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**CCD LIGHT CURVES OF ROTSE1 VARIABLES, XV: GSC 2040:1361 CrB,  
 ROTSE1 GSC 2579:1125 CrB, GSC 2035:175 Ser AND GSC 2580:2086 CrB**

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<b>Observatory and telescope:</b>
Private observatory Schüsselacher, Wald, 0.15-m Starfire refractor

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

<b>Method of minimum determination:</b>
Kwee – van Woerden algorithm

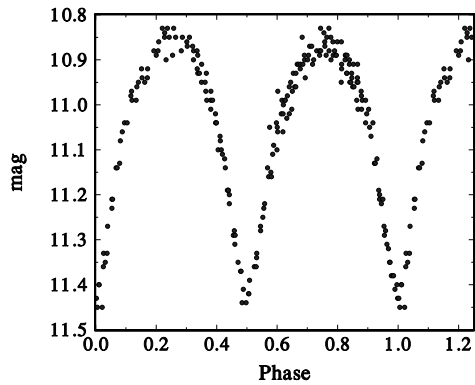
<b>Observed star(s):</b>				
Star name	GCVS type	Coordinates (J2000)		Comp./check star(s)
		RA	Dec	
GSC 2040:1361				
ROTSE1 J155918.57+275214.9	EW	15 <sup>h</sup> 59 <sup>m</sup> 18 <sup>s</sup> .6	+27°52'15"	GSC 2040:1522 / GSC 2040:1563
GSC 2579:1125				
ROTSE1 J160014.54+351228.4	EW	16 <sup>h</sup> 00 <sup>m</sup> 14 <sup>s</sup> .5	+35°12'28"	GSC 2578:1131 / GSC 2578:1231
GSC 2035:175				
ROTSE1 J160153.55+245217.7	EW	16 <sup>h</sup> 01 <sup>m</sup> 53 <sup>s</sup> .6	+24°52'18"	GSC 2035:12 / GSC 2035:109
GSC 2580:2086				
ROTSE1 J161458.52+301646.1	EW	16 <sup>h</sup> 14 <sup>m</sup> 58 <sup>s</sup> .5	+30°16'46"	GSC 2580:2090 / GSC 2580:1995

<b>Ephemeris:</b>				
Star name	E	2400000+	P [day]	Source
ROTSE1 J155918.57+275214.9	52365.5044		0.397352	present paper
ROTSE1 J160014.54+351228.4	52409.4467		0.380658	"
ROTSE1 J160153.55+245217.7	52365.4575		0.268729	"
ROTSE1 J161458.52+301646.1	52360.4749		0.308193	"

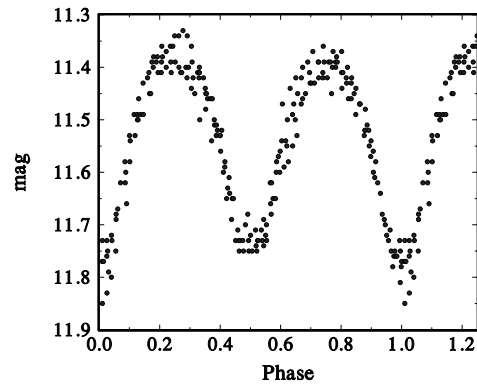
<b>Times of minima:</b>						
Star name	Time of min. HJD 2400000+	Error	Type	Filter	$O - C$ [day]	Rem.
GSC2040:1361 (CrB)	51260.8684	4	p	none		ROTSE1
	51310.7335	3	s	none		ROTSE1
	52360.5379	5	s	none		
	52365.5046	7	p	none		
	52368.4846	4	s	none		
	52395.5049	15	s	none		
	52409.4117	5	s	none		
	52409.6101	9	p	none		
	52419.5700	5	p	none		
	GSC2579:1125 (CrB)	51291.8339	4	p	none	
51305.731		2	s	none		ROTSE1
52360.5321		8	s	none		
52365.4792		9	s	none		
52368.341		6	p	none		
52368.5276		12	s	none		
52395.3639		21	p	none		
52395.5523		24	s	none		
52409.4459		4	p	none		
52415.5358		8	p	none		
GSC2035:175 (Ser)	51247.8121	1	p	none		ROTSE1
	51287.7189	7	s	none		ROTSE1
	52359.4103	11	s	none		
	52360.4871	7	s	none		
	52360.6191	11	p	none		
	52365.4569	8	p	none		
	52365.5911	5	s	none		
	52368.4142	18	p	none		
	52368.5471	3	s	none		
	52395.4223	17	s	none		
GSC2580:2086 (CrB)	52395.554	3	p	none		
	52409.3972	7	s	none		
	52409.5282	6	p	none		
	52415.5762	2	s	none		
	51246.8236	10	s	none		ROTSE1
	51280.8741	12	p	none		ROTSE1
	52359.3965	8	s	none		
	52360.4736	3	p	none		
	52360.6273	19	s	none		
	52365.4051	14	p	none		
52365.5593	8	s	none			
52368.4874	6	p	none			
52368.6459	15	s	none			
52395.4557	12	s	none			
52409.4776	5	p	none			

**Explanation of the remarks in the table:**

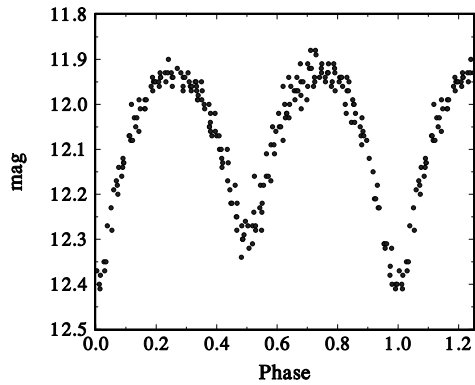
ROTSE1: Observations of Akerlof et al. (2000).



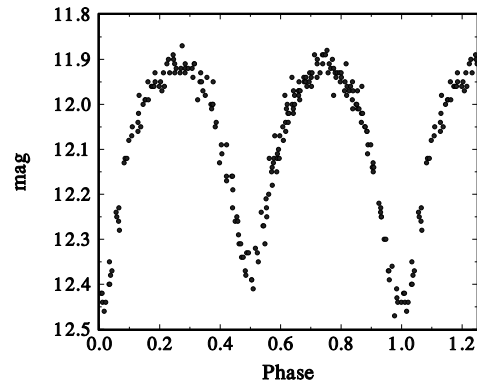
**Figure 1.** CCD light curve (without filter) of GSC 2040:1361



**Figure 2.** CCD light curve (without filter) of GSC 2579:1125



**Figure 3.** CCD light curve (without filter) of GSC 2035:175



**Figure 4.** CCD light curve (without filter) of GSC 2580:2086

### 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 constellations Corona Borealis and Serpens. The four stars were observed with our CCD equipment during 7 nights between JD 2452359 and JD 2452415. A total of 228 CCD frames were measured of GSC 2040:1361, 230 frames of GSC 2579:1125, 226 frames of GSC 2035:175 and 226 frames for GSC 2580:2086. 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).

In the case of GSC 2040:1361 we would like to inform future observers that the nearby star GSC 2040:1491 = ROTSE1 J155859.06+274605.2 = IRAS 15569+2754 is itself slowly variable and should therefore not be used as comparison star. During our observing session it varied by 0.25 mag, in good agreement with the data of the ROTSE1 survey.

**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**