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CCD LIGHT CURVES OF ROTSE1 VARIABLES, VIII: GSC 3920.882 CYGNI, GSC 3547.216 CYGNI, GSC 3921.1531 CYGNI

BLÄTTLER, E.[1]; DIETHELM, R.[2]

[1] BBSAG, Schlüsselacher 1, CH-8636 Wald, Switzerland; e-mail: blaettler-wald@bluewin.ch

[2] BBSAG, Rennweg 1, CH-4118 Rodersdorf, Switzerland; e-mail: diethelm@astro.unibas.ch

VAR1

Name of the object:
GSC 3920.882 = ROTSE1 J191635.07+524853.6

Equatorial coordinates:	**Equinox:**
R.A.= $19^h16^m35.07^s$ **DEC.**= $+52°48'53.6''$	2000.0

Comparison star(s):	GSC 3920.760

Check star(s):	GSC 3920.1408

VAR2

Name of the object:
GSC 3547.216 = ROTSE1 J192143.82+480356.3

Equatorial coordinates:	**Equinox:**
R.A.= $19^h21^m43.82^s$ **DEC.**= $+48°03'56.3''$	2000.0

Comparison star(s):	GSC 3547.1774

Check star(s):	GSC 3547.1876

VAR3

Name of the object:
GSC 3921.1531 = ROTSE1 J192537.72+532520.0

Equatorial coordinates:	**Equinox:**
R.A.= $19^h25^m37.72^s$ **DEC.**= $+53°25'20.0''$	2000.0

Comparison star(s):	GSC 3921.1760

Check star(s):	GSC 3921.1595

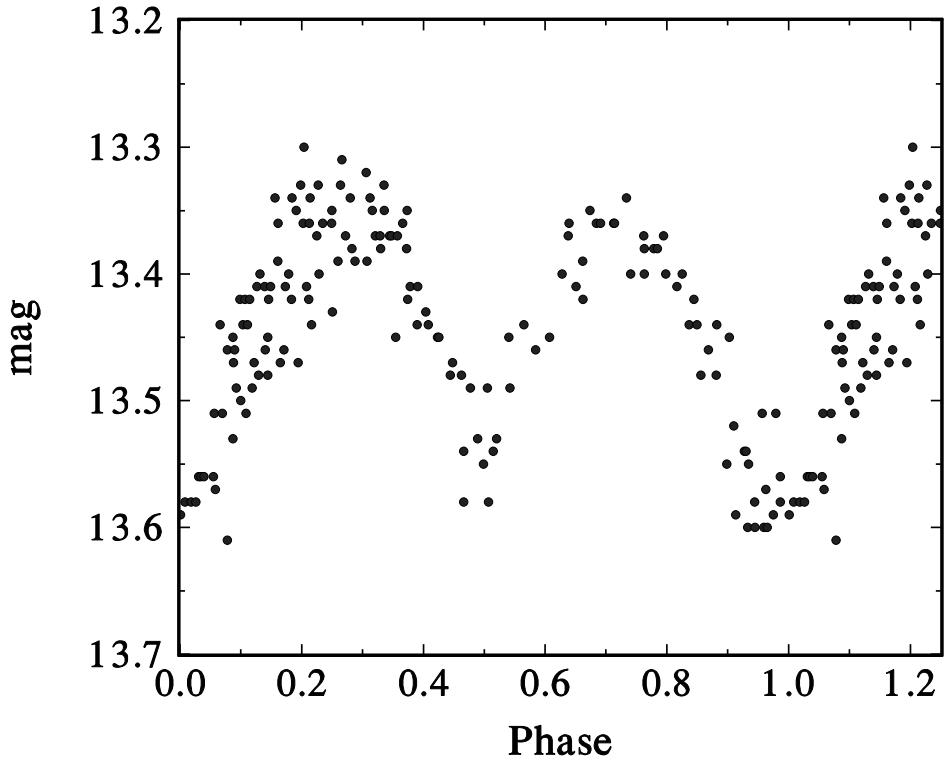

Figure 1. CCD light curve (without filter) of GSC 3920.882

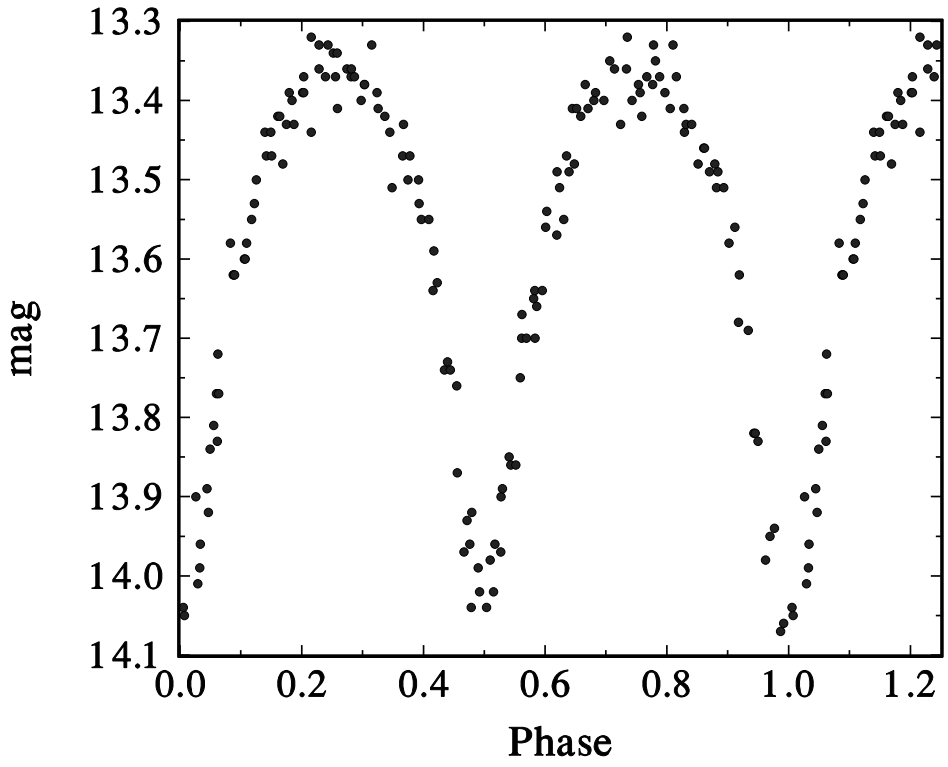

Figure 2. CCD light curve (without filter) of GSC 3547.216

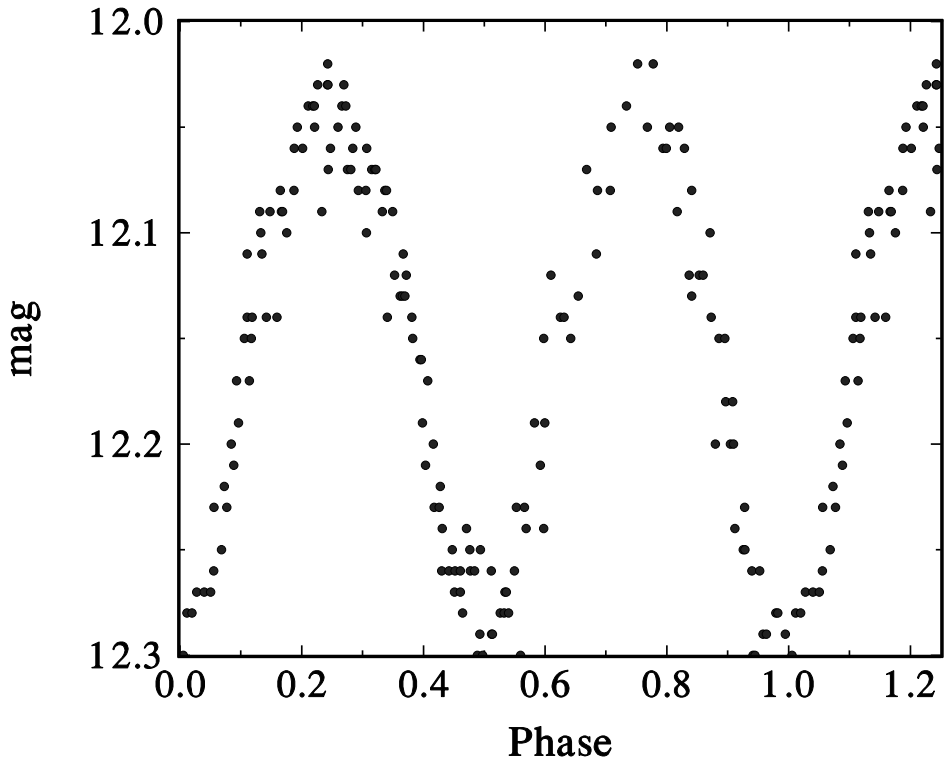

Figure 3. CCD light curve (without filter) of GSC 3921.1531

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

Detector:	SBIG ST-7 CCD camera

Filter(s):	None

Availability of the data:
Upon request from diethelm@astro.unibas.ch

Type of variability:	EW (possibly δ Sct [VAR3])

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 and E) in the list of Akerlof et al. (2000). GSC 3920.882 (VAR1 in this paper) was observed with our CCD equipment as mentioned above during 5 nights between JD 2451806 and JD 2451850, while the data on GSC 3547.216 (here VAR2) was collected during 4 nights between JD 2451809 and JD 2451850. In the case of GSC 3921.1531 (VAR3), we obtained the data in 6 nights between JD 2451801 and JD 2451850. A total of 158 CCD frames were measured for VAR1, 164 frames for VAR2 and 166 frames for VAR3. Figures 1, 2 and 3 show our observations folded with the elements

GSC 3920.882: $\mathrm{JD(min, hel)} = 2451806.4044(44) + 0.361812(20) \times E$;
GSC 3547.216: $\mathrm{JD(min, hel)} = 2451806.4870(9) + 0.353358(6) \times E$;
GSC 3921.1531: $\mathrm{JD(min, hel)} = 2451811.3124(9) + 0.3359535(12) \times E$
(see note in the text).

These elements of variation are deduced from a linear fit to the newly determined normal minima from the ROTSE1 data (VAR1: JDH 2451312.7120(4), secondary; VAR2: JDH 2451259.8407(1), primary, JDH 2451291.8229(15), secondary; VAR3: JDH 2451258.8357(6), secondary (?), JDH 2451308.7271(5), primary (?)) as well as the minima derived from our data and given in Blättler (2001).
The light curve of GSC 3920.882 (VAR1) shows much more scatter than could be expected from the accuracy of the photometry. This might be due to intrinsic variability or erroneous classification, because variability of the comparison star can be ruled out.
GSC 3921.1531 (VAR3) shows a small amplitude and minima as well as maxima of equal brightness. Therefore, it might well be that this star is a pulsating variable of the δ Scuti type and half the period value stated in the elements above. Since we have no colour information, a definitive conclusion is not possible at the moment.

Acknowledgements:

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References:

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Blättler, E., 2001, *BBSAG Bulletin*, **124**, in preparation