



Eyepiece Views #1

Home
 About the AAVSO
 Variable Stars
 Membership
 Meetings
 Publications
 Star Charts
 Contributing Data
 Accessing Data
 Observing Programs
 Hands-On Astrophysics

 THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS
 25 Birch Street, Cambridge, MA 02138 USA
 Tel. 617-354-0484 Fax 617-354-0665
<http://www.aavso.org>

E Y E P I E C E V I E W S

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Table of Contents

-
1. Introduction to the Eyepiece Views
 2. Visual Observing Program
 3. Novalike variable in Scorpius
 4. Comments on LPVs by J.A.M
 5. Comments on interesting stars by Mike Simonsen
 6. Recently Published Charts
 7. Mira's Companion

1. INTRODUCTION TO THE EYEPIECE VIEWS

This is the first issue of a new AAVSO electronic publication for visual variable star observers, prepared by AAVSO Technical Staff Gamze Menali and Aaron Price with contributions from our avid visual observer Mike Simonsen. Our goal with this publication is to support our observers' visual observing programs with lists of new targets, new observing program ideas, and information that is both interesting and helpful. I will add comments on stars, mostly long period variables (LPVs) that need more observations and other news from time to time.

EYEPIECE VIEWS will be published bimonthly and as needed. It will be distributed primarily via e-mail and will be archived on our website. To receive future issues of EYEPIECE VIEWS send a message to majordomo@aavso.org with "subscribe eyepieceviews" in the body of the e-mail.

As this is the first issue of this publication we anticipate some tweaking and minor changes over the first few issues. We welcome suggestions, comments, feedback, and contributions from observers as we strive to make this publication your observing aid. Please send your comments to eyepieceviews@aavso.org.

Thank you and we hope you find this new publication both useful and enjoyable!

Good observing!
 Janet Mattei (JAM)
 Director

2. VISUAL OBSERVING PROGRAM

Visual observations of variable stars make up the largest component of the AAVSO International Database now containing over 10 million observations on approximately 4,000 variable stars. These stars are primarily large-amplitude (visual range greater than one magnitude). The types of variables include; pulsating (Mira, semiregular, RV Tauri, Cepheids), eruptive or cataclysmic (dwarf nova, nova, recurrent nova, novalike, supernova, symbiotic), R Coronae Borealis, nebular (T Tauri, flare), irregular, and suspected variables. The observations on these stars are sent directly to AAVSO Headquarters. We also have several hundred eclipsing binary and RR Lyrae stars in the visual observing program and their observations are sent directly to the chairmen of these special committees.

Due to the wide range of periods and magnitudes of variation from type to type, some stars need more frequent observations and require more specific reporting of their observing time than others. Below is a table that gives the suggested frequency of observations together with the digit of the Julian day their observations should be reported at to the AAVSO.

TYPE OF STAR	OBSERVING FREQUENCY	REPORT JD TO
Cepheids	Every clear night	4 decimal places
Cataclysmic var.	Every clear night	4 decimal places
Mira variables	Once per week	1 decimal place
Semiregular	Once per week	1 decimal place
RV Tauri stars	Once per week	1 decimal place
Symbiotic stars*	Once per week	1 decimal place
R CrB* stars	During maximum once per week	1 decimal place
R CrB stars	During fadings every clear night	4 decimal places
Irregular variables	Once per week	1 decimal place
Suspected variables	Every clear night	4 decimal places
Flare stars	Continuously for 10 to 15 minutes for rare outbursts.	4 decimal places
Eclipsing binaries	Every 10 minutes during eclipse	4 decimal places
RR Lyrae stars	Every 10 minutes	4 decimal places

Note: Symbiotic stars and R CrB stars may experience possible small-magnitude, short-period variability. If you are interested in looking for this, then observations should be made every clear night and reported to 4 decimal places.

3. 1750-32 V1178 Sco - A NOVALIKE VARIABLE IN SCORPIUS

Katsumi Haseda, Toyohasi, Aichi, Japan discovered a novalike variable in Scorpius using 10-cm f/4 twin patrol cameras and T-Max 400 film (IAUC 7647 and AAVSO Alert Notice 285). The object was at magnitude 10.5 on June 15. The object has been slowly fading, with fluctuations since then.

Here are some recent observations of 1750-32 V1178 SCO

1750-32 V1178 SCO	JUN 25.1493	11.9:	(E. VAN BALLEGOIJ, ORANJESTAD, ARUBA)
1750-32 V1178 SCO	JUN 25.2673	11.6	(K. YOUNG, WRIGHTWOOD, CA)
1750-32 V1178 SCO	JUN 25.3020	11.5	(J. YOUNG, WRIGHTWOOD, CA)
1750-32 V1178 SCO	JUN 25.9788	12.27 CCDV	(W. LILLER, RENACA, VINA DEL MAR, CHILE)
1750-32 V1178 SCO	JUN 26.0095	12.33 CCDV	(W. LILLER, RENACA, VINA DEL MAR, CHILE)
1750-32 V1178 SCO	JUN 26.1085	12.23 CCDV	(W. LILLER, RENACA, VINA DEL MAR, CHILE)
1750-32 V1178 SCO	JUN 26.1458	12.1:	(E. VAN BALLEGOIJ, ORANJESTAD, ARUBA)
1750-32 V1178 SCO	JUN 26.1916	12.22 CCDV	(W. LILLER, RENACA, VINA DEL MAR, CHILE)
1750-32 V1178 SCO	JUN 26.9767	11.70 CCDV	(W. LILLER, RENACA, VINA DEL MAR, CHILE)
1750-32 V1178 SCO	JUN 27.0071	11.70 CCDV	(W. LILLER, RENACA, VINA DEL MAR, CHILE)
1750-32 V1178 SCO	JUN 27.1061	11.85 CCDV	(W. LILLER, RENACA, VINA DEL MAR, CHILE)
1750-32 V1178 SCO	JUN 27.1639	11.6 CCDR	(S. O'CONNOR, QUEBEC, CANADA)
1750-32 V1178 SCO	JUN 27.1674	12.4 CCDV	(S. O'CONNOR, QUEBEC, CANADA)
1750-32 V1178 SCO	JUN 27.1842	11.74 CCDV	(W. LILLER, RENACA, VINA DEL MAR, CHILE)
1750-32 V1178 SCO	JUN 27.2604	11.7	(K. YOUNG, WRIGHTWOOD, CA)
1750-32 V1178 SCO	JUN 27.2631	11.8	(J. YOUNG, WRIGHTWOOD, CA)
1750-32 V1178 SCO	JUN 27.2812	11.4	(J. BEDIANT, HONOLULU, HI)
1750-32 V1178 SCO	JUN 27.4589	12.0:	(P. NELSON, ELLINBANK, AUSTRALIA)
1750-32 V1178 SCO	JUN 28.1041	12.2:	(E. VAN BALLEGOIJ, ORANJESTAD, ARUBA)
1750-32 V1178 SCO	JUN 30.2722	12.4	(R. ROYER, LAKEWOOD, CA)
1750-32 V1178 SCO	JUL 01.4950	12.0:	(P. NELSON, ELLINBANK, AUSTRALIA)
1750-32 V1178 SCO	JUL 04.4389	11.5	(P. NELSON, ELLINBANK, AUSTRALIA)
1750-32 V1178 SCO	JUL 05.2083	11.2 CCDV	(R. ROYER, LAKEWOOD, CA)
1750-32 V1178 SCO	JUL 08.2429	11.2	(R. ROYER, LAKEWOOD, CA)
1750-32 V1178 SCO	JUL 09.2256	11.2	(R. ROYER, LAKEWOOD, CA)
1750-32 V1178 SCO	JUL 10.25	11.4	(R. ROYER, LAKEWOOD, CA)
1750-32 V1178 SCO	JUL 13.2672	12.2 CCDV	(R. ROYER, LAKEWOOD, CA)

Please use the 'd' scale AAVSO chart

(<http://www.aavso.org/alerts/alert285/alert285.stm>)

to observe this novalike variable, and report your observations of 1750-32 V1178 SCO

to AAVSO Headquarters, making sure to indicate which comparison star(s) you used.

For more information consult AAVSO Alert Notice #285 at the URL below:

<http://www.aavso.org/alerts/alert285/alert285text.stm>

Please watch for the forthcoming 'f' scale chart on our web site.

4. COMMENTS ON LPV'S BY J.A.M.

Below is a list of some LPVs that may be of interest to you due to their location, interesting behavior and/or because they are in need of more observations at this time. We realize that some of these stars may have charts with inadequate comparison star sequences that need improvement. Please continue to use the existing charts - regardless of how poor - until we have better established comparison stars magnitudes which is an on-going project that we are working on.

1346-77 T Aps <9.1-14.7>

The cycle in 2000 had very few positive observations. Southern hemisphere observers, we are depending on you to go for it at all phases of the light curve.

1353-04 SY VIR <9.0-15.0>

Maxima in 2000 is about 1 magnitude fainter than average. The minima are poorly observed. Use the e scale AAVSO preliminary chart that has well measured faint comparison stars to observe it as it is brightening to maximum.

1409-59 R Cen <5.8-11.1>

This easy-to-observe star is unique - it is one of only two Mira type LPVs (the other is 1528-49 R Nor) which has double maxima. In recent years its period and amplitude of variation has decreased. Studying the longterm AAVSO data, we suggest that it is undergoing a Helium-Shell Flash phase. See long abstract by G. Hawkins, J. Mattei, and G. Foster in JAAVSO, 28, 56, (2000) and in PASP, 113, 501, (2001) and another recent article by W. S. G. Walker and J. Greaves in JAAVSO, 29, 105; 2001.

1611-22B S Sco <10.5-14.6>

Needs more observations at all phases. Maxima in 2000 was about a magnitude fainter than its average maximum magnitude of 10.5. Observers with large telescopes may also want to go after 1611-22A R Sco, which is just south of S Sco and fading to its minimum, predicted for mid-September.

1613+26 NP Her (9.3 - 12.8)

Its recent two cycles in 1999 and 2000 have had very wide (lasting 2.5 months) and faint maxima.

1623-19 Y Sco <11.3-15.0>

Another southern variable in need of observations at all phases. We received very few observations for the 2000 cycle. Use the c and d standard charts. The 48 comp. star to the north-west will help you to locate it.

1626+23 DO Her 10.3-(16.0)

The light curve has significant number of discordant observations and scatter. The scatter may be due to some observers using a non-AAVSO comparison star sequence. Please use the d and e scale standard charts.

1839+22 AE Her 8.9-15.2

The maxima in October 2000 was very faint - at magnitude 11.2
Significant scatter exists around maximum. We have d and e preliminary charts.

1853+16 EU Aql <11.4-15.1>

This star is in need of observations throughout its light curve, particularly around minimum and as it brightens to maximum now. Use e scale AAVSO standard chart even though it needs a better comparison star sequence.

1906+43 ST Lyr <9.8-15.5>

Needs more observations around minimum, now. For several years we have had large gaps around minimum, making the predictions of its minima very difficult.

1910-17 T Sgr (8.0 - 12.6)

The ascending branch of the recent cycle was much steeper, i.e the rise to maximum faster, and the following maximum much wider than usual. Needs more observations as it is slowly brightening from its recent minimum in June. Will it again rise to maximum faster than usual??

1934+28 BG Cyg <9.1-12.4>

This star has all the features of varying cycles - varying level of maximum and minimum brightness, varying amplitude, and "humps" on the ascending branch of the light curve. The recent maximum in 2000 was faint and a very wide one - the star was at mean magnitude 10.1 for almost 100 days, from July to October.

1939-72 T Pav (8.0 - 13.0)

Needs more observations at all phases. The recent maximum has large scatter in the data. Please use the d scale standard chart.

2022-40 U Mic <8.8-14.0>

This star is in desperate need of observations at all phases. Only few points exist in the database since 1999. Presently it is fading to minimum (predicted for Aug 07).

2042-15 U Cap 11.1-14.8

Another LPV in desperate need of observations at all phases, particularly at minimum; has a good e scale standard chart.

5. COMMENTS BY MIKE SIMONSEN - on cataclysmic and other interesting variables to watch for July and August, 2001.

Please note that this is not meant to be a comprehensive list of CVs to observe in the next few months. This is only meant to point out a few interesting stars, mostly CVs, to think about while planning your own observing program.

1510+83 Z UMi - A circumpolar R CrB type star that began a rapid decline in early March. Currently at minimum, near 16th magnitude. When will it come back up?

1523+62 ES Dra - Rather ambiguous data in the database. Its type is still uncertain. Is it NL or UG? Only time and more observations will tell. Very good charts for this one are now available.

1544+28A R CrB - A star for everyone. Currently at maximum, but could go into one of it's characteristic fades any time. Be careful in identifying the comparisons to the east when swinging binoculars around. R CrB was the Variable Star of the Month for January, 2000:
<http://www.aavso.org/vstar/vsotm/0100.stm>

1555+26 T CrB - A recurring nova that could suddenly brighten at any moment... or not. Easily visible in smaller telescopes.

1621+39 V844 Her - This UGSU gets as bright as 12th magnitude when in outburst. Lately, the typical outburst cycle seems to be about eleven months. That would mean it's due any time now. Don't confuse it with the 141 comparison close by.

1640+25 AH Her - A very active UGZ star that ranges from 14th magnitude to 11th magnitude. When at minimum it can be a challenge to estimate, due to its very close companion. When in outburst, suitable comparisons are spread far and wide. Well worth the challenge though, because it is always doing something!

1744-06 RS Oph - Another recurring nova. The last outburst was in 1985. Maybe not overdue yet, but there was only a nine year calm between the 1958 and 1967 eruptions. This one is easy to find in a well populated field, and bright enough for smaller telescopes. No excuses for missing it when it goes off. RS Oph was also the Variable Star of the Month for May, 2000:
<http://www.aavso.org/vstar/vsotm/0500.stm>

1848+26 CY Lyr - Maybe it's not earth shattering news when it goes into outburst because it does it so often. But, if you can see down to the mid-thirteens with your scope and actually want to *see* a CV in outburst in the next couple months, keep an eye on this field. Located in a nice open cluster.

1916-28 V730 Sgr - This one is for our southern observers. There is almost no data for this star in the AAVSO database. You can help change that, and we now have excellent charts for this field.

2007+20 FG Sge - This "peculiar" central star of a planetary nebula is often mistaken for it's close companion. Exhibits deep irregular fades like an R CrB. Currently at or near minimum. Should be on the way up soon. Will it recover or will it fade again after coming half way up to maximum?

Ron Royer (RR) wrote a paper about FG Sge in JAAVSO, Vol. 27, 146, (1999) which can also be read in full through ADS at the URL below (should be all on one line):

http://adsabs.harvard.edu/cgi-bin/nph-bib_query?bibcode=1999JAVSO..27..146R&db_key=AST&high=39ad50824516343

6. RECENTLY PUBLISHED CHARTS

New charts have recently been released for a group of CVs that had no previous AAVSO charts.

DESIGNATION	NAME	RANGE	TYPE	SCALES
0748+63	HT Cam	17.2-18.6B	XM/UG?	b,d,f,br,dr,fr*, and CCD f
0845+03	CT Hya	14.2-18.5V	UGSU	b,d,f,br,dr,fr, and CCD f
0909-06	MM Hya	13.0-18.9V	UGSU	b,d,f,br,dr,fr, and CCD f
1326-29	LY Hya	14.0-18.5V	UGSU	b,d,f,br,dr,fr, and CCD f
1424-25	GY Hya	14-16p	UG:	b,d,f,br,dr,fr, and CCD f
1802+31	V1008 Her	13.5-19.3V	UGSS	b,d,f,br,dr,fr, and CCD f
1804+38	PR Her	14.0-21.0V	UG	b,d,g,br,dr,gr, and CCD g
1916-28	V730 Sgr	12.8-(17.5p	UGSS:	d,f,dr,fr
1920+52	V1113 Cyg	14.0-19.3V	UGSU	d,f,dr,fr

(* br,dr,fr -- "reversed" charts for telescopes with odd number of reflections such as Schmidt-Cassegrain telescopes and refractors)

They can be found at <http://charts.aavso.org/new061501.stm> .

Watch the AAVSO web site for more charts of new CVs that will be released later in the month.

7. MIRA'S COMPANION

Mira has a hot, faint companion that was long known to be somewhere between a white dwarf and a blue main-sequence star. Edward M. Sion and John J. Bochanski (Villanova University) determined that it is a relatively cool white dwarf surrounded by a hotter accretion disk of gas that is being collected from Mira's out flowing stellar wind.

For more information please check;

SKY&TEL(news) <http://www.skypub.com/news/010608.html>

AAS (Abstracts- Pasadena, CA June 2001)

<http://www.aas.org/publications/baas/v33n2/aas198/517.htm>

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

Good observing!

Gamze Menali, AAVSO Technical Assistant (MGQ)

Aaron Price, AAVSO Technical Assistant (PAH)

Mike Simonsen, AAVSO Observer (SXX)

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THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS

25 Birch Street, Cambridge, MA 02138 USA

Tel. 617-354-0484 Fax 617-354-0665

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