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**CCD LIGHT CURVES OF ROTSE1 VARIABLES, XXI: GSC 3108:57 Lyr,  
 GSC 3526:1995 Lyr, GSC 3109:859 Lyr, AND GSC 3526:2369 Lyr**

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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 3108:57				
ROTSE1 J182345.43+410547.6	EW	18 23 45.4	+41 05 48	GSC 3108:471 / GSC 3108:607
GSC 3526:1995				
ROTSE1 J182427.29+453902.0	EW	18 24 27.3	+45 39 02	GSC 3526:2086 / GSC 3526:2112
GSC 3109:859				
ROTSE1 J183016.46+410508.5	EW	18 30 16.5	+41 05 08	SAO 47538 / GSC 3109:26
GSC 3526:2369				
ROTSE1 J183336.16+463545.1	EW	18 33 36.2	+46 35 45	GSC 3526:2751 / GSC 3527:1345

<b>Ephemeris:</b>				
Star name	E	2400000+	P [day]	Source
ROTSE1 J182345.43+410547.6	52886.3866(2)		0.3687526	present paper
ROTSE1 J182427.29+453902.0	52886.5072(7)		0.292258	"
ROTSE1 J183016.46+410508.5	52886.3468(2)		0.468816	"
ROTSE1 J183336.16+463545.1	52926.3248(6)		0.330259	"

<b>Times of minima:</b>						
Star name	Time of min. HJD 2400000+	Error	Type	Filter	$O - C$ [day]	Rem.
GSC3108:57 (Lyr)	51426.6763	6	s	none		ROTSE1
	51448.6174	4	p	none		ROTSE1
	52886.3874	16	p	none		
	52899.4771	10	s	none		
	52907.4058	17	p	none		
	52924.3685	11	p	none		
	52946.3086	12	s	none		
	52948.3374	7	p	none		
	52951.2865	3	p	none		
GSC3526:1995 (Lyr)	51426.6759	8	p	none		ROTSE1
	52886.3627	15	s	none		
	52886.510	4	p	none		
	52899.3647	23	p	none		
	52907.4029	10	s	none		
	52924.3575	22	s	none		
	52926.2568	21	p	none		
	52928.300	3	p	none		
	52946.2714	11	s	none		
GSC3109:859 (Lyr)	52948.3175	19	s	none		
	52951.2405	7	s	none		
	51288.8553	9	s	none		ROTSE1
	51332.6887	6	p	none		ROTSE1
	52886.3474	12	p	none		
	52899.4730	20	p	none		
	52924.3215	13	p	none		
	52928.3054	6	s	none		
	52946.3548	8	p	none		
GSC3526:2369 (Lyr)	52948.2309	7	p	none		
	52951.2780	5	s	none		
	51308.7196	14	p	none		ROTSE1
	51325.7244	14	s	none		ROTSE1
	52886.3638	8	p	none		
	52899.4109	24	s	none		
	52907.3374	5	s	none		
	52924.3430	11	p	none		
	52926.3258	11	p	none		
52928.3073	12	p	none			
52946.3040	13	s	none			
52948.2845	8	s	none			
52948.4519	15	p	none			
52951.2573	12	s	none			

<b>Explanation of the remarks in the table:</b>
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ROTSE1: Observations of Akerlof et al. (2000).
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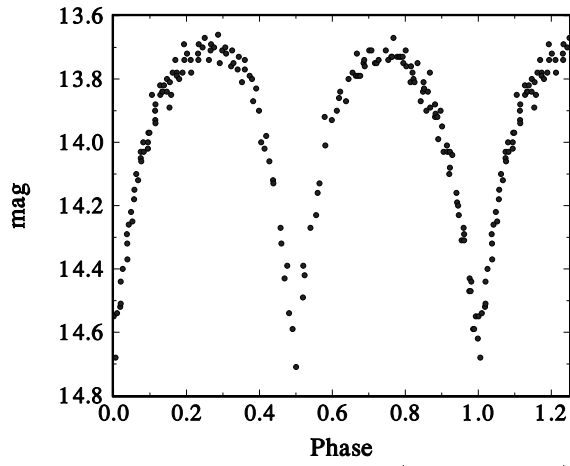


Figure 1. CCD light curve (without filter) of GSC 3108:57

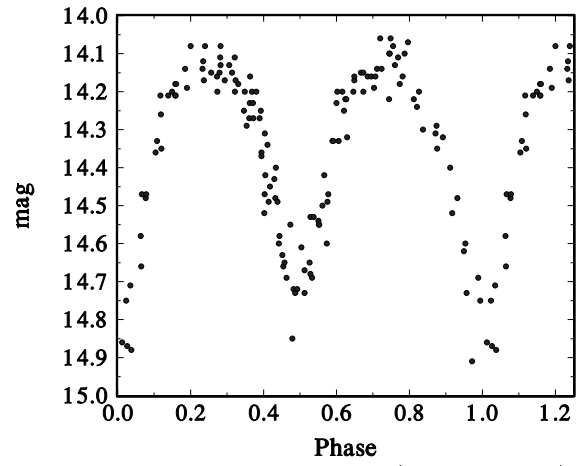


Figure 2. CCD light curve (without filter) of GSC 3526:1995

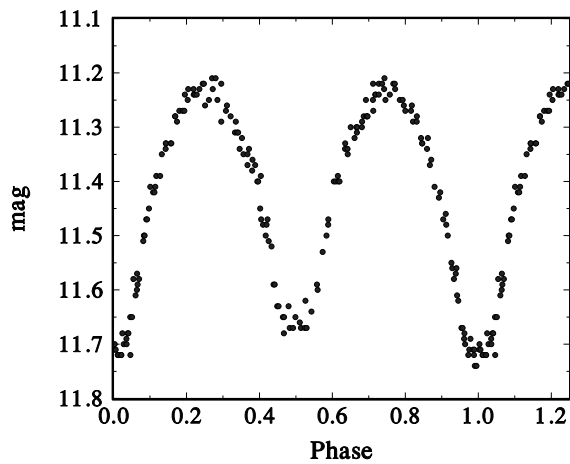


Figure 3. CCD light curve (without filter) of GSC 3109:859

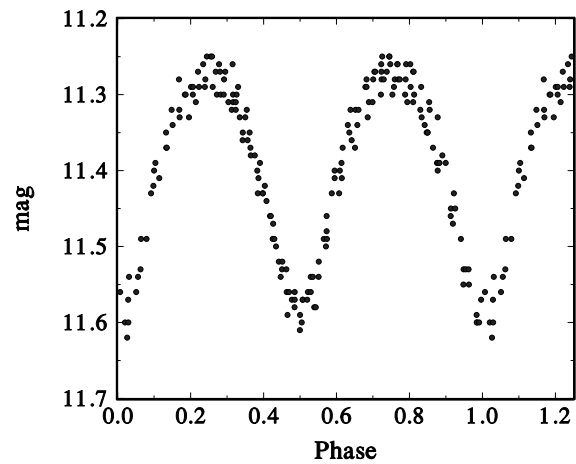


Figure 4. CCD light curve (without filter) of GSC 3526:2369

**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 Lyra. The four stars were observed with our CCD equipment during several nights between JD 2452886 and JD 2452951. A total of 176 CCD frames were measured of GSC 3108:57, 145 frames of GSC 3526:1995, 193 frames of GSC 3109:859 as well as 197 frames of GSC 3526:2369. 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.

**Availability of the data:**

Upon request from diethelm@astro.unibas.ch

**Acknowledgements:**

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## Reference:

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