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CCD LIGHT CURVES OF ROTSE1 VARIABLES, XIII: GSC 3104:1384 Lyr,
 ROTSE1 GSC 2632:319 Lyr, GSC 3540:85 Lyr AND GSC 3549:929 Dra

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Observatory and telescope:
Private observatory Schüsselacher, Wald, 0.15-m Starfire refractor

Detector:	SBIG ST-7 CCD camera
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Method of data reduction:
Standard CCD-frame reduction using AIP4WIN software

Method of minimum determination:
Kwee – van Woerden algorithm

Observed star(s):				
Star name	GCVS type	Coordinates (J2000)		Comp./check star(s)
		RA	Dec	
GSC 3104:1384				
ROTSE1 J182434.81+381740.5	EW	18 24 34.8	+38 17 40	GSC 3104:1605 / GSC 3104:1364
GSC 2632:319				
ROTSE1 J183053.78+340814.1	EW	18 30 53.8	+34 08 14	GSC 2632:310 / GSC 2632:263
GSC 3540:85				
ROTSE1 J184654.98+450054.7	EW	18 46 55.0	+45 00 55	GSC 3540:108 / GSC 3130:2796
GSC 3549:929				
ROTSE1 J185835.38+500928.9	EW	18 58 35.4	+50 09 29	GSC 3549:941 / GSC 3549:772

Ephemeris:				
Star name	E	2400000+	P [day]	Source
ROTSE1 J182434.81+381740.5	52121.3763		0.300395	present paper
ROTSE1 J183053.78+340814.1	52135.5275		0.355682	"
ROTSE1 J184654.98+450054.7	52146.5105		0.299632	"
ROTSE1 J185835.38+500928.9	52146.5052		0.349668	"

Times of minima:						
Star name	Time of min. HJD 2400000+	Error	Type	Filter	$O - C$ [day]	Rem.
GSC3104:1384 (Lyr)	51259.8436	20	p?	none		ROTSE1
	51312.8599	20	s?	none		ROTSE1
	52121.3755	7	p	none		
	52121.5253	10	s	none		
	52135.3420	6	s	none		
	52135.4939	9	p	none		
	52146.4590	8	s	none		
	52171.3890	6	s	none		
	52179.3522	9	p	none		
	52181.3045	9	s	none		
	52181.4533	18	p	none		
GSC2632:319 (Lyr)	52187.3125	6	s	none		
	51297.8955	8	p	none		ROTSE1
	52121.4790	6	s	none		
	52135.3487	2	s	none		
	52135.5276	16	p	none		
	52143.3516	14	p	none		
	52146.3771	9	s	none		
	52179.2782	12	p	none		
	52179.4563	5	s	none		
	52181.4077	15	p	none		
	52187.2813	9	s	none		
GSC3540:85 (Lyr)	52187.4555	28	p	none		
	51291.8144	22	s	none		ROTSE1
	51295.8617	11	p	none		ROTSE1
	52121.4906	7	s	none		
	52135.4254	8	p	none		
	52143.3650	16	s	none		
	52146.3616	12	s	none		
	52146.5110	14	p	none		
	52171.3810	9	p	none		
	52179.3187	7	s	none		
	52179.4698	5	p	none		
GSC3549:929 (Dra)	52181.4200	11	s	none		
	52187.4135	6	s	none		
	51261.8434	10	p	none		ROTSE1
	51312.7233	10	s	none		ROTSE1
	52121.5054	2	s	none		
	52135.4915	10	s	none		
	52143.3595	7	p	none		
	52146.3321	18	s	none		
	52146.5054	6	p	none		
	52171.3344	17	p	none		
	52179.3735	4	p	none		
52181.2972	14	s	none			
52181.4720	22	p	none			
52187.4128	14	p	none			

Explanation of the remarks in the table:

ROTSE1: Observations of Akerlof et al. (2000).
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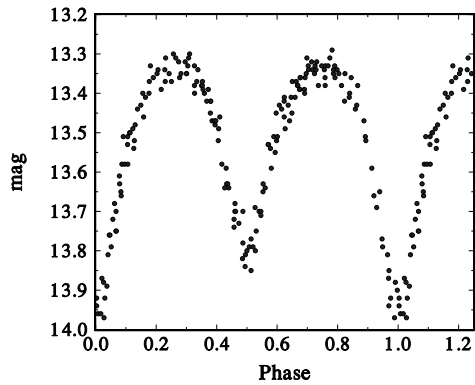


Figure 1. CCD light curve (without filter) of GSC 3104:1384

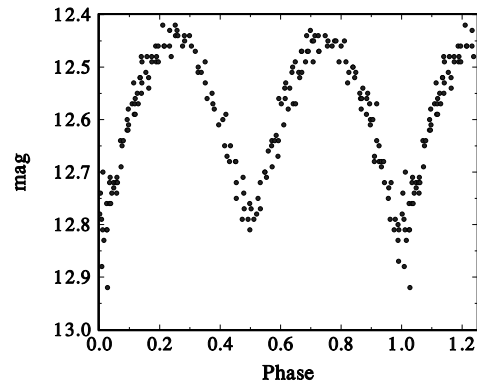


Figure 2. CCD light curve (without filter) of GSC 2632:319

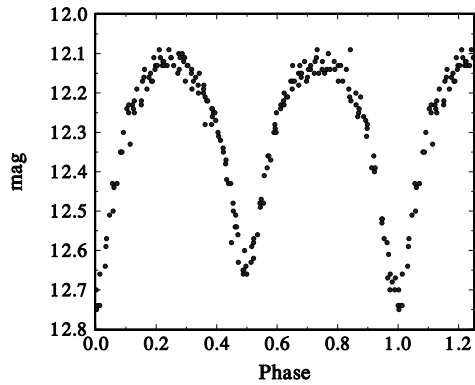


Figure 3. CCD light curve (without filter) of GSC 3540:85

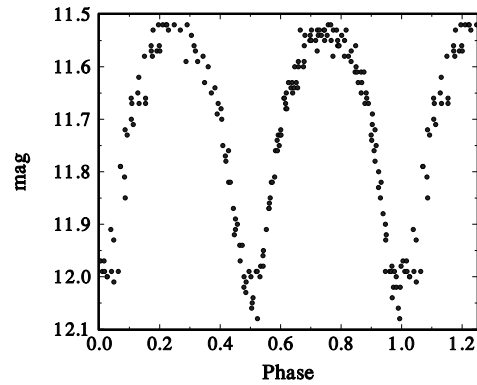


Figure 4. CCD light curve (without filter) of GSC 3549:929

Remarks:

<p>As a byproduct of the ROTSE1 CCD survey, a large number of new variables have been discovered (Akerlof et al., 2000). In a series of papers, we report unfiltered CCD observations for some of the close binary systems (type EW) in the list of Akerlof et al. (2000). This installment contains information on four variables in the constellations Lyra and Draco. The four stars were observed with our CCD equipment during 8 nights between JD 2452121 and JD 2452187. A total of 201 CCD frames were measured of GSC 3104:1384 (VAR 1), 199 frames of GSC 2632:319 (VAR 2), 198 frames of GSC 3540:85 (VAR 3) and 195 frames for GSC 3549:929 (VAR 4). Figures 1 through 4 show our observations folded with the elements given in the table of Ephemeris. These elements of variation are deduced from a linear fit to the normal minima from the ROTSE1 data and the timings of minimum derived from our data given in the table of Times of minima and also in Blättler (2001).</p>
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Availability of the data:

Upon request from diethelm@astro.unibas.ch
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Acknowledgements:

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References:

- Akerlof, C., Amrose, S., Balsano, R., Bloch, J., Casperson, D., Fletcher, S., Gisler, G., Hills, J., Kehoe, R., Lee, B., Marshall, S., McKay, T., Pawl, A., Schaefer, J., Szymanski, J., Wren, J., 2000, *AJ*, **119**, 1901
- Blättler, E., 2001, *BBSAG Bulletin*, **126**