



A LIST OF MINIMA AND MAXIMA TIMINGS

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Abstract: The list contains 356 timings of minima of eclipsing and maxima of pulsating stars. It continues the list published in BAVJ 0030 (Paschke 2019).

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

20cm+ST8 = 20 cm Newton, SBIG ST-8, Brussel, Belgium

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 G2-402 camera uses a KAF 402 chip.

2 Identification of stars

Stars included in GCVS, NSV and GSC 1.2 are reliably identified.

Only the following 9 stars must be identified by coordinates ICRS.

Table 1: Coordinates J-2000 of selected stars.

RafV037	Aps	14	51	27.00	-	70	56	49.0	USNO-B1.0 0190-0343966
RafV051	Aps	17	52	1.00	-	69	25	18.0	USNO-B1.0 0205-0482729
TarV1217	Aur	7	10	1.05	+	40	8	21.5	USNO-B1.0 1301-0173620
Auer0	Aur	6	6	33.11	+	28	17	22.2	USNO-B1.0 1182-0135681
CzeV336	Cam	4	16	36.10	+	67	50	20.0	USNO-B1.0 1578-0095608
Auer00	Cam	4	22	38.96	+	57	40	2.6	
CzeV666	Dra	18	55	51.08	+	71	30	6.6	USNO-B1.0 1615-0124744
Asas00	Dra	20	12	26.06	+	63	8	52.8	USNO-B1.0 1531-0311691
NEV336	Dra	20	10	12.30	+	63	4	59.4	USNO-B1.0 1530-0320015

3 Light elements of studied stars

In this bulletin no new light elements are published.

4 Maxima and minima times

Minimum timings observed by Paschke were estimated by fitting goniometric polynomials up to order 3 to the data. Other observers used their own methods. Table 2 shows maxima and minima of observed stars. The first column gives 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, P = minimum of a pulsating star, R = maximum. The fourth column gives Julian heliocentric time of the minima and maxima decreased by 2400000. It is based on UTC, leap seconds included. Column 'Filter' gives information about the passband in which measurements were taken (ccd= unfiltered CCD, B = Johnson blue, V = Johnson visual, G = green, R = Cousin red, I Cousin Infrared, vis = visual observation). Column 'Error' gives the uncertainty of minima and maxima times. N is the number of measurements (CCD images) used. Finally, the last column gives instruments used (see s. 1). The list contains observations from people who are not active anymore. One is Hund Friedhelm who also passed some ccd images to Dreveny Radek for processing. The other is Gobet Frank a GEOS member.

Table 2: Maxima and minima of observed stars

ID	Const	kind	HJD [24.....]	Filter	Error	N	Instrument	Observer
RT	And	p	56464.4892	V	0.0050	0	20cm+G2-1600	Auer Reinhold
AD	And	s	58996.5278	V	0.0006	147	20cm+ST8	Dufoer Sjoerd
AD	And	s	58997.5122	V	0.0005	149	20cm+ST8	Dufoer Sjoerd
BD	And	s	56567.4495	V			20cm+G2-1600	Auer Reinhold
BD	And	s	56567.4510	R			20cm+G2-1600	Auer Reinhold
BX	And	p	59042.5306	V	0.0003	121	20cm+ST8	Dufoer Sjoerd
V0712	And	p	59051.4631	V	0.0004	148	20cm+ST8	Dufoer Sjoerd
V0725	And	p	58667.4877	V	0.0078	173	20cm+ST8	Dufoer Sjoerd
V0735	And	p	59061.4423	V	0.0010	119	20cm+ST8	Dufoer Sjoerd
G3225.01270	And	p	59026.4370	V	0.0100	137	20cm+ST8	Dufour Sjoerd
G3225.01270	And	p	59026.4373	V	0.0130	208	20cm+ST8	Dufoer Sjoerd
G3225.01270	And	p	59039.4780	ccd	0.0100	103	50mm+ST7	Paschke Anton
DI	Aps	R	53109.3180	ccd			C11+StarXpress	Hund Friedhelm
DI	Aps	R	53122.3210	ccd			C11+StarXpress	Hund Friedhelm
DI	Aps	R	53124.4090	ccd			C11+StarXpress	Hund Friedhelm
DI	Aps	R	53586.3850	ccd			C11+StarXpress	Hund Friedhelm
FL	Aps	R	58582.6775	ccd	0.0100	200	Asas-SN	Paschke Anton
GK	Aps	R	52406.4620	ccd			C8+ST7	Paschke Anton
GK	Aps	s	52818.4191	R			C14+ST7	Dreveny Radek
GK	Aps	R	52818.5590	R			C14+ST7	Dreveny Radek
GK	Aps	R	53105.3250	R			C8+StarXpres	Hund Friedhelm
GK	Aps	R	53123.4890	ccd			C11+StarXpress	Hund Friedhelm
RafV037	Aps	p	58282.6918	V			Asas-SN	Paschke Anton
RafV051	Aps	R	53089.4250	ccd			C11+StarXpress	Hund Friedhelm
RafV051	Aps	R	53951.4340	ccd	0.0020		C11+StarXpress	Hund Friedhelm
IO	Aqr	p	59040.4440	ccd	0.0100	98	50mm+ST7	Paschke Anton

V0346	Aql	p	58989.5470	V	0.0001	186	20cm+ST8	Dufoer Sjoerd
V1687	Aql	p	58656.4993	V	0.0004	248	20cm+ST8	Dufoer Sjoerd
sig	Aql	s	59051.4670	ccd	0.0200	205	50mm+ST7	Paschke Anton
DL	Ara	R	53566.4200	R			C11+StarXpress	Hund Friedhelm
DL	Ara	R	53567.3270	ccd			C11+StarXpress	Hund Friedhelm
DL	Ara	R	53577.3040	ccd			C11+StarXpress	Hund Friedhelm
DL	Ara	R	53610.4120	ccd			C11+StarXpress	Hund Friedhelm
DL	Ara	R	53951.4430	ccd	0.0030		C11+StarXpress	Hund Friedhelm
DO	Ara	R	53587.4820	ccd			C11+StarXpress	Hund Friedhelm
DO	Ara	R	53599.4870	ccd			C11+StarXpress	Hund Friedhelm
EI	Ara	R	53245.3630	ccd			C11+StarXpress	Hund Friedhelm
EI	Ara	R	53246.3780	ccd			C11+StarXpress	Hund Friedhelm
EZ	Ara	R	53205.4940	ccd			C11+StarXpress	Hund Friedhelm
FM	Ara	R	53166.3770	ccd	0.0040		C11+StarXpress	Hund Friedhelm
FO	Ara	R	53202.4230	ccd	0.0004	420	C11+StarXpress	Hund Friedhelm
V0430	Ara	R	53574.4320	ccd			C11+StarXpress	Hund Friedhelm
V0430	Ara	R	53575.4890	ccd			C11+StarXpress	Hund Friedhelm
V0430	Ara	R	53594.5040	ccd			C11+StarXpress	Hund Friedhelm
V0430	Ara	R	53966.4270	ccd	0.0050		C11+StarXpress	Hund Friedhelm
V0453	Ara	R	53563.4900	ccd			C11+StarXpress	Hund Friedhelm
V0455	Ara	R	53552.4200	ccd			C11+StarXpress	Hund Friedhelm
V0739	Ara	R	53566.4390	ccd			C11+StarXpress	Hund Friedhelm
V0739	Ara	R	53567.4980	ccd			C11+StarXpress	Hund Friedhelm
BM	Ari	p	58845.3550	ccd	0.0050	111	50mm+ST7	Paschke Anton
BN	Ari	s	58849.3680	ccd	0.0050	41	50mm+ST7	Paschke Anton
BO	Ari	s	58852.3850	ccd	0.0050	57	50mm+ST7	Paschke Anton
BO	Ari	p	59048.5577	V	0.0002	95	20cm+ST8	Dufoer Sjoerd
CL	Ari	p	58832.3080	ccd	0.0070	201	50mm+ST7	Paschke Anton
CX	Ari	p	58843.3990	ccd	0.0050	181	50mm+ST7	Paschke Anton
CX	Ari	p	59053.5397	V	0.0003	120	20cm+ST8	Dufoer Sjoerd
CX	Ari	p	59060.5596	V	0.0002	132	20cm+ST8	Dufoer Sjoerd
WW	Aur	p	53769.3680	vis	0.0050			Gobet Frank
V0639	Aur	p	58908.3640	G	0.0070	37	Nerpio	Paschke Anton
V0639	Aur	p	58913.3640	G	0.0050	55	Nerpio	Paschke Anton
V0828	Aur	s	58855.2910	ccd	0.0100	60	50mm+ST7	Paschke Anton
G2932.00337	Aur	r	58880.3680	ccd	0.0300	86	50mm+ST7	Paschke Anton
G2932.00337	Aur	s	58892.3600	ccd	0.0300	149	50mm+ST7	Paschke Anton
G2932.00337	Aur	R	58892.5220	ccd	0.0300	147	50mm+ST7	Paschke Anton
G2932.00337	Aur	r	58898.4220	ccd	0.0200	106	50mm+ST7	Paschke Anton
G2932.00337	Aur	p	58901.3760	ccd	0.0200	106	50mm+ST7	Paschke Anton
G2932.00643	Aur	s	58892.3390	ccd	0.0100	120	50mm+ST7	Paschke Anton
G2932.00643	Aur	s	58898.3730	ccd	0.0100	50	50mm+ST7	Paschke Anton
G2932.00643	Aur	p	58901.3810	ccd	0.0100	32	50mm+ST7	Paschke Anton
CzeV1640	Aur	p	58902.3700	ccd	0.0050	0	30cm+G2-1600	Auer Reinhold
Auer01	Aur	p	58902.2700	ccd	0.0100	0	30cm+G2-1600	Auer Reinhold
AC	Boo	s	58945.5720	ccd	0.0050	80	50mm+ST7	Paschke Anton
AD	Boo	s	58962.4139	V	0.0003	138	20cm+ST8	Dufoer Sjoerd
CK	Boo	s	58856.6000	ccd	0.0070	93	50mm+ST7	Paschke Anton

CK	Boo	s	58916.6240	ccd	0.0050	68	50mm+ST7	Paschke Anton
CK	Boo	s	58926.5670	ccd	0.0050	55	50mm+ST7	Paschke Anton
CK	Boo	p	58943.4310	ccd	0.0050	40	50mm+ST7	Paschke Anton
CK	Boo	s	58943.6100	ccd	0.0040	50	50mm+ST7	Paschke Anton
EM	Boo	p	58940.4131	V	0.0072	222	20cm+ST8	Dufoer Sjoerd
EQ	Boo	s	58951.4290	ccd	0.0050	61	50mm+ST7	Paschke Anton
ET	Boo	p	58925.5780	ccd	0.0020	58	50mm+ST7	Paschke Anton
MN	Boo	p	58941.3744	V	0.0003	115	20cm+ST8	Dufoer Sjoerd
MN	Boo	p	58948.3569	V	0.0007	110	20cm+ST8	Dufoer Sjoerd
PV	Boo	s	58945.4652	ccd	0.0002		35cm+G2-1600	Auer Reinhold
V0339	Boo	p	58935.3539	V	0.0139	204	20cm+ST8	Dufoer Sjoerd
V0339	Boo	p	58956.4041	V	0.0006	178	20cm+ST8	Dufoer Sjoerd
V0391	Boo	s	58944.5240	ccd	0.0100	14	50mm+ST7	Paschke Anton
AO	Cam	s	58899.3620	ccd	0.0030	50	50mm+ST7	Paschke Anton
AO	Cam	p	58899.5240	ccd	0.0030	48	50mm+ST7	Paschke Anton
AW	Cam	p	58861.3395	ccd	0.0002	84	30vm+G2-1600	Auer Reinhold
DI	Cam	p	58878.3870	ccd	0.0200	245	50mm+ST7	Paschke Anton
DT	Cam	s	58850.4520	ccd	0.0070	165	50mm+ST7	Paschke Anton
FN	Cam	s	58887.3520	ccd	0.0070	127	50mm+ST7	Paschke Anton
NR	Cam	s	58892.3427	ccd	0.0001		30cm+G2-1600	Auer Reinhold
V0415	Cam	p	58888.3872	V	0.0007		20cm+G2-1600	Auer Reinhold
V0415	Cam	s	58888.6041	V	0.0010		20cm+G2-1600	Auer Reinhold
V0474	Cam	p	58894.6074	ccd	0.0001		30cm+G2-1600	Auer Reinhold
V0474	Cam	s	58901.3350	ccd	0.0001		20cm+G2-1600	Auer Reinhold
V0474	Cam	p	58901.4985	ccd	0.0001		20cm+G2-1600	Auer Reinhold
V0582	Cam	p	58797.6040	ccd	0.0100	90	50mm+ST7	Paschke Anton
V0582	Cam	p	58816.3320	ccd	0.0100	139	50mm+ST7	Paschke Anton
V0582	Cam	p	58844.4200	ccd	0.0150	82	50mm+ST7	Paschke Anton
CzeV336	Cam	p	58894.4920	ccd	0.0000	142	50mm+ST7	Paschke Anton
G4360.01307	Cam	s	58901.4252	ccd	0.0005		20cm+G2-1600	Auer Reinhold
Auer00	Cam	p	58908.3224	V	0.0020		35cm+G2-1600	Auer Reinhold
TX	Cnc	s	58849.5710	ccd	0.0050	85	50mm+ST7	Paschke Anton
XZ	Cnc	p	58933.3560	ccd	0.0070	45	50mm+ST7	Paschke Anton
IT	Cnc	p	57074.4478	R	0.0004		20cm+G2-1600	Auer Reinhold
IT	Cnc	p	57074.4496	V			20cm+G2-1600	Auer Reinhold
IT	Cnc	p	57074.4496	I			20cm+G2-1600	Auer Reinhold
CI	CVn	p	58948.6050	ccd	0.0050	55	50mm+ST7	Paschke Anton
CI	CVn	s	58969.4110	ccd	0.0050	45	50mm+ST7	Paschke Anton
GK	CVn	s	58944.3810	ccd	0.0020		30cm+G2-1600	Auer Reinhold
GU	CMa	p	58872.3890	ccd	0.0050	277	50mm+ST7	Paschke Anton
AD	CMi	R	58901.5290	ccd	0.0030	31	50mm+ST7	Paschke Anton
AM	CMi	p	58855.6040	ccd	0.0150	76	50mm+ST7	Paschke Anton
CW	CMi	p	58901.3258	ccd	0.0001		30cm+G2-1600	Auer Reinhold
EI	CMi	p	58899.4683	ccd	0.0001		30cm+G2-1600	Auer Reinhold
RZ	Cas	p	53760.3650	vis	0.0080			Gobet Frank
RZ	Cas	p	53766.3440	vis	0.0050			Gobet Frank
RZ	Cas	p	53772.3230	vis	0.0030			Gobet Frank
RZ	Cas	p	53815.3540	vis	0.0050			Gobet Frank

RZ	Cas	p	54054.4000	vis	0.0030			Gobet Frank
RZ	Cas	p	54213.3120	vis	0.0040			Gobet Frank
TV	Cas	p	53772.3570	vis	0.0190			Gobet Frank
TV	Cas	p	53801.3450	vis	0.0080			Gobet Frank
TV	Cas	p	59012.5571	V	0.0009	252	20cm+ST8	Dufoer Sjoerd
V0445	Cas	p	58664.4928	V	0.0002	282	20cm+ST8	Dufoer Sjoerd
V0766	Cas	p	58840.3810	ccd	0.0050	105	50mm+ST7	Paschke Anton
V0766	Cas	s	58841.4410	ccd	0.0050	118	50mm+ST7	Paschke Anton
V0791	Cas	p	58817.3940	ccd	0.0200	300	50mm+ST7	Paschke Anton
V0791	Cas	s	58856.3660	ccd	0.0300	300	50mm+ST7	Paschke Anton
V0821	Cas	p	58823.3650	ccd	0.0050	90	50mm+ST7	Paschke Anton
V1060	Cas	p	59043.4405	V	0.0005	90	20cm+ST8	Dufoer Sjoerd
V1297	Cas	p	58886.3310	ccd	0.0020	36	50mm+ST7	Paschke Anton
V1297	Cas	s	58886.4690	ccd	0.0050	39	50mm+ST7	Paschke Anton
V1297	Cas	p	59024.4931	V	0.0003	245	20cm+ST8	Dufoer Sjoerd
V0444	Cen	R	53916.3960	ccd			C11+StarXpress	Hund Friedhelm
V0499	Cen	R	53919.3750	ccd			C11+StarXpress	Hund Friedhelm
V0501	Cen	R	53924.4270	ccd			C11+StarXpress	Hund Friedhelm
ZZ	Cep	p	58984.5326	V	0.0003	160	20cm+ST8	Dufoer Sjoerd
CQ	Cep	p	58949.5733	V	0.0012	223	20cm+ST8	Dufoer Sjoerd
V0338	Cep	p	58984.4299	V	0.0005	130	20cm+ST8	Dufoer Sjoerd
V0443	Cep	p	58972.5585	V	0.0020	196	20cm+ST8	Dufoer Sjoerd
V0736	Cep	p	58948.5454	V	0.0009	259	20cm+ST8	Dufoer Sjoerd
V0736	Cep	p	58954.5501	V	0.0006	203	20cm+ST8	Dufoer Sjoerd
TY	Cet	R	54467.3760	ccd	0.0030		ST-8	Hund Friedhelm
TY	Cet	R	54468.3430	ccd	0.0030		ST-8	Hund Friedhelm
TY	Cet	R	54775.5240	ccd	0.0030		ST-8	Hund Friedhelm
MZ	Com	p	58955.4390	ccd	0.0200	142	50mm+ST7	Paschke Anton
QR	Com	p	58975.3990	ccd	0.0070	69	50mm+ST7	Paschke Anton
V0339	Com	p	58922.5220	G	0.0040	34	Nerpio	Paschke Anton
AM	CrB	s	58973.4973	ccd	0.0005		20cm+G2-1600	Auer Reinhold
DD	CrB	p	58965.3459	ccd	0.0001		30cm+G2-1600	Auer Reinhold
DD	CrB	p	58965.4270	ccd	0.0001		30cm+G2-1600	Auer Reinhold
DD	CrB	p	58965.5072	ccd	0.0001		30cm+G2-1600	Auer Reinhold
DD	CrB	s	59002.3912	R	0.0001		30cm+G2-1600	Auer Reinhold
DD	CrB	p	59002.4723	V	0.0001		30cm+G2-1600	Auer Reinhold
DD	CrB	p	59002.4724	R	0.0001		30cm+G2-1600	Auer Reinhold
G2579.00088	CrB	s	58973.3954	ccd	0.0005		20cm+G2-1600	Auer Reinhold
G2579.00088	CrB	p	58973.5408	ccd	0.0004		20cm+G2-1600	Auer Reinhold
G3052.01907	CrB	p	59002.4503	R	0.0004		30cm+G2-1600	Auer Reinhold
G3052.01907	CrB	p	59002.4503	V	0.0005		30cm+G2-1600	Auer Reinhold
BR	Cyg	p	58965.4080	V	0.0003	162	20cm+ST8	Dufoer Sjoerd
BR	Cyg	p	58981.3962	V	0.0140	107	20cm+ST8	Dufoer Sjoerd
GO	Cyg	p	58962.4898	V	0.0015	258	20cm+ST8	Dufoer Sjoerd
GO	Cyg	p	58995.5020	V	0.0002	345	20cm+ST8	Dufoer Sjoerd
V0478	Cyg	s	59036.4820	ccd	0.0050	149	50mm+ST7	Paschke Anton
V0548	Cyg	p	58972.3959	V	0.0005	178	20cm+ST8	Dufoer Sjoerd
V0548	Cyg	p	58990.4496	V	0.0002	235	20cm+ST8	Dufoer Sjoerd

V0836	Cyg	p	58983.5534	V	0.0001	189	20cm+ST8	Dufoer Sjoerd
V0836	Cyg	p	59019.4891	V	0.0001	219	20cm+ST8	Dufoer Sjoerd
V0909	Cyg	p	58951.5390	V	0.0002	235	20cm+ST8	Dufoer Sjoerd
V1061	Cyg	p	58945.5627	V	0.0002	241	20cm+ST8	Dufoer Sjoerd
V1898	Cyg	p	59023.4870	ccd	0.0070	147	50mm+ST7	Paschke Anton
BW	Del	p	58660.5610	V	0.0061	278	20cm+ST8	Dufoer Sjoerd
MZ	Del	p	58687.4849	V	0.0003	284	20cm+ST8	Dufoer Sjoerd
Z	Dra	p	58966.3640	V	0.0001		20cm+G2-1600	Auer Reinhold
Z	Dra	s	58991.4798	B	0.0032		20cm+G2-1600	Auer Reinhold
Z	Dra	s	58991.4800	R	0.0032		20cm+G2-1600	Auer Reinhold
Z	Dra	s	58991.4801	V	0.0015		20cm+G2-1600	Auer Reinhold
RZ	Dra	p	58988.4210	V	0.0001		20cm+G2-1600	Auer Reinhold
RZ	Dra	p	58988.4213	V	0.0004		20cm+G2-1600	Auer Reinhold
RZ	Dra	p	58988.4214	V	0.0006		20cm+G2-1600	Auer Reinhold
AI	Dra	p	58961.3713	V	0.0003	254	20cm+ST8	Dufoer Sjoerd
BH	Dra	p	58975.4070	V	0.0004	160	20cm+ST8	Dufoer Sjoerd
FX	Dra	p	56476.4438	V	0.0002		20cm+G2-1600	Auer Reinhold
FX	Dra	p	56476.4439	R	0.0002		20cm+G2-1600	Auer Reinhold
FX	Dra	p	56476.4448	B	0.0002		20cm+G2-1600	Auer Reinhold
GM	Dra	p	58951.3620	V	0.0006	263	20cm+ST8	Dufoer Sjoerd
GQ	Dra	p	58944.4092	V	0.0002	300	20cm+ST8	Dufoer Sjoerd
GQ	Dra	p	59055.4690	ccd	0.0050	119	50mm+ST7	Paschke Anton
HI	Dra	p	58938.4430	V	0.0012	227	20cm+ST8	Dufoer Sjoerd
LZ	Dra	p	56478.4213	R	0.0003		20cm+G2-1600	Auer Reinhold
LZ	Dra	p	56478.4215	V	0.0004		20cm+G2-1600	Auer Reinhold
LZ	Dra	p	56478.4217	B	0.0004		20cm+G2-1600	Auer Reinhold
LZ	Dra	p	57171.4096	I	0.0004		20cm+G2-1600	Auer Reinhold
LZ	Dra	p	57171.4112	R	0.0006		20cm+G2-1600	Auer Reinhold
LZ	Dra	p	57171.4117	V	0.0005		20cm+G2-1600	Auer Reinhold
MZ	Dra	p	58976.5420	V	0.0022		20cm+G2-1600	Auer Reinhold
MZ	Dra	p	58976.5453	B	0.0022		20cm+G2-1600	Auer Reinhold
OQ	Dra	s	58991.4023	R	0.0016		20cm+G2-1600	Auer Reinhold
OQ	Dra	s	58991.4032	B	0.0015		20cm+G2-1600	Auer Reinhold
OQ	Dra	s	58991.4043	V	0.0016		20cm+G2-1600	Auer Reinhold
V0362	Dra	p	57494.4374	V	0.0005		20cm+G2-1600	Auer Reinhold
V0362	Dra	p	57494.4391	I	0.0005		20cm+G2-1600	Auer Reinhold
V0380	Dra	p	58965.4163	V	0.0001		20cm+G2-1600	Auer Reinhold
V0416	Dra	p	58947.7870	ccd	0.0100		30cm+G2-1600	Auer Reinhold
V0449	Dra	p	57500.4289	B	0.0026		20cm+G2-1600	Auer Reinhold
V0449	Dra	p	57500.4291	V	0.0015		20cm+G2-1600	Auer Reinhold
V0449	Dra	p	57500.4299	R	0.0012		20cm+G2-1600	Auer Reinhold
V0449	Dra	p	57500.4301	I	0.0013		20cm+G2-1600	Auer Reinhold
V0450	Dra	p	58945.4040	ccd	0.0100	87	50mm+ST7	Paschke Anton
CzeV666	Dra	p	58947.4534	ccd	0.0005		30cm+G2-1600	Auer Reinhold
CzeV666	Dra	s	58956.4218	ccd	0.0005		30cm+G2-1600	Auer Reinhold
CzeV666	Dra	p	58956.5956	ccd	0.0005		30cm+G2-1600	Auer Reinhold
CzeV666	Dra	s	58963.4541	ccd	0.0002		30cm+G2-1600	Auer Reinhold
Asas00	Dra	p	59001.4562	ccd	0.0013		30cm+G2-1600	Auer Reinhold

NEV336	Dra	p	59001.4307	ccd	0.0008		30cm+G2-1600	Auer Reinhold
SV	Equ	p	58662.4900	V	0.0012	493	20cm+ST8	Dufoer Sjoerd
SV	Equ	p	59062.4340	ccd	0.0200	108	50mm+ST7	Paschke Anton
UZ	Equ	p	59070.4580	ccd	0.0200	97	50mm+ST7	Paschke Anton
ZZ	Eri	p	58782.5610	ccd	0.0010	64	28cm+G2	Paschke Anton
GW	Gem	p	58903.3540	ccd	0.0030	65	30mm+ST7	Paschke Anton
AQ	Gru	R	53680.4430	ccd			C11+StarXpress	Hund Friedhelm
AK	Her	s	58994.4580	ccd	0.0070	55	50mm+ST7	Paschke Anton
MM	Her	p	58956.5965	V	0.0011	183	20cm+ST8	Dufoer Sjoerd
V0719	Her	s	58977.4718	B	0.0009		20cm+G2-1600	Auer Reinhold
V0719	Her	s	58977.4720	R	0.0004		20cm+G2-1600	Auer Reinhold
V0719	Her	s	58987.4946	B	0.0009		20cm+G2-1600	Auer Reinhold
V0719	Her	s	58987.4953	R	0.0003		20cm+G2-1600	Auer Reinhold
V0722	Her	s	58987.4715	R	0.0023		20cm+G2-1600	Auer Reinhold
V0722	Her	s	58987.4786	R	0.0035		20cm+G2-1600	Auer Reinhold
V0921	Her	p	58966.3967	V	0.0005	199	20cm+ST8	Dufoer Sjoerd
G3081.00618	Her	p	58987.4959	ccd	0.0010		20cm+G2-1600	Auer Reinhold
LO	Hya	p	58916.3550	ccd	0.0050	177	50mm+ST7	Paschke Anton
LO	Hya	p	58926.3540	ccd	0.0080	160	50mm+ST7	Paschke Anton
SW	Ind	R	53665.4660	ccd			C11+StarXpress	Hund Friedhelm
TW	Ind	R	53663.4660	ccd			C11+StarXpress	Hund Friedhelm
AW	Lac	p	58986.5209	V	0.0003	214	20cm+ST8	Dufoer Sjoerd
CM	Lac	p	58988.5592	V	0.0001	160	20cm+ST8	Dufoer Sjoerd
V0505	Lac	p	59029.4553	V	0.0025	139	20cm+ST8	Dufoer Sjoerd
G3200.01872	Lac	s	59049.4000	ccd	0.0050	47	50mm+ST7	Paschke Anton
RX	Leo	R	53094.6130	ccd			C11+StarXpress	Paschke Anton
ST	Leo	R	53469.4480	ccd			C11+StarXpress	Paschke Anton
UV	Leo	p	53832.3340	vis	0.0050			Gobet Frank
UV	Leo	p	54210.3770	vis	0.0010			Gobet Frank
UV	Leo	p	54213.3810	vis	0.0010			Gobet Frank
UV	Leo	s	58937.5710	ccd	0.0010	42	50mm+ST7	Paschke Anton
XY	Leo	p	58843.5770	ccd	0.0030	55	50mm+ST7	Paschke Anton
OO	Leo	p	58857.5170	ccd	0.0100	75	50mm+ST7	Paschke Anton
EL	Lyn	p	58925.4459	ccd	0.0025		20cm+G2-1600	Auer Reinhold
FI	Lyn	p	58950.3350	ccd	0.0040	48	50mm+ST7	Paschke Anton
FI	Lyn	s	58950.5270	ccd	0.0080	32	50mm+ST7	Paschke Anton
KS	Lyn	p	58925.3968	ccd	0.0004		20cm+G2-1600	Auer Reinhold
KS	Lyn	s	58925.5450	ccd	0.0008		20cm+G2-1600	Auer Reinhold
MO	Lyn	s	58885.5777	ccd	0.0001		20cm+G2-1600	Auer Reinhold
G3409.01361	Lyn	p	58922.4303	V	0.0023		20cm+G2-1600	Auer Reinhold
G3409.01361	Lyn	p	58922.4311	B	0.0022		20cm+G2-1600	Auer Reinhold
G3409.01361	Lyn	p	58922.4342	I	0.0023		20cm+G2-1600	Auer Reinhold
TT	Lyr	p	59071.5478	B	0.0004		20cm+G2-1600	Auer Reinhold
TT	Lyr	p	59071.5485	V	0.0011		20cm+G2-1600	Auer Reinhold
TT	Lyr	p	59071.5533	R	0.0012		20cm+G2-1600	Auer Reinhold
TZ	Lyr	p	58966.4883	V	0.0003	108	20cm+ST8	Dufoer Sjoerd
TZ	Lyr	p	58974.4212	V	0.0002	148	20cm+ST8	Dufoer Sjoerd
TZ	Lyr	p	58983.4106	V	0.0002	116	20cm+ST8	Dufoer Sjoerd

UZ	Lyr	p	58988.3913	V	0.0011	160	20cm+ST8	Dufoer Sjoerd
G2120.00388	Lyr	p	58995.5090	ccd	0.0030	48	50mm+ST7	Paschke Anton
G2120.00388	Lyr	p	58996.4630	ccd	0.0030	52	50mm+ST7	Paschke Anton
G2120.00388	Lyr	s	59020.5420	ccd	0.0030	46	50mm+ST7	Paschke Anton
EM	Mus	R	53920.4000	ccd			C11+StarXpress	Hund Friedhelm
U	Oph	p	58987.4803	V	0.0008	199	20cm+ST8	Dufoer Sjoerd
V0501	Oph	p	58663.4910	V	0.0015	275	20cm+ST8	Dufoer Sjoerd
V1010	Oph	p	59022.4190	ccd	0.0040	107	50mm+ST7	Paschke Anton
V2357	Oph	p	58935.6141	V	0.0004	153	20cm+ST8	Dufoer Sjoerd
V2357	Oph	p	58940.6136	V	0.0000	92	20cm+ST8	Dufoer Sjoerd
V2377	Oph	p	58938.5749	V	0.0010	218	20cm+ST8	Dufoer Sjoerd
EW	Ori	p	58842.3890	ccd	0.0030	50	50mm+ST7	Paschke Anton
FT	Ori	s	58851.3440	ccd	0.0050	146	50mm+ST7	Paschke Anton
V1801	Ori	p	58848.4230	ccd	0.0200	139	50mm+ST7	Paschke Anton
SW	Pav	R	53644.3160	ccd			C11+StarXpress	Hund Friedhelm
DN	Pav	R	53652.4920	ccd			C11+StarXpress	Hund Friedhelm
FO	Pav	R	53636.3440	ccd			C11+StarXpress	Hund Friedhelm
FO	Pav	R	53642.4100	ccd			C11+StarXpress	Hund Friedhelm
QR	Pav	R	53643.4060	ccd			C11+StarXpress	Hund Friedhelm
ZZ	Peg	p	58782.3380	ccd	0.0050	124	28cm+G2	Paschke Anton
DI	Peg	p	59053.4379	V	0.0001	90	20cm+ST8	Dufoer Sjoerd
OO	Peg	p	59036.4756	V	0.0006	258	20cm+ST8	Dufoer Sjoerd
OO	Peg	p	59042.4435	V	0.0008	160	20cm+ST8	Dufoer Sjoerd
OO	Peg	p	59042.4470	ccd	0.0030	72	50mm+ST7	Paschke Anton
V0407	Peg	p	59052.4631	V	0.0006	162	20cm+ST8	Dufoer Sjoerd
V0467	Peg	p	58657.4870	V	0.0010	261	20cm+ST8	Dufoer Sjoerd
V0477	Peg	p	58655.4674	V	0.0020	250	20cm+ST8	Dufoer Sjoerd
V0523	Peg	p	59022.4913	V	0.0005	185	20cm+ST8	Dufoer Sjoerd
IZ	Per	p	59066.4561	V	0.0002	205	20cm+ST8	Dufoer Sjoerd
KR	Per	p	59065.5601	V	0.0004	126	20cm+ST8	Dufoer Sjoerd
V0736	Per	p	59052.5594	V	0.0019	145	20cm+ST8	Dufoer Sjoerd
bet	Per	p	53750.3220	vis	0.0150			Gobet Frank
bet	Per	p	53793.3330	vis	0.0040			Gobet Frank
TZ	Phe	R	53682.4290	ccd			C11+StarXpress	Hund Friedhelm
AQ	Psc	p	59067.5086	V	0.0016	221	20cm+ST8	Dufoer Sjoerd
ET	Psc	p	59061.5618	V	0.0003	173	20cm+ST8	Dufoer Sjoerd
HN	Psc	p	59043.5359	V	0.0009	91	20cm+ST8	Dufoer Sjoerd
U	Sge	p	58965.5960	V	0.0012	255	20cm+ST8	Dufoer Sjoerd
CU	Sge	p	58666.4907	V	0.0038	254	20cm+ST8	Dufoer Sjoerd
RU	Scl	R	51870.5180	ccd			Asas	Paschke Anton
Y	Sex	p	58949.3950	ccd	0.0050	95	50mm+ST7	Paschke Anton
WZ	Sex	p	58963.3800	ccd	0.0200	62	50mm+ST7	Paschke Anton
RW	Tau	p	54087.3990	vis	0.0040			Gobet Frank
GR	Tel	R	53633.2980	ccd			C11+StarXpress	Hund Friedhelm
AM	Tuc	R	53706.4760	ccd			C11+StarXpress	Hund Friedhelm
W	UMa	p	54202.3730	vis	0.0010			Gobet Frank
W	UMa	p	54209.3760	vis	0.0010			Gobet Frank
W	UMa	p	54210.3760	vis	0.0010			Gobet Frank

W	UMa	p	54212.3730	vis	0.0010		Gobet Frank
W	UMa	p	54213.3840	vis	0.0010		Gobet Frank
UX	UMa	p	53815.3430	vis	0.0040		Gobet Frank
UX	UMa	p	53856.4460	vis	0.0020		Gobet Frank
UX	UMa	p	53882.4070	vis	0.0020		Gobet Frank
UX	UMa	p	53883.3900	vis	0.0020		Gobet Frank
UX	UMa	p	54202.3920	vis	0.0010		Gobet Frank
UX	UMa	p	54212.4220	vis	0.0010		Gobet Frank
BG	UMa	s	58595.3369	B	0.0023	30cm+G2-1600	Auer Reinhold
BG	UMa	s	58595.3412	I	0.0038	30cm+G2-1600	Auer Reinhold
BG	UMa	s	58595.3554	V	0.0028	30cm+G2-1600	Auer Reinhold
BG	UMa	s	58963.4795	I	0.0012	20cm+G2-1600	Auer Reinhold
BG	UMa	s	58963.4802	B	0.0013	20cm+G2-1600	Auer Reinhold
BG	UMa	s	58963.4813	V	0.0016	20cm+G2-1600	Auer Reinhold
GT	UMa	p	58946.4930	ccd	0.0050	64 50mm+ST7	Paschke Anton
QQ	UMa	s	58926.6058	ccd	0.0007	20cm+G2-1600	Auer Reinhold
QQ	UMa	s	58948.5540	ccd	0.0100	30cm+G2-1600	Auer Reinhold
RT	UMi	p	58917.4431	V		20cm+G2-1600	Auer Reinhold
RT	UMi	p	58917.4461	R	0.0050	20cm+G2-1600	Auer Reinhold
RT	UMi	p	58917.4463	B	0.0070	20cm+G2-1600	Auer Reinhold
WW	UMi	p	58933.3108	ccd	0.0100	20cm+G2-1600	Auer Reinhold
BE	UMi	s	58894.3391	ccd	0.0006	30cm+G2-1600	Auer Reinhold
BE	UMi	p	58894.4755	ccd	0.0003	30cm+G2-1600	Auer Reinhold
BE	UMi	p	58923.4011	ccd	0.0003	20cm+G2-1600	Auer Reinhold
BE	UMi	s	58923.5220	ccd	0.0006	20cm+G2-1600	Auer Reinhold
BE	UMi	p	58931.3691	ccd	0.0003	20cm+G2-1600	Auer Reinhold
BE	UMi	s	58931.4621	ccd	0.0016	20cm+G2-1600	Auer Reinhold
BE	UMi	p	58949.3958	ccd	0.0005	30cm+G2-1600	Auer Reinhold
BE	UMi	s	58949.5285	ccd	0.0005	30cm+G2-1600	Auer Reinhold
AN	Vel	R	53850.3370	ccd	0.0000	C11+StarXpress	Hund Friedhelm
AG	Vir	s	58886.6150	ccd	0.0050	128 50mm+ST7	Paschke Anton
BH	Vir	s	58997.4420	ccd	0.0010	39 50mm+ST7	Paschke Anton
HT	Vir	s	58933.5300	ccd	0.0010	92 50mm+ST7	Paschke Anton
LU	Vir	s	58942.5930	ccd	0.0100	158 50mm+ST7	Paschke Anton
NS	Vir	p	58962.4990	ccd	0.0100	185 50mm+ST7	Paschke Anton
V0614	Vir	p	58903.5490	ccd	0.0010	64 50mm+ST7	Paschke Anton
V0700	Vir	s	58956.4230	ccd	0.0030	50 50mm+ST7	Paschke Anton
V0739	Vir	p	58941.4320	ccd	0.0030	40 50mm+ST7	Paschke Anton
RV	Vol	R	53853.3420	ccd		C11+StarXpress	Hund Friedhelm
Z	Vul	p	58985.5427	V	0.0004	129 20cm+ST8	Dufoer Sjoerd
BW	Vul	P	59067.4280	ccd	0.0050	136 50mm+ST7	Paschke Anton
V0495	Vul	p	59057.3820	ccd	0.0100	52 50mm+ST7	Paschke Anton

Acknowledgments:

This research has made use of the SIMBAD database operated at CDS, Strasbourg, France.

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