Recent Minima of 141 Eclipsing Binary Stars

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Abstract Previously unpublished 148 times of minima for 141 eclipsing binary stars are reported based on the author's CCD photometry conducted between May 2025 and April 2026.

1. Presenting the TOM and accompanying data

The accompanying list (Table 1) contains 148 times of minima (TOM) for 141 eclipsing binary (EB) stars derived from CCD observations made by the author using a 130-mm f/5 reflector or 70-mm f/5 refractor, V filter, and ZWO ASI 533 MMPro imager (ZWO 2026). An observed TOM (and associated mean error) was the end result of applying the method of Kwee and van Woerden (1956) and making an heliocentric correction (BAA 2026). The raw data starting point for this is available in the AAVSO Database (Kloppenborg 2026), identified by observer code CK.

Using the linear elements (epoch and period) and associated cycle number—all presented in Table 1—a computed TOM was figured, and subtracted from the observed TOM to get the O–C values also displayed there. The elements used (for all of the EB stars except five) are from the Krakow Astronomica group's TIDAK database (Kreiner 2004).

These provide the historical "average ephemeris" presented in the lower left corners of the O–C diagrams found on the webpages for thousands of EB stars on this website. Note sometimes these have an epoch similar, if not identical to, that given in the *General Catalogue of Variable Stars* (GCVS; Kholopov *et al.* 1987). They are not to be confused with current best "prediction ephemeris" elements also found in the TIDAK database web pages. For four stars not included in the TIDAK database, the elements used are from the AAVSO VSX (Watson *et al.* 2014). Those stars are V400 Boo, CzeV707, V549 Dra, and V433 UMa. For one additional object, CI CrB, only the period is listed, as no epoch was listed in either TIDAK or VSX.

This list will be web-archived and made available through the AAVSO ftp site at:
ftp://ftp.aavso.org/public/datasets/4063-Cook-541-eb141.txt.

2. Acknowledgements

The author wishes to thank Gerry Samolyk for helping him appreciate some of the fine points in applying the method of Kwee and van Woerden, and the British Astronomical Association Computing Section (BAA 2026) for the heliocentric correction calculation routine he employed.

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

Star	*Heliocentric Min. JD 2400000+*	*Mean Error (d)*	*Cycle*	*O–C (d)*	*Epoch JD 2400000+*	*Period (d)*
V343 Aql	60952.6464	0.0003	17624	–0.0109	28443.4255	1.84460008
SS Ari	61025.6309	0.0055	40225.5	–0.2282	44694.7015	0.40599017
SX Aur	61107.6502	0.0002	35443	0.0806	18218.7357	1.21007911
TT Aur	61101.6898	0.0005	29908	0.0111	21242.2504	1.332734664
BF Aur	61056.7010	0.0004	12903	0.0352	40628.3709	1.58322056
EO Aur	61070.6375	0.0018	9809	–0.0003	21190.6936	4.0656483
IM Aur	61049.6253	0.0003	18217	–0.0389	38327.7981	1.24728913
TU Boo	61150.7566	0.0018	86604	–0.0378	33066.4436	0.324284684
TY Boo	60892.6929	0.0003	41873.5	–0.0533	47612.6035	0.317149096
TZ Boo	60868.6711	0.0004	57925.5	0.0578	43655.4984	0.29715954
XY Boo	60865.7593	0.0004	56434	–0.0565	39953.7505	0.370557913
AD Boo	60895.7188	0.0005	7826.5	0.0196	44704.1947	2.06880528
BW Boo	61157.7187	0.0042	6239.5	–0.1669	40362.754	3.3328202
GG Boo	60857.7006	0.0007	22479	–0.0014	51259.8643	0.42696907
GH Boo	60855.7323	0.0008	14549	–0.0045	51260.5214	0.6595103
GK Boo	61157.6523	0.0001	20608	–0.0071	51311.7396	0.47777173
GL Boo	60891.7627	0.0013	3004	–0.1457	51286.6905	3.197476
GM Boo	60864.7735	0.0016	24544	0.0788	52001.401	0.36111855
GP Boo	60868.7620	0.0007	11737	–0.0006	51258.8563	0.81877024
GR Boo	60863.7512	0.0004	23541	–0.0098	51996.587	0.376669386
HH Boo	60856.7189	0.0006	25395	–0.0042	52764.192	0.318666316
IK Boo	60864.7305	0.0010	24684	–0.0307	53382.6328	0.30311653
LM Boo	60895.7259	0.0003	14693	–0.0039	56077.5364	0.32792441
V400 Boo	60880.7614	0.0094	15109	0.0526	56448.816	0.293328
AL Cam	61156.7194	0.0004	26157	0.0121	26411.5337	1.32833175
TX Cnc	61146.6800	0.0007	69787	0.0246	34426.4633	0.382882085
BI CVn	60846.6724	0.0006	42898	–0.0317	44364.8374	0.38421061
DH CVn	60850.6852	0.0006	24070	–0.0505	52045.7923	0.36580571
EI CVn	60847.7224	0.0004	31267	–0.0384	52694.3807	0.260766305
EO CVn	60847.7115	0.0002	25689	0.0340	51628.2093	0.35888778
FN CVn	60856.7847	0.0006	15354	–0.0101	51479.871	0.61071537
HU CVn	60846.6234	0.0004	21471.5	0.0888	51244.5356	0.4471974
R CMa	61078.7218	0.0004	13810	0.0931	45391.2573	1.1359429
SX CMa	61198.7471	0.0007	20380.5	0.1116	28095.4011	1.62426017
TU CMa	61103.6619	0.0007	30259	0.0047	26977.4487	1.12780358
VW CMa	61123.7155	0.0012	46057	–0.1645	27924.2323	0.72083826
WW CMa	61120.6720	0.0005	3677	0.2042	51868.0474	2.516296
XZ CMi	61104.6568	0.0006	20884	0.0229	49016.7803	0.578809309
YY CMi	61110.7039	0.0003	30244	0.0107	28023.1532	1.09401997
AC CMi	61109.6823	0.0013	16916	0.0003	46439.8309	0.867217491
AK CMi	61105.6790	0.0001	20691	0.0068	49396.7062	0.565896575
AM CMi	61116.7160	0.0009	35196.5	0.0650	25244.5869	1.01919407
TV Cas	61013.6495	0.0005	9914	–0.1579	43043.6189	1.81260727
IV Cas	60967.7010	0.0002	20143	–0.0646	40854.6282	0.99851747
AH Cep	61010.6858	0.0008	14662	–0.0553	34989.4827	1.7747414
CQ Cep	60924.7896	0.0010	17345.5	–0.0866	32456.6654	1.64124475
CQ Cep	60925.6046	0.0016	17346	–0.0922	32456.6654	1.64124475
CX Cep	60928.7500	0.0027	7747	0.2555	44451.4234	2.126897
CX Cep	60977.6846	0.0024	7770	0.2715	44451.4234	2.126897
DK Cep	60935.6981	0.0005	27736	–0.0082	33590.5681	0.98590778
DL Cep	60968.6436	0.0006	16573	0.0106	33946.6117	1.6304846
DV Cep	60976.6229	0.0005	12232	0.0001	46763.3521	1.16197439
EK Cep	61017.7247	0.0003	4972	–0.0894	39002.8248	4.4277935
GK Cep	61015.6814	0.0009	23843	0.0109	38694.6992	0.936164546
GK Cep	61008.6627	0.0010	23835.5	0.0135	38694.6992	0.936164546
RZ Com	60852.6947	0.0004	76853	0.0574	34837.4179	0.338506231
SS Com	61054.7074	0.0010	87335.5	0.1140	25001.6274	0.41280998
RT CrB	60879.7464	0.0017	6372	0.0063	28273.303	5.1171433
RW CrB	60869.6942	0.0005	27695	0.0146	40751.7275	0.726410981
TW CrB	60872.7376	0.0003	39014	0.0141	37898.3562	0.588874951
YY CrB	60879.7176	0.0013	26354	–0.0071	50955.8775	0.37655943
AS CrB	60880.7161	0.0086	22254	0.0713	52409.4456	0.38065962
AV CrB	60863.7289	0.0005	27591	–0.0478	52360.4746	0.308191152
BR CrB	60882.8291	0.0003	12462.5	0.0086	51324.9641	0.7669293

Table continued on folloowing pages

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

Star	*Heliocentric Min. JD 2400000+*	*Mean Error (d)*	*Cycle*	*O–C (d)*	*Epoch JD 2400000+*	*Period (d)*
CI CrB	60874.7849	0.0045	NA	NA	none found	0.350034
ZZ Cyg	60957.6944	0.0005	25385	–0.0523	45000.3406	0.628615563
MY Cyg	60926.6789	0.0004	4835	–0.0038	41561.6003	4.00518768
V387 Cyg	60973.6262	0.0003	51496	0.0048	27985.4555	0.640596666
V388 Cyg	60938.7438	0.0005	31843	–0.1061	33584.5796	0.85903559
V401 Cyg	60972.6475	0.0004	55145	0.0453	28838.3016	0.58272374
V444 Cyg	60956.7316	0.0010	4698.5	0.1741	41164.348	4.2124528
V444 Cyg	60954.6320	0.0009	4698	0.1807	41164.348	4.2124528
V444 Cyg	60975.6996	0.0008	4703	0.1861	41164.348	4.2124528
V1034 Cyg	60971.6585	0.0004	18459	0.0312	42938.4598	0.9769309
V2540 Cyg	60957.6984	0.0033	20152.5	–0.0302	52795.875	0.40500452
V2545 Cyg	60938.7179	0.0006	17042.5	0.0101	54646.4501	0.36920978
V2546 Cyg	60938.8085	0.0004	15382.5	0.0041	51358.749	0.622789236
TW Dra	60867.7736	0.0002	13238	0.5483	23712.042	2.8067067
V549 Dra	60867.7563	0.0010	8419.5	0.0036	57493.0243	0.4008229
YY Del	60943.6918	0.0002	44318	0.0465	25795.4395	0.793090974
CzeV707	60943.8360	0.0117	8015	0.0352	57245.8	0.461385
YY Eri	61055.6638	0.0004	60573	0.0119	41581.6229	0.321496855
SZ Her	60890.7764	0.0002	31663	0.0044	34987.3951	0.818096102
TT Her	60890.6880	0.0003	18491	–0.0163	44025.4578	0.912078659
CC Her	60894.7367	0.0002	20054	0.2363	26120.42	1.73402216
DI Her	60917.6977	0.0033	1771	–1.4171	42234.7673	10.550168
GL Her	60917.6993	0.0050	9659.5	0.0637	38266.3336	2.34497665
V450 Her	60884.7313	0.0002	8035	0.0064	46217.3458	1.8254361
V842 Her	60889.7506	0.0005	21653	0.0258	51816.3441	0.41903573
RX Hya	61114.6695	0.0012	7743	0.4153	43447.748	2.28161
WY Hya	61138.6708	0.0007	28725.5	0.0327	40570.979	0.716007
AV Hya	61133.7094	0.0028	35792	–0.0162	36673.4238	0.68340137
AW Lac	60931.6564	0.0004	14388	0.0728	44488.184	1.14285513
CM Lac	60944.6782	0.0001	21137	–0.0003	27026.3155	1.60469144
GX Lac	60918.7087	0.0008	2346	–0.0035	46009.3067	6.3552453
UV Leo	61144.6901	0.0002	46908.5	0.0194	32995.5518	0.600085676
UZ Leo	61142.7178	0.0011	34531.5	0.2117	39800.412	0.61804712
XY Leo	61112.6769	0.0003	56452	0.0211	45074.4819	0.284102846
XZ Leo	61112.6726	0.0011	32983.5	0.0989	45025.363	0.4877351
AG Leo	61158.6983	0.0070	10171.5	0.1432	26651.5918	3.3925147
EX Leo	61135.6751	0.0005	30924	0.0056	48499.9966	0.40860409
EX Leo	61137.7161	0.0005	30929	0.0036	48499.9966	0.40860409
RR Lep	61057.6752	0.0007	33515	–0.0253	30377.1679	0.9154269
AL Lep	61060.7132	0.0050	20488	–0.0092	51868.8851	0.44864493
GK Lib	60887.7065	0.0020	3503	–0.1516	53473.9278	2.1164517
FL Lyr	60854.7521	0.0001	10391	0.0024	38221.552	2.17815395
V571 Lyr	60950.7013	0.0003	7700	0.0391	51305.7046	1.2525919
BO Mon	61124.6837	0.0006	7917	0.1710	43507.6011	2.2252004
V839 Oph	60896.7161	0.0002	49995.5	0.1975	40448.4146	0.40899889
V2536 Oph	60896.7193	0.0022	4541	0.0161	51072.55	2.16343388
VV Ori	61079.7326	0.0012	12817	–0.0136	42041.6777	1.48537634
ER Ori	61054.6731	0.0004	42428	0.1122	43090.5353	0.423400246
FZ Ori	61115.6632	0.0004	42729.5	0.0656	44024.4629	0.39998443
beta Per	61027.6455	0.0009	7001	0.1600	40953.4657	2.8673075
UZ Pup	61132.6863	0.0009	20782.5	–0.0028	44613.6961	0.794851101
AV Pup	61111.7214	0.0010	68812	–0.1051	31178.131	0.43500691
V375 Sge	60951.7368	0.0013	3891	0.0033	52724.899	2.11432395
VZ Sct	60934.6871	0.0008	14829	–0.0057	28368.2594	2.19613146
CW Sct	60932.6863	0.0010	5021.5	–0.0241	51963.4195	1.78617762
DK Sct	60942.7005	0.0007	26432	–0.0116	28755.344	1.217742438
EY Sct	60941.6596	0.0009	28282	–0.0017	27953.9477	1.16638546
V Ser	60914.7730	0.0016	8970	0.0179	29936.4591	3.4535447
BI Ser	60874.7601	0.0005	27079	0.0114	28248.5484	1.20485248
CC Ser	60882.7047	0.0004	45349	0.0546	37481.0111	0.51603429
V577 Ser	60899.7508	0.0012	22681	–0.0028	53455.804	0.328202
RZ Tau	61059.6411	0.0010	56253	0.1554	37676.5928	0.415673705
EQ Tau	61097.6511	0.0007	61211	–0.0324	40203.4343	0.341347947
V781 Tau	61058.6641	0.0004	49821	–0.0091	43874.949	0.34490926

Table continued on next page

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

Star	*Heliocentric Min. JD 2400000+*	*Mean Error (d)*	*Cycle*	*O–C (d)*	*Epoch JD 2400000+*	*Period (d)*
lambda Tau	61095.6620	0.0003	10015	0.0007	21506.859	3.9529508
X Tri	61031.7107	0.0008	39432	–0.0725	22722.3104	0.971532583
W UMa	61139.7575	0.0005	75595.5	–0.0956	35918.397	0.333637004
RW UMa	60816.7217	0.0006	2046	–0.1403	45823.3339	7.3282151
VV UMa	61139.6915	0.0006	31852	0.0064	39245.394	0.68737571
HR UMa	60812.7121	0.0015	8591	0.0041	54480.5834	0.7370649
OQ UMa	60861.6898	0.0005	33278	–0.0042	51432.173	0.283356
V433 UMa	60832.7670	0.0011	12350	0.0465	54500.715	0.512713
AK Vir	60858.7060	0.0004	15317	–0.0142	42576.398	1.1935968
FQ Vir	60843.6766	0.0002	11927	0.0130	51903.1506	0.74960283
HW Vir	60840.7146	0.0002	129457	–0.0003	45730.5578	0.116719506
V610 Vir	60844.6965	0.0021	21611	–0.0113	53499.6437	0.33987618
V626 Vir	60837.6999	0.0011	10186	0.0115	53871.595	0.683889
V632 Vir	60842.7629	0.0008	28028	0.0217	53912.622	0.247257
V637 Vir	60845.6864	0.0005	26926.5	–0.0002	53079.7795	0.28841131
BO Vul	60927.7176	0.0002	17279	–0.0840	27304.91	1.9458818
BS Vul	60948.6370	0.0001	37139	–0.0016	43271.5994	0.475969714
V495 Vul	60888.7225	0.0004	3814.5	0.0077	54651.5	1.635133
V495 Vul	60933.6708	0.0002	3842	–0.0102	54651.5	1.635133