



Eyepiece Views: January, 2002

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

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1. WELCOME TO 2002

For most of us, the year 2002 begins on January 1. Besides being an interesting palindrome, what else does 2002 offer? For the AAVSO, quite a bit is in store. First, there is the spring meeting in Hawaii. Start saving now because you won't want to miss out on an high-energy astrophysics workshop, CV workshop, and trips to Mauna Kea. Secondly, we are resolved to overhaul the AAVSO variable star chart program this year to make it more responsive to your needs. At the end of this issue of Eyepiece Views is a quick summary of some of the things we hope to achieve in that area. Finally, 2002 offers what the beginning of every year offers: hope for more clear skies than last year!

Looking back, 2001 offered much for us to be grateful. The AAVSO has continued to grow by leaps and bounds, especially in regards to our international observers and members. Last year new technology and resources became available for just about every observing program in the organization. But it all seems to be just a little bit diminished in excitement due to the shadow of many of the events that have occurred in the past year. We would like to suggest that when things get you down, just look up at the majesty of the stars and revel in their beauty. And when you are finished and ready to come back down to Earth, think about how all the variable star organizations in the world cooperate together. If only our political and societal leaders could follow our model. There may not be harmony with lines on a map right now, but there is harmony in the skies and fellowship among variable star observers of all nations.

Hang in there and look forward to a much more optimistic greeting in the Volume 3, No 1 issue of Eyepiece views, due about 365 days from now. :)

Good observing!

Gamze Menali, AAVSO Technical Assistant (MGQ)
Aaron Price, AAVSO Technical Assistant (PAH)
Mike Simonsen, AAVSO Observer (SXN)

2. 0324+43 GK PERSEI - Observing Campaign

Astronomers at Livermore National Laboratory in California and NASA Goddard Space Flight Center are preparing for Target of Opportunity Observations (TOO) of GK Per - the 1901 nova, classified as a magnetic cataclysmic variable of intermediate polar subclass - during its next outburst with the Chandra and XMM X-ray satellites.

GK Per has a quasi-periodic outburst interval ranging from 900 to 1300 days. The most recent outburst of GK Per began in late February, 1999. The star reached a maximum mean magnitude of 10.5 about 1 month later. Based on the interval between the most recent 2 outbursts (approximately 1,100 days) we would expect the next outburst to occur in the next several months. GK Per was featured on the AAVSO web page as the Variable Star of the Month in November 2000. For more information please see the following page:

<http://www.aavso.org/vstar/vsotm/1100.stm>

Also for a brief discussion of the outburst, please visit the URL below :

http://adsbit.harvard.edu/cgi-bin/nph-iarticle_query?bibcode=1985PASP...97..264S

Please keep a very close eye on this variable and inform us when it starts to brighten -- 12.5 or brighter in magnitude. Immediate notification of the star's brightening and good coverage throughout the next outburst are extremely important for the triggering of the satellite observations and for correlation with the satellite data.

3. COMMENTS ON LPVs -- J. A, Mattei

Below is a list of some long period variables that need more observations at this time.

Thanks to the following 27 observers for submitting 164 observations on the LPVs listed in the November, 2000 issue of Eyepiece Views: AAX, ABB, BRK, BVE, CRR, DPA, FXJ, GKA, HHU, HZJ, JEA, JM, KHL, LTO, MGH, MMH, PUJ, RMQ, RSE, SBX, SBH, SFK, SJZ, STI, SVP, TDB, and WSV.

0018-62 S Tuc <9.3-14.5>

This southern variable needs observations at all phases. Its predicted maximum is for early January. There is an AAVSO 'd' scale chart for S Tuc.

0202+27 Z Tri 9.4-15.2

One of the interesting features of this long period variable's light curve is the varying levels of maximum and minimum. The most recent maximum, in June, was 10.2, a magnitude fainter than in the previous cycle. The AAVSO 'd' and 'e' scale charts for this star have eye-estimate comparison star magnitudes. Z Tri needs more observations and its sequence needs better comparison star magnitudes. Predicted maximum is the end of January.

0257-51 T Hor <8.2-13.2>

Another southern variable in need of observations at all phases. Its predicted maximum is early January. There is an AAVSO 'd' chart scale that has big gaps in the comparison star sequence at the brighter and fainter ends. Please use this sequence, and do the best you can with it.

0313+32 TW Per 9.4-(15.0

The light curve of this long period variable suffers from some observers' using a different sequence than is on the AAVSO 'b', 'd', and 'e' scale charts. Particularly around maximum, there is a "double" light curve due to sequence differences. Observers are urged to observe TW Per using the comparison star magnitudes in the AAVSO sequence, even if those magnitudes are not optimum, in order to have standardization of observations. The star is fading from a recent maximum; predicted minimum is in late February.

0422+15 W Tau <9.9-11.4>

This semiregular variable has not been very periodic in recent years, making prediction of its maxima and minima very difficult. Please observe it closely in order to determine its behavior. There is an AAVSO 'd' scale chart with good sequence; the variable is close to and northwest of theta1 and theta2 Tau (magnitudes 3.8 and 3.5, respectively).

0432+74 X Cam <8.1-12.6>

This northern circumpolar long period variable with a rather short period (144 days) is an easy one to observe. In fact, there are several bright stars in the area, making it easy to locate, and it is close to an 8.5-magnitude star just to its northwest. The cycles are never exactly the same in shape and brightness level of maxima and minima; some cycles have a bump on the ascending branch. Predicted maximum is the middle of January. There are good AAVSO 'b' and 'd' scale charts.

0446+17 V Tau <9.2-13.7>

The recent cycle of this long period variable was poorly monitored. Presently V Tau is brightening to maximum, predicted for the end of January. It is close to and southeast of the beautiful open cluster NGC 1647. AAVSO 'b' and 'd' scale charts exist. Please use these charts to make magnitude estimates.

0543-31 S Col <9.3-13.8>

Another southern variable badly in need of more observations at all phases. Presently it is brightening toward maximum, predicted for the end of January. The AAVSO 'd' scale chart has big gaps in comparison star magnitudes at the bright end of the sequence. Do the best you can to make estimates while the star is brightening. It has been very difficult in recent years to predict maxima and minima because of the scarcity of observations.

0557+16 RR Ori 9.4-15.0

The recent cycles of this long period variable have been poorly monitored. There are AAVSO 'b' and 'd' scale charts with fairly good comparison star magnitudes. This star is presently brightening towards maximum, predicted for mid-February.

0728-20B Z Pup <8.1-14.5>

This long period variable with a 509-day period needs observations as it brightens to maximum at this time. There are AAVSO 'b', 'd', and 'e' scale charts which show a closeby 10.6-magnitude comparison star to the northeast.

0742-41 W Pup <8.4-12.4>

This Mira variable with a rather short period (120 days) has very large scatter in the data. The problem may be different comparison star sequences being used by observers. There is an AAVSO 'd' scale chart. Observers are urged to use only this chart, in order to have standardization of the data. Predicted maximum is early January.

0853-00 TU Hya 9.6-(15.5

Thanks to the efforts of our observers, the recent cycle of this Mira variable was much better monitored than the previous several cycles. Please continue the good coverage on this star. Maximum is predicted for early February. There are AAVSO 'b' and 'e' scale charts.

0918-68 RW Car <9.3-15.0>

We are at the mercy of our southern hemisphere observers with this Mira variable. It is slowly brightening to maximum, predicted for early February. There is an AAVSO 'd' scale chart. Beware of a 9.7 comparison star to the east of the variable.

0949-53 Z Vel <9.0-14.3>

Another variable with scatter in the data, particularly on the rising branch of the light curve. Are observers using different sequences? There is an AAVSO 'd' scale chart. Observers are urged to use only this chart, for the homogeneity of the data. This star shows significant variation in the brightness level of maximum and minimum. It is presently slowly fading to minimum.

4. CVs and Unusual Objects for the New Year

By Mike Simonsen SXN

For a constellation with few bright stars, covering only 506 square degrees, Cancer seems to have a disproportionate amount of cataclysmic variables and unusual objects.

Fortunately, there are some interesting asterisms and two Messier clusters to help you star hop around to these variables.

0804+28 YZ Cnc (UGSU) This is one of those hyper active CVs that seems to be in outburst all the time. Even if you are a weekend warrior you are liable to catch this one in its active state, and it usually has a couple bright and long superoutbursts per season. At minimum you may be able to make positive observations in the 14th magnitude range.

0822+25 AT Cnc (UGZ) Another fairly active CV, this one gets as bright as 12th magnitude on occasion. Like all Z Cam types, it has

standstills, periods where it gets stuck at one brightness level for a while before resuming its unpredictable outburst pattern.

0830+21 CC Cnc (UGSU) This star recently underwent a superoutburst in the 13th magnitude range. Quite faint at minimum, outbursts are few and far between. This one requires a bit of patience and persistence, but deserves attention.

0837+28 EG Cnc (UGSU) You may wait a LONG time for this one to go off. Like WZ Sge, this system rarely goes into superoutburst. The last outburst was detected by Patrick Schmeer in 1997. It had been a twenty year wait since the previous outburst. Also like WZ Sge, EG Cnc exhibits post outburst rebrightenings as it fades from maximum. This is a very interesting CV to both professionals and amateurs. If you detect an outburst, notify the AAVSO immediately.

0849+11 AK Cnc (UGSU) Not far from M67, this one is an easy star hop from #60 Cnc. Outbursts don't come frequently, maybe once a year, but it can get as bright as 13.2 or so when at maximum. Unfortunately, this one could use a better sequence and chart.

0849+20 OJ 287 Cnc (QSO) This is an active galactic nucleus. These variable objects are the powerful centers of galaxies so far away they appear star-like. The heart of this beast may actually be a binary black hole system in an elliptical orbit. Ponder that while staring at this sparse field trying to get a glimpse.

0855+18 SY Cnc (UGZ) Ranging from the mid 10s to mid 13s this is another delightfully unpredictable CV that can be followed through its entire cycle with modest telescopes. It also gets stuck in standstills like AT Cnc and other Z Cam types. The star hop to this one is unique. I start at FZ Cnc, a 6th magnitude SRB, and follow a question mark asterism around the horn to get to SY Cnc. Estimating it at maximum can be a challenge due to a lack of convenient comparison stars in the bright range.

Cancer is the last best stop heading east in my program. The pickings get slim in Leo and Virgo. I usually point north to Ursa Major about here and go around the pole. Ursa Major, now there's a constellation full of interesting CVs for another time!

5. 2251-41 SN 2001ig in NGC 7424 (GRUS)

We have been informed by the Central Bureau for Astronomical Telegrams (IAU Circular 7772) that Robert O. Evans, Hazelbrook, New South Wales, Australia, visually discovered a supernova in NGC 7424 on DEC 10.43 UT at about magnitude 14.5, using a 0.31-m reflector.

SN 2001ig is located 139" east and 109" north of the nucleus of NGC 7424, at:

R.A. = 22h 57m 30.69s Decl. = -41degrees 02' 25.9" (2000.0)

An AAVSO 'f' scale preliminary chart of NGC 7424 showing the location of SN 2001ig has been posted on the AAVSO web page. Please use this chart (http://charts.aavso.org/PRELIM/GRU/SN2001IG_GRU/) to observe the supernova, and report your observations of 2251-41 SN 2001ig to AAVSO Headquarters, making sure to indicate which

comparison star(s) you used.

This supernova continued to brighten. Your observations of this supernova are very important so that we may track the recent brightening. A plea especially to our Southern observers.... Please continue to keep a close eye on this object.

Here are some recent observations of 2251-41 SN 2001ig

| | | | | | | |
|---------|-----------|-------------|--------------|-------|-----|-------|
| 2251-41 | SN 2001IG | DEC 14.75 | 2452258.25 | 14.2 | MLF | |
| 2251-41 | SN 2001IG | DEC 15.5619 | 2452259.062 | 13.8 | PEX | K |
| 2251-41 | SN 2001IG | DEC 15.7799 | 2452259.28 | 14.0 | MLF | |
| 2251-41 | SN 2001IG | DEC 16.5490 | 2452260.049 | 13.5 | PEX | K |
| 2251-41 | SN 2001IG | DEC 16.7599 | 2452260.26 | 13.8 | MLF | |
| 2251-41 | SN 2001IG | DEC 17.2187 | 2452260.7187 | 13.5: | LMK | BS |
| 2251-41 | SN 2001IG | DEC 17.5400 | 2452261.04 | 13.4 | PEX | K |
| 2251-41 | SN 2001IG | DEC 18.2173 | 2452261.7173 | 13.4 | LMK | O |
| 2251-41 | SN 2001IG | DEC 19.2173 | 2452262.7173 | 13.1 | LMK | B |
| 2251-41 | SN 2001IG | DEC 19.5389 | 2452263.039 | 13.0 | PEX | K |
| 2251-41 | SN 2001IG | DEC 21.2790 | 2452264.7791 | 12.8 | LMK | BY |
| 2251-41 | SN 2001IG | DEC 22.2319 | 2452265.7319 | 12.8 | LMK | B |
| 2251-41 | SN 2001IG | DEC 23.2311 | 2452266.7312 | 12.4 | LMK | BY |
| 2251-41 | SN 2001IG | DEC 31.7570 | 2452275.257 | 12.5 | MLF | |
| 2251-41 | SN 2001IG | JAN 05.5131 | 2452280.0132 | 12.3 | NLX | CCD O |
| 2251-41 | SN 2001IG | JAN 05.7519 | 2452280.252 | 12.6 | MLF | |
| 2251-41 | SN 2001IG | JAN 06.5400 | 2452281.04 | 12.3 | PEX | K |

For more information consult AAVSO News Flashes No. 887 and No. 893 at the URLs below:

<http://www.aavso.org/newsflash/nf887.shtml>

<http://www.aavso.org/newsflash/nf893.shtml>

6. THE TEAPOT AND THE KITCHEN WINDOW

By Steve O'Connor

Gently I nudged the telescope's tube southwestward towards the direction of the galactic center. Ah, these calm, comfortable evenings of early summer were divine for observing. After the frigid darkness of the past winter, with me in my full seasonal attire featuring four layers of everything I could find to wear! Looking like a dime store moonwalker and gazing up through minus 20 degree air at GEM was no party! However I was certainly making up for it now, I mused, counting only a pair of shorts and a wrist watch as this evening's observing garb. As I steered my 8" Newtonian ever so slightly southward I suddenly paused as the impressive ruddy hue of KW SGR signaled the end of my current starhop. Over the past couple of years I had become increasingly impressed with the number and variety of unusual variable stars in this part of the sky. And even though SGR never rises very far above the rooftops here in metropolitan Montreal, its' abundance of variables and the fact that for many of our observers in mid-northern latitudes, SGR is not conveniently accessible for one reason or another have combined to make this constellation quite irresistible to me!

As I was estimating my variable, the glare of automobile headlights turning into the driveway ushered me back to Earth for a moment..... a police patrol car even! Unusual, I thought. Looked

like I was about to receive a visit by two of our city's finest! I laid my chart on the tiny table beside me, weighing it down with my reddened flashlight, then paused to greet my two rather large, unannounced guests who were by now on their way to the backend of the driveway where I, straightening my wristwatch, prepared to welcome them. "Good evening sir" the taller of the two spoke as they walked up to where I waited. "And a very good evening to both of you" I returned, as I watched the quick but thorough visual inspection my reflector, charts, and accessories received from the speaker's partner. "How's everything tonight?" the officer queried. "Excellent", I returned. "I'm just now observing a red supergiant near the Teapot", I added. "Variable stars", I offered, "KW SGR to be exact", realizing that by now, my motorless telescope would have lost the star and that another hop would be required before I would be able to get my estimate. The policemen grinned at each other, switching off their flashlights. "Here, let me find you something special to see", as I popped in my wide-field ocular and guided the 'scope to M22. "Have a look", I motioned them closer. Both men took a turn peering into the 8" at the fuzzy target so many thousands of light years away. After supplying an explanation to clarify for them what they were actually looking at, they again eyeballed one another and then turned to me, the larger of the two saying "Thank you very much sir for your time. There seems to have been a little misunderstanding on the part of one of your neighbors one street over, whose backyard faces your driveway. Seems like the lady thought you may have been spying on her through her kitchen window!" We all turned at once in the direction the telescope was pointed, and sure enough, just a couple of degrees below the Teapot a lighted kitchen window replete with several hanging plants stared back at us! "Oh boy!", I exclaimed, "Oh no, officers!, Please rest assured that I'm making variable star observations for the A.A.V.S.O.!" My guests, seemingly satisfied with my scientific commitment, bid me a good evening and turned back towards the patrol car. " 'Night officers" I said, "Have a good shift". I swung around to look at my blessed Teapot once more. And then the kitchen window, grinning to myself and gently shaking my head as I got back to work.

To this day, SGR continues to be my favorite observing ground. Also to this day, whenever I'm near the Teapot, actually any teapot!, I think of that memorable evening, years ago, and smile to myself once again.

7. HOAFUN 2 FOR WINDOWS

HOAFUN 2 has been released at the URL below via the AAVSO web site:

<http://www.aavso.org/adata/hoafun.shtml>

HOAFUN was originally a MS-DOS based program distributed with the Hands-On Astrophysics package. This new version is designed for Windows and has a point-and-click interface along with a few new features.

The goal of HOAFUN is to teach the basics involved with making a variable star observation. It includes step-by-step tutorials and animations involving the most popular classes of variable stars. It also has a game with different levels of difficulty. When the game is over you can even print out a certificate with your score on it.

HOAFUN is designed for junior high through college aged students, but is very useful for anyone just starting out with variable stars.

As always, the download is free.

8. VARIABLE STARS OF THE MONTH FOR 2001

Over the past year, 12 stars have had the honor of being named the "Variable Star of the Month" (VSOTM) on the AAVSO web site. Since its inception in November of 1998 the VSOTM has become one of the most popular sections of the site. Stars are chosen based on criteria such as accessibility at that time of year, popularity among observers, historical and scientific significance, and more.

Below is a list of VSOTM's for 2001.

January: BL Lacertae
February: T Tauri
March: Supernova 1987A
April: R Leonis
May: Novae (in general)
June: AM Hercules
July: EU Delphini
August: RY Sagittarri
September: WZ Sagittae (variable star of the year?)
October: Gamma Cassiopeiae
November: R Cygni
December: IP Pegasi

You can access the archive at the URL below:

<http://www.aavso.org/vstar/vsotm/archive.stm>

9. The AAVSO Variable Star Chart Program 6-Month Plan: Easy-Use Policy

2002 will be a year of great activity in terms of AAVSO variable star charts. We have ambitious plans to improve every aspect of variable star chart creation, distribution, and use. Below is a summary of the ideas and plans we currently hope to implement next year.

We have setup a new e-mail box at HQ dedicated to communication about charts. The address is simply charts@aaavso.org. Send any ideas, requests, or concerns to that address.

"Easy-Use Policy": A Proposed New Method for Submission of Chart Information

For a while now chart information has been a required part of the Official AAVSO Format (<http://www.aavso.org/cdata/official.stm>). However, we have not been enforcing this requirement because we realized it would create a huge burden to some observers.

Sometime next year we hope to begin a policy of requesting that chart data be included in your observation only the *FIRST TIME* that you use a chart. Every other observation you make with that chart does not need to include chart data.

For example, let's say Jane downloads a new chart for SS CYG. In her first observation using that chart she will fill out the chart field. But in the future, she can leave that field blank as long as she uses the same chart!

Details of this new policy will be published on the AAVSO WWW site, discussion group, Eyepiece Views, in the next newsletter, and other

places. Please note that we are not asking you to include any new data in your report. In fact, this should make your reports shorter and easier to submit, hence why we are calling it the "Easy-Use Policy".

AAVSO Variable Star Chart CDROM 2.0

A second version of the successful AAVSO Variable Star Chart CDROM will be published in 2002. This new version will likely be a two-cdrom set with the following features:

- Over 100 new eclipsing binary charts
- Over 50 new RR Lyrae charts
- Over 30 new PEP charts
- Hundreds of new and updated visual and CCD charts
- ChartCD: The AAVSO Chart Collection CDROM Software (see below)

Merging of Standard & Preliminary Catalogs

The AAVSO Standard & Preliminary chart catalogs are going to be merged into one large catalog. This basically means that we are eliminating the distinction between a "standard" and a "preliminary" chart. This was important for accessing charts in the past but not anymore.

a distinction used for internal purposes in the past and isn't needed anymore. This doesn't affect most observers and is more of an administrative change.

ChartCD: The AAVSO Chart Collection CDROM Software

Near the beginning of the new year "ChartCD" will be released on the AAVSO WWW site. It is currently in beta testing by a handful of volunteers. It is a Windows program that works with the current chart CDROM being distributed (1.0). Some of the things the program will do is:

- Print charts on a single sheet of paper
- Search the chart catalogs for stars based on RA, DEC, scale, and more.

The ultimate goal for this program is for it to be an observation planning tool. It should implement all the search functions we have in our online chart search engine

(<http://charts.aavso.org/searchcharts.shtml>)

such as searching the chart catalog for objects based on RA, DEC, chart scale, magnitude range, star type, constellation, and any combination thereof.

International Cooperation

At the end of the 90th Annual Meeting of the AAVSO last November a second small meeting was held with a few of the international chart makers. At the Pan Pacific AAVSO Spring Meeting in Hawaii this July we hope to have another chart meeting with even more of our international colleagues joining us. So far progress has been excellent and we look forward to even more cooperation.

Future

All of these plans and ideas have one goal in mind: to increase the accuracy and speed in which we publish variable star charts. We are moving into the future and staying up to date with the current trends in astronomy.

Conclusion

Please stay tuned to your favorite publication (Newsletter, WWW Site, Eyepiece Views, CCD Views, Discussion Group, etc.) for news on these projects as each comes to fruition. If you have any ideas feel free to send them to charts@aavso.org. Thanks and good observing!

Janet Mattei
Aaron Price

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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!

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Mike Simonsen, AAVSO Observer (SXM)

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