



Eyepiece Views #2

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

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1. 2ND ISSUE INTRODUCTION AND A PLEA TO EARLY MORNING OBSERVERS

Welcome to the 2nd issue of Eyepiece Views. We hope you found the first issue useful. Please send us any comments you may have or suggestions for topics in future issues. Since this is still a new publication now is the perfect time to have your feedback heard!

We would like to take this opportunity to address non-circumpolar stars with significant observing gaps. These gaps are especially troublesome with stars whose period is changing or is not known exactly. These gaps can be minimized by making observations of a star as soon as it rises in the predawn hours, throughout the season, and until it disappears in the sun's glare at dusk. Mira (OMI CET), is one of our most popular stars and yet has large gaps in its lightcurves.

Please observe these objects in the predawn hours as soon as you can. We would like to ask our early morning observers to add stars in their program which are rising in the predawn hours.

If you have any questions, please post them to the AAVSO Discussion Group so that others may participate in the discussion.

Thanks and good observing!

Gamze Menali (MGQ)
 Aaron Price (PAH)
 Mike Simonson (SXX)

2. COMMENTS ON LPVs - J.A.M.

In the first issue of Eyepiece Views Janet Mattei (JAM) contributed comments on 15 LPVs which are in urgent need of observation at this time. We would like to thank the following observers for submitting 286 observations of these LPVs for the months of July and August: TVG, PEX, SRX, SBX, HZJ, JM, WJD, HHU, SFK, SRB, ABB, BVE, COM, AAX, CMQ, STI, HWD, LTO, LMK, SVP, EER, DPA, KTZ, HHU, PUJ, SXN, VPJ, WRX, KKI, AAP, MGH, SJZ, GRL, POX, PAH, ZRE, OSW, FXJ, CNT, SVP, CKN, VFK, GMY, BJS, LTO, DLA, ABB, WLP, BJS, SGE, TVG, CKB, CBI.

Below is a list of some objects in need of observations for the next two months.

1802-22 VX Sgr 6.7-13.3

This star is one of the most fascinating variables, a semiregular variable with the longest period, 732 days. Since 1997, its amplitude has been decreasing, and particularly since 1998 it has been very difficult to predict its behavior because its amplitude has decreased dramatically, varying only from 9.1 to 10.6, which is reminiscent of its behavior in the early 1960's. A plea to our observers: please monitor this fascinating star as much as you can until it is lost in the autumn sky and pick it up as early next season as possible to see whether it will continue its unusual behavior or return to its large-amplitude, periodic behavior.

1813+06 BC Oph 8.8-15.6

The maximum brightness of the most recent cycle has been about a magnitude fainter and the amplitude of the cycle has been smaller than the previous one. Particularly around maximum, the star may be suffering from the use of two comparison star sequences, since there is quite a bit of scatter in the data. Observers are urged to use the AAVSO chart, which has a good comparison star sequence particularly around maximum. The next maximum is predicted for September 25.

1922+01 TU Aql 8.9-(15.4)

This star can definitely use more observations at all phases. It has been having alternating bright and faint maxima. The most recent maximum was about a magnitude brighter than the previous one. The predicted maximum is for September 12.

2008-22 W Cap <11.7-14.8>

Another LPV in need of more observations at all phases. Due to lack of observations it has been difficult to predict its maxima and minima in recent years. It is brightening to its maximum predicted for October 13.

2011-21 RT Cap 8.9 - 11.7 P

This bright semiregular variable is on the b chart of 2008-22 W Cap. The data (between magnitude 6.7 and 8.7) in the last decade show a lot of scatter and so it is very difficult to determine the behavior of the star. RT Cap is a carbon star, thus it is red, and part of the scatter in the light curve, on the bright end, may be due to the Purkinje effect. Observers who observe this star should be particularly careful in making estimates and should use the quick-look

or out-of-focus method.

2012+07 QZ Aql 10.4-(15.5)

Thanks to our observers' efforts, the cycle in 2000 was better monitored, in comparison to earlier years. The maximum was wide, and showed small-amplitude variations. Currently it is slowly brightening to its predicted maximum on October 24.

2013+76 SZ Cep 9.1-15.5

This circumpolar variable can use more observations around maximum. This star is a good example of observers' possibly using comparison star magnitudes that are different from the AAVSO D scale chart, especially around maximum. One can see this particularly at its maximum of JD 2451504. This star desperately needs a completely new, better comparison star sequence, but observers are urged to use the existing magnitude sequence so that when we do have a better sequence we can transform all of the data to the new sequence. The existing magnitude sequence is visual. Beware of a nearby 10.4 star to the east of the variable. Predicted maximum is for September 4.

2049-54 S Ind <8.2-15>

We are counting on our southern-hemisphere observers to provide more estimates for this star, which is in need of observations at all phases. The recent maximum in 2000 was about a magnitude brighter than the previous one. The AAVSO 'd' chart is quite inadequate. We ask our observers' understanding and patience with the chart, and we appreciate their efforts.

2056-27 RR Cap <9.3-14.5>

This star can use more observations at all phases. The recent maximum was about one-and-one-half magnitudes fainter than the previous one. It is brightening to its maximum predicted for October 22.

2105-16 Z Cap <9.5-14.0>

Partly because of the length of its period (181 days) and the seasonal-gap effect, the alternate cycles of this variable have been very poorly monitored. The last cycle in 2000-2001 was well monitored, thanks to the efforts of our observers. The present cycle is that alternate cycle, and we urge our observers to continue to monitor this star closely until it is lost in the western sky and as soon as possible after it re-appears in the east so that we break the habit of having the alternate cycles well monitored and have a more complete light curve. The next maximum is predicted for September 20.

2128-14 Y Cap <11.6-14.8>

This star is badly in need of observations at all phases. It is slowly fading from its recent maximum.

2142-47 R Gru <8.3-14.6>

Another star for which we are counting on our southern observers for more observations, particularly as it is brightening from its predicted minimum of August 28.

2212-30 R PsA <9.2-14.7>

Another star in desperate need of more observations at all phases. It is slowly brightening towards maximum predicted for November 11.

2228-67 R Ind <8.4-14.3>

Thanks to the efforts of a few observers in the southern hemisphere - Rod Stubbings, Peter Wedepohl, Tom Cragg, Jaime Garcia - we have been barely able to predict maxima and minima dates for this star. We bring this star to the attention of our southern-hemisphere observers and plead for more observations at all phases. It is slowly brightening to its maximum predicted for October 10.

2234-62 T Tuc <8.1-13.2>

Another southern variable desperately in need of more observations, particularly now, around minimum.

2327-46 V Phe <9.2-14.0>

Yet another southern variable in need of observations, particularly as this star brightens towards maximum predicted for September 12.

3. SEEING DOUBLE (PART 1)

The following article is the first of two parts written by Mike Simonsen (SXN). The second part will be published in the next issue of Eyepiece Views and will include Winter constellations.

Most amateur astronomers have observed double stars at one time or another. Many of you have favorites, like Alberio or Epsilon Lyrae. Splitting a close pair can be a test of your optics, eyes, seeing conditions, and sometimes, your patience.

Since the majority of stars in our galaxy are members of multiple systems, it should come as no surprise that some of the variables we observe also have companions. I'm not referring to the unseen companions of eclipsing binaries or cataclysmic variables, but rather, pairs of stars you can actually see.

These variable doubles present their own challenges and rewards in observing. The following is part of a long list of variables that have very close companions. These may cause observers some difficulty in identifying and/or estimating the variable star in the field. In fact, I have included a few close pairs where BOTH components are variable!

CE LYR 1832+27

This variable sits due west of its 113 comparison/companion. Strangely enough, my star hop to this variable begins with a close double in the finder scope.

Z LYR 1856+34

Egad! This one can make you go blind. The 136 and 138 comparisons are very close to each other and close enough to the variable to cause confusion. Pile on the fact that you need a magnifying glass to see the tiny star dots on the e chart, and you have a real puzzler in the dark with your red flashlight! I recommend using the f chart and high magnification when it approaches minimum.

UU LYR 1901+27

I don't recall having actually seen this faint Mira yet. It is

located very close, and to the SE of its 137 companion/comparison.

TU AQL 1922+01

I found this one tricky to estimate when it was nearly equal to the 110 comparison/companion. You can't defocus or they run together. Nicely contrasting colors may be pretty, but they don't help much when it comes to making the call.

SW AQL 1946+12A

This Mira has a NE companion that can easily be mistaken for the variable. At maximum, SW Aql only gets to 13.3, so be sure you can see both stars before making the call.

OW AQL 1946+14A

This Mira is parked right next to a 9th magnitude star. Picking it out of the glare near minimum can be a test. Steady seeing and high magnification may be needed.

Z CYG 1958+49

This one isn't too hard to split from its 130 companion/comparison, but it is in a rather confusing field. The entire sequence is riddled with comparisons that are themselves double. The 85, 105, 115, 121 and 133 comparisons are all close pairs. Be careful not to use the combined brightness when making the estimate using these stars.

SY AQL 2002+12

Beware the 14th magnitude impostor due north near minimum. It's very close. Lots of doubles in this field, including the 73, 95, 104 and 110 comparisons.

FG SGE 2007+20 and ST SGE 2007+20A

Double trouble! FG Sge is often confused for its close neighbor to the east. What's more, the eastern companion may itself be variable. As if that weren't enough, on the same chart is another devilishly close pair, ST Sge and its close buddy. Good seeing and high magnification are needed when these stars are faint.

On a side note, an article on FG SGE by Ron Royer was published in 1999 in JAAVSO vol. 27, no. 2, p. 146-147. It can be read online at the URL below:

http://adsabs.harvard.edu/cgi-bin/nph-bib_query?bibcode=1999JAVSO..27..146R&db_key=AST&high=3b4f1b442624482

LX CYG 2152+47A

I haven't had the pleasure of seeing this one near minimum. Its 138 companion was a good catch on a steady night when LX itself was 9th magnitude. This is another chart with lots of booby traps. For faint comparisons, the 140 near LV Cyg is a double and the 144 and 141 are a close pair near LY Cyg, which is a close double also! Three variables in the Milky Way in Cygnus. Two with close companions and close doubles as comparisons. My advice... take your time.

DV CYG 1917+29, YZ VUL 1940+27 and DG CYG 2039+42

All deserve honorable mention in this region of the sky.

I would like to thank Georg Comello for his input and suggestions for candidates for this article.

4. CV'S AND UNUSUAL OBJECTS FOR FALL

By Mike Simonsen (SXN)

Not everyone appreciates the charm and mystery of making hundreds of negative observations while monitoring CVs that rarely go into outburst. There really is no way to describe the excitement you feel when you finally see one of these rare outbursts for the first, maybe the only, time in your life.

For those of you who might like to add some CVs to your observing program, but don't fancy making a lot of negative observations, here is a list of "hyper-active CVs". A quick look at the online light curve generator (<http://www.aavso.org/adata/curvegenerator.shtml>) will show you these stars are always up to something. If you add these CVs to your fall observing list you will see an outburst or note some activity before long.

RX AND 0058+40

Although this UGZ has had long periods of standstills one third from maximum, more often than not it can be seen showing off due east of M31.

TY PSC 0120+31

NW of M33, this UGSU is fairly active. It has the bonus feature of being located due north of an unmistakable asterism of four closely packed stars.

KT PER 0130+50

Another active CV not far from a well-known Messier object, this UGZ is just a quick star hop from M76. This favorite is fairly active, sometimes quite bright and pleasantly unpredictable.

TZ PER 0206+57A

Once you've seen this UGZ shining around 12.5 it will be easier to pick out from its close 13th and 14th magnitude neighbors when not so bright. At this declination it is nearly circumpolar, so you'll get lots of practice.

LX AND 0213+40

Although listed as an RVB type star in the GCVS, it is included in the most recent Downes and Shara catalogue as a UG. At maximum, it gets into the 13th magnitude range. There are excellent new charts for this star on the website.

FO PER 0401+50

Usually, this UG bursts into the 13th magnitude range. It has had bright outbursts into the low 12s. Almost once a month it does something, so your odds of catching it are pretty good.

FO AQL 1911-00

Although its getting late in the season for this one, it's not too low in Aql to squeeze in a few more outbursts before this UGSS disappears into the sun. Outbursts are usually in the mid-13s.

EM CYG 1934+30

Located in a beautiful star field in the Milky Way, EM Cyg can be followed from minimum to maximum in most 8 and 10 inch scopes. Frequent outbursts into the 12th magnitude range and typical standstills for this UGZ.

SS CYG 2138+43

Doesn't everyone in the AAVSO observe this one already? There are good reasons. It's bright, easy to find and unpredictable.

HX PEG 2335+12

Maybe not as active as some of the other stars on this list, this UGZ does exhibit the outbursts and standstills of its type. Located in a sparse field with a fairly bad sequence, this one sometimes makes it in to the 12s. Hey, I had to throw at least one challenge at you didn't I?

After experiencing the excitement of seeing these stars blaze forth and then fade back into quiescence, maybe you'll be ready to stand vigil on PQ And or EG Cnc or... hmm, sounds like another list.

Clear Skies and Happy Hunting

5. RECENT VISUAL CHART UPDATES

Below is a list of new charts published in July and August of 2001. They can be downloaded from <http://charts.aavso.org/> .

Desig	Name	Range	Type	Scales
1148+52	SN 2001dp	14.1 - ? v	SN	e,er
1234+21	IR Com	13.5-18.0V	UGSU	b,d,f,br,dr,fr
1448+64	RXJ1450.5+ (Dra)	13.4-17.7V	UGSU	b,d,f,br,dr,fr
1521+08	QW Ser	12.8-18.0p	UGSU	b,d,f,br,dr,fr
1530-13	HP Lib	13.0-15.8B	AM CVN	d,f,dr,fr
1617+19B	V589 HER	14.1 -(17.5p	UG	e,f,er,fr
1750-32	V1178 SCO	10.2p - ?	NL?	f,fr
1620-04	V699 Oph	13.8-18.5p	UG	b,d,f,br,dr,fr
1918+04	V1494 AQL	5.0 - V	N	f,g,fr,gr
2003+17	WZ SGE	7 - 15p	UGWZ/DQ	b,e,br,er
2059+48	N CYG 01-2	6.6 - v	N	ab,b,br

We have also added 24 new reversed charts and updated the charts for DO HER, FZ CYG, V1329 CYG, V1494 AQL, and V2274 CYG (N CYG 01). If you observe these stars please download and use the updated charts.

For more details and a continually updated list of chart changes visit <http://charts.aavso.org/updates.stm> .

6. BINOCULAR VARIABLES FOR NEW OBSERVERS

The observation of variable stars does not require expensive instruments. For those new to amateur astronomy, binoculars are frequently a much better investment than a telescope.

Binoculars are both a valuable scientific instrument and easy to use. They are easy to point and focus, the field of view is larger than a telescope and it's easier scan the sky and find what you're

looking for. They also provide the convenience of going after stars whenever you want thanks to the lack of required setup time. If you want to contribute very valuable data you may want to take a few minutes after twilight and before dawn to observe. (See the Introduction to this issue for more information.)

We have a section on our web page for information on a sampling of stars easy to observe with binoculars at the URL below. We also have included information on how to use the charts and find the field.

<http://charts.aavso.org/binocularstars.stm>

With binoculars, you can catch Mira at maximum and get the top of the light curve. You can do the same with V CAS. Also interesting in binoculars are Z UMA (Semiregular), MU CEP (Semiregular, extremely red star located on the Delta Cep chart), R SCT (RV Tau star, well within the range of a standard pair of binoculars.), R CRB, RS OPH (Goes to max every 15 years or so), CH CYG (Symbiotic).

7. THE PURKINJE EFFECT ON RED STARS

The Purkinje phenomenon makes red stars seem brighter the longer you stare at them due to the response of the retina to red light. This makes estimating red stars even more difficult than it already is. When observing these stars it is recommended that you use the quick glance or out-of-focus method. The former involves quickly glancing between the comp stars and the variable. The latter involves slightly defocusing your telescope and making an estimate of the defocused image.

For more information visit the resources below:

- AAVSO Manual for Visual Observing of Variable Stars
<http://www.aavso.org/cdata/manual/chapter2.stm>
- Mayer, E. "Application of Out-of-Focus Images in Amateur Astronomy". JAAVSO, Vol. 12, pg. 16; 1983.
http://adsbit.harvard.edu/cgi-bin/nph-iarticle_query?bibcode=1983JAVSO..12...16M
- Isles, J.E. "The Purkinje Effect" Journal of the Royal Astronomical Society of Canada Newsletter, Vol. 65, p.L6. Dec, 1971.

8. REMINDERS: WZ SGE & CURRENT NOVAE

The last two months have been very active. In July, WZ Sge went into outburst for the first time in a little over 22 years. Right now recent observations show it between 11-12 mag and steadily fading with oscillations. If you don't observe it now it may soon get too faint to see again for another 20+ years! At the URL below we have all sorts of light curves, charts, spectra, and historical data on WZ Sge.

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

Also, there have been two novae discovered, one easily placed for each hemisphere. They both are fading at different and unpredictable speeds. Below is a table of information on each nova.

2059+48 V2275 CYG (Nova Cygni 2001 No. 2)
Discovery Mag: 8.8ptg (A. Nakamura, Kume, Ehime, Japan)
Current Mag: 11-12 (13 days later)
Data, charts, light curves, spectra, and analysis is
available at: <http://www.aavso.org/novacygni.stm>

1818-30B V4739 SGR (Nova Sagittarii 2001 No. 2)
Discovery Mag: 7.6 (Alfredo Pereira, Cabo da Roca, Portugal)
Current Mag: 10-11 (3 days later)
Data, charts, light curves, spectra, and analysis is
available at: <http://www.aavso.org/novasgr.stm>

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e-mail.

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!

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