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THE GEOS RR Lyr SURVEY

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

(GEOS Circular RR 25)

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We present here the third 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). 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://www.ast.obs-mip.fr/people/leborgne/dbRR`).

The present list contains 179 maxima observed with no filter between January and June 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 measurements 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.

Table 1: maxima of RR Lyrae stars

Variable	Maximum HJD 24...	$O-C$ (days)	E	Variable	Maximum HJD 24...	$O-C$ (days)	E
V921 Aql	53540.584±0.010	−0.215	36949.	S Com	53494.433±0.003	−0.092	21889.
BH Aur	53378.534±0.006	0.000	23300.	ST Com	53486.520±0.005	−0.029	17134.
RS Boo	53421.595±0.005	0.010	30877.	ST Com	53492.515±0.004	−0.024	17144.
RS Boo	53463.481±0.002	0.011	30988.	TV CrB	53461.509±0.005	0.020	37363.
RS Boo	53472.536±0.005	0.010	31012.	TV CrB	53482.563±0.005	0.028	37399.
RS Boo	53480.455±0.002	0.005	31033.	TV CrB	53478.467±0.003	0.025	37392.
RS Boo	53486.495±0.003	0.008	31049.	TV CrB	53495.421±0.004	0.025	37421.
RS Boo	53489.512±0.002	0.006	31057.	TV CrB	53516.464±0.005	0.022	37457.
RS Boo	53494.416±0.004	0.005	31069.	UY Cyg	53539.439±0.004	0.054	55476.
RS Boo	53529.513±0.002	0.009	31162.	XZ Cyg	53524.473±0.004	0.228	20141.
RS Boo	53532.527±0.003	0.004	31171.	DM Cyg	53542.494±0.004	0.063	26103.
ST Boo	53488.458±0.002	0.086	55130.	DM Cyg	53550.467±0.002	0.058	26123.
ST Boo	53511.469±0.002	0.073	55167.	V939 Cyg [2]	53524.403±0.002	0.011	9640.
ST Boo	53516.448±0.002	0.073	55174.	RW Dra	53464.511±0.002	0.145	31804.
ST Boo	53521.421±0.003	0.068	55183.	RW Dra	53480.482±0.002	0.171	31841.
ST Boo	53529.511±0.003	0.068	55196.	RW Dra	53487.580±0.005	0.182	31857.
ST Boo	53539.473±0.004	0.074	55212.	RW Dra	53495.548±0.003	0.178	31875.
ST Boo	53544.437±0.003	0.059	55220.	RW Dra	53511.465±0.005	0.150	31911.
TW Boo	53417.591±0.002	−0.042	49836.	RW Dra	53515.455±0.005	0.153	31920.
TW Boo	53440.475±0.004	−0.045	49879.	RW Dra	53542.480±0.002	0.160	31981.
TW Boo	53448.457±0.002	−0.048	49894.	RW Dra	53546.456±0.002	0.150	31990.
TW Boo	53457.504±0.005	−0.049	49911.	RW Dra	53550.437±0.007	0.145	31999.
TW Boo	53464.429±0.005	−0.044	49924.	SU Dra	53417.416±0.003	0.038	14408.
TW Boo	53489.444±0.003	−0.046	49971.	SU Dra	53442.524±0.005	0.050	14446.
TW Boo	53514.462±0.005	−0.044	50018.	SW Dra	53472.516±0.010	0.046	47831.
TW Boo	53522.442±0.005	−0.049	50033.	XZ Dra	53522.417±0.005	−0.082	24332.
TW Boo	53539.480±0.003	−0.043	50065.	XZ Dra	53540.511±0.005	−0.095	24370.
UY Boo	53448.577±0.010	0.007	17843.	XZ Dra	53542.418±0.005	−0.094	24374.
UY Boo	53450.529±0.004	0.007	17846.	BK Dra	53489.531±0.003	−0.152	47234.
UY Boo	53463.540±0.002	0.001	17866.	BK Dra	53521.503±0.003	−0.152	47288.
UY Boo	53478.510±0.008	0.002	17889.	BK Dra	53524.466±0.005	−0.149	47293.
TT Cnc	53442.444±0.005	0.083	23956.	BK Dra	53527.420±0.005	−0.156	47298.
EZ Cnc [1]	53385.438±0.010	−0.031	11418.	BT Dra	53437.429±0.005	−0.007	38566.
W CVn	53438.552±0.002	−0.122	58062.	BT Dra	53457.448±0.010	−0.003	38600.
W CVn	53448.481±0.002	−0.125	58080.	BT Dra	53464.505±0.002	−0.010	38612.
W CVn	53464.479±0.004	−0.128	58109.	BT Dra	53467.446±0.005	−0.013	38617.
W CVn	53491.520±0.003	−0.123	58158.	BT Dra	53474.509±0.002	−0.014	38629.
Z CVn	53463.393±0.010	0.241	22226.	BT Dra	53487.465±0.003	−0.009	38651.
Z CVn	53474.508±0.003	0.241	22243.	BT Dra	53490.405±0.002	−0.012	38656.
Z CVn	53491.504±0.005	0.238	22269.	BT Dra	53510.424±0.005	−0.008	38690.
RU CVn	53464.370±0.010	0.191	33111.	RR Gem	53387.458±0.004	0.085	30279.
RU CVn	53488.445±0.004	0.190	33153.	RR Gem	53408.505±0.003	0.075	30332.
RU CVn	53496.469±0.003	0.188	33167.	TW Her	53482.462±0.002	−0.011	79923.
RZ CVn	53489.451±0.002	−0.178	23168.	TW Her	53492.456±0.004	−0.007	79948.
RZ CVn	53527.461±0.003	−0.185	23235.	TW Her	53502.448±0.005	−0.005	79973.
SS CVn	53478.431±0.005	0.150	28955.	TW Her	53518.428±0.003	−0.009	80013.
SS CVn	53488.497±0.002	0.168	28976.	TW Her	53522.422±0.005	−0.011	80023.
SS CVn	53490.411±0.002	0.167	28980.	VX Her	53480.478±0.002	0.073	69679.
SS CVn	53521.515±0.003	0.168	29045.	VX Her	53490.492±0.004	0.068	69701.
SS CVn	53522.468±0.004	0.164	29047.	VX Her	53495.502±0.003	0.069	69712.
SS CVn	53532.512±0.005	0.159	29068.	VX Her	53521.464±0.005	0.075	69769.
UZ CVn	53388.547±0.005	0.231	38638.	VX Her	53526.466±0.004	0.068	69780.
AA CMi	53415.450±0.005	0.041	35352.	VZ Her	53502.489±0.004	0.065	37956.
S Com	53440.469±0.010	−0.089	21797.	VZ Her	53532.428±0.003	0.062	38025.
S Com	53467.454±0.005	−0.088	21843.	VZ Her	53539.471±0.003	0.060	38041.
S Com	53474.492±0.004	−0.089	21855.	VZ Her	53543.434±0.005	0.060	38050.
S Com	53491.498±0.005	−0.094	21884.	VZ Her	53550.481±0.002	0.062	38066.

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

Variable	Maximum HJD 24...	$O-C$ (days)	E	Variable	Maximum HJD 24...	$O-C$ (days)	E
AR Her	53532.439±0.004	−0.218	25697.	AN Ser	53525.500±0.004	0.003	74351.
V698 Her	53521.505±0.010	0.100	27955.	AV Ser	53518.485±0.002	0.124	51635.
RR Leo	53438.581±0.002	0.069	22421.	RU Sex [3]	53441.426±0.010	0.021	30908.
RR Leo	53443.555±0.005	0.066	22432.	RV UMa	53466.525±0.007	0.102	17927.
RR Leo	53463.460±0.002	0.066	22476.	RV UMa	53474.478±0.004	0.098	17944.
RX Leo	53441.551±0.008	0.086	26224.	RV UMa	53518.474±0.002	0.097	18038.
RX Leo	53458.544±0.005	0.091	26250.	TU UMa	53441.483±0.004	−0.026	19026.
RX Leo	53492.517±0.006	0.086	26302.	TU UMa	53461.558±0.003	−0.027	19062.
RX Leo	53494.478±0.006	0.087	26305.	TU UMa	53475.501±0.003	−0.025	19087.
ST Leo	53379.589±0.004	−0.017	53257.	TU UMa	53494.459±0.003	−0.028	19121.
AX Leo	53408.525±0.005	−0.036	38749.	ST Vir	53467.562±0.004	0.039	30989.
V LMi	53379.519±0.002	0.029	62232.	ST Vir	53472.492±0.005	0.039	31001.
V LMi	53415.415±0.005	0.027	62297.	ST Vir	53488.524±0.003	0.049	31040.
TW Lyn	53442.529±0.004	0.049	17474.	UV Vir	53437.510±0.005	0.016	22901.
RZ Lyr	53487.484±0.002	−0.010	24067.	UV Vir	53474.484±0.004	0.004	22964.
RZ Lyr	53529.416±0.004	0.000	24149.	AF Vir	53475.504±0.004	−0.091	27166.
AW Lyr	53514.535±0.002	0.039	56655.	AF Vir	53490.505±0.002	−0.087	27197.
AW Lyr	53526.484±0.010	0.049	56679.	AF Vir	53491.474±0.004	−0.085	27199.
CN Lyr	53514.550±0.005	0.020	21946.	AF Vir	53492.441±0.004	−0.086	27201.
CN Lyr	53510.436±0.003	0.020	21936.	AT Vir	53438.554±0.002	−0.239	26171.
CN Lyr	53540.468±0.004	0.021	22009.	AT Vir	53448.547±0.004	−0.236	26190.
CN Lyr	53542.520±0.005	0.016	22014.	AT Vir	53467.475±0.005	−0.237	26226.
CR Lyr	53510.417±0.005	−0.004	48135.	AT Vir	53487.452±0.002	−0.240	26264.
CR Lyr	53542.489±0.004	−0.005	48200.	AV Vir	53436.556±0.007	0.019	18216.
IO Lyr	53511.407±0.002	−0.024	24072.	AV Vir	53461.519±0.003	0.019	18254.
IO Lyr	53515.446±0.003	−0.025	24079.	AV Vir	53490.416±0.002	0.012	18298.
V340 Lyr	53529.419±0.010	−0.033	40419.	BB Vir	53442.576±0.002	0.233	29354.
V445 Oph	53502.500±0.003	0.021	65384.	BB Vir	53467.546±0.003	0.235	29407.
V445 Oph	53529.499±0.003	0.022	65452.	BN Vul	53521.495±0.006	0.058	13450.
AN Ser	53478.513±0.002	0.002	74261.	BN Vul	53524.475±0.005	0.068	13455.
AN Ser	53489.475±0.002	0.001	74282.	BN Vul	53540.508±0.005	0.059	13482.
AN Ser	53524.455±0.005	0.002	74349.	BN Vul	53543.477±0.003	0.057	13487.

ref.: 1 `Boninsegna, 1990`
2 `Agerer and Moschner, 1996`
3 `Williams, 1993`

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