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CCD PHOTOMETRY OF DT UMa, V672 Her, V868 Oph AND GSC 3135 0673

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Name of the object:
DT UMa

Equatorial coordinates:	**Equinox:**
R.A.= $8^h53^m44^s.9$ **DEC.**= $49°18'40''$	J2000

Observatory and telescope:
Nicholas Copernicus Observatory and Planetarium, Brno CZ, 0.4 m Newt.telescope

Detector:	SBIG ST-7

Filter(s):	unfiltered

Date(s) of the observation(s):
8 nights between March 2002 and January 2003, total of 314 observations

Comparison star(s):	GSC 3420 1781, P_{mag}=13.6 (GSC)

Check star(s):	GSC 3420 1755, GSC 3420 1089

Transformed to a standard system:	No

Type of variability:	RRc

Remarks:

The variability of DT UMa (= GR 301) was discovered by Romano (1980) on Asiago photographic plates with range of variability between 14.3 and 15.8 mag. He suggested that it is an RR Lyr type variable star but wasn't able to give any ephemeris.

Table 1 gives maxima timings determined using Tintagel (Gaspani, 1995). Period of light variations was obtained using PerSea (Maciejewski, 2002). The ephemeris are:

$$\begin{array}{c} \text{Max.} = \text{JD } 2452339.4563 + 0.321162 \times E. \\ \qquad\qquad \pm 0.0077 \qquad\quad \pm 0.000002 \end{array}$$

The phased light curve is shown in Figure 1.

Name of the object:
V672 Her

Equatorial coordinates:	**Equinox:**
R.A.= $18^{\rm h}44^{\rm m}53\overset{\rm s}{.}9$ **DEC.**= $13^\circ41'16''$	J2000

Observatory and telescope:
Nicholas Copernicus Observatory and Planetarium, Brno CZ, 0.4 m Newt.telescope

Detector:	SBIG ST-7

Filter(s):	V$(RI)_C$

Date(s) of the observation(s):
12 nights between July 2002 and August 2003, total of 706 observations

Comparison star(s):	GSC 1037 0530, P_{mag}=13.3 (GSC)

Check star(s):	GSC 1037 0906, anonymous at $18^{\rm h}44^{\rm m}52.9^{\rm s}$+$13^\circ42'44''$ [J2000]

Transformed to a standard system:	No

Type of variability:	RRc

Remarks:
Hoffmeister (1949) revealed V672 Her (= S 4352) as a short period variable star. No ephemeris has been published. Table 1 gives maxima timings determined using Tintagel (Gaspani, 1995). Period of light variations was obtained using PerSea (Maciejewski, 2002). The ephemeris are: $\text{Max.} = \text{JD } 2452485.3986 + 0.352456 \times E.$ $\pm 0.0082 \qquad \pm 0.000004$ The phased light curves are given in Figure 2.

Name of the object:
V868 Oph

Equatorial coordinates:	**Equinox:**
R.A.= $17^{\rm h}42^{\rm m}31\overset{\rm s}{.}1$ **DEC.**= $03^\circ03'41''$	J2000

Observatory and telescope:
Nicholas Copernicus Observatory and Planetarium, Brno CZ, 0.4 m Newt.telescope

Detector:	SBIG ST-7

Filter(s):	V$(RI)_C$ and unfiltered

Date(s) of the observation(s):
17 nights between May 1998 and August 2003, total of 660 observations

Comparison star(s):	GSC 0419 0350, P_{mag}=13.6 (GSC)

Check star(s):	GSC 0419 0373, anonymous at $17^h42^m22^s.8$ $+03°02'16''$ [J2000]

Transformed to a standard system:	No

Type of variability:	RRc

Remarks:

Hoffmeister (1949) revealed V868 Oph (= S 4177 = HV 11025) as a short period variable star of RR Lyr type. According to Götz (1957) the star is an eclipsing binary with period of approx. 0.443 days. Although his light curve is obviously asymmetric, the classification persisted in the literature (e.g. Sahade & Dávila, 1963; Popova & Kraicheva, 1984). Locher (1977) suggested irregular variations possibly superimposed on eclipses. Our CCD observations prove the star to be an RRc type variable.

Table 1 gives maxima timings determined using Tintagel (Gaspani, 1995). Period of light variations was obtained using PerSea (Maciejewski, 2002). The ephemeris are:

$$\text{Max.} = \text{JD } 2452836.4692 + 0.287381 \times E.$$
$$\pm 0.0077 \qquad \pm 0.000001$$

The phased filtered light curves are given in Figure 3.

Name of the object:

GSC 3135 0673

Equatorial coordinates:	**Equinox:**
R.A.= $19^h39^m51^s.0$ **DEC.**= $38°21'08''$	J2000

Observatory and telescope:

Nicholas Copernicus Observatory and Planetarium, Brno CZ, 0.4 m Newt.telescope

Detector:	SBIG ST-7

Filter(s):	V$(I)_C$ and unfiltered

Date(s) of the observation(s):

4 nights in September 2003, total of 520 observations

Comparison star(s):	GSC 3135 0012, $V = 11.55, B - V = 0.76$ (Tycho)

Check star(s):	anonymous stars at $19^h39^m53^s.1$ $+38°25'08''$ and $19^h39^m53^s.8$ $+38°23'03''$ [J2000]

Transformed to a standard system:	No

Type of variability:	RRc

Remarks:

Variability of this star was discovered in the TASS data (Richmond et. al 2000; Wils, 2003).
Table 1 gives maxima timings determined using Tintagel (Gaspani, 1995). Period of light variations was obtained combining our and TASS data using PerSea (Maciejewski, 2002). The ephemeris are:

$$\begin{array}{rl} \text{Max.} = \text{JD } 2452907.3267 & + 0.297224 \times E. \\ \pm 0.0034 & \pm 0.000008 \end{array}$$

The phased light curves are given in Figure 4.

All data are available upon request.

Acknowledgements:

We acknowledge overall support and the use of the telescope with CCD camera of the Nicholas Copernicus Observatory and Planetarium and Tom Droege's TASS observations (`http://www.tass-survey.org`). We would like to thank L. Král and M. Brož for software support, A. Paschke for database help. This work has made use of the SIMBAD database, operated at CDS, Strasbourg, France. The NASA ADS Abstract Service was used to access data and references.

Table 1: Maxima timings of DT UMa, V672 Her, V868 Oph and GSC 3135 0673

Star	Hel. JD	Error	Filter	Epoch
DT UMa	2452339.4563	0.0077	unfiltered	0
DT UMa	2452346.5187	0.0081	unfiltered	22
DT UMa	2452640.3953	0.0073	unfiltered	937
DT UMa	2452651.6350	0.0038	unfiltered	972
V672 Her	2452485.4128	0.0069	I	0
V672 Her	2452485.4098	0.0088	R	0
V672 Her	2452485.3986	0.0082	V	0
V672 Her	2452817.4259	0.0051	I	942
V672 Her	2452817.4209	0.0042	R	942
V672 Her	2452817.4251	0.0064	V	942
V672 Her	2452841.3818	0.0044	I	1010
V672 Her	2452841.3779	0.0034	R	1010
V672 Her	2452841.3810	0.0050	V	1010
V868 Oph	2452031.5316	0.0025	unfiltered	−2801
V868 Oph	2452440.4588	0.0040	unfiltered	−1378
V868 Oph	2452836.4692	0.0077	unfiltered	0
V868 Oph	2452857.4544	0.0031	I	73
V868 Oph	2452857.4595	0.0024	R	73
V868 Oph	2452857.4707	0.0037	V	73
V868 Oph	2452862.3556	0.0028	I	90
V868 Oph	2452862.3536	0.0037	R	90
V868 Oph	2452862.3390	0.0038	V	90
GSC 3135 0673	2452907.3267	0.0054	I	0
GSC 3135 0673	2452907.3267	0.0034	V	0

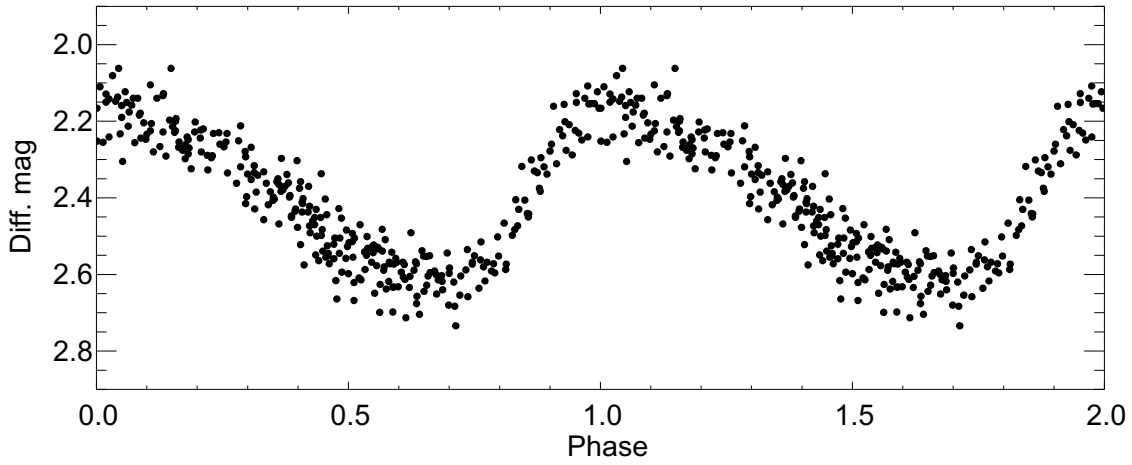

Figure 1. Unfiltered light curve of DT UMa.

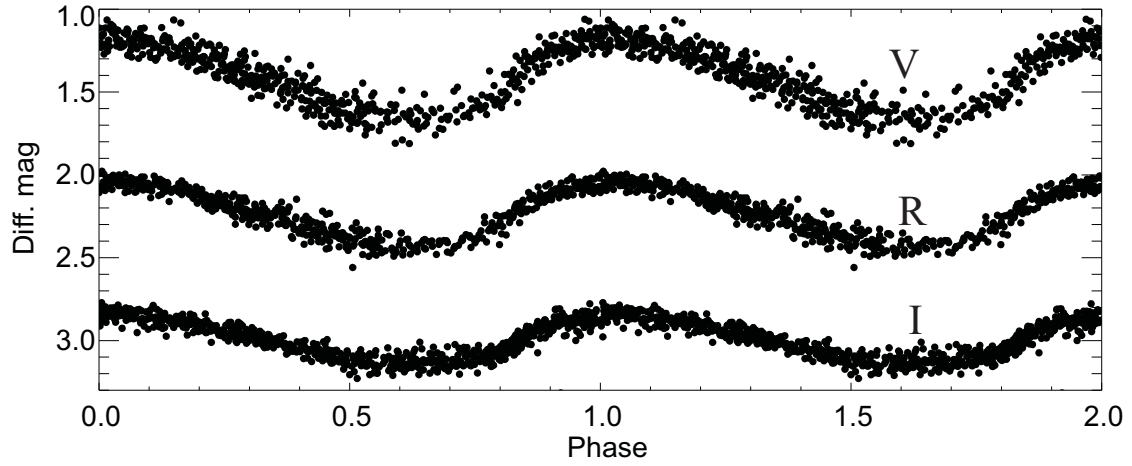

Figure 2. Light curves of V672 Her.

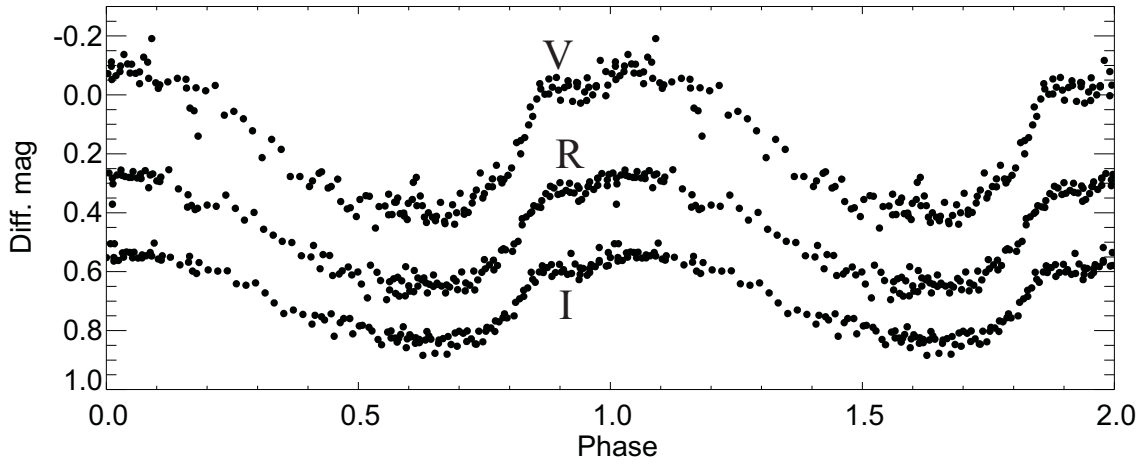

Figure 3. Filtered light curves of V868 Oph. The datasets were shifted for plot clarity.

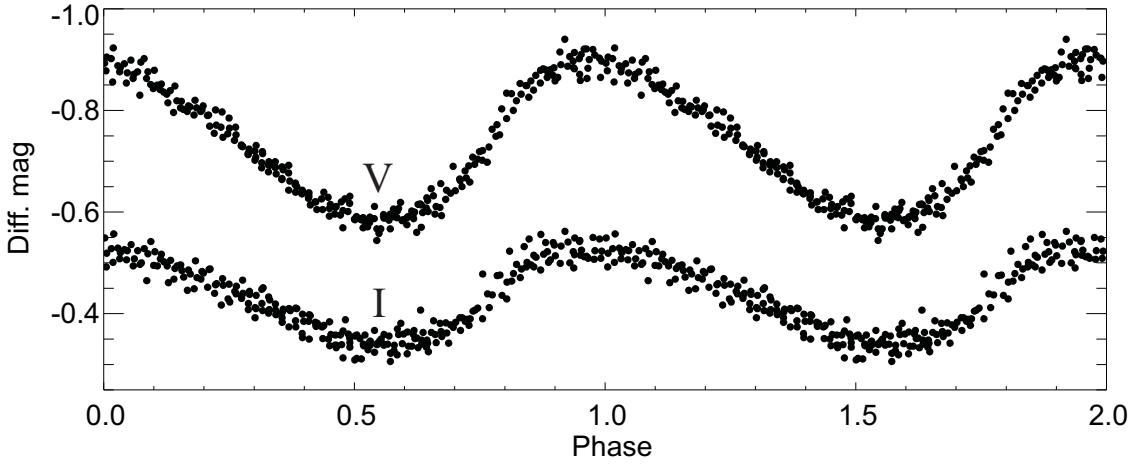

Figure 4. Light curves of GSC 3135 0673 from our data.

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ERRATUM FOR IBVS 5320

The coordinates of GSC 4988-707 and GSC 6328-971 were in error; the correct values are:

GSC 4988-707	14 30 56.52	-03 11 09.2
GSC 6328-971	20 21 53.99	-16 27 03.6

R. Behrend