Recent Minima of 154 Eclipsing Binary Stars

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Abstract This paper continues the publication of times of minima for eclipsing binary stars from observations reported to the AAVSO Eclipsing Binary Committee. Times of minima from observations made from September 2008 through February 2009 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/jsamoj371.txt. This list, along with eclipsing binary data from earlier AAVSO publications, is also included in the Lichtenknecker database 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 Worden (1956). The standard error is included when available.

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: CD Cam (Baldwin and Samolyk 2007), CW Cas (Samolyk 1992a), DV Cep (Frank and Lichtenknecker 1987), Z Dra (Danielkiewicz-Krośniak and Kurpińska-Winiarska 1996), DF Hya (Samolyk 1992b), DK Hya (Samolyk 1990), GU Ori (Samolyk 1985). O–C values listed in this paper can be directly compared with values published in recent numbers of the AAVSO *Observed Minima Timingsof Eclipsing Binaries* series.

The number of observations used for determination of each time of minimum is given under *N* in the table when available.

References

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

Star	*HJD(min) 2400000+*	*Cycle*	*O–C*	*N*	*Type*	*Observer**	*Standard Error*
RT And	54813.5504	21738	–0.0084	62	CCD	SAH	0.0001
TW And	54781.7489	3823	–0.0265	79	CCD	SAH	0.0005
UU And	54750.6325	8814	0.0796	77	CCD	SAH	0.0004
UU And	54814.5454	8857	0.0817		CCD	MZK	0.0002
WZ And	54729.8375	19920	0.0481	90	CCD	MZK	0.0003
XZ And	54799.7876	22709	0.1700	113	CCD	SAH	0.0001
XZ And	54863.5797	22756	0.1700	56	CCD	SAH	0.0002
AD And	54816.5361	16035.5	–0.0583	85	CCD	SAH	0.0003
BD And	54744.5451	42735	0.0153	76	CCD	MZK	0.0001
BX And	54781.5507	29917	–0.0476	88	CCD	SAH	0.0002
CX Aqr	54771.6421	32947	0.0098	108	CCD	SAH	0.0001
CZ Aqr	54792.5648	13238	–0.0417	89	CCD	SAH	0.0001
XZ Aql	54751.5339	6006	0.1518	70	CCD	SAH	0.0004
OO Aql	54708.3580	31759	0.0405	112	CCD	CLZ	0.0003
OO Aql	54727.6159	31797	0.0404	100	CCD	SAH	0.0001
OO Aql	54730.4054	31802.5	0.0426	150	CCD	CLZ	0.0005
V346 Aql	54725.6320	11576	–0.0101	181	CCD	MZK	0.0001
RX Ari	54769.6778	15900	0.0547	135	CCD	SAH	0.0002
RX Ari	54870.5838	15998	0.0574	95	CCD	SAH	0.0004
RY Aur	54873.5910	6085	0.0238	79	CCD	SAH	0.0002
TT Aur	54877.8088	25238	–0.0135	105	CCD	SAH	0.0004
ZZ Aur	54831.1930	48779	0.0160	232	CCD	VJA	0.0001
AP Aur	54797.7709	21698	1.2193	80	CCD	SAH	0.0003
AP Aur	54877.7728	21838.5	1.2328	70	CCD	SAH	0.0003
CL Aur	54799.7670	17545	0.1298	118	CCD	SAH	0.0001
CL Aur	54885.6298	17614	0.1315	102	CCD	SAH	0.0002
EP Aur	54781.7934	48176	0.0100	39	CCD	MZK	0.0002
EP Aur	54871.6304	48328	0.0138	124	CCD	SAH	0.0004
HP Aur	54834.6609	8489	0.0521	69	CCD	PRX	0.0001
IM Aur	51919.487	9143	–0.087	15	CCD	CK	
IM Aur	54834.4074	11480	–0.0972	55	CCD	CLZ	0.0007
TU Boo	54871.8062	67241.5	–0.1287	61	CCD	MZK	0.0001
TY Boo	54861.8474	64264.5	0.0840	85	CCD	MZK	0.0001
TZ Boo	54869.8947	51275	0.0713	116	CCD	MZK	0.0001
VW Boo	54610.3791	68464.5	–0.1574	53	CCD	SFV	0.0002
ZZ Boo	42928.7171	874	0.0136	27	PEP	RNN	0.0004
AR Boo	54680.3421	43239.5	0.0879	42	CCD	SFV	0.0002
Y Cam	54799.7163	3581	0.3478	89	CCD	SAH	0.0002

Table continued on following pages

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

Star	*HJD(min) 2400000+*	*Cycle*	*O–C*	*N*	*Type*	*Observer**	*Standard Error*
SV Cam	54728.8783	20460	0.0519	59	CCD	SAH	0.0002
AL Cam	54768.7508	21348	–0.0326	108	CCD	SAH	0.0001
AL Cam	54792.6607	21366	–0.0327	77	CCD	SAH	0.0001
CD Cam	54771.7476	2629	0.0088	160	CCD	SAH	0.0008
RT CMa	54857.5493	21822	–0.6903	52	CCD	SAH	0.0006
SX CMa	54825.8552	16457	0.0350	78	CCD	SAH	0.0002
SX CMa	54856.7154	16476	0.0343	91	CCD	PRX	0.0002
SX CMa	54887.5772	16495	0.0352	91	CCD	SAH	0.0003
TU CMa	54830.8129	24697	–0.0100	62	CCD	SAH	0.0003
TZ CMa	54792.8487	14475	–0.2032	60	CCD	SAH	0.0005
TZ CMa	54863.6215	14512	–0.1539	104	CCD	SAH	0.0003
UU CMa	54832.7741	4724	–0.1093	54	CCD	SAH	0.0003
XZ CMi	54797.9252	21343	–0.0077	75	CCD	SAH	0.0003
XZ CMi	54825.7101	21391	–0.0056	74	CCD	SAH	0.0003
XZ CMi	54847.7035	21429	–0.0070	65	CCD	PRX	0.0002
XZ CMi	54877.8008	21481	–0.0078	84	CCD	SAH	0.0002
YY CMi	54884.6265	24553	0.0138	139	CCD	MZK	0.0002
AK CMi	54866.6630	20790	–0.0180	81	CCD	PRX	0.0001
RZ Cas	54771.5503	9681	0.0578	105	CCD	SAH	0.0001
TV Cas	54792.8430	5622	–0.0229	52	CCD	SAH	0.0004
TW Cas	54797.5889	8954	–0.0115	98	CCD	SAH	0.0001
TW Cas	54847.5802	8989	–0.0115	88	CCD	SAH	0.0003
AB Cas	54845.5652	8875	0.0975	104	CCD	SAH	0.0001
CW Cas	54799.6310	41295	–0.0470	93	CCD	SAH	0.0002
CW Cas	54857.6634	41477	–0.0479	67	CCD	PRX	0.0002
CW Cas	54863.5621	41495.5	–0.0482	65	CCD	SAH	0.0002
IR Cas	54769.5552	18225	0.0098	48	CCD	SAH	0.0001
IR Cas	54792.6983	18259	0.0096	90	CCD	SAH	0.0001
IS Cas	54717.7115	14087	0.0633	81	CCD	MZK	0.0002
IS Cas	54730.6024	14094	0.0636	77	CCD	SAH	0.0002
IS Cas	54870.5575	14170	0.0638	65	CCD	SAH	0.0001
MM Cas	54759.6066	16710	0.0899	98	CCD	MZK	0.0002
OR Cas	54792.6862	8495	–0.0228	97	CCD	HES	0.0001
PV Cas	54873.5514	8367	–0.0343	92	CCD	SAH	0.0002
V364 Cas	54721.8363	13213	–0.0192	72	CCD	MZK	0.0004
U Cep	54770.7405	4103	0.1635	108	CCD	SAH	0.0001
SU Cep	54829.5755	31622	0.0049	91	CCD	SNE	0.0001
WZ Cep	54768.5646	64027.5	–0.0856	97	CCD	SAH	0.0002

Table continued on following pages

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

Star	*HJD(min) 2400000+*	*Cycle*	*O–C*	*N*	*Type*	*Observer**	*Standard Error*
WZ Cep	54797.5770	64097	–0.0858	56	CCD	GHS	0.0002
WZ Cep	54832.6406	64181	–0.0877	71	CCD	PRX	0.0003
XX Cep	54752.3838	4241	–0.0205	247	CCD	VJA	0.0002
ZZ Cep	54743.7742	12520	–0.0128	111	CCD	HES	0.0001
DK Cep	54717.5835	21429	0.0323	87	CCD	MZK	0.0001
DL Cep	54751.5979	12760	0.0523	86	CCD	SAH	0.0002
DV Cep	54799.5665	6916	–0.0042	103	CCD	SAH	0.0002
SS Cet	54751.7028	4136	0.0091	79	CCD	SAH	0.0002
TW Cet	54822.6223	39290.5	–0.0253	71	CCD	SAH	0.0001
TX Cet	54788.6614	15801	0.0103	90	CCD	SAH	0.0002
RZ Com	54887.8522	59232	0.0426	74	CCD	MZK	0.0001
SS Com	54880.8609	72379.5	0.6796	90	CCD	MZK	0.0001
CC Com	54814.8773	69244.5	–0.0168	65	CCD	MZK	0.0001
RW CrB	54572.4305	19026	–0.0030	79	CCD	SFV	0.0002
W Crv	54828.9260	39118.5	0.0201	86	CCD	SAH	0.0003
W Crv	54832.9987	39129	0.0179	65	CCD	SAH	0.0003
WW Cyg	54720.6768	4323	0.0754	91	CCD	MZK	0.0001
ZZ Cyg	54708.6559	15444	–0.0534	92	CCD	DSV	0.0001
ZZ Cyg	54730.6589	15479	–0.0520	47	CCD	GHS	0.0001
AE Cyg	54797.5803	10536	–0.0048	108	CCD	SAH	0.0002
CG Cyg	54652.7220	24127	0.0610	68	CCD	GHS	0.0002
CG Cyg	54681.7568	24173	0.0633	46	CCD	GHS	0.0001
CG Cyg	54688.6983	24184	0.0623	59	CCD	GHS	0.0002
DK Cyg	54799.5505	35692	0.0796	45	CCD	GHS	0.0004
V387 Cyg	54799.5635	41858	0.0184	75	CCD	SNE	0.0002
V456 Cyg	54680.6446	10962	0.0427	33	CCD	GHS	0.0001
V477 Cyg	54736.6167	4494	–0.0230	112	CCD	HES	0.0001
V477 Cyg	54736.6204	4494	–0.0193	79	CCD	SRIC	0.0001
V704 Cyg	54750.6663	29457	0.0296	68	CCD	SAH	0.0003
V1034 Cyg	54792.5357	12134	–0.0041	75	CCD	SAH	0.0005
W Del	54728.6459	2372	0.0272	166	CCD	SAH	0.0002
TY Del	54751.6537	9900	0.0525	98	CCD	SAH	0.0002
YY Del	54718.7006	14827	0.0106	82	CCD	SRIC	0.0002
YY Del	54722.6681	14832	0.0126	47	CCD	SRIC	0.0002
FZ Del	54726.6822	29880	–0.0393	118	CCD	SAH	0.0001
FZ Del	54737.6496	29894	–0.0369	34	CCD	SRIC	0.0002
Z Dra	54797.6524	3649	–0.0315	81	CCD	SAH	0.0002
RZ Dra	54799.5511	19282	0.0470	81	CCD	SAH	0.0001

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

Star	*HJD(min) 2400000+*	*Cycle*	*O–C*	*N*	*Type*	*Observer**	*Standard Error*
TW Dra	54799.5388	3799	0.0320	99	CCD	SAH	0.0002
BH Dra	54797.5785	8132	–0.0038	111	CCD	SAH	0.0004
UX Eri	52638.5288	24066.5	–0.1079	33	CCD	DKS	0.0001
UX Eri	54791.2725	28901	–0.0675	67	CCD	SFV	0.0002
YY Eri	54750.7972	40962	0.1298	51	CCD	SAH	0.0002
YY Eri	54792.7520	41092.5	0.1296	97	CCD	SAH	0.0001
YY Eri	54799.8260	41114.5	0.1308	52	CCD	SNE	0.0002
YY Eri	54860.5886	41303.5	0.1310	22	CCD	MZK	0.0003
SX Gem	54792.8190	26163	–0.0540	90	CCD	SAH	0.0001
WW Gem	54873.5570	23339	0.0291	76	CCD	SAH	0.0003
AL Gem	54870.6061	20517	0.0674	73	CCD	SAH	0.0003
RX Her	54751.5948	12134	–0.0007	72	CCD	SAH	0.0004
LT Her	53589.6659	11839	–0.1117	55	CCD	HES	0.0006
LT Her	54235.7502	12435	–0.1187	77	CCD	BIZ	0.0005
LT Her	54261.7725	12459	–0.1135	135	CCD	HES	0.0003
LT Her	54596.7338	12768	–0.1224	68	CCD	BIZ	0.0008
WY Hya	54825.9757	19909	0.0268	66	CCD	SAH	0.0005
WY Hya	54864.6408	19963	0.0275	65	CCD	PRX	0.0001
AV Hya	54797.9008	26521	–0.0910	71	CCD	SAH	0.0002
DF Hya	54799.8083	36333.5	–0.0131	72	CCD	SAH	0.0001
DF Hya	54873.6989	36557	–0.0128	84	CCD	PRX	0.0002
DF Hya	54885.6009	36593	–0.0126	110	CCD	SAH	0.0001
DI Hya	54832.8983	38455	–0.0288	49	CCD	SAH	0.0003
DI Hya	54882.6914	38536	–0.0275	78	CCD	PRX	0.0002
DK Hya	54824.9364	22956	0.0068	91	CCD	SAH	0.0001
DK Hya	54890.6987	23082	0.0071	76	CCD	PRX	0.0002
SW Lac	54771.7918	29610	–0.1017	64	CCD	SAH	0.0001
VX Lac	54721.6017	8807	0.0653	82	CCD	MZK	0.0001
VX Lac	54749.5389	8833	0.0656	86	CCD	MZK	0.0001
VX Lac	54750.6142	8834	0.0664	69	CCD	SAH	0.0003
AR Lac	54797.7215	6658	–0.083	125	CCD	SAH	0.0003
AW Lac	54771.6389	24629	0.1692	95	CCD	SAH	0.0007
CO Lac	54829.5959	17699	–0.0074	102	CCD	SAH	0.0001
Y Leo	54861.7438	5590	–0.0174	83	CCD	MZK	0.0001
UV Leo	54800.8696	27263	0.0319	68	CCD	MZK	0.0002
T LMi	54867.6256	3136	–0.1018	68	CCD	MZK	0.0001
Z Lep	54829.8085	27579	–0.1685	112	CCD	SAH	0.0001
Z Lep	54851.6700	27601	–0.1687	75	CCD	PRX	0.0001

Table continued on following pages

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

Star	*HJD(min) 2400000+*	*Cycle*	*O–C*	*N*	*Type*	*Observer**	*Standard Error*
RR Lep	54856.5888	26741	–0.0333	79	CCD	SAH	0.0004
VZ Lib	54667.3522	27574	0.0088	260	CCD	SFV	0.0001
RY Lyn	54797.7953	8300	–0.0481	76	CCD	SAH	0.0003
RU Mon	54823.8676	3649	–0.0762	137	CCD	SAH	0.0001
RU Mon	54877.6385	3664	–0.0765	87	CCD	SAH	0.0002
RW Mon	54885.6774	11125	–0.0678	125	CCD	SAH	0.0001
AT Mon	54863.6405	13926	0.0080	114	CCD	SAH	0.0002
BB Mon	54873.6120	38477	–0.0025	98	CCD	GHS	0.0004
EP Mon	54797.7889	19083	0.0340	104	CCD	SAH	0.0002
V508 Oph	54721.3643	27955.5	–0.0151	200	CCD	SFV	0.0001
EQ Ori	54830.6369	13397	–0.0317	131	CCD	SAH	0.0001
ER Ori	54791.4352	31093.5	0.0727	138	CCD	SFV	0.0001
ER Ori	54797.7888	31108.5	0.0753	81	CCD	SAH	0.0002
ER Ori	54838.6463	31205	0.0749	62	CCD	PRX	0.0001
ER Ori	54853.6728	31240.5	0.0707	108	CCD	WEY	0.0003
ER Ori	54860.6634	31257	0.0752	59	CCD	MZK	0.0001
ER Ori	54870.6142	31280.5	0.0762	67	CCD	SAH	0.0001
ET Ori	54877.6181	29648	–0.0036	90	CCD	SAH	0.0003
FZ Ori	54877.6333	27134	–0.0614	84	CCD	SAH	0.0007
GU Ori	54877.5967	25086.5	–0.0452	103	CCD	SAH	0.0003
U Peg	54727.7945	48605	–0.1256	97	CCD	SAH	0.0002
U Peg	54731.3571	48614.5	–0.1234	200	CCD	VJA	0.0002
UX Peg	54728.6242	9260	–0.0082	53	CCD	MZK	0.0001
BB Peg	54728.6903	30330	–0.0018	90	CCD	MZK	0.0001
BG Peg	54825.5955	4760	–1.8697	62	CCD	SAH	0.0003
BX Peg	54721.7261	37538	–0.0870	50	CCD	MZK	0.0003
DI Peg	54799.5955	13491	–0.0129	73	CCD	MZK	0.0001
GP Peg	54751.5670	13851	–0.0445	80	CCD	SAH	0.0003
Z Per	54812.6581	2995	–0.2252	128	CCD	SAH	0.0001
RT Per	54856.6066	25289	0.0636	79	CCD	SAH	0.0001
RV Per	54799.6234	6462	–0.0003	133	CCD	SAH	0.0001
XZ Per	54863.6886	9861	–0.0529	73	CCD	SAH	0.0002
XZ Per	54863.6887	9861	–0.0528	82	CCD	PRX	0.0001
IK Per	52260.6900	36778	–0.1091	42	CCD	DKS	0.0010
IK Per	54828.2199	40576	–0.1674	188	CCD	VJA	0.0003
IU Per	54751.6226	10665	0.0139	113	CCD	HES	0.0003
Beta Per	54799.7764	3194	0.0930	136	CCD	SAH	0.0002
AE Phe	54824.5998	30608.5	–0.0985	72	CCD	SAH	0.0004

Table continued on following page

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

Star	*HJD(min) 2400000+*	*Cycle*	*O–C*	*N*	*Type*	*Observer**	*Standard Error*
RV Psc	54726.8671	54776	–0.0486	104	CCD	SAH	0.0003
UZ Pup	54824.7481	12846.5	–0.0061	107	CCD	SAH	0.0002
UZ Pup	54863.6977	12895.5	–0.0042	64	CCD	SAH	0.0005
UZ Pup	54885.5542	12923	–0.0061	68	CCD	SAH	0.0001
AV Pup	54877.7380	42599	0.1262	64	CCD	SAH	0.0004
AZ Pup	54542.0260	30472.5	0.2075	111	CCD	SFV	0.0002
RZ Tau	54843.5721	41299	0.0557	83	CCD	SAH	0.0001
TY Tau	54800.7499	31195	0.2501	70	CCD	MZK	0.0001
TY Tau	54814.7559	31208	0.2505	87	CCD	MZK	0.0002
TY Tau	54868.6241	31258	0.2509	61	CCD	MZK	0.0002
CT Tau	54797.9444	14087	–0.0530	110	CCD	SAH	0.0005
CT Tau	54888.6342	14223	–0.0522	111	CCD	SAH	0.0003
EQ Tau	54781.7109	42679	–0.0259	33	CCD	MZK	0.0001
EQ Tau	54797.7538	42726	–0.0264	70	CCD	SAH	0.0001
EQ Tau	54830.3538	42821.5	–0.0251	62	CCD	VJA	0.0001
RV Tri	54742.6488	11556	–0.0290	65	CCD	MZK	0.0001
RV Tri	54868.5102	11723	–0.0299	58	CCD	MZK	0.0001
W UMa	54770.8880	26991	–0.0600	75	CCD	SAH	0.0001
TY UMa	54871.6988	43264.5	0.2670	49	CCD	MZK	0.0002
UX UMa	54797.9128	88295	0.0017	79	CCD	SAH	0.0001
XZ UMa	54797.9078	7060	–0.0974	62	CCD	SAH	0.0001
RU UMi	54769.8704	25096	–0.0135	74	CCD	SAH	0.0001
AG Vir	54620.3855	14297	–0.0069	75	CCD	SFV	0.0004
AW Vir	54829.9762	27704.5	0.0227	73	CCD	SAH	0.0002
AX Vir	54571.3490	38434	0.0130	112	CCD	SFV	0.0002
AY Vul	54730.6508	4993	–0.0731	33	CCD	SAH	0.0006
AY Vul	54771.6593	5010	–0.0762	107	CCD	SAH	0.0002
BS Vul	54770.5500	24159	–0.0227	86	CCD	SAH	0.0001
BU Vul	54797.5358	37371	0.0154	74	CCD	SAH	0.0001

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