CCD TIMES OF MINIMA OF SEVERAL ECLIPSING BINARIES

LIAKOS, A.; NIARCHOS, P.

Department of Astrophysics, Astronomy and Mechanics, National and Kapodistrian University of Athens, GR
157 84 Zografos, Athens, Hellas; e-mail: alliakos@phys.uoa.gr, pniarcho@phys.uoa.gr

Observatory and telescope:
T1: 40 cm Cassegrain telescope, and
T2: 20 cm Newtonian reflector telescope, both at the University of Athens Observatory

Detector:	**C1**: ST-10XME CCD camera, Peltier cooling, KAF-3200ME chip, $16' \times 11'$ and $25' \times 17'$ (using a focal reducer) FoV, 2184 × 1472 pixels, Bessell UBVRI filters, and **C2**: ST-8XMEI CCD camera, Peltier cooling, KAF-1603ME chip, $46' \times 32'$ and $23' \times 15'$ FoV, 1530 × 1020 pixels, Bessell UBVRI filters

Method of data reduction:
The reduction of the CCD frames was made using the software Muniwin v.1.1.23 (Hroch, 1998).

Method of minimum determination:
The minima times were computed using the Kwee & van Woerden (1956) method.

Table 1: Times of minima

System	HJD	Error	Type	Filters	Remark
2MASS J00511854+5022580	2455109.3990	0.0006	II	B	T1 + C1
	2455138.2859	0.0007	II	VI	T1 + C1
	2455140.2623	0.0004	I	VI	T1 + C1
	2455140.4152	0.0004	II	VI	T1 + C1
	2455156.2276	0.0004	I	R	T1 + C1
	2455156.3797	0.0002	II	R	T1 + C1
	2455158.2029	0.0006	I	B	T1 + C1
	2455158.3572	0.0004	II	B	T1 + C1
2MASS J07083972+1214429	2454115.5301	0.0005	I	R	T1 + C1
	2454468.5781	0.0011	II	V	T1 + C1
	2454477.4864	0.0017	II	VR	T1 + C1
	2454492.5078	0.0018	I	VRI	T1 + C1
	2454522.3797	0.0016	II	VRI	T1 + C1
	2454773.5715	0.0007	II	I	T1 + C1
	2454783.5875	0.0008	II	I	T1 + C1
	2455149.6162	0.0005	I	I	T1 + C1
	2455155.5516	0.0009	I	I	T1 + C1

Table 1: cont.

System	HJD	Error	Type	Filters	Remark
	2455158.5221	0.0007	I	I	T1 + C1
V0417 Aur	2455118.4598	0.0002	II	B	T1 + C1
	2455147.3744	0.0004	I	BVRI	T1 + C1
	2455148.3154	0.0006	II	RI	T1 + C1
	2455157.6332	0.0004	II	BVRI	T1 + C1
44i Boo	2455272.3703	0.0007	I	UBVRI	T2 + C2
	2455272.5030	0.0005	II	UBVRI	T2 + C2
TX Cnc	2455289.3403	0.0003	I	BVRI	T1 + C1
YY CMi	2455231.4317	0.0002	I	BVRI	T2 + C2
	2455232.5252	0.0004	I	BVRI	T2 + C2
	2455254.4055	0.0003	I	BVRI	T2 + C2
	2455258.2379	0.0009	II	B	T2 + C2
	2455271.3642	0.0003	II	BVRI	T2 + C2
AB Cas	2455148.3371	0.0012	II	RI	T2 + C2
	2455157.2167	0.0002	I	BVRI	T2 + C2
V0523 Cas	2455126.2678	0.0001	II	BVI	T2 + C2
	2455126.3843	0.0001	I	BVI	T2 + C2
V0405 Cep	2455124.4902	0.0007	II	BVRI	T1 + C1
	2455126.5541	0.0003	I	BVRI	T1 + C1
HZ Dra	2455343.5529	0.0003	I	B	T2 + C2
	2455360.5596	0.0006	I	BVRI	T2 + C2
AL Gem	2455246.2693	0.0001	I	BVRI	T1 + C1
	2455273.3935	0.0009	II	BVRI	T1 + C1
GSC 0199−2035	2455231.2721	0.0007	I	BVRI	T2 + C2
	2455232.2829	0.0005	I	BVRI	T2 + C2
	2455245.4475	0.0006	I	BVRI	T2 + C2
	2455246.4603	0.0027	I	BVRI	T2 + C2
	2455271.2688	0.0006	II	BVRI	T2 + C2
	2455272.2836	0.0005	II	BVRI	T2 + C2
GSC 0770−0523	2454107.3902	0.0004	II	R	T1 + C1
	2454107.6002	0.0005	I	R	T1 + C1
	2454115.4502	0.0005	I	R	T1 + C1
	2454477.4636	0.0009	II	VR	T1 + C1
	2454485.5262	0.0009	I	VI	T1 + C1
	2454486.4023	0.0009	I	VRI	T1 + C1
	2454492.5014	0.0011	I	VI	T1 + C1
	2454522.3624	0.0010	II	VRI	T1 + C1
	2455149.6158	0.0008	II	I	T1 + C1
	2455155.5060	0.0010	I	I	T1 + C1
	2455158.5562	0.0005	I	I	T1 + C1
	2455296.2998	0.0011	I	I	T1 + C1
GSC 1025−1841	2455013.4801	0.0012	I	BI	T1 + C1
	2455014.5168	0.0015	II	BI	T1 + C1
GSC 4516−2121	2455123.4148	0.0012	II	BVRI	T1 + C1
	2455124.3793	0.0011	II	BVRI	T1 + C1
	2455126.5573	0.0008	I	BVRI	T1 + C1
	2455149.3063	0.0007	I	R	T1 + C1

Table 1: cont.

System	HJD	Error	Type	Filters	Remark
	2455149.5512	0.0005	II	R	T1 + C1
	2455155.3601	0.0007	II	I	T1 + C1
AK Her	2455343.4415	0.0002	I	BVRI	T1 + C1
	2455344.4973	0.0002	II	BVRI	T1 + C1
V0948 Her	2455360.4494	0.0005	I	BVRI	T1 + C1
	2455365.5491	0.0002	I	B	T1 + C1
V0972 Her	2455344.4602	0.0011	I	UBVRI	T2 + C2
CM Lac	2455063.4844	0.0001	I	BVRI	T1 + C1
	2455068.2982	0.0001	I	BVRI	T1 + C1
	2455072.3081	0.0002	II	BVRI	T1 + C1
SW Lac	2455124.2633	0.0001	I	BVRI	T2 + C2
UU Leo	2455249.3034	0.0004	I	BVRI	T1 + C1
	2455285.4185	0.0012	II	VRI	T1 + C1
SX Lyn	2455158.4123	0.0012	II	I	T2 + C2
ER Ori	2455198.3340	0.0001	II	BVRI	T1 + C1
	2455199.3924	0.0001	I	BVRI	T1 + C1
	2455232.2062	0.0003	II	BVRI	T1 + C1
	2455232.3864	0.0001	I	BVRI	T1 + C1
V1128 Tau	2454426.4313	0.0001	I	BVRI	T1 + C1
	2454426.5844	0.0002	II	BVRI	T1 + C1
	2454438.3409	0.0002	I	BVRI	T1 + C1
	2454438.4937	0.0003	II	BVRI	T1 + C1
	2455127.4110	0.0002	II	VRI	T2 + C2
IO UMa	2455298.3910	0.0013	II	I	T1 + C1
	2455309.4246	0.0010	II	RI	T1 + C1
	2455320.4844	0.0007	II	I	T1 + C1
	2455334.2764	0.0005	I	BVRI	T1 + C1
	2455345.3144	0.0016	I	BVRI	T1 + C1
	2455356.3482	0.0018	I	BVRI	T1 + C1
VV UMa	2455276.3859	0.0001	I	B	T1 + C1
	2455277.4173	0.0003	II	B	T1 + C1
	2455284.2907	0.0004	II	B	T1 + C1
TU UMi	2455276.4687	0.0009	I	BVRI	T2 + C2
	2455277.4066	0.0010	II	BVRI	T2 + C2
	2455285.5216	0.0009	I	BVRI	T2 + C2
	2455289.4796	0.0012	II	BVRI	T2 + C2

Explanation of the remarks in the table:

T1, T2, C1 and C2 refer to the instrumentation (telescope and CCD camera) used for each case.

Remarks:

The systems: 2MASS J00511854+5022580, 2MASS J07083972+1214429, GSC 0770-0523, GSC 1025-1841, GSC 4516-2121 are newly discovered eclipsing binaries (Liakos & Niarchos, 2010).

References:

Hroch, F., 1998, *Proceedings of the 29th Conference on Variable Star Research*, **30**
Kwee, K., van Woerden, H., 1956, *Bulletin of the Astronomical Institutes of the Netherlands*, **12**, 327
Liakos, A., Niarchos, P., 2010, *Peremennye Zvezdy Prilozhenie*, **10**, 9