Campaign on a possible ER UMa Dwarf Nova from the Catalina Real Time Sky Survey

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Background

In 2012, John Greaves announced that he had identified a possible dwarf nova from his inspection of light curves in the Catalina Real Time Sky Survey (CRTS) database. The star, CSS 121005:212625+201948, varies between magnitude 15.5 and >20.5 (it's. below the CRTS detection limit) (1). The frequent outbursts suggest to John that it might be an ER UMa-type dwarf nova ("UGER").

UGER systems are a sub-set of the UGSU dwarf novae, but they have short supercycles (the time between superoutbursts) of 20-30 days during which they display characteristic superhumps. Typically they spend a third to half their time in superoutburst. They also show a rapid succession of normal outbursts every 4 days or so.

Several observers, including Roger Pickard, Ian Miller, Richard Sabo (AAVSO) and the author have monitored the star from late 2012 into 2014. We confirm frequent, short duration, outbursts to ~mag 16. In addition there is evidence of long outbursts from time to time: for example in late April 2014 an outburst to 15.8V was detected which lasted at least 11 days. This might have been a superoutburst, but we were unable to obtain sufficiently long photometry runs to detect superhumps

Project aim

The aim of this project is to confirm whether or not CSS 121005:212625+201948 is an ER UMa dwarf nova, or some other type of variable. We would like to determine its outburst frequency and the length of its supercycle. This requires observing the star on as many nights as possible. If a possible superoutburst is found, then time-resolved photometry is needed to look for superhumps.

Procedure and reporting

Although the star is usually pretty faint, it may well be accessible to visual observers during outburst. Otherwise, CCD photometry is the best route – unfiltered is acceptable considering the star's brightness range.

To maximise our coverage of the star's light curve, aim to observe it once every clear night (CCD observers might like to obtain a few photometric images). Report your observations to the BAA and/or AAVSO databases in the normal way. If you suspect a superoutburst (e.g. if it's about mag 16 or brighter for more than 2 days), then time resolved CCD photometry is desirable. You could use the baavss-alert email group to alert other observers if you suspect a superoutburst.
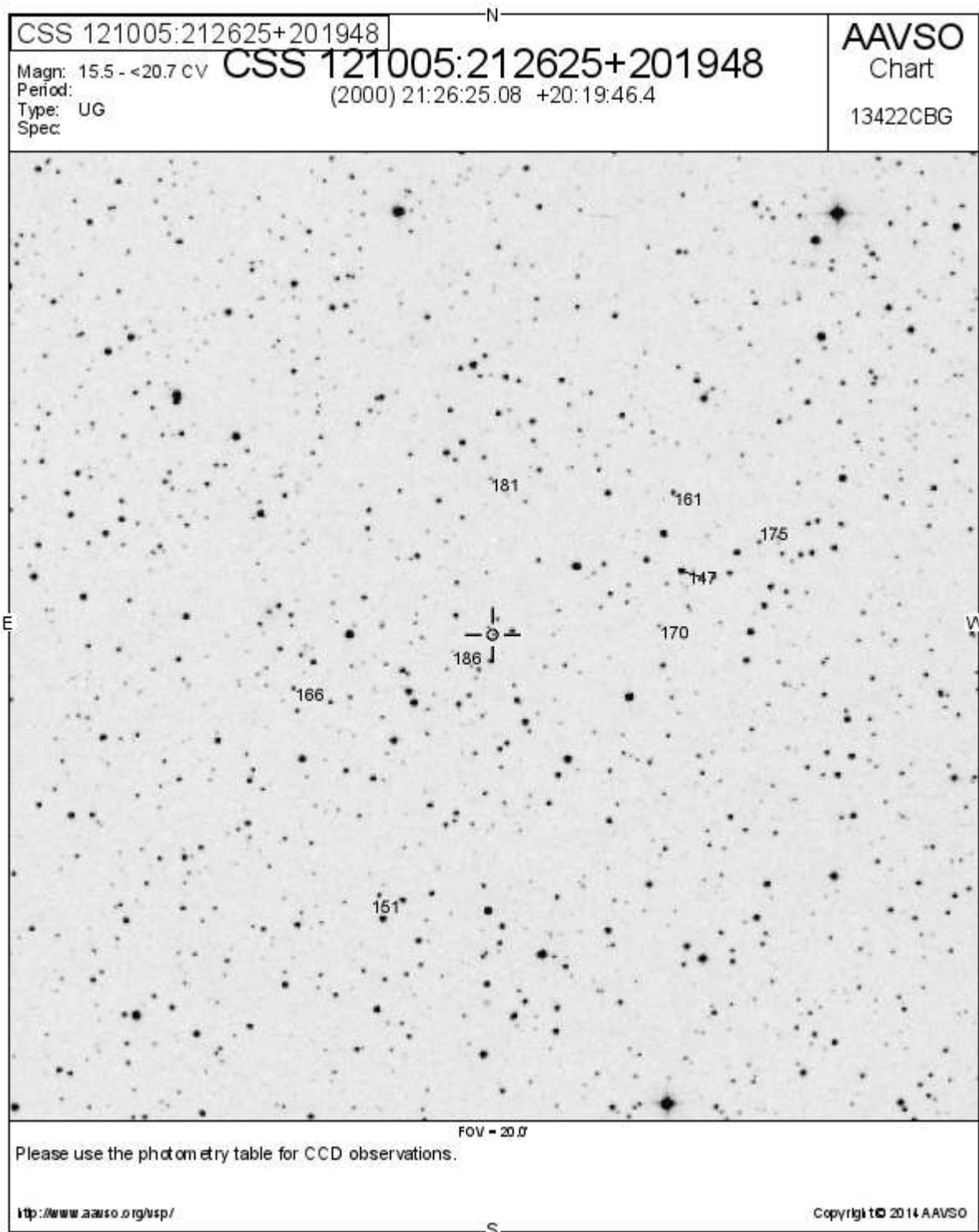
An AAVSO chart and sequence are attached. Further charts may be obtained from the AAVSO web site.

Duration of campaign

This campaign starts now (2014 May) and will continue throughout the season until the field is no longer accessible: probably 2015 January.

1. *The CRTS light curve is available at:*
http://nesssi.cacr.caltech.edu/catalina/20121005/1210051211094121504p.html.

CSS 121005:212625+201948

Magn: 15.5 - <20.7 CV
Period:
Type: UG
Spec:

CSS 121005:212625+201948
(2000) 21:26:25.08 +20:19:46.4

AAVSO
Chart

13422CBG

N

E   W

181   161
                    175
               147

186   170

166

151

FOV = 20.0'

Please use the photometry table for CCD observations.

http://www.aavso.org/vsp/

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Data includes all comparison stars within 0.16667° of RA: 21:26:25.08 (321.60450) & Decl.: 20:19:46.40 (20.32956).

AUID	RA.	Dec.	Label	U	B	V	B-V	Rc	Ic	J	H	K	Comments
000-BKS-154	21:26:08.55 [321.53561d]	20:21:05.7 [20.35158d]	**147**	16.203 (0.087)[21]	15.629 (0.071)[21]	14.702 (0.050)[21]	0.927 (0.087)	14.148 (0.071)[21]	13.625 (0.087)[21]	-	-	-	
000-BKS-155	21:26:33.06 [321.63776d]	20:14:17.9 [20.23831d]	**151**	15.832 (0.087)[21]	15.741 (0.071)[21]	15.102 (0.050)[21]	0.639 (0.087)	14.727 (0.071)[21]	14.319 (0.087)[21]	-	-	-	
000-BKS-157	21:26:09.31 [321.53879d]	20:22:42.8 [20.37856d]	**161**	17.146 (0.087)[21]	16.867 (0.071)[21]	16.131 (0.050)[21]	0.736 (0.087)	15.701 (0.071)[21]	15.252 (0.087)[21]	-	-	-	
000-BKS-158	21:26:42.66 [321.67776d]	20:18:40.7 [20.31131d]	**166**	17.412 (0.087)[21]	17.238 (0.071)[21]	16.553 (0.050)[21]	0.685 (0.087)	16.151 (0.071)[21]	15.720 (0.087)[21]	-	-	-	
000-BKS-162	21:26:10.54 [321.54391d]	20:19:57.5 [20.33264d]	**170**	17.822 (0.087)[21]	17.686 (0.071)[21]	17.015 (0.050)[21]	0.671 (0.087)	16.617 (0.071)[21]	16.190 (0.087)[21]	-	-	-	
000-BKS-159	21:26:01.70 [321.50708d]	20:21:41.4 [20.36150d]	**175**	18.140 (0.087)[21]	18.139 (0.071)[21]	17.508 (0.050)[21]	0.631 (0.087)	17.118 (0.071)[21]	16.666 (0.087)[21]	-	-	-	
000-BKS-160	21:26:25.37 [321.60571d]	20:23:00.1 [20.38336d]	**181**	18.970 (0.087)[21]	18.827 (0.071)[21]	18.105 (0.050)[21]	0.722 (0.087)	17.656 (0.071)[21]	17.159 (0.087)[21]	-	-	-	
000-BKS-161	21:26:28.71 [321.61963d]	20:19:26.3 [20.32397d]	**186**	20.389 (0.087)[21]	19.586 (0.071)[21]	18.601 (0.050)[21]	0.985 (0.087)	18.044 (0.071)[21]	17.574 (0.087)[21]	-	-	-	

Report this sequence as: **13422CBH** in the *chart* field of your observation report.

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