



# CCD Views: August 2001

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C C D V I E W S  
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## 1. WELCOME TO THE 2ND ISSUE OF CCD VIEWS

It is hard to believe that two months have passed by since the first issue of the new electronic version of CCD Views. We received many positive comments and appreciate all feedback, good and bad. If you have any suggestions, topic ideas, or would like to contribute something yourself please e-mail us at [aavso@aavso.org](mailto:aavso@aavso.org). We will continue to tweak and adjust this new publication based upon feedback from you.

This summer has been an exciting summer for CCD observers. We were unable to fit everything into this issue that we wanted. Don't be surprised to see an extra issue sent out within the next month covering projects we were unable to place in this issue including feedback on the SU UMA campaign and an interesting light curve of V1548 AQL (N AQL 01).

Thanks and good observing!

Aaron Price, Technical Assistant  
 AAVSO Headquarters

Gary Walker  
 Chairman, CCD Committee

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## 2. COMMENTS FROM J.A.M.: WZ SGE OUTBURST & LPVs:

The rare outburst of WZ Sge that started on July 23 continues with prominent superhumps in the light curve. Our webmaster Kate Davis has created a special web page on WZ Sge on our website at URL:

<http://www.aavso.org/wzsge.stm>

The webpage is updated daily as we get your observations in the Quick Look file. The webpage is linked to various useful sites, such as that of G. Masi who has obtained impressive photometry of the superhumps.

Our member Lew Cook has also obtained CCDB photometry of the superhumps which can be seen in the WZ Sge webpage.

AAVSO observer J. D. West has obtained a very nice spectrum of WZ Sge which is also posted, along with a description. Doug has also analyzed the AAVSO observations in the Quick Look file and he wrote:

"Using the AAVSO "Quick Look" file visual and CCDV observations from July 23.8 to 27.2 UT for WZ Sge a period analysis was conducted. The final analysis file consisted of 383 observations (6 observations were thrown out), most of observations which were visual. The programs AVE and EXCEL were used to perform the analysis. The results of the analysis (linear fit) indicate that WZ Sge is decreasing in brightness by 0.212 magnitudes per day. The two shortest period peaks in the periodograms were at 0.047 and 0.059 days. The period of 0.059 day is very close to the period of variation of 0.057 day reported in vsnet-alert 6115".

WZ Sge is scheduled to be observed with several satellites such as FUSE, HST, and Chandra X-ray Satellite as well as with several ground based telescopes at professional observatories worldwide in the coming weeks and months.

Please continue to monitor WZ Sge very closely and submit your observations to the AAVSO as soon as possible. CCD observations of the superhumps made at every 3 to 5 minutes, for as long as possible throughout the night is of particular importance to study the development of the superhumps. Please observe in V and also in B, R, and I if you have the appropriate filters.

WZ Sge was originally classified as a Recurrent Nova, but subsequently after its 1978 outburst it was reclassified into its own category of cataclysmic variables. During the 1978 outburst the star faded from 8.0 to 10.8 in one month, while the superhumps continued during this time. Then within four days the star faded to magnitude 12.5 and then recovered before it continued to fade slowly to minimum in three months. It would be interesting to see if there will be the "dip" in the light curve after a month. When we plot the observations of this outburst on to the light curve of 1978 outburst, the two outburst look very similar.

Charts along with a table of precision photometry of the comparison stars of WZ Sge are available at the AAVSO webpage on WZ Sge.

We would like to thank DRG, WJD, COO, KDA, and OAR for their quick reactions and already submitting thousands of CCD observations. More

is still needed!

**LPVs IN NEED OF OBSERVATIONS AND YOUR ATTENTION:**

1345-36 RX Cen <9.4>-(15.0

This star has been poorly observed the past two years, particularly during minimum. The AAVSO 'd' Standard chart does not go faint enough for visual observers to observe at minimum, but with CCDs it may be possible to make minima observations. Minimum is predicted for August 24.

1434-17 V Lib <9.7-14.7>

Needs more observations as it fades to and reaches minimum, predicted for mid-September. Use AAVSO 'e' scale Standard chart and beware of the very close 14.9 comparison star directly to the east of the variable.

1611-22A R Sco <10.4-15.0>

Needs observations at all phases, particularly as it fades to and reaches minimum, predicted for September 15. Use AAVSO 'd' scale Standard chart, which has adequate faint magnitudes.

1708-33 RW Sco <9.6>-15.0

Needs observations badly at all phases. Minimum is predicted for October 15. The AAVSO 'd' scale Standard chart does not go faint enough; do the best you can to obtain positive observations during minimum.

1757+18 WZ Her 10.8-(15.0

Needs observations as it fades to minimum and around minimum, predicted for the beginning of September. Needs better sequence, particularly for fainter magnitudes. Use the AAVSO 'e' scale Preliminary chart; beware of the close 14.8 comparison star to the north of the variable.

1913-19 S Sgr <10.2-14.8>

Needs more observations as it fades to minimum and around minimum. Beware of the 14.4 comparison star closeby to the south of the variable on the AAVSO 'd' scale Standard chart.

1953-08 RS Aql <9.7-15.2>

The amplitude has decreased and the light curve has become very different from its mean curve. Monitor the variable closely to determine its behavior. Presently it is slowly brightening from its recent minimum in June.

2007+06 TV Aql 9.5-(15.0

Needs observations, particularly as it fades to minimum and around minimum, predicted for the beginning of September. While you are in this field, check out the 13.8 comparison star (southeast of the variable, 2007+06B 138 VAR? E) that is reported to be a possible variable. Use the AAVSO 'e' scale Preliminary chart.

2101-21 X Cap <11.1-14.8>

Needs observations as it fades to minimum and around minimum, predicted for early September.

2106+12 AN Peg 10.0-(15.5

Needs observations around minimum now and as it brightens to maximum. No observations have been recorded for the past several minima; positive observations will help us nail down how deep the faint minima are.

2142-47 R Gru <8.3-14.6>

We have received very few observations over the past two cycles. It is in dire need of observations! Our southern-hemisphere observers, we are depending on you to cover this star more closely and particularly around its minimum predicted for around the end of August. The AAVSO 'd' scale standard chart does not go faint enough; do the best you can to obtain some positive observations.

2331+09 FF Peg 9.8-15.8

The minima of this star have been missed for many cycles. Minimum is predicted for mid-August. The AAVSO 'd' scale Preliminary chart is inadequate and does not have faint comparison stars; do the best you can to obtain some positive observations so we may determine how faint the minima go. Beware of the 13.1 comparison star closeby southwest of the variable.

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### 3. LETTER: I BAND PHOTOMETRY & COMP STARS

Doug West had a couple of questions about I band photometry and the number of comp stars to use while reducing data.

"...when I am doing I band photometry should I use the AAVSO charts which are V band for comparison or Hipparcos stars?"

When doing I band photometry with a non-CCD AAVSO chart you will need to transform the V magnitudes to I. You can do this by consulting the photometric database that was used to make the sequence. This is listed at the bottom of the chart. If you cannot access the database then you can use Tycho or Hipparcos data. Just be very careful that you are using the right data for the right star. Also, it is *vital* that you use the "K" comment code when submitting the observation put the photometric database used in the "Comments" field. Here is an example:

```
1755+23 WY HER      2450000.0000 14.0 K CCDV 142,150,110      TST  HIPPARCOS
```

"Another thought/question, is it better for the CCD'ers to use one, two, or three comparison stars. My reduction software (MIRA) allows the use of multiple comparison stars and give their residuals, this gives a more accurate measurement. However, it would make it harder for someone to back out color corrections."

In general, the more comp stars the better. For .1 mag accuracy one or two comp stars may be sufficient. However, for anything higher use as many as you can. If your software only allows one comp star, then perform photometric reduction with a number of different comp stars and average the results together.

If you would like to discuss these specific questions further,

please direct the comments to the AAVSO Discussion Group so everyone can benefit from the discussion.

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#### 4. 76th GCVS NAME-LIST

Many of you observing esoteric objects may be interested to know that the GCVS has issued the 76th Name-List which includes 1,406 new variables (for a total of 37,391 named variable stars!). Many of the new variables are objects that had difficult names to type such as RXJ1450.5+640.

For the list and more information read IBVS #5135 at this URL:

<http://www.konkoly.hu/cgi-bin/IBVS?5135>

Remember to always submit your observations using names listed in the AAVSO Validation File, which is updated monthly at the URL below:

<http://www.aavso.org/validation.stm>

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#### 5. SURVEY OF SOME SUSPECTED VARIABLE COMP STARS IN CYGNUS

One of the downsides to having so many variable stars in the sky is that it is difficult to pick comparison stars that are constant. Richard Huziak has recently been keeping track of a few variables in Cygnus that have comparison stars or nearby stars that may vary as well. Many of these "suspect" stars are of low amplitude, making them perfect CCD targets. Please consider adding these suspected variables to your observing program and submitting the observations to the AAVSO. [Note from HQ: Sporadic observations of suspect comparison and field stars are of very low value. If you want to observe these stars - or the many others like them noted in the AAVSO Validation File - please make regular observations of them, at least every time you observe the variables in whose fields they appear, and keep them in your observing program from year to year.]

Here are the stars along with some comments courtesy of Mr. Huziak.

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100 comp E (of U Cyg) - 2016+47C. [first reported to AAVSO as suspect by P. Abbott in December 1985] I've been following this star for about 4 years, and the data may indicate outbursts of about 0.5 mag every 1200 days. Normally, this star is at about 10.7 mag - not the 10.0 listed on the chart, and seems to rise to as bright as 10.5 during outbursts.

103 var? E (of RT Cyg) - 1940+48B. [first reported to AAVSO as suspect by T. Akiyoshi in May 1972] This star seems to show periodic fadings of about 0.6 mag every 2400 days, though may have smaller irregular dips more often. The star is 'normally' at 10.3.

var NW (of WX Cyg) - 2014+37E. [first reported to AAVSO as suspect by E. Ofek in July 1993] This star was reported faint (11.6) at around JD 2450350, seems to have been at about 11.1 to 11.3 for several years, and now has faded as low as 11.7. This may be an irregular variable.

131 comp S (of EY Cyg) - 1950+32E. [first reported to AAVSO as suspect by R. Huziak in September 1999] This star is certainly not at 13.1 as the chart indicates and has been hovering around 13.6 - 14.0 for the last few years, possibly showing a semi-regular variation of about 400 days.

120 comp W (of SS Cyg) - 2138+43G. [first reported to AAVSO as suspect by D. Iadevaia in August 1981] This star seems to vary between 12.0 and 12.6, and may have a period of about 400 days. It is immediately W of SS.

Since all of these stars make "convenient" comparison stars for their "parent" variable stars nearby, it would be nice to definitively know if these stars are variable. They could then be marked as such. Obviously a variable comparison star will scatter the estimates!

For those of you not familiar with how suspected variables work, they are listed in the Validation File as 'letter' variants of the closest confirmed variable star's designation. Thus, for the first example on the list, 100 comp E means the 10.0 comparison star East, with the designation 2016+47C. And 2016+47 is U Cygni, so the suspected variable is the 10.0 comp star E of U Cyg. Note that the "var NW" of WX Cyg is the star marked 'var' on the WX chart. The 131 comp S of EY Cyg is more to the SE than S (but AAVSO ran out of space in the Name field). Good observing!

- Richard Huziak (HUZ)

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## 6. REPORT ON LAST ISSUE'S FAINT LPV LIST

In the last issue of CCD Views Janet Mattei (J.A.M.) published a list of 21 faint LPVs in need of more observations because of unusual activity or poor coverage. Thanks to JM, SFK, RZD, GKA, DRG, PAH, WJD, OCN, ZRE, WRX, OSW, and SMI we received 154 CCD observations for these stars. If you have room in your program, please observe these objects every two weeks.

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## 7. NEW CCD CHARTS

Three new CCD observing charts were issued in July for the following stars. Visual B, D, F, and corresponding reversed charts are also available.

| Star                 | Type | Range        | Filters |
|----------------------|------|--------------|---------|
| 1234+21 IR COM       | UGSU | 13.5 - 18V   | V       |
| 1448+64 RX J1450 DRA | UGSU | 11.3-14.5V   | B,V,R,I |
| 1620-04 V699 OPH     | UG   | 13.8 - 18.5p | B,V,R   |

For more information visit <http://charts.aavso.org/new071801.stm>

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## 8. NEWBIE GUIDE TO CCD OBSERVING OF VARIABLE STARS

We have placed on the AAVSO web site a new page title "Getting Started With CCD Variable Star Observing". Observing variable stars with a CCD can be quite daunting to someone just starting out with a CCD camera and a casual interest in variable stars. This guide is intended to help introduce relatively new CCD owners to the world of

variable star photometry.

This is a good URL to hand out to others interested in what we do:

<http://www.aavso.org/committees/ccdnew.shtml>

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### 9. CCD OBSERVATION TOTALS FOR JUNE 1 - JULY 31, 2001

Below is a total of all CCD observations received per observer during the past two months.

| Ttl  |     | Observer             | Location                |
|------|-----|----------------------|-------------------------|
| 1300 | COO | COOK, LEWIS M.       | CA, CONCORD             |
| 516  | DRG | DIETHELM, ROGER      | SWITZERLAND, RODERSDORF |
| 373  | KDA | KAISER, DANIEL H.    | IN, COLUMBUS            |
| 233  | JM  | JAMES, ROBERT A.     | NM, LAS CRUCES          |
| 154  | PAH | PRICE, AARON         | MA, WALTHAM             |
| 95   | ZRE | ZISSELL, RONALD E.   | MA, SOUTH HADLEY        |
| 92   | WJD | WEST, JERRY DOUG     | KS, MULVANE             |
| 58   | OCN | O'CONNOR, STEPHEN D. | CANADA, MONTREAL, QUE.  |
| 51   | WGR | WALKER, GARY         | MA, SHERBORN            |
| 38   | MTK | MICHALIK, TOM        | VA, LYNCHBURG           |
| 31   | SFK | SCHEDER, FRANK L.    | MD, LEONARDTOWN         |
| 31   | HDU | HURDIS, DAVE         | RI, NARRAGANSETT        |
| 24   | OCN | O'CONNOR, STEPHEN D. | CANADA, MONTREAL, QUE.  |
| 18   | WMG | WEICHINGER, MICHAEL  | AUSTRIA, VIENNA         |
| 13   | LIW | LILLER, WILLIAM      | CHILE, VINA DEL MAR     |
| 9    | GKA | GRAHAM, KEITH A.     | IL, MANHATTEN           |
| 9    | RR  | ROYER, RONALD E.     | CA, LAKEWOOD            |
| 8    | SMI | SMITH, ALAN L.       | ENGLAND, HORSHAM        |
| 5    | PEF | PROSPERI, ENRICO     | ITALY, LARCIANO         |
| 4    | WRX | WILLIAMS, ROGER      | MI, KALAMAZOO           |
| 3    | FMQ | FIASCHI, MARCO       | ITALY, PADOVA           |
| 2    | OSW | OSBORN, WAYNE        | MI, MOUNT PLEASANT      |
| 2    | CRI | CASAS, RICARD        | SPAIN, BARCELONA        |
| 1    | SPK | SCHMEER, PATRICK     | GERMANY, BISCHMISHEIM   |

Thanks for the observations!

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CCD Views is published bimonthly and when circumstances warrant via e-mail. An archive is available at <http://www.aavso.org/ccdviews/>. Please send comments and suggestions to [aaronp@aavso.org](mailto:aaronp@aavso.org).

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The AAVSO has many free online publications including "Eyepiece Views", a similar newsletter intended for visual observers. To learn more and subscribe visit: <http://www.aavso.org/maillinglists.stm>

Good observing!

Aaron Price, AAVSO Technical Assistant (PAH)

Gary Walker, Chairman of the AAVSO CCD Committee (WGR)

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