.9111	4961	0.0191	V	K. Menzies	0.0001
FZ Ori	56258.7999	30587	–0.0485	V	J. A. Howell	0.0023
FZ Ori	56976.7799	32382	–0.0445	V	N. Simmons	0.0002
FZ Ori	56998.7800	32437	–0.0436	V	G. Samolyk	0.0005
GU Ori	56272.9218	28051	–0.0539	V	J. A. Howell	0.0004
GU Ori	56956.8175	29504	–0.0577	V	B. Manske	0.0004
U Peg	56952.6547	54541.5	–0.1554	V	B. Manske	0.0002
U Peg	56957.3392	54554	–0.1557	R	L. Corp	0.0003
U Peg	56976.6408	54605.5	–0.1553	V	K. Menzies	0.0003
BB Peg	56521.7325	35290	–0.0100	V	B. Manske	0.0002

Table continued on next page

Table 1. Recent times of minima of stars in the AAVSO eclipsing binary program, cont.

Star	*JD (min) Hel. 2400000 +*	*Cycle*	*O–C (day)*	*F*	*Observer*	*Error (day)*
BB Peg	56857.7462	36219.5	–0.0125	V	B. Manske	0.0002
BB Peg	56882.6902	36288.5	–0.0122	V	B. Manske	0.0001
BB Peg	56882.8695	36289	–0.0136	V	B. Manske	0.0002
BG Peg	57006.4733	5877	–2.1801	V	K. Menzies	0.0006
DI Peg	56953.5685	16517	0.0024	V	N. Simmons	0.0001
GP Peg	56567.6741	15712.5	–0.0502	V	B. Manske	0.0007
GP Peg	56908.6515	16062	–0.0512	V	B. Manske	0.0001
GP Peg	56927.6757	16081.5	–0.0516	V	B. Manske	0.0002
Z Per	56236.8658	3461	–0.2563	V	J. A. Howell	0.0006
RT Per	56253.8861	26934	0.0796	V	J. A. Howell	0.0004
RT Per	56953.8052	27758	0.0928	V	G. Samolyk	0.0001
ST Per	56231.8853	5209	0.3045	V	J. A. Howell	0.0004
XZ Per	56262.9126	11076	–0.0643	V	J. A. Howell	0.0002
XZ Per	56953.8846	11676	–0.0728	V	G. Samolyk	0.0001
DM Per	56955.7676	5512	–0.0044	V	V. Petriew	0.0005
IQ Per	57002.7140	7291	–0.0017	V	V. Petriew	0.0002
IU Per	56956.7402	13238	0.0059	V	N. Simmons	0.0001
IU Per	56998.7339	13287	0.0054	V	G. Samolyk	0.0002
V432 Per	56951.7861	65556	0.0417	V	V. Petriew	0.0001
V432 Per	56951.9797	65556.5	0.0745	V	V. Petriew	0.0003
V432 Per	56966.7350	65602.5	0.0400	V	G. Samolyk	0.0001
V432 Per	56982.8337	65652.5	0.0629	V	K. Menzies	0.0001
V432 Per	56999.6991	65705	0.0486	V	K. Menzies	0.0002
V740 Per	56944.7603	14869	0.0038	V	V. Petriew	0.0001
V740 Per	56950.7292	14885	0.0040	V	V. Petriew	0.0001
V740 Per	56950.9158	14885.5	0.0041	V	V. Petriew	0.0001
Y Psc	56962.6524	3008	–0.0157	V	B. Manske	0.0001
RV Psc	56927.8651	58749	–0.0586	V	B. Manske	0.0002
RV Psc	56982.7101	58848	–0.0587	V	K. Menzies	0.0002
SX Psc	56903.8276	13212	0.0014	V	B. Manske	0.0002
SX Psc	56956.6835	13276	0.0010	V	B. Manske	0.0002
UV Psc	56962.4148	15743.5	–0.0200	V	L. Corp	0.0009
CP Psc	56917.8734	6458	0.0004	V	B. Manske	0.0003
DS Psc	56561.8335	11859	–0.0010	V	B. Manske	0.0008
DS Psc	56923.8445	12916	–0.0039	V	B. Manske	0.0004
GR Psc	56558.8218	10299	0.0038	V	B. Manske	0.0002
GR Psc	56952.7947	11096	0.0029	V	B. Manske	0.0002
UZ Pup	57047.9416	15643.5	–0.0114	V	H. Pavlov	0.0003
UZ Pup	57093.6472	15701	–0.0098	V	G. Samolyk	0.0001
Y Sex	57079.7354	36476	–0.0091	V	K. Menzies	0.0002
RW Tau	56573.7756	3933	–0.2588	V	B. Manske	0.0001
RZ Tau	56209.9076	44586	0.0684	V	J. A. Howell	0.0010
RZ Tau	57054.5664	46618	0.0762	V	K. Menzies	0.0001
TY Tau	57096.6097	33326	0.2653	V	G. Samolyk	0.0002
WY Tau	56250.8868	27208	0.0583	V	J. A. Howell	0.0015
WY Tau	57006.6894	28299	0.0614	V	K. Menzies	0.0001
AC Tau	56206.9648	5173	0.0942	V	J. A. Howell	0.0014
AM Tau	56214.9313	5363	–0.0608	V	J. A. Howell	0.0005
AM Tau	56999.7945	5747	–0.0652	V	K. Menzies	0.0001
CT Tau	56943.7954	17305	–0.0619	V	V. Petriew	0.0002
CT Tau	56983.8046	17365	–0.0626	V	K. Menzies	0.0001
EQ Tau	56942.7831	49010	–0.0309	V	B. Manske	0.0002
EQ Tau	56956.7785	49051	–0.0308	V	G. Samolyk	0.0001
EQ Tau	56976.7478	49109.5	–0.0304	V	K. Menzies	0.0001
V1128 Tau	57072.3195	14972.5	–0.0009	V	L. Corp	0.0002
V Tri	56205.9088	54223	–0.0049	V	J. A. Howell	0.0004
V Tri	56578.6839	54860	–0.0058	V	B. Manske	0.0001
V Tri	56902.8873	55414	–0.0064	V	R. Sabo	0.0001
V Tri	56949.7038	55494	–0.0063	V	V. Petriew	0.0001
V Tri	56952.6297	55499	–0.0064	V	N. Simmons	0.0001
V Tri	56966.6747	55523	–0.0064	V	B. Manske	0.0001
RV Tri	57003.6374	14556	–0.0399	V	N. Simmons	0.0001
W UMa	57093.6424	33953	–0.0898	V	G. Samolyk	0.0001
W UMa	57093.8103	33953.5	–0.0887	V	G. Samolyk	0.0001
TY UMa	57080.5651	49494.5	0.3579	V	G. Samolyk	0.0001
TY UMa	57080.7424	49495	0.3579	V	G. Samolyk	0.0001
TY UMa	57080.9200	49495.5	0.3582	V	G. Samolyk	0.0002
UX UMa	57081.6559	99907	–0.0021	V	G. Samolyk	0.0001
UX UMa	57081.8533	99908	–0.0013	V	G. Samolyk	0.0001
UX UMa	57084.8034	99923	–0.0013	V	K. Menzies	0.0001
VV UMa	56746.6843	15903	–0.0564	Ic	G. Lubcke	0.0001
VV UMa	56746.6843	15903	–0.0564	V	G. Lubcke	0.0001
VV UMa	56746.6845	15903	–0.0562	B	G. Lubcke	0.0001
VV UMa	57003.7545	16277	–0.0663	V	G. Samolyk	0.0001
ZZ UMa	56998.9086	9154	–0.0014	V	G. Samolyk	0.0002
EQ UMa	53496.6794	13374	0.0119	V	V. Petriew	0.0004
EQ UMa	53746.8453	14072.5	0.0077	V	V. Petriew	0.0010
EQ UMa	53779.7923	14164.5	0.0046	V	V. Petriew	0.0008
EQ UMa	53779.9694	14165	0.0026	V	V. Petriew	0.0005
RU UMi	57092.6677	29521	–0.0146	V	N. Simmons	0.0001
AG Vir	57095.8752	18149	–0.0079	V	G. Samolyk	0.0003
AH Vir	57093.8187	27677.5	0.2712	V	G. Samolyk	0.0001
AW Vir	56801.7443	33274.5	0.0278	V	B. Manske	0.0001
AW Vir	57081.9330	34066	0.0279	V	G. Samolyk	0.0001
AZ Vir	56808.6990	36698.5	–0.0260	V	B. Manske	0.0001
AZ Vir	57096.8251	37522.5	–0.0240	V	G. Samolyk	0.0002
AZ Vir	57104.8674	37545.5	–0.024	V	K. Menzies	0.0001
BT Vul	56952.6052	18884	0.0044	V	G. Samolyk	0.0002
CD Vul	56952.6187	15582	–0.0009	V	G. Samolyk	0.0001