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THE GEOS RR Lyr SURVEY

Fourth list of maxima of RR Lyr stars observed by the automated telescope TAROT

(GEOS Circular RR 26)

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We present here the fourth list of light maxima of RR Lyrae stars from the GEOS RR Lyr Survey, a GEOS program (<http://www.upv.es/geos/>) (Boninsegna et al., 2002) of automated observations of RR Lyr stars started in January 2004. We are using the 25cm automatic telescope TAROT (<http://tarot.obs-hp.fr>) (Boër et al., 2001, Bringer et al., 1999) located in Calern Observatory (Observatoire de la Côte d’Azur, Nice University, France). Images are obtained by a 2048×2048 Marconi 42-40 thin back illuminated CCD. Field of view is 1°86×1°86. Data reduction, from bias subtraction and flatfielding to photometry using SExtractor (Bertin and Arnouts, 1996), is performed automatically. The aim of this legacy project for the study of period variations of RR Lyr stars is to monitor maxima of light of these stars in order to feed the GEOS RR Lyr web database (<http://dbRR.ast.obs-mip.fr>).

The present list contains 178 maxima observed with no filter between July and December 2005 (Table 1). The maxima are determined by fitting a polynomial function on the data points. The uncertainties on individual maxima are estimated from the data sampling of each maximum. The nominal sampling (two consecutive 30s exposures taken every 10 minutes on a time baseline of 2 hours centered around the predicted maximum time) may be altered by local events (weather or telescope operation). This results uncertainties from 0.002 to 0.010 day. For a well observed star, the mean uncertainty on maxima is about 0.003 day (4.3 minutes). The $O - C$'s are computed with the GCVS elements (Kholopov et al. 1985) and are displayed in table 1 in column “ $O - C$ ”. When no elements are available in the GCVS, the reference of the elements is given as a footnote of Table 1. XZ Cyg is also an exception for which we use the elements from Baldwin and Samolyk (2003).

Table 1: maxima of RR Lyrae stars

Variable	Maximum HJD 24. . .	$O - C$ (days)	E	Variable	Maximum HJD 24. . .	$O - C$ (days)	E
SW And	53613.478±0.002	-0.298	80223.	BH Aur	53704.637±0.002	-0.002	24015.
SW And	53624.535±0.003	-0.298	80248.	BH Aur	53715.582±0.003	-0.003	24039.
SW And	53644.439±0.002	-0.297	80293.	AH Cam	53614.532±0.002	-0.004	40368.
SW And	53667.437±0.002	-0.297	80345.	AH Cam	53624.491±0.004	-0.001	40395.
SW And	53671.416±0.002	-0.299	80354.	AH Cam	53655.466±0.006	0.000	40479.
SW And	53682.471±0.004	-0.301	80379.	AH Cam	53696.400±0.002	0.005	40590.
SW And	53695.300±0.003	-0.298	80408.	AH Cam	53723.301±0.002	-0.012	40663.
SW And	53710.334±0.002	-0.301	80442.	AH Cam	53725.500±0.002	-0.025	40669.
SW And	53721.391±0.002	-0.301	80467.	RW Cnc	53712.549±0.002	0.197	25870.
XX And	53597.527±0.003	0.218	20076.	RW Cnc	53718.570±0.002	0.199	25881.
XX And	53623.538±0.005	0.211	20112.	TT Cnc	53705.586±0.002	0.094	24423.
XX And	53644.508±0.002	0.221	20141.	TT Cnc	53714.597±0.002	0.090	24439.
XX And	53699.435±0.002	0.219	20217.	TT Cnc	53718.543±0.004	0.092	24446.
XX And	53712.442±0.003	0.217	20235.	AN Cnc	53714.508±0.002	0.133	28139.
XX And	53720.393±0.002	0.217	20246.	AN Cnc	53733.514±0.004	0.128	28174.
XX And	53733.402±0.002	0.217	20264.	AS Cnc	53715.546±0.003	-0.285	23506.
AT And	53588.541±0.003	-0.002	18228.	EZ Cnc ¹	53691.632±0.005	-0.023	11979.
AT And	53614.454±0.010	0.001	18270.	EZ Cnc ¹	53708.544±0.002	-0.030	12010.
AT And	53630.489±0.003	-0.004	18296.	EZ Cnc ¹	53714.544±0.003	-0.033	12021.
AT And	53669.361±0.010	0.003	18359.	AL CMi	53714.497±0.010	0.445	31093.
AT And	53698.345±0.005	-0.008	18406.	IU Cas	53695.516±0.010	-0.143	38417.
AT And	53701.436±0.004	-0.002	18411.	V363 Cas	53616.384±0.005	0.512	31971.
AT And	53711.303±0.003	-0.006	18427.	V363 Cas	53657.364±0.005	0.502	32046.
CI And	53644.402±0.003	0.094	36982.	V363 Cas	53669.392±0.005	0.506	32068.
CI And	53669.607±0.003	0.094	37034.	RR Cet	53623.538±0.004	0.002	36964.
CI And	53670.578±0.002	0.096	37036.	RR Cet	53644.556±0.005	0.005	37002.
CI And	53671.546±0.003	0.094	37038.	RR Cet	53669.439±0.005	0.001	37047.
CI And	53723.406±0.002	0.089	37145.	RR Cet	53695.435±0.005	0.005	37094.
DR And	53615.472±0.003	-0.028	29115.	RR Cet	53699.307±0.003	0.006	37101.
DR And	53624.489±0.006	-0.020	29131.	RR Cet	53705.388±0.001	0.004	37112.
DR And	53699.398±0.002	-0.006	29264.	RR Cet	53710.363±0.005	0.001	37121.
DR And	53703.341±0.002	-0.005	29271.	RR Cet	53720.318±0.003	0.002	37139.
DR And	53708.405±0.002	-0.009	29280.	UY Cyg	53558.504±0.002	0.055	55510.
DR And	53712.342±0.002	-0.014	29286.	UY Cyg	53581.489±0.003	0.051	55551.
SW Aqr	53570.505±0.005	0.005	61992.	UY Cyg	53595.507±0.003	0.051	55576.
SW Aqr	53581.522±0.003	-0.001	62016.	UY Cyg	53613.448±0.003	0.050	55608.
SW Aqr	53587.497±0.002	0.003	62029.	XZ Cyg ²	53587.461±0.002	0.005	10752.
SW Aqr	53598.520±0.002	0.003	62053.	XZ Cyg ²	53608.449±0.003	-0.004	10797.
SW Aqr	53616.429±0.002	-0.001	62092.	XZ Cyg ²	53614.516±0.004	-0.003	10810.
SX Aqr	53585.509±0.003	-0.101	25740.	XZ Cyg ²	53615.451±0.002	-0.001	10812.
SX Aqr	53643.365±0.005	-0.102	25848.	XZ Cyg ²	53630.388±0.005	0.005	10844.
TZ Aqr	53583.466±0.003	0.000	28072.	DM Cyg	53568.522±0.004	0.059	26165.
TZ Aqr	53615.467±0.002	0.014	28128.	DM Cyg	53600.426±0.003	0.054	26242.
CP Aqr	53566.486±0.008	-0.099	33841.	DM Cyg	53616.378±0.003	0.051	26280.
CP Aqr	53585.481±0.002	-0.104	33882.	DM Cyg	53671.382±0.002	0.054	26411.
CP Aqr	53598.457±0.006	-0.103	33910.	V939 Cyg ³	53608.518±0.005	0.031	9857.
AA Aql	53567.508±0.002	0.032	80766.	V939 Cyg ³	53615.492±0.003	0.029	9875.
AA Aql	53583.426±0.003	0.032	80810.	BV Del	53558.489±0.005	0.022	66197.
V341 Aql	53566.498±0.002	0.029	21401.	DU Del	53596.497±0.010	0.185	43160.
V341 Aql	53581.521±0.003	0.024	21427.	DU Del	53613.450±0.010	0.200	43186.
V920 Aql	53581.520±0.002	-0.260	38412.	DX Del	53595.521±0.003	0.054	30105.
X Ari	53698.352±0.005	0.305	24748.	DX Del	53596.467±0.002	0.055	30107.
X Ari	53705.514±0.002	0.304	24759.	DX Del	53613.480±0.004	0.054	30143.
X Ari	53711.377±0.002	0.307	24768.	RW Dra	53554.425±0.004	0.147	32008.
TZ Aur	53705.531±0.001	0.013	86304.	BC Dra	53566.501±0.006	0.069	15687.
BH Aur	53648.538±0.004	-0.002	23892.	BC Dra	53597.455±0.005	0.082	15729.
BH Aur	53699.619±0.004	-0.003	24004.	BC Dra	53615.436±0.003	0.073	15755.

Table 1 (cont.): maxima of RR Lyrae stars

Variable	Maximum HJD 24. . .	$O - C$ (days)	E	Variable	Maximum HJD 24. . .	$O - C$ (days)	E
BC Dra	53630.550±0.010	0.076	15776.	X LMi	53712.556±0.003	0.190	21207.
BC Dra	53643.484±0.010	0.058	15794.	TT Lyn	53701.506±0.004	-0.029	28538.
BC Dra	53669.400±0.010	0.069	15830.	TT Lyn	53719.426±0.002	-0.032	28568.
BC Dra	53695.313±0.010	0.077	15865.	TW Lyn	53705.626±0.002	0.051	18020.
BC Dra	53705.387±0.002	0.077	15880.	TW Lyn	53718.637±0.002	0.052	18047.
BD Dra	53597.464±0.005	0.160	20071.	RZ Lyr	53597.407±0.003	-0.005	24282.
BD Dra	53643.408±0.008	0.158	20149.	CN Lyr	53598.467±0.004	0.015	22150.
BD Dra	53699.393±0.003	0.183	20244.	NQ Lyr	53567.480±0.002	0.006	60762.
BD Dra	53705.293±0.002	0.193	20254.	V452 Oph	53557.527±0.003	0.005	30332.
BD Dra	53712.344±0.004	0.175	20266.	VV Peg	53583.444±0.003	-0.024	29063.
BD Dra	53715.271±0.003	0.157	20271.	VV Peg	53624.468±0.004	-0.025	29147.
BD Dra	53719.395±0.005	0.158	20278.	VV Peg	53669.397±0.003	-0.027	29239.
BD Dra	53727.671±0.005	0.187	20292.	AV Peg	53582.571±0.002	0.096	25084.
BK Dra	53582.488±0.002	-0.151	47391.	AV Peg	53616.533±0.005	0.095	25171.
BK Dra	53585.447±0.002	-0.153	47396.	AV Peg	53643.471±0.002	0.098	25240.
BK Dra	53601.435±0.003	-0.151	47423.	BH Peg	53587.530±0.004	-0.103	22188.
BK Dra	53608.540±0.002	-0.151	47435.	BH Peg	53596.511±0.004	-0.096	22202.
RR Gem	53690.573±0.002	-0.345	31043.	BH Peg	53612.525±0.002	-0.106	22227.
RR Gem	53711.635±0.002	-0.340	31096.	CG Peg	53557.477±0.002	-0.043	30944.
RR Gem	53715.610±0.002	-0.339	31106.	CG Peg	53599.517±0.002	-0.046	31034.
GI Gem	53690.610±0.002	0.071	53879.	CG Peg	53613.534±0.002	-0.043	31064.
GI Gem	53733.502±0.002	0.070	53978.	CV Peg	53616.447±0.005	-0.057	51293.
VZ Her	53554.443±0.003	0.061	38075.	CV Peg	53643.464±0.008	-0.058	51341.
VZ Her	53557.526±0.003	0.061	38082.	DZ Peg	53595.529±0.003	0.156	32443.
GO Hya	53733.513±0.010	-0.049	44127.	DZ Peg	53612.535±0.002	0.157	32471.
CQ Lac	53698.459±0.010	0.109	30098.	DZ Peg	53696.342±0.004	0.150	32609.
RR Leo	53708.666±0.004	0.075	23018.	ES Peg	53558.462±0.003	0.147	29066.
RR Leo	53718.614±0.002	0.070	23040.	AR Per	53696.324±0.002	0.051	62177.
V LMi	53708.589±0.002	0.029	62837.	AR Per	53723.563±0.003	0.055	62241.
V LMi	53714.573±0.002	0.030	62848.	AB UMa	53733.590±0.020	0.100	29196.
V LMi	53720.556±0.002	0.029	62859.	BN Vul	53546.450±0.005	0.060	13492.
X LMi	53701.601±0.003	0.184	21191.	BN Vul	53587.450±0.004	0.065	13561.
ref.:	1 Boninsegna, 1990						
	2 Baldwin and Samolyk, 2003						
	3 Agerer and Moschner, 1996						

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