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CCD LIGHT CURVES OF ROTSE1 VARIABLES, XVI: GSC 2613:1412 Her,
 GSC 3098:683 Her, GSC 3098:1253 Her, AND GSC 2083:1870 Her

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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	
GSC2613:1412				
ROTSE1 J172631.22+350115.6	EW	17 26 31.2	+35 01 16	GSC2613:287 / GSC2613:1372
GSC3098:683				
ROTSE1 J172803.29+434125.8	EW	17 28 03.3	+43 41 26	GSC3098:851 / GSC3098:1091
GSC3098:1253				
ROTSE1 J172844.89+434818.8	EW	17 28 44.9	+43 48 19	GSC3098:1639 / GSC3098:1750
GSC2083:1870				
ROTSE1 J173327.94+265547.5	EW	17 33 27.9	+26 55 48	GSC2083:1693 / GSC2083:426

Ephemeris:				
Star name	E	2400000+	P [day]	Source
ROTSE1 J172631.22+350115.6	52426.5561		0.392124	present paper
ROTSE1 J172803.29+434125.8	52442.5724		0.415381	"
ROTSE1 J172844.89+434818.8	52463.4300		0.241415	"
ROTSE1 J173327.94+265547.5	52463.4068		0.360847	"

Times of minima:						
Star name	Time of min. HJD 2400000+	Error	Type	Filter	$O - C$ [day]	Rem.
GSC2613:1412 (Her)	51275.8698	21	s	none		ROTSE1
	52411.4620	27	s	none		
	52415.3808	11	s	none		
	52426.365	4	s	none		
	52426.5554	5	p	none		
	52442.4360	6	s	none		
	52463.4162	7	p	none		
	52483.4150	3	p	none		
GSC3098:683 (Her)	51288.8526	6	s	none		ROTSE1
	51295.7058	6	p	none		ROTSE1
	52411.4195	13	p	none		
	52415.3662	4	s	none		
	52426.3725	14	p	none		
	52442.5718	9	p	none		
	52463.5488	3	s	none		
	52483.4866	10	s	none		
GSC3098:1253 (Her)	51283.7609	20	s	none		ROTSE1
	51288.7022	13	p	none		ROTSE1
	52411.4089	33	s	none		
	52411.5252	8	p	none		
	52415.3878	11	p	none		
	52426.3761	20	s	none		
	52426.4918	8	p	none		
	52442.4264	6	p	none		
	52442.5477	21	s	none		
	52463.4289	11	p	none		
	52463.5515	10	s	none		
	52475.379	4	s	none		
	52475.5031	10	p	none		
	52483.4650	20	p	none		
GSC2083:1870 (Her)	51306.8926	5	p	none		ROTSE1
	52411.4455	20	p	none		
	52415.4139	2	p	none		
	52426.4205	3	s	none		
	52442.4772	9	p	none		
	52463.4064	8	p	none		
	52463.5857	13	s	none		
	52475.4953	6	s	none		
52483.4344	8	s	none			

Explanation of the remarks in the table:

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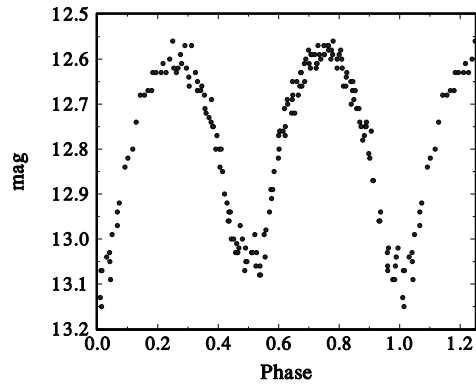


Figure 1. CCD light curve (without filter) of GSC 2613:1412

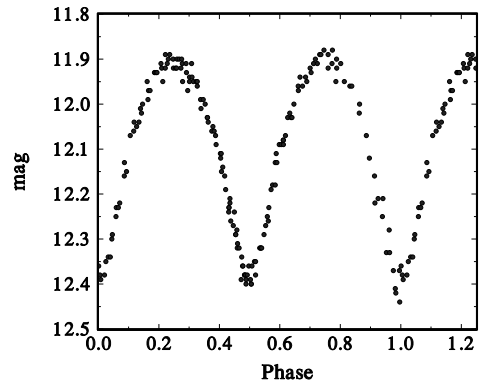


Figure 2. CCD light curve (without filter) of GSC 3098:683

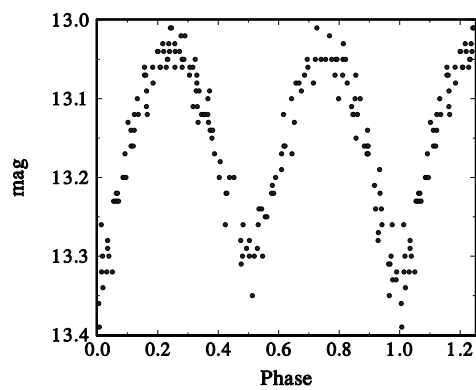


Figure 3. CCD light curve (without filter) of GSC 3098:1253

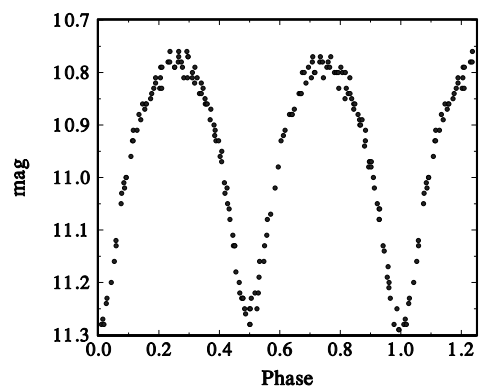


Figure 4. CCD light curve (without filter) of GSC 2083:1870

Remarks:

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 constellation Hercules. The four stars were observed with our CCD equipment during 7 nights between JD 2452411 and JD 2452483. A total of 180 CCD frames were measured of GSC 2613:1412, 180 frames of GSC 3098:683, 171 frames of GSC 3098:1253 and 183 frames for GSC 2083:1870. 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 (2002).

Availability of the data:

Upon request from diethelm@astro.unibas.ch

Acknowledgements:

This research made use of the SIMBAD data base, operated at CDS, Strasbourg, France

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., 2002, *BBSAG Bulletin*, **128**