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LIST OF CCD AND VISUAL MAXIMA OF RR LYRAE STARS

ABSTRACT

206 instants of maximum light have been determined for 86 RR Lyrae variable stars from CCD measurements or from visual estimates. They are listed with the O-C relative to the most probable cycle number.

RESUME

206 instants de maxima de 86 étoiles variables du type RR Lyrae 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.

RIASSUNTO

206 massimi di 86 stelle variabili del tipo RR Lyrae 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.

RESUMEN

206 instantes de máximos de 86 estrellas variables del tipo RR Lyrae 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.

OBSERVATIONS

Most of the observations cover a time interval going from October 2004 (JD 2453300) to March 2007 (JD 2454170) and were selected from lists issued by GEOS as Notes Circulaires.

The observers are : R. Boninsegna (BNN), E. Denoux (DNX), M. Dumont (DMT), J. Jurcsik (JUR), J.M. Llapasset (LLA), C. Mouttet, J. Nicolas (NCL), G.W. Preston (PRE), H.A. Smith (SMI), R. Takvorian and J. Vandenbroere (VBR).

The maxima of JUR, PRE and SMI were determined by VBR from the CCD measurements published in Jurcsik et al. (2006a and b), in Preston et al. (2006) and in Smith et al. (1994). The other times were generally 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 GEOS database (Le Borgne et al., 2000 – 2007) was examined to avoid any unlikelihood. The O-C curves showed by J.F. Le Borgne in the database and by J. Vandenbroere (2005 – 2006) in several Notes Circulaires GEOS have been used to choose the cycle numbers or the most probable solution extending the GEOS Circulars RR 14, 15, 16, 17, 19, 23 and 27 has been taken. No complete bibliography research was made for some of the stars.

LIST

STARS	OBS.	MODE	HJD	ACC	E(GC 85)	O-C (G 85) (days)	NOTES
SW And	VBR	vis	54023.467	±0.01	81151	- 0.744	+0.065 (O-C with non lin. term of GCVS)
SW And	VBR	vis	54024.352	±0.01	81153	- 0.744	+0.065 idem
XX And	VBR	vis	54025.408	±0.02	20668	+0.233	
XX And	VBR	vis	54085.378	±0.02	20751	+0.215	
AT And	VBR	vis	54023.455	±0.02	18933	- 0.012	
AT And	VBR	vis	54025.322	±0.02	18936	+0.004	
CI And	LLA	CCD	54025.3947	±0.0005	37768	+0.098	59 measurements
CI And	VBR	vis	54025.407	±0.02	37768	+0.111	
DR And	VBR	vis	54025.442	±0.01	29843	- 0.007	
SW Aqr	DNX	CCD	54023.3722	±0.001	62978	- 0.001	185 measurements

STARS	OBS.	MODE	HJD	ACC	E (GC 85)	O-C (G 85)	NOTES
SW Aqr	VBR	vis	54024.298	±0.02	62980	+0.007	
SW Aqr	VBR	vis	54058.289	±0.02	63054	+0.009	
CP Aqr	VBR	vis	53998.372	±0.01	34773	- 0.109	
CP Aqr	VBR	vis	54024.323	±0.01	34829	- 0.108	
AA Aql	VBR	vis	53989.362	±0.01	81932	+0.043	
AA Aql	VBR	vis	53998.405	±0.01	81957	+0.041	
X Ari	VBR	vis	53683.363	±0.01	24725	+0.292	
TZ Aur	JUR	CCD	53334.613	±0.0015	85357	+0.010	IBVS 5709
TZ Aur	JUR	CCD	53335.396	±0.0015	85359	+0.010	idem
TZ Aur	JUR	CCD	53336.569	±0.0015	85362	+0.008	idem
TZ Aur	JUR	CCD	53343.621	±0.0015	85380	+0.010	idem
TZ Aur	JUR	CCD	53347.538	±0.0015	85390	+0.010	idem
TZ Aur	JUR	CCD	53358.505	±0.0015	85418	+0.010	idem
TZ Aur	VBR	vis	54085.465	±0.01	87274	+0.022	
TZ Aur	VBR	vis	54147.350	±0.01	87432	+0.023	
BH Aur	JUR	CCD	53744.315	±0.0015	24102	- 0.003	IBVS 5709
BH Aur	JUR	CCD	53745.229	±0.0015	24104	- 0.002	idem
BH Aur	JUR	CCD	53749.333	±0.0015	24113	- 0.002	idem
BH Aur	JUR	CCD	53755.261	±0.0015	24126	- 0.004	idem
BH Aur	JUR	CCD	53758.453	±0.0015	24133	- 0.004	idem
BH Aur	JUR	CCD	53759.366	±0.0015	24135	- 0.003	idem
BH Aur	JUR	CCD	53760.277	±0.0015	24137	- 0.005	idem
RS Boo	VBR	vis	53903.457	±0.01	32154	+0.010	
RS Boo	VBR	vis	53920.442	±0.01	32199	+0.015	
RS Boo	DMT	vis	53932.511	±0.008	32231	+0.009	
SW Boo	VBR	vis	53879.445	±0.02	22021	+0.283	
SW Boo	VBR	vis	53919.498	±0.01	22099	+0.281	
SZ Boo	VBR	vis	53844.482	±0.01	50121	- 0.000	
TV Boo	VBR	vis	54123.640	±0.01	94427	+0.082	
TW Boo	VBR	vis	53893.442	±0.01	50730	- 0.043	
TW Boo	VBR	vis	53918.446	±0.01	50777	- 0.056	
UU Boo	VBR	vis	53899.468	±0.01	38989	+0.185	
UU Boo	VBR	vis	53904.488	±0.01	39000	+0.179	
DG Boo	VBR	vis	52733.607	±0.02	7900	+0.137	
DG Boo	VBR	vis	53143.507	±0.02	8794	+0.179	
AH Cam	SMI	CCD	47897.567	±0.003	24864	+0.099	A.J., 1994, 107, 679
AH Cam	SMI	CCD	47898.676	±0.003	24867	+0.102	idem
AH Cam	SMI	CCD	47899.769	±0.002	24870	+0.089	idem
AH Cam	SMI	CCD	48569.746	±0.003	26687	+0.087	idem
AH Cam	SMI	CCD	48602.570	±0.003	26776	+0.095	idem
AH Cam	SMI	CCD	48633.507	±0.004	26860	+0.058	idem
AH Cam	SMI	CCD	48640.533	±0.005	26879	+0.079	idem
AH Cam	VBR	vis	54000.590	±0.01	41416	- 0.380	
AH Cam	DNX	CCD	54023.4464	±0.0004	41478	- 0.385	270 measurements
AH Cam	VBR	vis	54039.302	±0.01	41521	- 0.385	
SS Cnc	JUR	CCD	53390.256	±0.002	82517	+0.044	A.J., 2006, 132, 61
SS Cnc	JUR	CCD	53390.626	±0.002	82518	+0.047	idem
SS Cnc	JUR	CCD	53393.562	±0.002	82526	+0.044	idem
SS Cnc	JUR	CCD	53400.542	±0.002	82545	+0.044	idem
SS Cnc	JUR	CCD	53403.480	±0.002	82553	+0.044	idem
SS Cnc	JUR	CCD	53406.423	±0.002	82561	+0.048	idem
SS Cnc	JUR	CCD	53407.524	±0.002	82564	+0.047	idem
SS Cnc	JUR	CCD	53408.624	±0.002	82567	+0.045	idem
SS Cnc	JUR	CCD	53410.460	±0.002	82572	+0.044	idem
SS Cnc	JUR	CCD	53411.562	±0.002	82575	+0.044	idem
SS Cnc	JUR	CCD	53412.301	±0.003	82577	+0.049	idem
SS Cnc	JUR	CCD	53431.397	±0.002	82629	+0.043	idem
SS Cnc	JUR	CCD	53443.522	±0.002	82662	+0.046	idem
SS Cnc	JUR	CCD	53445.358	±0.002	82667	+0.045	idem

STARS	OBS.	MODE	HJD	ACC	E (GC 85)	O-C (G 85)	NOTES
SS Cnc	JUR	CCD	53446.459	±0.002	82670	+0.044	A.J., 2006, 132, 61
SS Cnc	JUR	CCD	53450.503	±0.002	82681	+0.047	idem
SS Cnc	JUR	CCD	53452.335	±0.002	82686	+0.043	idem
SS Cnc	JUR	CCD	53453.440	±0.002	82689	+0.046	idem
SS Cnc	JUR	CCD	53460.421	±0.003	82708	+0.047	idem
SS Cnc	JUR	CCD	53463.356	±0.002	82716	+0.044	A.J., 2006, 132, 61
SS Cnc	JUR	CCD	53464.460	±0.002	82719	+0.046	idem
SS Cnc	JUR	CCD	53466.297	±0.002	82724	+0.046	idem
SS Cnc	JUR	CCD	53467.397	±0.002	82727	+0.044	idem
SS Cnc	VBR	vis	54147.352	±0.01	84578	+0.056	
SS Cnc	VBR	vis	54172.323	±0.01	84646	+0.048	
TT Cnc	VBR	vis	53828.426	±0.01	24641	+0.102	
TT Cnc	VBR	vis	54147.322	±0.01	25207	+0.086	
AQ Cnc	VBR	vis	54171.373	±0.01	38595	- 0.073	
EF Cnc	VBR	vis	53768.377	±0.02	6131	- 0.018	doubtful E number
EF Cnc	VBR	vis	53792.324	±0.02	6212	- 0.022	idem
EF Cnc	VBR	vis	53828.398	±0.02	6334	- 0.022	idem
EZ Cnc	VBR	vis	54124.429	±0.02	14678	- 0.042	
W CVn	VBR	vis	53831.400	±0.01	58774	- 0.127	+0.000 (O-C with non lin. term of GCVS)
W CVn	VBR	vis	53858.426	±0.01	58823	- 0.137	- 0.010 idem
RU CVn	VBR	vis	53899.468	±0.01	33870	+0.196	
RZ CVn	VBR	vis	53813.444	±0.01	23739	- 0.177	
SV CVn	VBR	vis	53163.490	±0.01	19775	- 0.196	
SV CVn	VBR	vis	53471.500	±0.01	20236	- 0.163	
IU Cas	VBR	vis	53621.497	±0.02	38302	+0.517	
IU Cas	VBR	vis	53671.490	±0.02	38379	+0.507	
V 363 Cas	VBR	vis	53998.392	±0.01	32670	+0.492	
V 363 Cas	VBR	vis	54085.306	±0.01	32829	+0.507	
AQ Cep	VBR	vis	54066.469	±0.01	39816	+0.069	
RR Cet	VBR	vis	54024.485	±0.01	37689	+0.003	
RR Cet	VBR	vis	54085.319	±0.01	37799	+0.004	
ST Com	VBR	vis	53741.674	±0.01	17560	- 0.019	
ST Com	VBR	vis	53879.431	±0.01	17790	- 0.016	
TV CrB	VBR	vis	53831.570	±0.01	37996	+0.020	
CK Del	VBR	vis	53697.288	±0.02	43133	+0.063	
CK Del	VBR	vis	53935.533	±0.02	43671	+0.087	
RW Dra	VBR	vis	53895.515	±0.01	32778	+0.191	
RW Dra	VBR	vis	53899.512	±0.01	32787	+0.201	
SU Dra	VBR	vis	53831.506	±0.01	15035	+0.044	
SU Dra	VBR	vis	53903.487	±0.01	15144	+0.040	
VZ Dra	VBR	vis	53933.447	±0.01	32932	- 0.137	+0.051 (O-C eph. GEOS RR 9)
BC Dra	VBR	vis	53933.480	±0.02	16197	+0.065	
BK Dra	LLA	CCD	53900.4339	±0.0008	47928	- 0.153	248 measurements
BK Dra	ROB	CCD	53900.4362	±0.001	47928	- 0.151	51 measurements
BT Dra	VBR	vis	53935.440	±0.01	39412	- 0.015	
BT Dra	VBR	vis	54174.440	±0.01	39818	- 0.016	
RR Gem	VBR	vis	53813.349	±0.01	31352	- 0.338	
RR Gem	VBR	vis	54167.342	±0.02	32243	- 0.349	
TY Gru	PRE	CCD	53144.795	±0.005	2359	- 0.018	A.J., 2006, 132, 1714
TY Gru	PRE	CCD	53153.914	±0.002	2375	- 0.020	idem
TW Her	VBR	vis	53898.469	±0.01	80964	+0.012	
TW Her	VBR	vis	53904.451	±0.01	80979	+0.000	
VX Her	VBR	vis	53903.515	±0.02	70609	- 0.387	- 0.016 (O-C with non lin. term of GCVS)
VX Her	VBR	vis	53918.535	±0.01	70642	- 0.394	- 0.023 idem
VZ Her	VBR	vis	53904.517	±0.01	38870	+0.074	
VZ Her	VBR	vis	53919.489	±0.01	38904	+0.075	

STARS	OBS.	MODE	HJD	ACC	E (GC 85)	O-C (G 85)	NOTES
BD Her	VBR	vis	53636.353	±0.02	44330	+0.067	
DL Her	VBR	vis	53918.551	±0.02	26554	+0.037	
DL Her	VBR	vis	53937.486	±0.01	26586	+0.040	
V 394 Her	VBR	vis	53564.434	±0.02	54619	- 0.084	
V 394 Her	VBR	vis	53612.371	±0.02	54729	- 0.113	
V 394 Her	VBR	vis	53932.422	±0.02	55463	- 0.128	
DD Hya	VBR	vis	54124.369	±0.01	24770	- 0.127	
RR Leo	VBR	vis	53858.418	±0.01	23349	+0.085	
RR Leo	VBR	vis	54172.380	±0.01	24043	+0.086	
RR Leo	VBR	vis	53464.372	±0.02	22478	+0.073	
ST Leo	VBR	vis	54084.615	±0.01	54733	- 0.018	
V LMi	VBR	vis	54152.424	±0.01	63653	+0.026	
V LMi	VBR	vis	54171.463	±0.02	63688	+0.028	
Y LMi	VBR	vis	53120.439	±0.02	33490	- 0.134	
Y LMi	VBR	vis	54171.413	±0.02	35494	- 0.200	
Y LMi	VBR	vis	54172.477	±0.01	35496	- 0.185	
TW Lyn	JUR	CCD	53361.576	±0.0015	17306	+0.049	IBVS 5709
TW Lyn	JUR	CCD	53362.540	±0.0015	17308	+0.049	idem
TW Lyn	JUR	CCD	53370.731	±0.0015	17325	+0.048	idem
TW Lyn	JUR	CCD	53375.551	±0.0015	17335	+0.050	idem
TW Lyn	JUR	CCD	53377.476	±0.0015	17339	+0.047	idem
TW Lyn	JUR	CCD	53380.367	±0.0015	17345	+0.047	idem
TW Lyn	JUR	CCD	53384.707	±0.0015	17354	+0.051	idem
TW Lyn	JUR	CCD	53387.597	±0.0015	17360	+0.049	idem
RR Lyr	DMT	vis	53932.499	±0.006	19422	- 0.626	+0.060 (O-C with eph. GCVS 74)
RR Lyr	DMT	vis	53986.440	±0.008	19517	- 0.537	+0.152 idem
RR Lyr	DMT	vis	53991.455	±0.007	19526	- 0.624	+0.065 idem
RR Lyr	DMT	vis	53999.391	±0.009	19540	- 0.624	+0.066 idem
RR Lyr	DMT	vis	54025.494	±0.008	19586	- 0.597	+0.095 idem
EZ Lyr	VBR	vis	53897.502	±0.01	38044	- 0.118	
EZ Lyr	VBR	vis	53989.441	±0.01	38219	- 0.101	
FN Lyr	VBR	vis	53654.286	±0.01	37590	+0.025	
FN Lyr	VBR	vis	53918.499	±0.01	38091	+0.012	
IO Lyr	VBR	vis	53893.455	±0.01	24734	- 0.031	
IO Lyr	VBR	vis	53897.497	±0.01	24741	- 0.029	
NR Lyr	VBR	vis	53618.431	±0.01	25716	- 0.008	
NR Lyr	VBR	vis	53933.537	±0.01	26178	- 0.000	
ST Oph	VBR	vis	53931.445	±0.01	56633	- 0.018	
ST Oph	VBR	vis	53991.340	±0.01	56766	- 0.020	
V 452 Oph	VBR	vis	53143.546	±0.01	29589	- 0.004	
V 816 Oph	VBR	vis	53920.439	±0.02	46150	- 0.062	
V 816 Oph	VBR	vis	53934.501	±0.02	46187	- 0.086	
V 964 Ori	VBR	vis	54115.435	±0.02	44814	- 0.361	
AV Peg	NCL	CCD	53969.4385	±0.0005	26075	+0.102	116 measurements
BH Peg	VBR	vis	53937.514	±0.01	22734	- 0.101	
BH Peg	VBR	vis	53991.333	±0.01	22818	- 0.125	
BT Peg	VBR	vis	53999.404	±0.01	31507	+0.082	
CG Peg	VBR	vis	53919.523	±0.02	31719	- 0.030	
CG Peg	VBR	vis	53934.451	±0.02	31751	- 0.050	
CG Peg	VBR	vis	53999.399	±0.01	31890	- 0.034	
ES Peg	VBR	vis	53935.546	±0.01	29766	+0.161	
ET Peg	VBR	vis	53654.417	±0.01	29905	- 0.042	
AR Per	VBR	vis	54000.607	±0.01	62892	+0.066	+0.019 (O-C with non lin. term of GCVS)
AN Ser	ROB	CCD	53891.468	±0.002	75052	- 0.001	140 measurements
AN Ser	VBR	vis	53903.490	±0.01	75075	+0.013	
AN Ser	VBR	vis	53904.537	±0.01	75077	+0.016	
BH Ser	VBR	vis	53879.433	±0.01	28528	+0.087	

STARS	OBS.	MODE	HJD	ACC.	E(GC 85)	O-C (G85)	NOTES
SS Tau	VBR	vis	53759.405	±0.01	39807	+0.803	
SS Tau	VBR	vis	53765.326	±0.01	39823	+0.805	
BR Tau	VBR	vis	54066.447	±0.01	45006	+0.026	
U Tri	VBR	vis	53766.326	±0.01	77509	- 0.034	
RV UMa	NCL	CCD	53899.4813	±0.001	18852	+0.103	117 measurements
RV UMa	VBR	vis	54171.434	±0.01	19433	+0.113	
SX UMa	VBR	vis	54169.427	±0.01	29500	+ 0.119	
TU UMa	VBR	vis	53765.500	±0.02	19607	- 0.009	
TU UMa	VBR	vis	53813.439	±0.01	19693	- 0.028	
TU UMa	VBR	vis	54123.497	±0.01	20249	- 0.029	
AB UMa	VBR	vis	53094.441	±0.02	28131	+0.100	
AB UMa	VBR	vis	54115.510	±0.02	29834	+0.090	
BH UMa	VBR	vis	53768.417	±0.02	2046	- 0.008	eph. IBVS 5599
BH UMa	VBR	vis	54124.400	±0.02	3065	- 0.012	idem
EX UMa	VBR	vis	53410.462	±0.03	8101	- 0.006	eph. IBVS 4241
EX UMa	VBR	vis	53764.400	±0.03	8753	+0.005	idem
EX UMa	VBR	vis	53765.504	±0.03	8755	+0.024	idem
EX UMa	PDM	CCD	54120.520	±0.003	9409	+0.028	idem no filter
UV Vir	VBR	vis	53831.440	±0.01	23572	+0.014	
AV Vir	VBR	vis	53844.488	±0.01	18837	+0.010	
BB Vir	VBR	vis	53909.444	±0.01	30345	+0.245	
FH Vul	VBR	vis	53935.500	±0.01	44172	- 0.100	
FH Vul	VBR	vis	53937.539	±0.02	44177	- 0.088	

Note : PDM = Pic du Midi (France) and observers are R. Boninsegna, C. Mouttet and R. Takvorian.

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