

Recent Minima of 239 Eclipsing Binary Stars

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Abstract This paper continues the publication of times of minima for eclipsing binary stars. Times of minima for 239 eclipsing binary stars were determined from observations received by the American Association of Variable Star Observers (AAVSO) Eclipsing Binaries Section from August 2023 through January 2024.

1. Recent Observations

The accompanying list (Table 1) contains times of minima calculated for 239 variables calculated from recent CCD observations made by participants in the AAVSO's eclipsing binary program. These observations were reduced by the observers or the writer using the method of Kwee and van Woerden (1956).

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), AC CMi (Samolyk 2008), CW Cas (Samolyk 1992), DV Cep (Frank and Lichtenknecker 1987), Z Dra (Danielkiewicz-Krośniak and Kurpinski-Winiarska 1996), EF Ori (Baldwin and Samolyk 2005), GU Ori (Samolyk 1985).

The light elements used for QX And, EK Aqr, V409Aql, V688 Aql, V719 Aql, CV Boo, VY Cet, V500 Cyg, V1918 Cyg, MR Del, MZ Lac, LZ Lyr, ZZ Peg, AQ Psc, GR Psc, DK Sct, and V1128 Tau are from (Kreiner 2004).

The light elements used for BN Ari, AH Aur, V1261 Cas, V1287 Cas, CW Cep, V700 Cyg, V2181 Cyg, V2456 Cyg, V2477 Cyg, PS Del, VZ Psc, and ET Psc are from (Paschke 2014).

The light elements used for BB Per are from (Nelson 2014).

The light elements used for V744 Cas, V919 Cep, V505 Lac, and V576 Peg are from (Watson *et al.*).

The standard error is included when available. Column F indicates the filter used. A “C” indicates a clear filter.

This list will be web-archived and made available through the AAVSO ftp site at:

<ftp://ftp.aavso.org/public/datasets/gsamj521eb239.txt>.

This list, along with the 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) (Walter *et al.* 2015).

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¹ Walter *et al.* (2015), <https://www.bav-astro.eu/index.php/veroeffentlichungen/service-for-scientists/lkdb-engl>

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

<i>Star</i>	<i>JD (min)</i> <i>Hel.</i> <i>2400000+</i>	<i>Cycle</i>	<i>O-C</i> <i>(day)</i>	<i>F</i>	<i>Observer</i>	<i>Standard</i> <i>Error</i> <i>(day)</i>	<i>Star</i>	<i>JD (min)</i> <i>Hel.</i> <i>2400000+</i>	<i>Cycle</i>	<i>O-C</i> <i>(day)</i>	<i>F</i>	<i>Observer</i>	<i>Standard</i> <i>Error</i> <i>(day)</i>
RT And	59118.5693	28583	-0.0120	TG	J. A. Howell	0.0001	AR Aur	59170.6156	5023	-0.1406	TG	J. A. Howell	0.0002
RT And	60172.6524	30259	-0.0148	V	G. Samolyk	0.0001	CL Aur	60308.6248	21972	0.1860	V	G. Samolyk	0.0002
RT And	60262.5897	30402	-0.0144	V	G. Samolyk	0.0001	EM Aur	60266.8676	16068	-1.1441	V	G. Samolyk	0.0004
RT And	60271.3945	30416	-0.0146	V	T. Arranz	0.0001	EM Aur	60299.6656	16086	-1.1418	V	K. Menzies	0.0006
RT And	60308.5009	30475	-0.0150	V	G. Samolyk	0.0001	EP Aur	60220.8554	57379	0.0254	V	G. Samolyk	0.0001
TW And	60219.6391	5142	-0.0752	V	G. Samolyk	0.0001	HP Aur	59269.5915	11606	0.0740	TG	J. A. Howell	0.0002
UU And	60291.6018	12542	0.1374	V	G. Samolyk	0.0002	HP Aur	60267.7025	12307.5	0.0815	V	G. Samolyk	0.0001
WZ And	60259.6719	27869	0.1002	V	G. Samolyk	0.0001	HP Aur	60286.9104	12321	0.0815	V	G. Samolyk	0.0001
WZ And	60315.3213	27949	0.0970	V	A. Agudo	0.0002	TZ Boo	60311.9480	69588.5	0.0484	V	K. Menzies	0.0002
XZ And	60205.8748	26692	0.2189	V	G. Samolyk	0.0001	CV Boo	60129.4302	9007	-0.0023	V	T. Arranz	0.0001
XZ And	60208.5891	26694	0.2187	V	L. Hazel	0.0003	Y Cam	60293.8570	5243	0.5407	V	G. Samolyk	0.0002
AB And	60180.8294	72527.5	-0.0578	V	G. Samolyk	0.0001	SV Cam	59273.5858	28123	0.0644	TG	J. A. Howell	0.0001
AB And	60197.4242	72577.5	-0.0576	V	L. Corp	0.0001	SV Cam	60188.6929	29666	0.0646	V	G. Samolyk	0.0006
AB And	60220.6569	72647.5	-0.0573	V	G. Shaw	0.0002	CD Cam	60330.7723	9903.5	-0.0252	V	G. Samolyk	0.0008
AB And	60220.8232	72648	-0.0570	V	G. Shaw	0.0005	NR Cam	60267.8556	33914	0.0147	V	K. Menzies	0.0002
AB And	60238.5794	72701.5	-0.0570	V	G. Samolyk	0.0001	R CMa	59231.6598	13154	0.1375	TG	J. A. Howell	0.0003
AB And	60238.7450	72702	-0.0574	V	G. Samolyk	0.0001	RT CMa	59244.6333	25213	-0.7871	TG	J. A. Howell	0.0002
AB And	60290.3548	72857.5	-0.0568	V	T. Arranz	0.0002	SX CMa	59253.5843	19183	0.0358	TG	J. A. Howell	0.0005
AB And	60290.5197	72858	-0.0578	V	G. Samolyk	0.0001	SX CMa	60276.8759	19813	0.0446	V	G. Samolyk	0.0001
AD And	60207.5612	21502	-0.0725	V	K. Menzies	0.0003	TU CMa	59267.5927	28631	-0.0115	TG	J. A. Howell	0.0001
AD And	60292.3781	21588	-0.0684	V	T. Arranz	0.0003	TU CMa	60292.7656	29540	-0.0125	V	G. Samolyk	0.0005
BD And	60187.8162	54494	0.0183	V	G. Samolyk	0.0001	TZ CMa	60297.7751	17355	-0.2412	V	G. Samolyk	0.0002
BD And	60240.5862	54608	0.0174	V	G. Samolyk	0.0001	XZ CMi	60290.8423	30833	0.0073	V	G. Samolyk	0.0001
BD And	60290.5800	54716	0.0178	V	G. Samolyk	0.0001	AC CMi	60278.8896	9571	0.0082	V	G. Samolyk	0.0001
BX And	60196.8514	38793	-0.1307	V	G. Samolyk	0.0001	AK CMi	59284.6172	28597	-0.0256	TG	J. A. Howell	0.0001
BX And	60262.7437	38901	-0.1308	V	G. Samolyk	0.0001	AK CMi	60278.8979	30354	-0.0268	V	G. Samolyk	0.0001
BX And	60286.5380	38940	-0.1310	V	G. Samolyk	0.0001	AK CMi	60299.8362	30391	-0.0267	V	K. Menzies	0.0001
DS And	60278.6532	23885	0.0059	V	G. Samolyk	0.0001	AM CMi	60276.8912	34372.5	0.2674	V	G. Samolyk	0.0006
EP And	60322.3573	43760	0.0889	V	T. Arranz	0.0001	RW Cap	60175.4289	5162	-0.9094	V	T. Arranz	0.0001
QR And	60188.7870	36928	0.2024	V	K. Menzies	0.0006	TY Cap	60192.4414	10818	0.1095	V	T. Arranz	0.0001
QX And	60278.5522	18872	0.0182	V	G. Samolyk	0.0004	RZ Cas	59179.6396	13369	0.0762	TG	J. A. Howell	0.0001
QX And	60278.7588	18872.5	0.0187	V	G. Samolyk	0.0032	RZ Cas	60196.7865	14220	0.0679	V	G. Samolyk	0.0002
RY Aqr	60181.4283	9843	-0.1704	V	T. Arranz	0.0001	RZ Cas	60238.6202	14255	0.0679	V	G. Samolyk	0.0001
RY Aqr	60230.5937	9868	-0.1699	V	L. Hazel	0.0003	TV Cas	59137.6247	8019	-0.0328	TG	J. A. Howell	0.0002
CX Aqr	60180.8412	42676	0.0191	V	G. Samolyk	0.0001	TV Cas	60259.6170	8638	-0.0372	V	G. Samolyk	0.0005
CX Aqr	60226.4332	42758	0.0203	V	T. Arranz	0.0001	TV Cas	60281.3677	8650	-0.0376	V	T. Arranz	0.0003
CX Aqr	60262.5714	42823	0.0194	V	G. Samolyk	0.0001	TW Cas	60196.6989	12734	0.0338	V	G. Samolyk	0.0002
CZ Aqr	60254.6213	19569	-0.0807	TG	J. A. Howell	0.0001	ZZ Cas	60205.6495	21526	-0.0077	V	G. Samolyk	0.0003
CZ Aqr	60267.5628	19584	-0.0805	V	G. Samolyk	0.0001	AB Cas	59178.6046	12045	0.1470	TG	J. A. Howell	0.0001
CZ Aqr	60286.5428	19606	-0.0811	V	G. Samolyk	0.0001	AB Cas	60218.8064	12806	0.1578	V	G. Samolyk	0.0002
EK Aqr	60205.7055	25138.5	0.0649	V	G. Samolyk	0.0008	CW Cas	59172.6046	55009.5	-0.1351	TG	J. A. Howell	0.0003
EK Aqr	60248.6014	25278.5	0.0472	V	G. Samolyk	0.0005	CW Cas	59220.5908	55160	-0.1380	TG	J. A. Howell	0.0002
EK Aqr	60274.3378	25362.5	0.0355	V	T. Arranz	0.0002	CW Cas	60189.5970	58199	-0.1598	V	G. Samolyk	0.0001
XZ Aql	60148.7083	8529	0.1726	V	L. Hazel	0.0006	CW Cas	60189.7584	58199.5	-0.1578	V	G. Samolyk	0.0004
XZ Aql	60176.5247	8542	0.1796	V	T. Arranz	0.0001	CW Cas	60209.8465	58262.5	-0.1581	V	K. Menzies	0.0001
XZ Aql	60238.5605	8571	0.1791	V	G. Samolyk	0.0001	CW Cas	60248.5856	58384	-0.1610	V	G. Samolyk	0.0001
OO Aql	60176.3984	42548.5	0.0866	V	L. Corp	0.0002	CW Cas	60273.4560	58462	-0.1620	V	T. Arranz	0.0001
OO Aql	60261.5392	42716.5	0.0869	V	G. Samolyk	0.0001	CW Cas	60331.3302	58643.5	-0.1616	V	T. Arranz	0.0002
V343 Aql	60144.7160	17186	-0.0482	V	L. Hazel	0.0006	DZ Cas	60188.6810	40457	-0.2345	V	G. Samolyk	0.0003
V343 Aql	60192.6740	17212	-0.0498	V	G. Samolyk	0.0001	GT Cas	60184.6414	10985	0.2195	V	G. Samolyk	0.0003
V346 Aql	60145.6974	16475	-0.0170	V	L. Hazel	0.0003	GT Cas	60274.3402	11015	0.2241	V	T. Arranz	0.0004
V346 Aql	60174.4627	16501	-0.0172	V	T. Arranz	0.0001	IR Cas	60179.6538	26173	0.0208	V	G. Samolyk	0.0001
V346 Aql	60176.6752	16503	-0.0174	V	G. Samolyk	0.0001	IR Cas	60198.7139	26201	0.0217	V	L. Hazel	0.0003
V409 Aql	60224.3873	3769	-0.0177	V	T. Arranz	0.0002	IR Cas	60286.5209	26330	0.0203	V	G. Samolyk	0.0001
V688 Aql	60164.5538	1970	0.0135	V	T. Arranz	0.0004	IR Cas	60293.3277	26340	0.0203	V	T. Arranz	0.0001
V719 Aql	60179.5624	1137	0.0001	V	T. Arranz	0.0003	IS Cas	60188.8581	17058	0.0766	V	G. Samolyk	0.0001
RX Ari	60258.6160	21231	0.0567	V	G. Samolyk	0.0002	IT Cas	60196.6879	8067	0.0752	V	G. Samolyk	0.0001
SS Ari	59177.6259	49630.5	-0.4345	TG	J. A. Howell	0.0005	IV Cas	60191.8605	19366	-0.1620	V	G. Samolyk	0.0001
SS Ari	60184.8510	52111.5	-0.4795	V	G. Samolyk	0.0002	MM Cas	59218.5948	20559	0.1271	TG	J. A. Howell	0.0003
SS Ari	60209.8176	52173	-0.4815	V	L. Hazel	0.0006	MM Cas	60220.6794	21424	0.1351	V	L. Hazel	0.0006
BN Ari	60317.3336	29367	-0.0536	V	T. Arranz	0.0002	OR Cas	60217.7449	12850	-0.0382	V	G. Samolyk	0.0001
BO Ari	60198.8272	22942	-0.0599	V	L. Hazel	0.0003	OR Cas	60267.5732	12890	-0.0383	V	G. Samolyk	0.0001
TT Aur	60308.7058	29313	-0.0117	V	G. Samolyk	0.0001	OX Cas	60218.6027	7612	0.0906	V	G. Samolyk	0.0003
WW Aur	59195.6419	10396	0.0028	TG	J. A. Howell	0.0004	OX Cas	60264.5928	7630.5	0.0278	V	G. Samolyk	0.0002
AH Aur	60230.8026	70694	-0.0777	V	L. Hazel	0.0003	PV Cas	59159.6126	10815.5	0.0014	TG	J. A. Howell	0.0012
AP Aur	60286.7162	31338	1.9921	V	G. Samolyk	0.0004	PV Cas	59201.6192	10839.5	-0.0032	TG	J. A. Howell	0.0002
AP Aur	60291.8411	31347	1.9932	V	K. Menzies	0.0005	PV Cas	60202.8862	11411.5	-0.0050	V	G. Samolyk	0.0003

Table continued on following pages

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

<i>Star</i>	<i>JD (min)</i> <i>Hel.</i> <i>2400000+</i>	<i>Cycle</i>	<i>O-C</i> <i>(day)</i>	<i>F</i>	<i>Observer</i>	<i>Standard</i> <i>Error</i> <i>(day)</i>	<i>Star</i>	<i>JD (min)</i> <i>Hel.</i> <i>2400000+</i>	<i>Cycle</i>	<i>O-C</i> <i>(day)</i>	<i>F</i>	<i>Observer</i>	<i>Standard</i> <i>Error</i> <i>(day)</i>
PV Cas	60259.7517	11444	-0.0298	V	G. Samolyk	0.0001	MY Cyg	60165.6937	6571	0.0010	V	G. Samolyk	0.0003
V364 Cas	60247.5575	16794	-0.0245	TG	J. A. Howell	0.0003	MY Cyg	60179.7222	6574.5	0.0113	V	G. Samolyk	0.0002
V364 Cas	60253.7283	16798	-0.0260	V	G. Samolyk	0.0001	V346 Cyg	60173.5023	8926	0.2172	V	T. Arranz	0.0003
V375 Cas	60217.5936	17358	0.3337	V	G. Samolyk	0.0002	V387 Cyg	60169.6810	50241	0.0163	V	G. Shaw	0.0004
V375 Cas	60298.6334	17413	0.3374	TG	J. A. Howell	0.0013	V387 Cyg	60187.6178	50269	0.0164	V	G. Samolyk	0.0001
V380 Cas	60201.5992	25460	-0.0764	V	G. Samolyk	0.0003	V387 Cyg	60218.3663	50317	0.0162	V	T. Arranz	0.0001
V380 Cas	60220.5988	25474	-0.0786	V	G. Samolyk	0.0002	V388 Cyg	59154.5599	20024	-0.1383	TG	J. A. Howell	0.0002
V380 Cas	60292.5341	25527	-0.0788	V	G. Samolyk	0.0001	V401 Cyg	60253.5606	28175	0.1093	V	G. Samolyk	0.0002
V523 Cas	60285.2920	81581.5	0.1522	V	T. Arranz	0.0001	V445 Cyg	60168.5507	10279	0.3378	V	T. Arranz	0.0001
V523 Cas	60285.4090	81582	0.1524	V	T. Arranz	0.0001	V456 Cyg	60178.4221	17131	0.0555	V	T. Arranz	0.0001
V523 Cas	60331.3299	81778.5	0.1530	V	T. Arranz	0.0001	V456 Cyg	60267.5409	17231	0.0551	V	G. Samolyk	0.0001
V744 Cas	60293.4429	2466	-0.1999	V	T. Arranz	0.0009	V466 Cyg	60116.6440	22523	0.0074	V	L. Hazel	0.0006
V1261 Cas	60322.3464	19873	0.0219	V	T. Arranz	0.0003	V466 Cyg	60206.4024	22587.5	0.0098	V	T. Arranz	0.0003
V1287 Cas	58326.8073	9452.5	0.0067	V	G. Samolyk	0.0007	V477 Cyg	60181.6104	6814	-0.0474	V	T. Arranz	0.0002
V1287 Cas	58412.5730	9707	0.0131	V	G. Samolyk	0.0009	V477 Cyg	60184.6599	6815.5	-0.5184	V	G. Samolyk	0.0002
V1287 Cas	58714.8388	10604	0.0150	V	G. Samolyk	0.0004	V500 Cyg	60149.6370	8276	-0.0021	V	L. Hazel	0.0006
V1287 Cas	59055.8544	11616	0.0149	V	G. Samolyk	0.0003	V548 Cyg	60167.4552	8703	0.0166	V	T. Arranz	0.0001
V1287 Cas	59791.6348	13799.5	0.0170	V	G. Samolyk	0.0005	V548 Cyg	60174.6755	8707	0.0160	V	G. Samolyk	0.0002
V1287 Cas	60286.4890	15268	0.0278	V	G. Samolyk	0.0005	V700 Cyg	60139.7720	96724	-0.0422	V	L. Hazel	0.0006
U Cep	59148.6027	5859	0.2343	TG	J. A. Howell	0.0002	V700 Cyg	60163.4605	96805.5	-0.0401	V	T. Arranz	0.0001
U Cep	60180.7534	6273	0.2633	V	G. Samolyk	0.0001	V700 Cyg	60163.6064	96806	-0.0395	V	T. Arranz	0.0001
SU Cep	60165.8722	37542	0.0071	V	G. Samolyk	0.0001	V700 Cyg	60168.4013	96822.5	-0.0399	V	T. Arranz	0.0001
WW Cep	60253.5934	22968	0.3736	V	G. Samolyk	0.0001	V700 Cyg	60170.5814	96830	-0.0396	V	T. Arranz	0.0001
XX Cep	59153.6233	6124	0.0330	TG	J. A. Howell	0.0001	V700 Cyg	60170.5814	96830	-0.0396	V	T. Arranz	0.0001
XX Cep	60310.6154	6619	0.0484	TG	J. A. Howell	0.0003	V704 Cyg	60174.6513	38961	0.0438	V	G. Samolyk	0.0004
ZZ Cep	60280.3218	15105	-0.0182	V	T. Arranz	0.0001	V836 Cyg	60207.3945	23498	0.0244	V	T. Arranz	0.0001
CQ Cep	60202.6469	16905.5	-0.1561	V	L. Hazel	0.0009	V1034 Cyg	60164.7088	17633	0.0255	V	G. Samolyk	0.0003
CW Cep	60264.5512	9120.5	-0.0151	V	G. Samolyk	0.0008	V1034 Cyg	60169.5945	17638	0.0265	V	T. Arranz	0.0002
DL Cep	59168.5871	15469	0.0685	TG	J. A. Howell	0.0005	V1034 Cyg	60170.5784	17639	0.0335	V	T. Arranz	0.0003
DL Cep	60187.6419	16094	0.0727	V	G. Samolyk	0.0003	V1034 Cyg	60175.4537	17644	0.0241	V	T. Arranz	0.0004
DL Cep	60228.4028	16119	0.0716	V	T. Arranz	0.0004	V1918 Cyg	60113.6710	18426.5	-0.0025	V	L. Hazel	0.0003
DV Cep	59211.5838	10713	-0.0052	TG	J. A. Howell	0.0003	V2181 Cyg	60177.5226	16428	-0.0107	V	T. Arranz	0.0002
DV Cep	60180.6705	11547	-0.0055	V	G. Samolyk	0.0002	V2456 Cyg	60116.7100	12083.5	-0.0041	V	L. Hazel	0.0009
DV Cep	60201.5850	11565	-0.0066	V	L. Hazel	0.0006	V2477 Cyg	60113.8402	27698	0.0027	V	L. Hazel	0.0003
EG Cep	59184.6591	30462	0.0064	TG	J. A. Howell	0.0001	V2477 Cyg	60130.8000	27752.5	-0.0006	V	L. Hazel	0.0006
EG Cep	60174.7789	32280	0.0037	V	G. Samolyk	0.0003	V2477 Cyg	60145.7449	27800.5	0.0043	V	L. Hazel	0.0003
EG Cep	60184.5840	32298	0.0056	V	L. Hazel	0.0003	V2477 Cyg	60161.6175	27851.5	0.0031	V	T. Arranz	0.0001
GK Cep	60253.6414	23029	0.1755	V	G. Samolyk	0.0003	V2477 Cyg	60162.5523	27854.5	0.0042	V	T. Arranz	0.0001
V338 Cep	60213.4119	7650	0.0457	V	T. Arranz	0.0001	V2477 Cyg	60163.6391	27858	0.0016	V	T. Arranz	0.0002
V919 Cep	60272.3072	1629	-0.0141	V	T. Arranz	0.0004	V2477 Cyg	60166.5973	27867.5	0.0030	V	T. Arranz	0.0001
SS Cet	60238.7658	5981	0.0863	V	G. Samolyk	0.0001	V2477 Cyg	60173.6001	27890	0.0026	V	T. Arranz	0.0001
TT Cet	60205.8925	56919	-0.0955	V	G. Samolyk	0.0001	V2477 Cyg	60175.6230	27896.5	0.0024	V	T. Arranz	0.0001
TT Cet	60264.6928	57040	-0.0960	V	G. Samolyk	0.0001	V2477 Cyg	60177.4915	27902.5	0.0034	V	T. Arranz	0.0001
TW Cet	60261.6916	56456.5	-0.0357	V	G. Samolyk	0.0004	V2477 Cyg	60177.6469	27903	0.0032	V	T. Arranz	0.0001
TW Cet	60316.3464	56629	-0.0378	V	T. Arranz	0.0001	W Del	60202.7657	3511	-0.0009	V	G. Samolyk	0.0001
VY Cet	60330.3121	22975	-0.0118	V	T. Arranz	0.0001	W Del	60212.3771	3513	-0.0017	V	T. Arranz	0.0001
SW Cyg	60164.5195	4001	-0.4074	V	T. Arranz	0.0001	W Del	60231.6022	3517	-0.0010	V	G. Shaw	0.0003
UW Cyg	60167.5483	4775	0.0359	V	T. Arranz	0.0001	TT Del	60222.3849	5221	-0.1464	V	T. Arranz	0.0002
UW Cyg	60198.6101	4784	0.0407	V	L. Hazel	0.0003	TY Del	60221.3528	14492	0.0969	V	T. Arranz	0.0001
WW Cyg	60178.5049	5968	0.1735	V	T. Arranz	0.0001	YY Del	60180.7336	21714	0.0176	V	G. Samolyk	0.0002
WW Cyg	60221.6382	5981	0.1758	V	L. Hazel	0.0003	YY Del	60220.3866	21764	0.0160	V	T. Arranz	0.0002
ZZ Cyg	60165.6409	24125	-0.0877	V	G. Samolyk	0.0001	FZ Del	60174.7191	36836	-0.0292	V	G. Samolyk	0.0001
ZZ Cyg	60169.4130	24131	-0.0873	V	T. Arranz	0.0001	FZ Del	60218.5793	36892	-0.0289	V	L. Hazel	0.0003
ZZ Cyg	60238.5599	24241	-0.0882	V	G. Samolyk	0.0001	FZ Del	60219.3625	36893	-0.0290	V	T. Arranz	0.0001
AE Cyg	60213.3984	16124	-0.0047	V	T. Arranz	0.0001	MR Del	60211.3999	14781	-0.0146	V	L. Corp	0.0003
BR Cyg	59134.6443	13204	0.0019	TG	J. A. Howell	0.0001	PS Del	60211.3863	9659	-0.0127	V	T. Arranz	0.0004
BR Cyg	60196.6979	14001	0.0018	V	G. Samolyk	0.0001	Z Dra	60144.6229	7588	-0.0002	V	L. Hazel	0.0003
CG Cyg	60181.5415	32887	0.0853	V	T. Arranz	0.0001	RZ Dra	60163.4402	29019	0.0779	V	T. Arranz	0.0001
CG Cyg	60184.6974	32892	0.0855	V	L. Hazel	0.0003	RZ Dra	60192.6369	29072	0.0783	V	G. Samolyk	0.0001
CG Cyg	60191.6408	32903	0.0864	V	G. Samolyk	0.0001	RZ Dra	60240.5633	29159	0.0787	V	G. Samolyk	0.0001
CG Cyg	60214.3627	32939	0.0872	V	T. Arranz	0.0002	UZ Dra	60218.4144	5718	0.0043	V	T. Arranz	0.0001
DK Cyg	60227.3932	47223.5	0.1542	V	T. Arranz	0.0003	S Equ	60220.5871	5129	0.1026	V	L. Hazel	0.0003
DL Cyg	60211.4932	3338	0.1561	V	T. Arranz	0.0005	YY Eri	60259.8048	58097.5	0.1744	V	G. Samolyk	0.0001
DO Cyg	60116.7907	9140	-0.0695	V	L. Hazel	0.0006	RW Gem	60267.8634	14645	0.0019	V	G. Samolyk	0.0001
KR Cyg	60177.5990	36764	0.0289	V	T. Arranz	0.0001	WW Gem	60308.7945	27730	0.0385	V	G. Samolyk	0.0002
KV Cyg	60180.6914	10818	0.0696	V	G. Samolyk	0.0003	AF Gem	59234.6840	25792	-0.0673	TG	J. A. Howell	0.0001
KV Cyg	60220.4378	10832	0.0701	V	T. Arranz	0.0002	AF Gem	60266.7925	26622	-0.0666	V	G. Samolyk	0.0001
							AL Gem	60264.8753	24394	0.1172	V	G. Samolyk	0.0001

Table continued on following pages

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

<i>Star</i>	<i>JD (min)</i> <i>Hel.</i> <i>2400000+</i>	<i>Cycle</i>	<i>O-C</i> <i>(day)</i>	<i>F</i>	<i>Observer</i>	<i>Standard</i> <i>Error</i> <i>(day)</i>	<i>Star</i>	<i>JD (min)</i> <i>Hel.</i> <i>2400000+</i>	<i>Cycle</i>	<i>O-C</i> <i>(day)</i>	<i>F</i>	<i>Observer</i>	<i>Standard</i> <i>Error</i> <i>(day)</i>
RX Her	60215.3677	15206	-0.0022	V	T. Arranz	0.0002	ET Ori	59219.5894	34214	-0.0042	TG	J. A. Howell	0.0002
SZ Her	60189.6669	22400	-0.0397	V	G. Samolyk	0.0001	ET Ori	60341.6881	35394	-0.0095	V	G. Samolyk	0.0001
UX Her	60165.3796	13231	0.1945	V	T. Arranz	0.0001	FH Ori	60266.8251	15976	-0.4941	V	G. Samolyk	0.0002
AV Hya	60330.7187	34617	-0.1297	TG	J. A. Howell	0.0006	FL Ori	60267.8435	9620	0.0385	V	G. Samolyk	0.0001
RT Lac	60216.4537	3024	-0.5347	V	T. Arranz	0.0003	FR Ori	60292.8153	36721	0.0583	V	G. Samolyk	0.0001
RW Lac	60227.6065	4009	-0.0364	V	T. Arranz	0.0001	FT Ori	59192.6580	5664	0.0244	TG	J. A. Howell	0.0001
SW Lac	60139.7034	46347	-0.0959	V	L. Hazel	0.0003	FZ Ori	59167.7287	37859.5	-0.0223	TG	J. A. Howell	0.0004
SW Lac	60140.8282	46350.5	-0.0936	V	L. Hazel	0.0003	FZ Ori	60262.8946	40597.5	-0.0197	V	G. Samolyk	0.0002
SW Lac	60191.6596	46509	-0.0964	V	G. Samolyk	0.0001	GU Ori	60262.8617	36528	-0.0769	V	G. Samolyk	0.0003
SW Lac	60191.8218	46509.5	-0.0946	V	G. Samolyk	0.0001	GU Ori	60290.8666	36587.5	-0.0775	V	G. Samolyk	0.0001
SW Lac	60195.5078	46521	-0.0969	V	L. Corp	0.0002	GU Ori	60339.5834	36691	-0.0762	TG	J. A. Howell	0.0006
SW Lac	60217.6364	46590	-0.0980	V	T. Arranz	0.0002	U Peg	59166.6547	60449	-0.1767	TG	J. A. Howell	0.0003
SW Lac	60218.4408	46592.5	-0.0954	V	T. Arranz	0.0001	U Peg	60195.4231	63194	-0.1834	V	L. Corp	0.0002
SW Lac	60218.5993	46593	-0.0973	V	T. Arranz	0.0001	U Peg	60195.6109	63194.5	-0.1830	V	L. Corp	0.0002
SW Lac	60219.5613	46596	-0.0975	V	T. Arranz	0.0001	U Peg	60211.5388	63237	-0.1833	R	L. Corp	0.0002
SW Lac	60221.4858	46602	-0.0973	V	T. Arranz	0.0002	U Peg	60240.5842	63314.5	-0.1834	V	G. Samolyk	0.0001
SW Lac	60224.5336	46611.5	-0.0963	V	T. Arranz	0.0001	U Peg	60258.5739	63362.5	-0.1833	V	G. Samolyk	0.0001
SW Lac	60226.4590	46617.5	-0.0953	V	T. Arranz	0.0001	U Peg	60286.6816	63437.5	-0.1842	V	G. Samolyk	0.0006
SW Lac	60228.7034	46624.5	-0.0959	V	G. Shaw	0.0002	U Peg	60330.3444	63554	-0.1834	V	T. Arranz	0.0003
SW Lac	60261.5746	46727	-0.0986	V	G. Samolyk	0.0001	TY Peg	59171.6026	6054	-0.4813	TG	J. A. Howell	0.0001
TW Lac	60147.7714	6139	0.5338	V	L. Hazel	0.0006	TY Peg	60272.3982	6410	-0.5160	V	T. Arranz	0.0001
TW Lac	60214.5915	6161	0.5308	V	T. Arranz	0.0001	TY Peg	60278.5830	6412	-0.5156	V	G. Samolyk	0.0001
VX Lac	60188.6526	13895	0.0897	V	L. Hazel	0.0006	UX Peg	60202.7625	12804	0.0074	V	G. Samolyk	0.0001
VX Lac	60188.6535	13895	0.0906	V	G. Samolyk	0.0001	ZZ Peg	60214.5048	11559	0.0170	V	T. Arranz	0.0004
VX Lac	60285.3576	13985	0.0902	V	T. Arranz	0.0001	BB Peg	60174.8619	45395.5	-0.0401	V	G. Samolyk	0.0001
AR Lac	60217.8217	9391	-0.0470	V	G. Samolyk	0.0004	BB Peg	60191.6714	45442	-0.0404	V	G. Samolyk	0.0001
AW Lac	60172.8027	29355	0.2248	V	G. Samolyk	0.0003	BB Peg	60217.5182	45513.5	-0.0410	V	T. Arranz	0.0002
AW Lac	60217.3772	29394	0.2282	V	T. Arranz	0.0003	BB Peg	60223.4827	45530	-0.0413	V	T. Arranz	0.0004
CM Lac	60172.8211	20656	-0.0046	V	G. Samolyk	0.0003	BB Peg	60264.5136	45643.5	-0.0409	V	G. Samolyk	0.0001
CM Lac	60227.3815	20690	-0.0037	V	T. Arranz	0.0002	BG Peg	60196.7742	7511	-2.6237	V	G. Samolyk	0.0002
CO Lac	60202.6645	21183	0.0102	V	L. Hazel	0.0003	BG Peg	60214.3477	7520	-2.6247	V	T. Arranz	0.0003
CO Lac	60202.6660	21183	0.0117	V	G. Samolyk	0.0003	BX Peg	60149.7685	56895	-0.1500	V	L. Hazel	0.0003
CO Lac	60208.8351	21187	0.0120	V	K. Menzies	0.0001	BX Peg	60165.7527	56952	-0.1498	V	G. Samolyk	0.0001
CO Lac	60216.5454	21192	0.0113	V	T. Arranz	0.0001	BX Peg	60165.8922	56952.5	-0.1505	V	G. Samolyk	0.0003
CO Lac	60266.6390	21224.5	-0.0169	V	G. Samolyk	0.0001	BX Peg	60258.5718	57283	-0.1500	V	G. Samolyk	0.0001
DG Lac	60217.4356	7119	-0.2669	V	T. Arranz	0.0002	BX Peg	60279.6026	57358	-0.1507	V	G. Samolyk	0.0001
MZ Lac	60224.4614	2445	0.0000	V	T. Arranz	0.0001	DI Peg	59156.6553	19612	0.0162	TG	J. A. Howell	0.0001
V505 Lac	60219.5294	19125	0.0036	V	T. Arranz	0.0002	DI Peg	60248.5917	21146	0.0256	V	G. Samolyk	0.0001
V505 Lac	60221.4907	19131	0.0030	V	T. Arranz	0.0001	DI Peg	60271.3696	21178	0.0254	V	T. Arranz	0.0001
V505 Lac	60223.4522	19137	0.0025	V	T. Arranz	0.0001	GP Peg	59151.5896	18361	-0.0587	TG	J. A. Howell	0.0003
V505 Lac	60223.6156	19137.5	0.0024	V	T. Arranz	0.0001	GP Peg	60187.6915	19423	-0.0630	V	G. Samolyk	0.0001
V505 Lac	60224.5979	19140.5	0.0038	V	T. Arranz	0.0001	GP Peg	60266.7164	19504	-0.0631	V	G. Samolyk	0.0001
Y Leo	59287.6961	8215	-0.0828	TG	J. A. Howell	0.0001	KW Peg	60165.7971	14707.5	0.2620	V	G. Samolyk	0.0002
Y Leo	60290.9118	8810	-0.0978	V	G. Samolyk	0.0001	KW Peg	60279.6865	14847	0.2657	V	G. Samolyk	0.0005
XY Leo	60294.8954	53574	0.1975	V	K. Menzies	0.0002	V576 Peg	60192.7564	22543.5	-0.0077	V	L. Hazel	0.0003
XY Leo	60300.8613	53595	0.1973	V	K. Menzies	0.0002	Z Per	59213.5889	4435	-0.3759	TG	J. A. Howell	0.0002
TL Mi	59270.5876	4594	-0.1321	TG	J. A. Howell	0.0001	Z Per	60203.7807	4759	-0.4274	V	L. Hazel	0.0003
RY Lyn	60339.7277	12162	-0.0394	TG	J. A. Howell	0.0004	Z Per	60255.7411	4776	-0.4242	V	G. Samolyk	0.0005
LZ Lyr	60165.5142	4757	0.0205	V	T. Arranz	0.0003	RT Per	60179.8611	31556	0.1263	V	G. Samolyk	0.0001
β Lyr	60159.27	863	3.37	B	G. Samolyk	0.20	RT Per	60202.7950	31583	0.1264	V	L. Hazel	0.0003
β Lyr	60159.29	863	3.39	V	G. Samolyk	0.19	RV Per	59194.5972	8689	0.0077	TG	J. A. Howell	0.0002
β Lyr	60159.30	863	3.40	R	G. Samolyk	0.19	RV Per	60230.6883	9214	0.0157	V	L. Hazel	0.0006
β Lyr	60165.72	863.5	3.36	R	G. Samolyk	0.26	RV Per	60297.7845	9248	0.0132	V	G. Samolyk	0.0001
β Lyr	60165.72	863.5	3.36	B	G. Samolyk	0.24	ST Per	59155.6457	6313	0.3251	TG	J. A. Howell	0.0002
β Lyr	60165.73	863.5	3.37	V	G. Samolyk	0.23	ST Per	60201.7323	6708	0.3273	V	L. Hazel	0.0003
AT Mon	59262.5597	16094	0.0118	TG	J. A. Howell	0.0003	ST Per	60262.6392	6731	0.3229	V	G. Samolyk	0.0006
AT Mon	60264.8961	16588	0.0123	V	G. Samolyk	0.0002	XZ Per	59230.6618	13653	-0.0763	TG	J. A. Howell	0.0002
BB Mon	59278.5956	44489	-0.0041	TG	J. A. Howell	0.0001	XZ Per	60196.8719	14492	-0.0872	V	G. Samolyk	0.0001
BB Mon	60308.7696	45895	-0.0046	V	G. Samolyk	0.0002	XZ Per	60218.7524	14511	-0.0877	V	L. Hazel	0.0003
BO Mon	59266.5978	7082	-0.0023	TG	J. A. Howell	0.0002	XZ Per	60286.6983	14570	-0.0882	V	G. Samolyk	0.0001
EP Mon	60286.8379	23864	0.0202	V	G. Samolyk	0.0005	BB Per	60267.7098	9184.5	0.1195	V	K. Menzies	0.0002
V501 Oph	60174.4623	30232	-0.0092	V	T. Arranz	0.0001	IT Per	60187.7711	20085	-0.0576	V	G. Samolyk	0.0004
V501 Oph	60176.3978	30234	-0.0096	V	T. Arranz	0.0001	IU Per	60266.5665	17100	0.0013	V	G. Samolyk	0.0001
V839 Oph	60192.6160	48274	0.3630	V	G. Samolyk	0.0001	KW Per	60297.5587	19214	0.0193	V	G. Samolyk	0.0001
EF Ori	60290.7535	4903	0.0109	V	G. Samolyk	0.0003	V432 Per	60188.8197	75624	0.0421	V	G. Samolyk	0.0001
EQ Ori	60267.8582	16511	-0.0319	V	G. Samolyk	0.0001	V432 Per	60249.7663	75813.5	0.0612	V	G. Samolyk	0.0002
ER Ori	60261.8456	44013.5	0.1719	V	G. Samolyk	0.0001	V432 Per	60317.4185	76024	0.0341	V	T. Arranz	0.0002

Table continued on next page

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

<i>Star</i>	<i>JD (min) Hel. 2400000+</i>	<i>Cycle</i>	<i>O-C (day)</i>	<i>F</i>	<i>Observer</i>	<i>Standard Error (day)</i>	<i>Star</i>	<i>JD (min) Hel. 2400000+</i>	<i>Cycle</i>	<i>O-C (day)</i>	<i>F</i>	<i>Observer</i>	<i>Standard Error (day)</i>
V873 Per	60316.4495	30334	-0.0404	V	T. Arranz	0.0001	CT Tau	60261.9266	22281	-0.0783	V	G. Samolyk	0.0001
β Per	59212.6174	4733	0.1526	TG	J. A. Howell	0.0005	EQ Tau	60290.6980	58818	-0.0619	V	G. Samolyk	0.0001
β Per	60267.7969	5101	0.1642	V	G. Samolyk	0.0002	EQ Tau	60334.3908	58946	-0.0617	V	A. Agudo	0.0002
β Per	60290.7374	5109	0.1662	V	G. Samolyk	0.0002	EQ Tau	60341.5582	58967	-0.0626	V	G. Samolyk	0.0001
Y Psc	60193.6671	3866	-0.0291	V	L. Hazel	0.0003	V1128 Tau	60224.5038	25295	-0.0114	V	L. Corp	0.0003
Y Psc	60291.5765	3892	-0.0297	V	G. Samolyk	0.0001	V Tri	59136.6182	59231	-0.0056	TG	J. A. Howell	0.0002
RV Psc	60261.7698	64767	-0.0744	V	G. Samolyk	0.0002	V Tri	60253.7764	61140	-0.0051	V	G. Samolyk	0.0002
VZ Psc	60176.5615	62560	0.0050	V	L. Corp	0.0005	V Tri	60293.5706	61208	-0.0049	V	G. Samolyk	0.0001
VZ Psc	60267.3423	62907.5	-0.0018	V	T. Arranz	0.0002	V Tri	60302.3486	61223	-0.0050	V	T. Arranz	0.0003
AQ Psc	60197.5298	16184	-0.0212	V	L. Corp	0.0009	V Tri	60324.5875	61261	-0.0039	TG	J. A. Howell	0.0002
ET Psc	60224.3898	17293	-0.0005	V	L. Corp	0.0008	X Tri	59157.6441	17143	-0.1048	TG	J. A. Howell	0.0001
ET Psc	60293.3560	17450	-0.0041	V	A. Agudo	0.0003	X Tri	60174.8278	18190	-0.1185	V	G. Samolyk	0.0001
GR Psc	60302.2970	17872	-0.0139	V	T. Arranz	0.0001	RS Tri	60255.7461	11690	-0.0584	V	G. Samolyk	0.0002
U Sge	60165.7359	12730	0.0404	V	G. Samolyk	0.0001	RV Tri	60184.8521	18777	-0.0514	V	G. Samolyk	0.0001
V505 Sgr	60174.7111	13284	-0.1454	V	G. Samolyk	0.0002	TY UMa	60048.7290	57866	0.5019	V	G. Shaw	0.0004
DK Sct	60169.4370	6298	0.0156	V	T. Arranz	0.0003	VV UMa	60043.6589	20699.5	-0.0999	V	G. Shaw	0.0003
AO Ser	60160.3835	29598	-0.0063	V	T. Arranz	0.0001	VV UMa	60294.8966	21065	-0.0996	V	K. Menzies	0.0001
RW Tau	60261.7931	5265	-0.3303	V	G. Samolyk	0.0001	XZ UMa	59288.6482	10734	-0.1607	TG	J. A. Howell	0.0001
RZ Tau	59193.6520	51764	0.0998	TG	J. A. Howell	0.0001	ZZ UMa	60286.8498	10584	-0.0020	V	G. Samolyk	0.0001
RZ Tau	60217.8885	54228	0.1139	V	G. Samolyk	0.0002	W UMi	60165.7051	15568	-0.2394	V	G. Samolyk	0.0004
TY Tau	59282.5795	35355	0.2808	TG	J. A. Howell	0.0003	Z Vul	60161.4539	7012	-0.0210	V	T. Arranz	0.0001
TY Tau	60205.8796	36212	0.2872	V	G. Samolyk	0.0001	AW Vul	60176.5446	17225	-0.0459	V	T. Arranz	0.0001
TY Tau	60300.6865	36300	0.2869	V	K. Menzies	0.0001	AX Vul	59140.6100	7056	-0.0412	TG	J. A. Howell	0.0002
WY Tau	59191.6550	31453	0.0670	TG	J. A. Howell	0.0003	AX Vul	60203.6468	7581	-0.0446	V	L. Hazel	0.0003
WY Tau	60033.3575	32668	0.0681	V	T. Arranz	0.0001	AX Vul	60205.6717	7582	-0.0446	V	G. Samolyk	0.0001
WY Tau	60264.7404	33002	0.0697	V	G. Samolyk	0.0002	BE Vul	60168.5473	12923	0.1017	V	T. Arranz	0.0001
AC Tau	59202.6322	6639	0.2017	TG	J. A. Howell	0.0002	BS Vul	60170.4291	35504	-0.0400	V	T. Arranz	0.0001
AC Tau	60330.6122	7191	0.2492	TG	J. A. Howell	0.0004	BS Vul	60180.4238	35525	-0.0407	V	T. Arranz	0.0001
AC Tau	60330.6132	7191	0.2502	V	G. Samolyk	0.0002	BU Vul	59123.5858	44974	0.0116	TG	J. A. Howell	0.0002
AM Tau	59272.6258	6859	-0.0796	TG	J. A. Howell	0.0001	BU Vul	60191.5855	46851	0.0115	V	K. Menzies	0.0002
AM Tau	60259.8338	7342	-0.0879	V	G. Samolyk	0.0001	BU Vul	60261.5712	46974	0.0110	V	G. Samolyk	0.0001
AM Tau	60341.5906	7382	-0.0881	TG	J. A. Howell	0.0001	CD Vul	60180.5744	20303	-0.0053	V	T. Arranz	0.0001
AQ Tau	60293.6371	25198	0.5141	V	G. Samolyk	0.0002	FR Vul	60180.5744	20303	-0.0053	V	T. Arranz	0.0001