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LIST OF CCD AND VISUAL MAXIMA OF RR LYRAE STARS

ABSTRACT

160 instants of maximum light have been determined for 73 RR Lyrae variable stars (65 RRab and 8 RRc) from CCD measurements or from visual estimates. They are listed with the O-C relative to the most probable cycle number. A fitted light curve of the poorly studied RRab, V759 Cyg, is displayed.

RESUME

160 instants de maxima de 73 étoiles variables du type RR Lyrae (65 RRab et 8 RRc) ont été déterminés à partir de mesures CCD ou d'estimations visuelles. Ils sont listés avec l'O-C relatif au numéro de cycle le plus vraisemblable. Une courbe de lumière de la RRab peu étudiée, V759 Cyg, est présentée.

RIASSUNTO

160 massimi di 73 stelle variabili del tipo RR Lyrae (65 RRab e 8 RRc) sono stati determinati sulla base di misure CCD o di stime visuali. Questi instanti di massimo sono raccolti in una lista con l'O-C relativo al numero di ciclo piú probabile. E' anche riportata la curva di luce di V759 Cyg, una RRab poco studiata.

RESUMEN

160 instantes de máximos de 73 estrellas variables del tipo RR Lyrae (65 RRab y 8 RRc) han sido determinados a partir de medidas CCD o de estimaciones visuales. Aparecen listados con los O-C relativos al número de ciclo más probable. Una curva de luz de la RRab poco estudiada, V759 Cyg, está mostrada.

OBSERVATIONS

Most of the observations cover a time interval going from Frebruary 2008 (JD 2454500) to September 2009 (JD 2455080). The observers are : Michel Dumont (DMT), Josch Hambsch (HMB), Graham Salmon (SAL) and Jacqueline Vandenbroere (VBR).

OBS.	METHOD	N. MAX.	SITE	INSTRUMENTS
DMT	vis	10	France (Bailleau l'Evêque)	binoculars
HMB	CCD V	7	Belgium (Hechtel)	C35cm at f5.6 (ST8)
	CCD R	7		
SAL	CCD	20	Great Britain (Dorset)	T25cm at f10 (LX 200)
VBR	vis	116	Belgium (Heure)	N20cm and N35cm

The times were determined by the observers from their CCD measurements or from their visual estimates (vis). The O-C are appearing in notes when new or better ephemerides were used and after correction by a non linear relation.

The O-C's curves published in Le Borgne et al. (2007) were examined to avoid any unlikelihood and the O-C relative to linear and non linear ephemerides of this paper were systematically noted LB 2007.

LIST

RRab	OBS.	MODE	HJD	ACC	E(GC 85)	O-C (G 85)	NOTES
SW And	SAL	CCD	55087.532		83557	–0.804	–0.006 (with quadratic elements of LB 2007)
BK And	VBR	vis	55072.399	0.015	61494	+0.171	
DM And	VBR	vis	55061.545	0.01	30686	–0.003	
DM And	VBR	vis	55073.537	0.01	30705	+0.012	

RRab	OBS.	MODE	HJD	ACC	E (GC 85)	O-C (G 85)	NOTES
DR And	VBR	vis	55061.552	0.02	31683	–0.035	
DR And	VBR	vis	55074.519	0.01	31706	–0.019	
TZ Aqr	VBR	vis	53674.292	0.01	28231	+0.006	+0.003 (with eph. LB 2007)
TZ Aqr	VBR	vis	55043.449	0.01	30628	+0.010	+0.007 idem
BN Aqr	VBR	vis	55070.540	0.015	36618	+0.602	+0.007 (with quadratic elements of LB 2007)
BR Aqr	VBR	vis	55066.541	0.01	36172	–0.187	–0.013 idem
BR Aqr	VBR	vis	55067.523	0.015	36174	–0.169	+0.005 idem
AA Aql	VBR	vis	55041.430	0.015	84840	+0.035	
AA Aql	VBR	vis	55063.512	0.015	84901	+0.048	
RS Boo	DMT	vis	54975.474	0.008	34995	+0.007	–0.009 (with quadratic elements of LB 2007)
RS Boo	DMT	vis	54981.499	0.006	35011	–0.005	–0.021 idem
RS Boo	DMT	vis	55006.426	0.007	35077	+0.017	+0.001 idem
RS Boo	DMT	vis	55012.459	0.012	35093	+0.013	–0.003 idem
ST Boo	VBR	vis	55002.492	0.02	57563	+0.087	
ST Boo	VBR	vis	55050.393	0.015	57640	+0.072	
SW Boo	VBR	vis	54923.481	0.015	24054	+0.316	–0.007 (with quadratic elements of LB 2007)
SW Boo	VBR	vis	54981.534	0.015	24167	+0.340	+0.015 idem
TW Boo	VBR	vis	54974.487	0.015	52761	–0.045	+0.007 (with quadratic elements of LB 2007)
TW Boo	VBR	vis	54999.491	0.01	52808	–0.058	–0.006 idem
UU Boo	VBR	vis	54950.425	0.01	41289	+0.224	+0.008 idem
UU Boo	VBR	vis	54960.470	0.015	41311	+0.217	+0.000 idem
CM Boo	VBR	vis	54950.409	0.01	31275	–0.108	
CM Boo	VBR	vis	54981.470	0.02	31326	–0.110	
AH Cam	VBR	vis	55066.541	0.01	44307	–0.441	–0.001 (with quadratic elements of LB 2007)
AH Cam	VBR	vis	55073.566	0.01	44326	–0.422	+0.019 idem
RW Cnc	SAL	CCD	54923.5003		28083	+0.197	–0.066 idem
W CVn	VBR	vis	54999.459	0.01	60891	–0.143	–0.004 idem
Z CVn	VBR	vis	54944.480	0.01	24491	+0.428	
SW CVn	VBR	vis	54944.455	0.015	34842	+0.307	+0.009 (with quadratic elements of LB 2007)
SW CVn	VBR	vis	54974.482	0.01	34910	+0.302	+0.003 idem
BN CVn	VBR	vis	54594.524	0.01	14110	+0.085	
BN CVn	VBR	vis	54970.472	0.015	14777	+0.088	
HU Cas	VBR	vis	55058.530	0.01	57395	–0.048	
HU Cas	VBR	vis	55072.540	0.015	57429	–0.033	
V363 Cas	VBR	vis	55061.505	0.02	34615	+0.594	
RZ Cet	VBR	vis	55072.559	0.015	41452	–0.169	+0.039 (with quadratic elements of LB 2007)
V Com	VBR	vis	54923.492	0.01	30352	+0.040	
V Com	VBR	vis	54946.479	0.01	30401	+0.039	
RY Com	VBR	vis	54595.431	0.02	31979	–0.026	
RY Com	VBR	vis	54941.519	0.015	32717	–0.026	
AQ CrB	VBR	vis	54950.434	0.01	6350	–0.001	
V759 Cyg	VBR	vis	55073.365	0.01	48745	+0.096	
V759 Cyg	VBR	vis	55074.450	0.01	48748	+0.101	
V759 Cyg	VBR	vis	55075.529	0.01	48751	+0.099	
V759 Cyg	HMB	CCD V	55075.5300	0.003	48751	+0.100	
V759 Cyg	HMB	CCD R	55075.5303	0.003	48751	+0.101	
V759 Cyg	HMB	CCD V	55082.3700	0.004	48770	+0.099	
V759 Cyg	HMB	CCD R	55082.3704	0.004	48770	+0.100	
V759 Cyg	HMB	CCD V	55083.4497	0.005	48773	+0.100	
V759 Cyg	HMB	CCD R	55083.4500	0.004	48773	+0.099	
V759 Cyg	HMB	CCD V	55087.4103	0.002	48784	+0.099	

RRab	OBS.	MODE	HJD	ACC	E (GC 85)	O-C (G 85)	NOTES
V759 Cyg	HMB	CCD R	55087.4110	0.002	48784	+0.100	
V759 Cyg	HMB	CCD V	55088.4880	0.002	48787	+0.096	
V759 Cyg	HMB	CCD R	55088.4891	0.002	48787	+0.098	
V759 Cyg	HMB	CCD V	55092.4551	0.001	48798	+0.103	
V759 Cyg	HMB	CCD R	55092.4554	0.002	48798	+0.103	
V759 Cyg	HMB	CCD R	55101.4524	0.004	48823	+0.099	
V759 Cyg	HMB	CCD V	55101.4532	0.002	48823	+0.100	
SX Del	VBR	vis	54711.430	0.01	5372	–0.004	
SX Del	VBR	vis	55060.410	0.015	5941	–0.018	
SX Del	VBR	vis	55063.496	0.01	5946	+0.002	
ZZ Del	VBR	vis	55058.498	0.01	33388	+0.020	
RW Dra	VBR	vis	55028.520	0.01	35336	+0.214	
RW Dra	VBR	vis	55044.423	0.015	35372	+0.172	
SU Dra	VBR	vis	55002.435	0.01	16808	+0.049	+0.011 (with quadratic elements of LB 2007)
WY Dra	VBR	vis	54356.401	0.01	26746	+0.067	
WY Dra	VBR	vis	55048.407	0.01	27921	+0.067	
WY Dra	VBR	vis	55058.417	0.01	27938	+0.065	
AE Dra	VBR	vis	55067.418	0.01	38281	+0.021	
AE Dra	VBR	vis	55070.433	0.01	38286	+0.022	
BT Dra	VBR	vis	55050.391	0.015	41306	–0.012	+0.005 (with eph. LB 2007)
RR Gem	SAL	CCD	54950.3844		34214	–0.405	
SZ Gem	VBR	vis	54931.368	0.01	55349	–0.063	–0.019 (with eph. LB 2007)
GI Gem	VBR	vis	54922.396	0.015	56722	+0.084	+0.007 idem
TW Her	VBR	vis	55044.496	0.01	83832	–0.014	–0.010 idem
TW Her	VBR	vis	55048.495	0.01	83842	–0.011	–0.007 idem
VX Her	VBR	vis	54999.547	0.01	73016	–0.438	–0.020 (with quadratic elements of LB 2007)
VX Her	VBR	vis	55041.445	0.01	73108	–0.434	–0.015 idem
VZ Her	VBR	vis	55041.442	0.01	41452	+0.072	–0.011 idem
VZ Her	VBR	vis	55048.488	0.01	41468	+0.073	–0.010 idem
AF Her	VBR	vis	54946.436	0.015	43283	–0.120	
AF Her	VBR	vis	54980.475	0.015	43337	–0.119	
DL Her	VBR	vis	54980.515	0.015	28349	+0.029	
DL Her	VBR	vis	54999.473	0.01	28381	+0.055	
DL Her	SAL	CCD	55051.4948		28469	+0.013	
V394 Her	VBR	vis	54923.578	0.015	57736	–0.130	–0.004 idem
V394 Her	VBR	vis	54982.431	0.01	57871	–0.145	–0.018 idem
TV Leo	VBR	vis	54943.411	0.01	26606	+0.105	
AQ Leo	SAL	CCD	54932.3913		23949	–0.071	
RR Lyr	DMT	vis	54941.507	0.008	21202	–0.643	
RR Lyr	DMT	vis	54953.458	0.01	21223	–0.596	
RR Lyr	DMT	vis	54974.400	0.017	21260	–0.628	
RR Lyr	DMT	vis	55038.464	0.014	21373	–0.620	
RR Lyr	DMT	vis	55055.458	0.01	21403	–0.632	
RR Lyr	DMT	vis	55072.483	0.014	21433	–0.613	
RR Lyr	SAL	CCD	55089.461		21463	–0.641	
RZ Lyr	VBR	vis	55074.384	0.015	27171	–0.007	+0.023 (with quadratic elements of LB 2007)
RZ Lyr	VBR	vis	55075.396	0.01	27173	–0.017	+0.013 idem
EZ Lyr	VBR	vis	55050.440	0.015	40239	–0.142	
EZ Lyr	VBR	vis	55059.383	0.01	40256	–0.129	
FN Lyr	VBR	vis	54976.480	0.01	40097	+0.034	
FN Lyr	VBR	vis	54995.474	0.015	40133	-0.042	
IO Lyr	VBR	vis	54982.476	0.01	26621	–0.041	–0.015 (with eph. LB 2007)
IO Lyr	VBR	vis	55075.399	0.01	26782	–0.035	–0.008 idem
KX Lyr	VBR	vis	55002.544	0.015	34864	+0.019	–0.011 idem
KX Lyr	VBR	vis	55047.509	0.015	34966	–0.026	–0.018 idem
NQ Lyr	VBR	vis	55063.405	0.01	63307	+0.008	

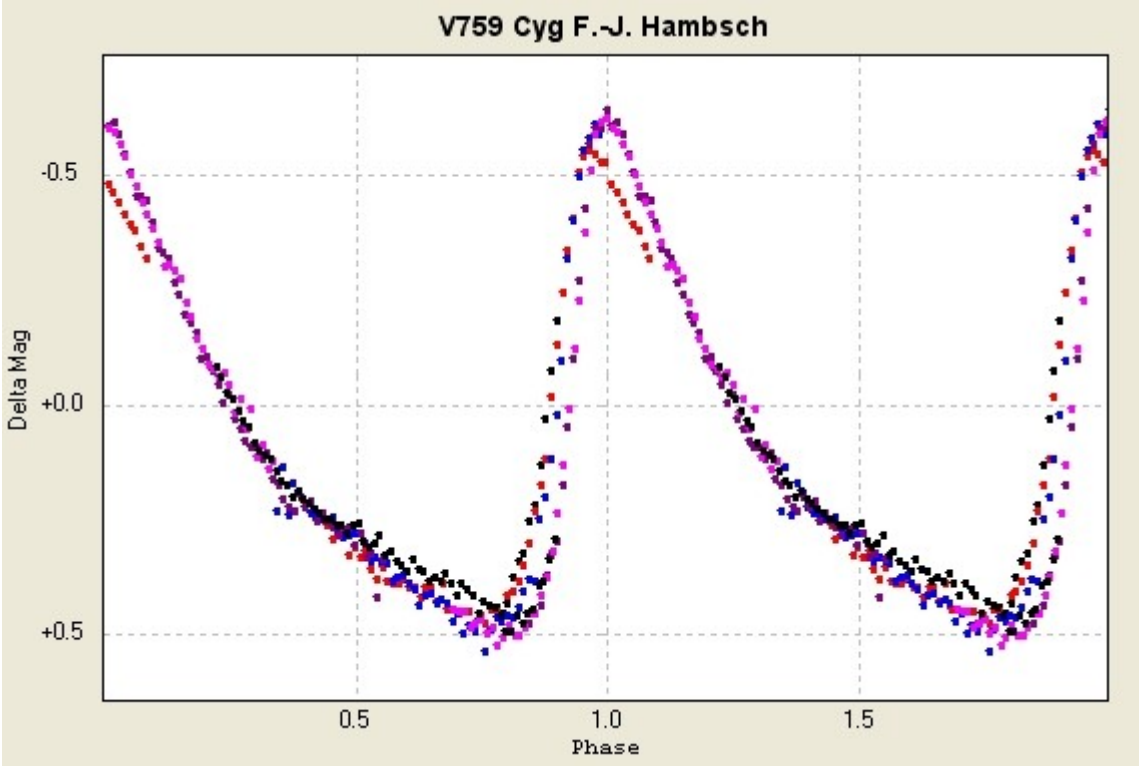
RRab	OBS.	MODE	HJD	ACC	E (GC 85)	O-C (G 85)	NOTES
NQ Lyr	VBR	vis	55070.440	0.01	63319	–0.010	
NR Lyr	VBR	vis	55070.449	0.01	27845	–0.031	
NR Lyr	VBR	vis	55072.502	0.01	27848	–0.024	
ST Oph	VBR	vis	55061.384	0.01	59142	–0.022	–0.020 (with eph. LB 2007)
ST Oph	VBR	vis	55070.395	0.01	59162	–0.018	–0.016 (with eph. LB 2007)
V816 Oph	VBR	vis	54982.533	0.01	48940	–0.106	
V816 Oph	VBR	vis	55059.436	0.01	49142	–0.103	
AV Peg	VBR	vis	55066.410	0.01	28885	+0.121	+0.005 (with quadratic elements of LB 2007)
AV Peg	VBR	vis	55067.595	0.01	28888	+0.135	+0.019 idem
CG Peg	VBR	vis	55028.489	0.01	34093	–0.050	–0.008 (with eph. LB 2007)
CG Peg	VBR	vis	55043.437	0.01	34125	–0.050	–0.009 idem
ES Peg	VBR	vis	55061.390	0.02	31856	+0.181	
ES Peg	VBR	vis	55063.515	0.015	31860	+0.151	
ES Peg	VBR	vis	55069.448	0.01	31871	+0.159	
TU Per	VBR	vis	55059.547	0.015	26829	–0.255	
TU Per	VBR	vis	55073.511	0.015	26852	–0.254	
ET Per	VBR	vis	55060.542	0.015	68214	+0.040	
ET Per	VBR	vis	55075.529	0.01	68252	-0.055	
AN Ser	VBR	vis	55002.438	0.015	77180	+0.000	–0.002 (with eph. LB 2007)
AT Ser	VBR	vis	54950.536	0.01	17617	+0.047	
CS Ser	VBR	vis	54945.495	0.015	45120	+0.034	+0.026 (with quadratic elements of LB 2007)
CS Ser	VBR	vis	54946.530	0.015	45122	+0.015	+0.008 idem
CE Vul	VBR	vis	55043.449	0.01	48226	–0.079	

RRC	OBS.	MODE	HJD	ACC	E(GC 85)	O-C (G85)	NOTES
TV Boo	SAL	CCD	54246.416		94820	+0.022	
TV Boo	SAL	CCD	54933.4351		97018	+0.036	
TV Boo	SAL	CCD	54952.4941		97079	+0.029	
CQ Boo	SAL	CCD	54941.3677		14165	–0.061	eph. A Paschke (1)
CQ Boo	SAL	CCD	54941.6517		14166	–0.059	idem
CQ Boo	SAL	CCD	54973.5059		14279	–0.057	idem
CQ Boo	SAL	CCD	54976.6121		14290	–0.052	idem
CQ Boo	SAL	CCD	54981.4344		14307	–0.022	idem
CQ Boo	SAL	CCD	54982.5260		14311	–0.058	idem
CQ Boo	SAL	CCD	54983.3962		14314	–0.033	idem
ST CVn	VBR	vis	54557.543	0.02	43053	+0.702	
ST CVn	VBR	vis	54923.452	0.015	44165	+0.713	
ST CVn	VBR	vis	54924.445	0.02	44168	+0.718	
RZ Cep	SAL	CCD	55052.4163		40228	–0.750	
RZ Cep	SAL	CCD	55085.457		40335	–0.739	
RZ Cep	SAL	CCD	55092.570		40358	–0.725	
RV CrB	VBR	vis	54976.502	0.01	36338	+1.759	second maximum
RV CrB	VBR	vis	54980.455	0.015	36350	+1.733	first maximum
VZ Dra	VBR	vis	55044.437	0.015	36393	–0.235	
VZ Dra	VBR	vis	55063.392	0.01	36452	–0.221	
DD Dra	VBR	vis	54573.521	0.02	22246	+0.181	eph. IBVS 3213
DD Dra	VBR	vis	54597.410	0.02	22319	+0.218	idem
DD Dra	VBR	vis	54606.488	0.02	22347	+0.147	idem
DD Dra	VBR	vis	55058.417	0.02	23730	+0.180	idem
SS Psc	VBR	vis	55073.4842	0.01	124893	–0.122	
SX UMa	SAL	CCD	54955.3739		32059	+0.151	

(1) CQ Boo, elements of period : JJh 50948.5485 + 0.2818835208 (A. Paschke)

LIGHT CURVE OF V759 Cyg

Here is a fitted CCD V light curve of V759 Cyg where we can see that the Blazhko effect (noted in the GCVS) produces at one and the same time shifts of the O-C and different heights of the maxima. That star shall be studied into more details in a further paper.



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ERRATA :

The maximum of V759 Cyg (HDJ 54597.512) published in GEOS Circular RR 38 is very probably erroneous and the maxima of TV Boo, HJD 53498.5260, 53499.4628 and 54320.4976, have to be deleted in consequence of errors in what concerns the determination of the times.