



A LIST OF MINIMA AND MAXIMA TIMINGS

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Abstract: The list contains minima of eclipsing and maxima of pulsating stars. It continues the list published in OEJV 0191 (Paschke 2018).

1 Instruments used

The following telescopes and observatories have been used:

50mm+G2 = 50/135 mm teleobjective, G2 camera, Cabeça Fundao , Cabo Verde, remote

50mm+ST7 = 50/135 mm teleobjective, SBIG ST-7 camera, Carona TI, Switzerland, remote

Nerpio = 250 mm mirror, FLI-16000 camera, Nerpio, Andalusia, Spain, remote

Asas-SN = Sky Survey, The Ohio State University, Columbus, OH 43210, USA

The Moravian instruments G1-300 camera uses a Sony ICX 424AL chip.

The Moravian instruments G2-402 camera uses a KAF 402 chip.

2 Identification of stars

Stars included in GCVS, NSV and GSC 1.2 are reliably identified. No table of identifications is needed in this bulletin.

3 Light elements of studied stars

Table 1 shows the elements. For pulsating stars times of maxima (R) and for eclipsing binary the times of minima are given (primary - p, secondary – s). If the star is eclipsing and listed in the O-C GATE (Paschke & Brat 2006), then the elements are identical to those of the O-C GATE, version October 2019. Column Last modification shows the date when the elements where modified. GSC 1.2 identification are abbreviated to save space in the main table.

Table 1: Light elements of stars.

ID	Const.	kind	HJD [24.....]	P [d]	Last modification
V0363	And	p	48500.3980	1.2779730	23.10.2011
MO	Aqr	p	51998.4690	0.3981435	22.11.2018
G5239.00030	Aqr	p	51872.9000	0.3395790	07.11.2016
V0888	Aql	p	30200.5400	5.7428810	06.11.2016
LY	Aur	p	39061.4640	4.0024943	01.06.1996

V0410	Aur	p	48500.1760	0.3663562	16.02.2018
V0432	Aur	p	51571.4123	3.0817500	02.11.2002
V0437	Aur	p	48472.9170	11.7938000	28.11.2018
XY	Boo	p	39954.0250	0.3705640	29.05.2018
AC	Boo	p	35604.5360	0.3524370	18.03.2019
EF	Boo	p	51283.6830	0.4205155	12.12.2018
FY	Boo	p	51274.8120	0.2411595	21.03.2019
FY	Boo	s	51274.6910	0.2411595	21.03.2019
V0391	Boo	p	53396.8730	0.3268610	07.05.2017
i	Boo	p	43615.5940	0.2678180	12.05.2017
AO	Cam	p	44559.9600	0.3299030	21.02.2019
CU	Cam	p	48502.5230	3.3637800	03.02.2015
DT	Cam	p	48501.3700	7.0662500	01.10.2018
RS	CVn	p	22811.5820	4.7977900	03.03.2019
BI	CVn	p	44365.1970	0.3842103	03.03.2019
BO	CVn	p	48724.6870	0.5174620	16.04.2017
G0180.01583	CMi	p	51887.2400	2.0543250	02.03.2019
G0180.01583	CMi	s	51888.2672	2.0543250	02.03.2019
BQ	Cap	p	48500.8749	1.4740880	11.04.2006
V1297	Cas	p	57364.3620	0.2725100	10.10.2017
V0711	Cep	p	51034.5344	1.3043570	02.11.2017
G4686.02061	Cet	p	51904.4300	0.6315180	06.10.2015
V0339	Com	p	54163.7510	0.3849200	03.04.2019
G1457.00558	Com	p	53492.3948	0.3082880	11.05.2019
RT	CrB	p	28273.2430	5.1171550	18.10.2004
RV	CrB	R	50210.5020	0.3316190	14.09.2013
MR	Cyg	p	33396.4069	1.6770336	01.06.1996
V0450	Dra	p	51319.1200	0.4394030	19.04.2018
V0548	Dra	p	56737.4419	0.2751820	18.04.2017
V0550	Dra	p	51604.8900	0.3266530	24.02.2017
SV	Eri	R	47176.8650	0.7138740	21.11.2017
VZ	Hya	p	40254.8590	2.9043010	05.04.2010
FG	Hya	p	48271.6310	0.3278324	23.03.2019
LO	Hya	p	44623.5380	2.4996180	06.02.2019
UZ	Leo	p	39800.4500	0.6180500	24.02.2017
XY	Leo	p	45074.4930	0.2841029	06.11.2013
XZ	Leo	p	45025.3750	0.4877370	16.10.2015
AM	Leo	p	42493.3920	0.3657977	11.10.2014
OO	Leo	p	52038.8700	0.4464520	29.03.2019
RR	Lyn	p	33153.8620	9.9450720	21.03.2019
RR	Lyn	s	33158.5350	9.9450720	21.03.2019
FI	Lyn	p	51578.8140	0.3732610	17.08.2012
V0578	Mon	p	51554.7711	2.4084822	16.06.2011
V0597	Mon	p	58386.9520	0.9976400	05.11.2018
Z	Ori	p	25190.7600	5.2032770	02.01.2015
V1380	Ori	p	48501.9200	2.4366230	16.01.2019
V1388	Ori	p	48501.7719	2.1870680	30.12.2014
V2592	Ori	p	52912.9130	13.5496800	06.01.2019

V2592	Ori	s	52918.5080	13.5496800	06.01.2019
eta	Ori	p	15757.8310	7.9892680	05.01.2019
eta	Ori	s	15761.8260	7.9892680	05.01.2019
DY	Peg	R	44502.0580	0.0729263	24.10.2017
V0357	Peg	p	48500.3130	0.5784510	05.02.2019
V0481	Peg	p	53330.5190	0.4220240	30.10.2017
Z	Per	p	45011.0640	3.0562850	21.11.2018
IT	Per	p	29382.9020	1.5337260	19.02.2017
V1092	Per	p	55849.3808	0.3517060	17.12.2017
ZZ	PsA	p	52844.7900	0.3738930	21.10.2016
WW	Sex	p	51871.0300	1.4391480	21.04.2016
WW	Sex	s	51870.3100	1.4391480	21.04.2016

4 Maxima and minima times

Minimum times were estimated by fitting goniometric polynomials up to order 3 to the data. Table 2 shows maxima and minima of observed stars. The first columns give stellar identification. GSC 1.2 identifications are abbreviated. The second column is the constellation. The third column (kind) gives the kind of extremum: p = primary, s = secondary, R = maximum. The fourth column gives Julian heliocentric time of the minima decreased by 2400000. It is based on UTC, leap seconds included. Column 'Err' gives the uncertainty of minima time. In the sixth column O-C values in days are given. Column 'Filter' gives information about the passband in which measurements were taken (ccd= unfiltered ccd, V = Johnson visual, G = green). N obs is the number of measurements (ccd images) used. Finally, the last column gives instruments used (see s. 1).

Table 2: Maxima and minima of observed stars

ID	Const.	kind	HJD [24.....]	Err	O-C [d]	Filter	N obs	Instrument
V0363	And	p	58490.3150	0.0050	+ 0.0021	ccd	84	50mm+ST7
MO	Aqr	p	58444.4150	0.0100	+ 0.0027	ccd	118	50mm+G2
G5239.00030	Aqr	p	58425.4080	0.0100	+ 0.0291	ccd	334	50mm+G2
V0888	Aql	p	57932.8740	0.0100	- 0.0383	V	18	Asas-SN
LY	Aur	p	58457.5450	0.0100	- 0.0064	ccd	251	50mm+ST7
V0410	Aur	s	58470.3710	0.0100	- 0.0056	ccd	90	50mm+ST7
V0410	Aur	p	58470.5530	0.0070	- 0.0070	ccd	50	50mm+ST7
V0410	Aur	p	58486.3100	0.0050	- 0.0033	ccd	50	50mm+ST7
V0410	Aur	s	58486.4940	0.0030	- 0.0023	ccd	55	50mm+ST7
V0410	Aur	p	58486.6800	0.0070	+ 0.0003	ccd	52	50mm+ST7
V0432	Aur	p	58508.4310	0.0100	- 0.0006	ccd	72	50mm+ST7
V0437	Aur	p	58450.5030	0.0100	+ 0.0312	ccd	272	50mm+ST7
XY	Boo	s	58618.4270	0.0080	+ 0.0200	ccd	78	50mm+ST7
AC	Boo	p	58531.6170	0.0050	- 0.0032	ccd	68	50mm+ST7
EF	Boo	s	58490.6890	0.0030	+ 0.0004	ccd	84	50mm+ST7
FY	Boo	s	58570.4910	0.0050	+ 0.0016	G	24	Nerpio
FY	Boo	p	58570.6120	0.0050	+ 0.0016	G	20	Nerpio
FY	Boo	p	58587.4910	0.0040	- 0.0005	G	24	Nerpio
FY	Boo	p	58610.4030	0.0030	+ 0.0013	G	30	Nerpio
FY	Boo	s	58610.5240	0.0040	+ 0.0022	G	19	Nerpio

V0391	Boo	p	58572.3880	0.0080	-	0.0021	ccd	47	50mm+ST7
V0391	Boo	s	58572.5490	0.0100	-	0.0041	ccd	40	50mm+ST7
i	Boo	p	58489.6680	0.0050	-	0.0021	ccd	129	50mm+ST7
i	Boo	s	58531.5790	0.0040	-	0.0037	ccd	50	50mm+ST7
i	Boo	p	58531.7130	0.0020	-	0.0045	ccd	64	50mm+ST7
i	Boo	s	58564.5200	0.0050	-	0.0043	ccd	94	50mm+ST7
i	Boo	p	58564.6540	0.0050	-	0.0051	ccd	80	50mm+ST7
AO	Cam	p	58534.3260	0.0100	+	0.0048	ccd	51	50mm+ST7
CU	Cam	p	58543.4080	0.0080	+	0.0017	ccd	80	50mm+ST7
DT	Cam	p	58535.4470	0.0050	+	0.0020	ccd	53	50mm+ST7
RS	CVn	p	58545.5200	0.0100	-	0.0019	ccd	91	50mm+ST7
BI	CVn	s	58545.4370	0.0070	-	0.0015	ccd	34	50mm+ST7
BI	CVn	p	58545.6280	0.0070	-	0.0028	ccd	34	50mm+ST7
BO	CVn	p	58530.5980	0.0020	+	0.0061	ccd	55	50mm+ST7
G0180.01583	CMi	s	58544.3700	0.0100	+	0.0898	ccd	54	50mm+ST7
G0180.01583	CMi	s	58548.4780	0.0090	+	0.0892	ccd	75	50mm+ST7
G0180.01583	CMi	p	58553.4160	0.0070	-	0.1086	ccd	128	50mm+ST7
BQ	Cap	p	58424.4450	0.0100	+	0.0097	ccd	238	50mm+G2
V1297	Cas	p	58489.2900	0.0030	+	0.0067	ccd	40	50mm+ST7
V1297	Cas	s	58489.4260	0.0030	+	0.0067	ccd	32	50mm+ST7
V0711	Cep	p	58358.5060	0.0100	+	0.0070	ccd	168	50mm+ST7
G4686.02061	Cet	s	58426.4350	0.0100	+	0.0026	ccd	195	50mm+G2
V0339	Com	p	58576.4720	0.0030	-	0.0019	G	26	Nerpio
V0339	Com	p	58586.4810	0.0020	-	0.0008	G	53	Nerpio
G1457.00558	Com	p	58613.3630	0.0100	-	0.0038	G	51	Nerpio
RT	CrB	p	58556.5700	0.0100	+	0.0037	ccd	99	50mm+ST7
RV	CrB	R	58533.5400	0.0000	+	0.3960	ccd	62	50mm+ST7
MR	Cyg	p	58419.4220	0.0050	-	0.0035	ccd	193	50mm+G2
V0450	Dra	s	58532.5800	0.0050	+	0.0004	ccd	56	50mm+ST7
V0548	Dra	s	58558.4640	0.0080	+	0.0047	ccd	44	50mm+ST7
V0548	Dra	p	58558.5980	0.0070	+	0.0016	ccd	55	50mm+ST7
V0550	Dra	s	58562.4380	0.0050	+	0.0028	ccd	36	50mm+ST7
V0550	Dra	p	58562.5960	0.0050	-	0.0029	ccd	58	50mm+ST7
SV	Eri	R	58475.3420	0.0100	-	0.0068	ccd	50	50mm+ST7
VZ	Hya	p	58569.3790	0.0050	-	0.0021	ccd	69	50mm+ST7
FG	Hya	s	58565.4040	0.0050	+	0.0196	ccd	30	50mm+ST7
LO	Hya	p	58521.4140	0.0040	-	0.0001	ccd	140	50mm+ST7
LO	Hya	p	58536.4120	0.0050	+	0.0002	ccd	160	50mm+ST7
LO	Hya	p	58561.4080	0.0050	+	0.0000	ccd	213	50mm+ST7
UZ	Leo	s	58539.4300	0.0030	+	0.0071	ccd	82	50mm+ST7
XY	Leo	s	58616.4320	0.0030	+	0.0323	ccd	54	50mm+ST7
XZ	Leo	s	58617.3940	0.0070	+	0.0080	ccd	75	50mm+ST7
AM	Leo	s	58570.3800	0.0050	-	0.0039	ccd	55	50mm+ST7
AM	Leo	p	58570.5640	0.0070	-	0.0027	ccd	45	50mm+ST7
OO	Leo	p	58571.3580	0.0100	+	0.0023	ccd	50	50mm+ST7
RR	Lyn	s	58498.3760	0.0100	-	0.2025	ccd	171	50mm+ST7
RR	Lyn	p	58563.5190	0.0100	-	0.0020	ccd	262	50mm+ST7
FI	Lyn	p	58542.3710	0.0100	-	0.0042	ccd	41	50mm+ST7

FI	Lyn	s	58542.5530	0.0100	-	0.0092	ccd	34	50mm+ST7
V0578	Mon	p	58527.4130	0.0150	+	0.0860	ccd	210	50mm+ST7
V0597	Mon	p	58386.9520	0.0200		0.0000	V	59	Asas-SN
Z	Ori	p	58533.3500	0.0200	-	0.0090	ccd	86	50mm+ST7
V1380	Ori	p	58499.3890	0.0100	+	0.0048	ccd	162	50mm+ST7
V1388	Ori	p	58494.4950	0.0100	+	0.0094	ccd	235	50mm+ST7
V1388	Ori	p	58505.4310	0.0100	+	0.0101	ccd	153	50mm+ST7
V2592	Ori	s	58487.4040	0.0050	-	0.0225	ccd	59	50mm+ST7
eta	Ori	s	58488.4440	0.0200	+	0.0127	ccd	306	50mm+ST7
eta	Ori	s	58504.4140	0.0200	+	0.0042	ccd	203	50mm+ST7
DY	Peg	R	58436.3720	0.0010	+	0.0018	ccd	60	50mm+G2
DY	Peg	R	58438.4140	0.0020	+	0.0019	ccd	65	50mm+G2
DY	Peg	R	58438.4870	0.0020	+	0.0019	ccd	53	50mm+G2
V0357	Peg	p	58440.4170	0.0020	+	0.0020	ccd	113	50mm+G2
V0481	Peg	p	58429.4150	0.0050	+	0.0020	ccd	149	50mm+G2
Z	Per	p	58443.4380	0.0050	+	0.0014	ccd	91	50mm+G2
IT	Per	p	58531.3580	0.0200	-	0.0066	ccd	143	50mm+ST7
V1092	Per	p	58509.3360	0.0030	+	0.0027	ccd	43	50mm+ST7
V1092	Per	s	58509.5130	0.0040	+	0.0039	ccd	44	50mm+ST7
ZZ	PsA	p	58421.4090	0.0070	+	0.0049	ccd	275	50mm+G2
ZZ	PsA	p	58427.3860	0.0070	-	0.0004	ccd	199	50mm+G2
WW	Sex	p	58567.3880	0.0100	+	0.0024	ccd	44	50mm+ST7

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