British Astronomical Association

VARIABLE STAR SECTION CIRCULAR

No 94, December 1997

Contents

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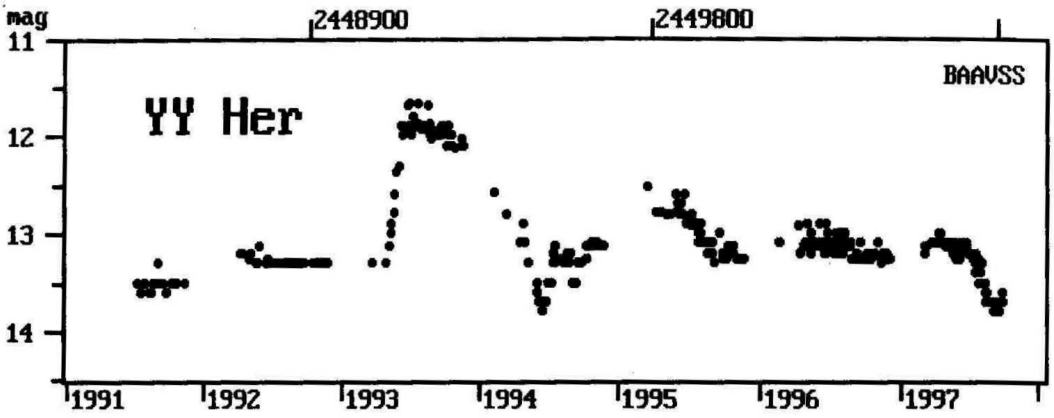
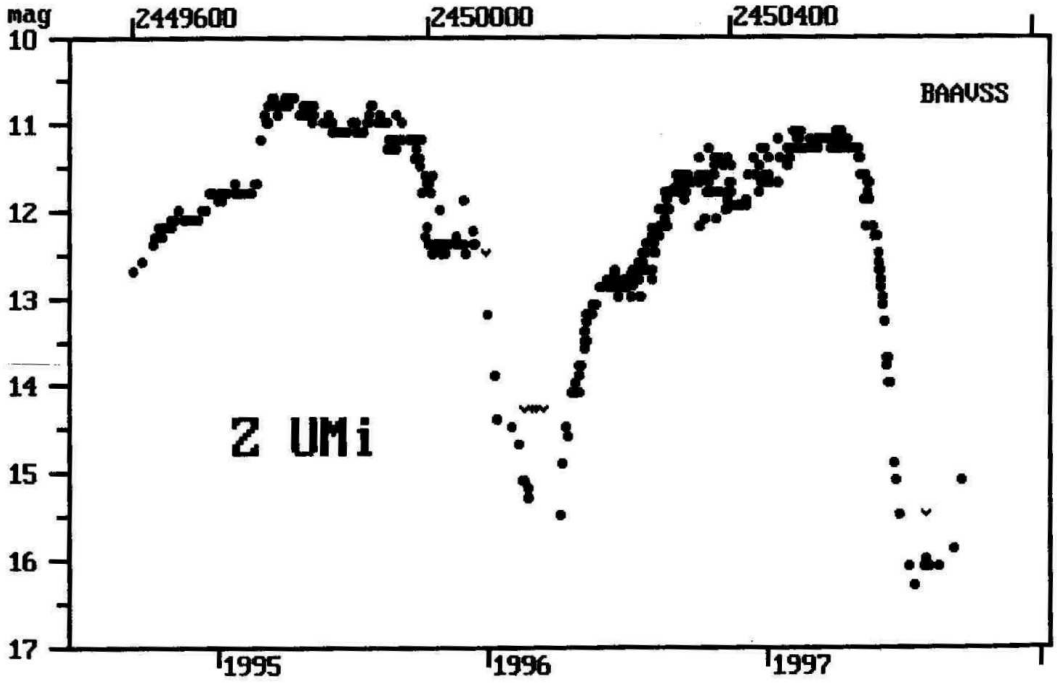
Office: Burlington House, Piccadilly, London, W1V 9AG

LIGHT CURVES

DAVE MCADAM



YY Her observers 1991 to 1997. J S Day, G Poyner.



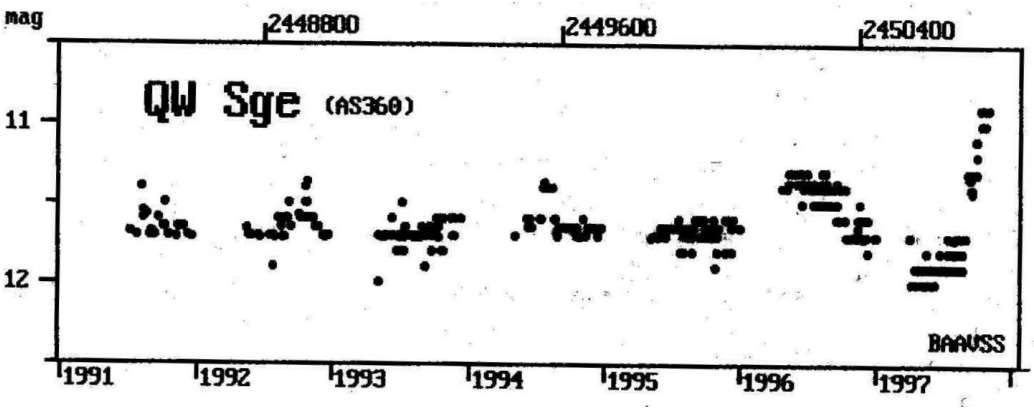
Z UMi observers 1994 to 1997. A R Baransky, R J Bouma, B H Granslo, R E Kelly, Miroslav Komorous, G Poyner, M Westlund, W J Worraker.

NEWS

GARY POYNER

QW Sge

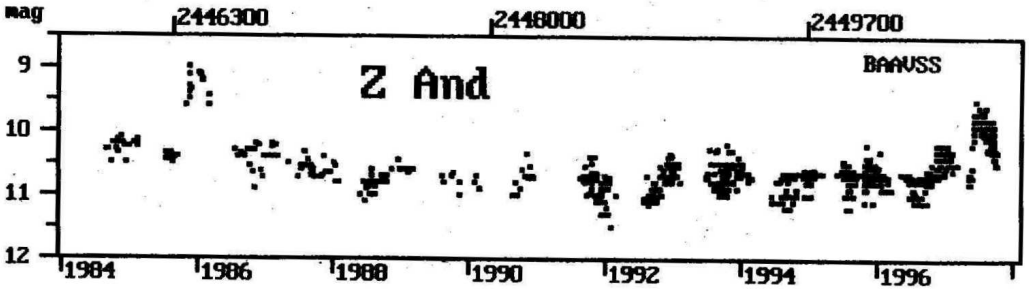
This ZAND star is currently undergoing a minor outburst, and is at it's brightest level since 1991 when the star was added to the telescopic programme. The GCVS gives a range of 12.0-13.0, although through this period QW Sge has had a mean magnitude of 11.4, with small scale variations. Contributing observers are D S Conner, H J Davies, J S Day, D Gill, G M Hurst, I A Middlemist, G Poyner.



Z And

During the summer this prototype symbiotic star experienced it's first major outburst since winter 1985, when it peaked at magnitude 8.9. At its brightest, this recent outburst peaked a little fainter around magnitude 9.4. On both occasions the rise to maximum brightness was rapid (around one week). Z And stayed above magnitude 10 for around two months, starting its decline at the end of August. Looking at the plot, there is a hint of a precursor brightening at the end of 1996, and the beginning of 1997, and it should be noted that Z And was around 0.5 mag brighter some months before the 1985 outburst. The plot contains 893 observations reported over a 13 year period (1984-1997) by the following observers...

S W Albrighton, A R Baransky, R J Bouma, H J Davies, M J Gainsford,B H Granslo, J E Isles, N S Kiernan, Miroslav Komorous, P Mettam, I A Middlemist, Roy Mitchell, G Poyner, P Schmeer, C Washington, W J Worraker.

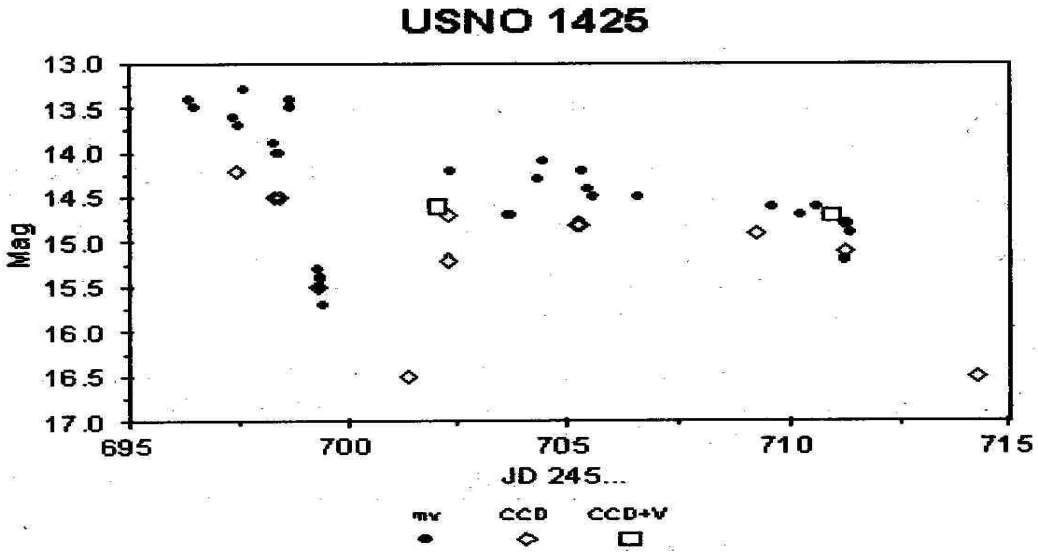


USNO 1425.09823278

IAUC 6731 (September 3rd 1997) reported the discovery of a new Cataclysmic variable apparently in outburst in Cygnus by the BAO (Beijing Astronomical Observatory) team J.-y. Hu, Y.-l. Qiu, W.-d. Li, and A. Esamdin, Urmqi Astronomical Station. The discovery was made on August 28th during a BAO supernova survey using a 0.60-m telescope. The R magnitudes given for Aug 28 and 31 were 13.3 & 13.5 respectively. The position measured from the USNO A1.0 catalogue is R.A. = 19h 27m 11s.63, Decl. = +54° 17' 51".5 (2000.0), with R and B magnitudes of 19.9 and 20.3. IAUC 6731 comments "A spectrogram obtained with the 2.16-m telescope at Xinglong Station on Aug. 31 shows typical features of cataclysmic variables during outburst, with absorption Balmer lines and weak He I lines (including a feature at 447.1 nm)."

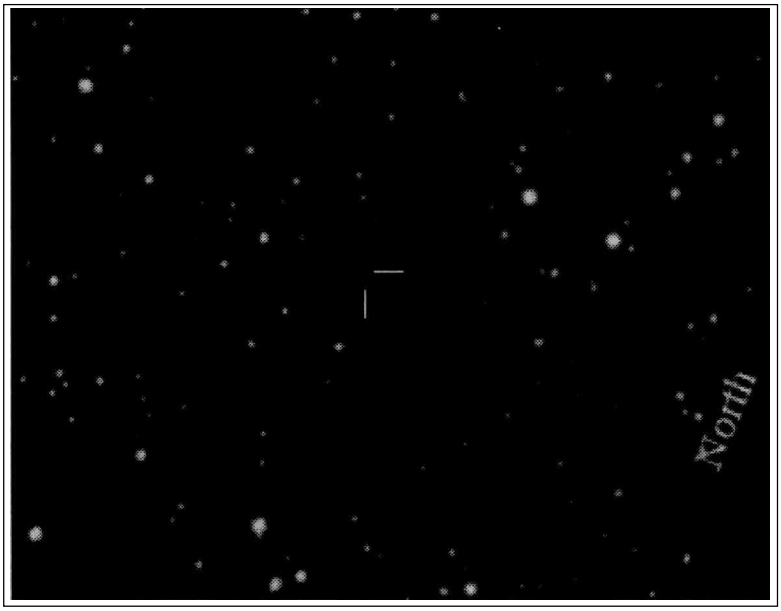
The first visual observations of this new CV in outburst were made by the German observer Jochen Pietz and the Director on September 4.820 UT (m_v=13.5) and 4.892 UT (m_v=13.4) respectively. The two images shown overleaf are taken from
a) Digitised Sky Survey (no object shown)
b) the star in outburst, Nick James, September 5.861, CCD+V 240s integration time.

Weak superhumps were eventually detected by Rudolf Novak (Nicholas Copernicus Observatory), and by Tonny Vanmunster (CBA Belgium) on September 6/7, thus categorising this new object as a UGSU type star.



Following a short period at maximum brightness, the star dipped, only to rise again to a second supermaximum reminiscent of the AL Com outburst in April 1995. This second superoutburst displayed superhumps of a more prominent nature (0.1mag). Vanmunster reports on CVC 155 that CBA data analysed by Joe Patterson reveals a unique superhump period of high precision, namely 0.05672 ± 0.00006 d. To the disappointment of many, a third brightening did not materialise. A chart is available from Guy Hurst, and hopefully a BAAVSS chart for this new UGSU star will be available soon.

Outburst image , by Nick James (above) taken on Sept 5.861 with CCD and V filter - 240s integration time.
Digitised Sky Survey Image (below) on which no object is visible



SW UMA

This recurrent object was detected in outburst independently by Gene Hanson (USA) and Bjorn Granslo (Norway) on October 19.490, 11.1 and Nov 19.969, 10.4 respectively. The last outburst to occur was a superoutburst in April 1996. This current outburst, which at the time of writing (Oct 30th) is still ongoing, is again a superoutburst, with superhumps being detected by L Jensen (CBA Denmark).

CHART NEWS

JOHN TOONE

The comparison star sequence data listed on the charts issued by the section is derived from many diverse sources. Some charts, in fact, contain comparison stars that have been visually estimated by former/current officers and members of the section. Others (particularly the binocular charts) are taken simply from the Harvard or SAO catalogues. It is not surprising, therefore, that the assigned magnitudes of certain stars are sometimes questioned by observers who might find a star out of step or closer to another comparison star than its assigned magnitude would indicate.

The following is a list of comparison stars for which observers have recently reported encountering difficulties:

Variable	Chart	Star(s)
R Aql	030.01	H
ST Cam	111.01	F
XX Cam	068.01	E, G
X Cnc	231.01	K, O
TU CVn	215.01	D, E, F
U/EU Del	228.01	E, F
RY Dra	225.01	K
AG Dra	080.01	E
U Ori	059.01	G, J
Z Psc	JEI 10-11-69	A, E, F
TX Psc	MDT 72-5-27	E
Z UMa	217.01	F, G, H
SW Vir	098.01	E, F

It would be very helpful if observers could make estimates of some or all of these stars relative to other comparison stars (brighter or fainter) within their respective sequences. Photoelectric photometry would be particularly welcome. We would like to correct any anomalies uncovered by this exercise during the next series of chart updates. Of course, we welcome observers comments and visual and photometric checks of any comparison stars listed on our charts not just those highlighted above. It is our intention to strive to improve the accuracy of our sequence data at all times.

APPEAL FOR HELP WITH ANALYSIS OF OBSERVATIONS.

KEVIN WEST

I have been observing the star SAO 44590 in CVn for three and a half years now and although its status as a variable has been announced in IBVS 4289, I would like to publish a more thorough analysis in the BAA Journal if possible. I have around 150 PEP observations spanning this period with a probable accuracy of plus or minus .002 in V.

Now here lies the problem. I am an avid observer but know very little about the analysis of observations and their interpretation, so I need to contact somebody with these skills with a view to a joint paper.

A short reminder on the history of the star. It was for many years a comparison for V C Ven, this years "Variable of the Year" in The BAA handbook. Visual observers including Patrick Maloney and Richard Fleet and probably several others had suspected it for years but it's redness irregularity (it seems to have quiescent phases) made confirmation
difficult, although having spoken to both of these experienced observers neither had any doubts about it's variablilty. If you need any more information I can supply copies of the IBVS or please contact me.

Kevin West: 5, Edward St., Ryde, Isle of Wight,PO33 2SH
Tel: 01983 614591 or e-mail kwest@ryde.prestel.co.uk - ***please note that this is a new e-mail address for Kevin.***

IBVS's

GARY POYNER

4493	Optical observations of the star RX J1239.8+5511. (Robb & Greimel, 1997)
4494	The recent optical decline of V1057 Cyg. (Kolotilov & Kenyon, 1997)
4495	Photometric peculiarities of CH Cyg during its recent, 1995-97, quiescent phase. (Skopal, 1997)
4496	Observations of the optical counterpart of the GRB 970508 source. (Kelemen, 1997)
4497	Multiperiodicity of the delta Sct star BR Cancri. (Zhou, 1997)
4498	Improved positions for Sonneberg variables part 2. (Manek, 1997)
4499	Near IR TiO band photometry of alpha Orionis, 1996-97. (Morgan et al, 1997)
4500	Radius and luminosity variations of Mira from Wing near-IR photometry. (Mahler et al, 1997)

The deadline for the March 1998 Circular will be 1st February. All articles and letters are welcome, and should be sent to the editor - address is given on the back cover of this circular. Electronic submission is preferred, although not essential. Guidelines for authors are available on request.

AAVSO EUROPEAN CONFERENCE 1997

DICK CHAMBERS - CRAYFORD MANOR ASTRONOMICAL SOCIETY

The AAVSO held a conference on the theme 'New Frontiers' in Sion, Switzerland on 1997 May 26 - 31. This was the second such venture into Europe following the meeting held in Belgium in 1990 which was reported in the publication 'Variable Star Research: An International Perspective' by Percy, Mattei and Sterkin, 1992, CUP.

This second meeting attracted 160 people from all over the world, divided evenly between professionals and amateurs.

The local organising committee under the chairmanship of Michel Grenon (Geneva Observatory) did a superb job of arranging all the diverse functions of such a meeting including outside trips to observatories and a conference dinner. Their reward was a highly successful event during a week of beautiful sunny weather which showed Switzerland at its best.

I attended as an individual (although not a member of the AAVSO). There being no official representation from the BAA VSS, we did not feature among groups from Argentina, Czech Republic, France, Germany, Hungary, Japan, New Zealand, South Africa and, of course, the USA in presenting in the opening session a summary of activities and achievements.

The conference extended over five days and covered the following areas:-

Mapping the Sky
A review of the various surveys including those arising from satellite observations in spectral regions outside the visible. Particular emphasis was placed on the vast increase in data arising from the Hipparchos mission where, of the 118,200 stars surveyed to millimagnitude precision, 2712 were found to be periodic, 5540 non-periodic and 3300 were new discoveries. When these results become generally available a fundamental reappraisal of current programmes will surely follow.

Astronomy Education.
I did not attend this session but it is clear that a lot of delegates were concerned with this aspect which included the use of remotely controlled telescopes in the classroom.

The Status of Stellar Variability.
A major series of papers spread over three sessions on the observation and interpretation of pulsating variables, cataclysmics and symbiotics. Most of these were presented by professionals, but one fascinating paper by Grant Foster (AAVSO) showed how visual observations of Cepheids over long time spans (up to 30 years) gave periods of startling precision. This enabled the long term stability of these stars to be studied in considerable detail.

In addition to the scientific paper sessions there was a workshop on the 'Impact of New Technologies and Surveys on Observing Strategies and Techniques'. This was one of the most interesting sessions of the whole conference as we heard from such luminaries as Albert Jones and Frank Bateson of New Zealand and Daniel Overbeek of South Africa. To me, one of the most impressive aspects of the conference was how it attracted such people from the other sides of the world. I sat next to Dan Overbeek at the conference dinner and near Albert Jones who was described by Dan as 'the greatest variable star observer in the world'. That

was just before Dan himself was called forth to receive a certificate commemorating 200,000 observations!
During the workshop there was much discussion on comparison star sequences. The BAA archives were recognised as being of worth not only for the long period of observations and for the fact that over one million had been computerised but, also, because they included the actual observation and not just the derived magnitudes. Thus they were capable of being adjusted at a later date.

There was a great deal of comment about the lack of agreement of comparison star sequences from different organisations and different catalogues. This presented a considerable problem to professionals and militated against the use of amateur data. This was the only time I contributed when I suggested that the procedures adopted by the International Standards Organisation might be adapted for the purpose. I hope I am right as I have promised to put together a scheme to promote international comparison star sequences!

Included in the proceedings were a large number of poster papers which each contributor was given one minute to describe to the conference. I submitted two on behalf of Crayford:- the discovery of SN 1996 bo and observations of a delta Scuti star using the Jack Ells APT.

Of the other poster papers - just to take two of contrasting styles:- Ron Royer (USA) showed how there were still problems of red leakage in filters for CCDs. Even stacking IR filters does not seem to solve the problem.

The other, by Tonny Vanmuster (Belgium), dealt with the magnificent efforts by the Centre for Backyard Astrophysics (CBA), which is a multi-longitude network of small photometric telescopes. Brian Warner described the CBA as undertaking 'amazing science' and well he might. So far there are 14 observing sites spread over 9 countries. It was understood that the UK will make the 10th in 1997.

On top of the scientific proceedings there were other events arranged by the organising committee. These included a visit to St. Luc to see the Francois-Xavier Bagnoud Observatory (60 cm reflector, 20 cm refractor and coelostat at 7,000 feet), followed by a wine party and the conference dinner and awards presentation. A tour of the city of Sion was undertaken and a concert at the church on the world's oldest playable organ was arranged. Immediately following the conference an optional trip to Zermatt was organised to visit the Gornergrat observatory (1.5 metre reflector and 3 metre radio telescope at 10,000 feet) close by the Matterhorn.

One final local matter. The AAVSO takes note of the individual observations which mark a milestone in the total number of measurements received. Thus, as each millionth observation comes in the individual is designated an AAVSO millionaire. The eighth millionaire is Gary Poyner.

I am sure that many members of the BAA VSS would have thoroughly enjoyed this conference which was by no means overwhelmingly American in flavour but, instead, was truly international in character. The proceedings are to be published in the Conference Series of the Astronomical Society of the Pacific. These volumes are available at very attractive prices and I urge all members of the section to purchase their own copy. Perhaps we should arrange a shipping order? The next European conference could well be after a shorter interval of time than hitherto - possibly in four years. Make sure you are available to attend - you will not be disappointed.

REPORT ON THE MIRA VARIABLE R AQUILÆ USING BAAVSS DATA

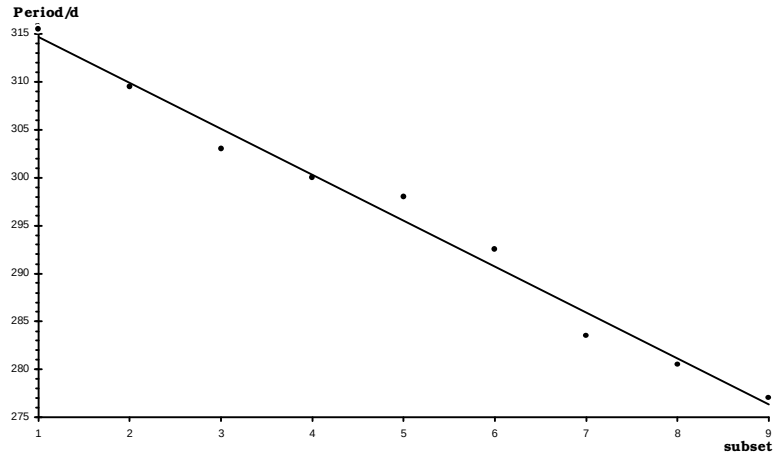
J GREAVES

Observations for R Aquilæ from September 1908 to January 1997, amounting to 109 cycles of this Mira variable, were taken from the full 1899 to 1997 BAAVSS archive and separated into 9 sequential groups of exactly 12 cycles each (with 13 cycles in one instance where a maximum had been completely missed due to seasonality). Unfortunately there was a complete gap in the archive for the years 1934 to 1938 inclusive which would have meant having to start the investigation from 1939. In order to avoid this problem, and further so as not to waste the excellent data between 1908 and 1934, this interregnum was filled via the AFOEV public domain archive at the CDS, Strasbourg[1]. An average period was derived for each of these cycle groups with software utilising the Phase Dispersion Method[2] as shown in the following table:

subset	Period (d)	DP(d)	datapoints
1	315.5		1425
2	309.5	-6.0	1984
3	303.0	-6.5	1598
4	300.0	-3.0	863
5	298.0	-2.0	854
6	292.5	-5.5	739
7	283.5	-9.0	1548
8	280.5	-3.0	1856
9	277.0	-3.5	1049
mean -4.8			

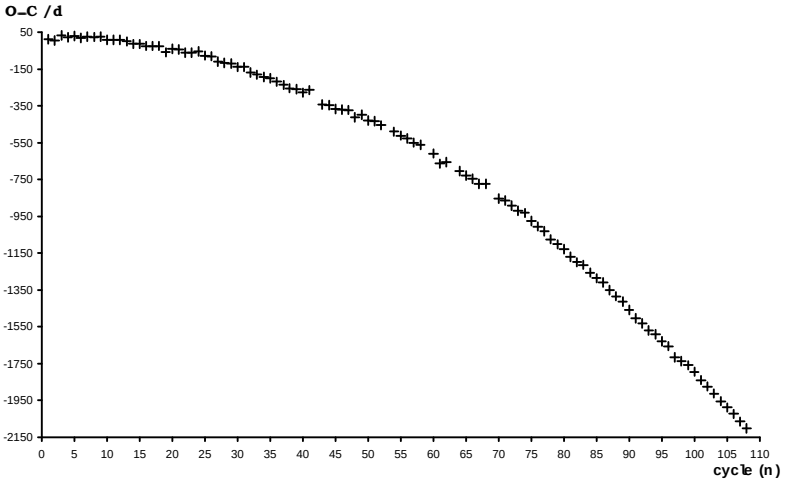
Giving a mean rate of 0.4 days change in period per cycle, which using a crude approximation [0.4 x ((13 x 365.25)/277)] leads to the prediction of an average period of around 270 days by the year 2010.

It should be noted, however, that not only is there a large scatter for the period's rate of decline between subsets, but also periods within each subset also vary widely, sometimes markedly lengthening with respect to a previous period. The decline is, therefore, not necessarily as smooth as first shown. All the averages quoted had a statistical significance level[2] of better than 0.2 on an inverse scale ranging from 1.0 (essentially random) to 0.0 (infinitely accurate).



Average Periods per 12 cycles for R Aquilæ from Sep 1908 to Jan 1997. The "best fit" line has a slope of -4.8.

The data was independently processed in order to generate an O-C diagram. The zeroth maximum of JD 2418213 was defined as the base epoch and 315½, the value derived from the first subset (above), was defined as the period. Then "actual" times of maxima were laboriously derived for as many of the 109 cycles as possible (104 in total). A plot of the derived observed minus calculated epochs was then plotted against cycle number as shown:



Observed - calculated epochs in days plotted against their cycle number, n. Base epoch is JD 2418213, cycles are folded on a period of 315½ days.

The resultant curve is fitted by the quadratic equation **$y = -0.1871x^2 + 0.5402x + 20.011$.** Using this value for $\Delta P/P$ in the formula[3]

$$(O-C)_n = \left(\frac{\Delta P}{P}\right) n^2$$

and noting that $(O\text{-}C)_n/P$ denotes the *total* discrepancy between the observed epoch and the epoch as calculated from the base epoch and period (and *not* the last known epoch of maxima and/or period) we can substitute within it to give the following predicted maxima:

cycle	maximum	cycle	maximum
110	13/10/1997	119	06/07/2004
111	14/07/1998	120	04/04/2005
112	15/04/1999	121	31/12/2005
113	13/01/2000	122	27/09/2006
114	13/10/2000	123	24/06/2007
115	13/07/2001	124	20/03/2008
116	12/04/2002	125	15/12/2008
117	09/01/2003	126	10/09/2009
118	09/10/2003	127	05/06/2010

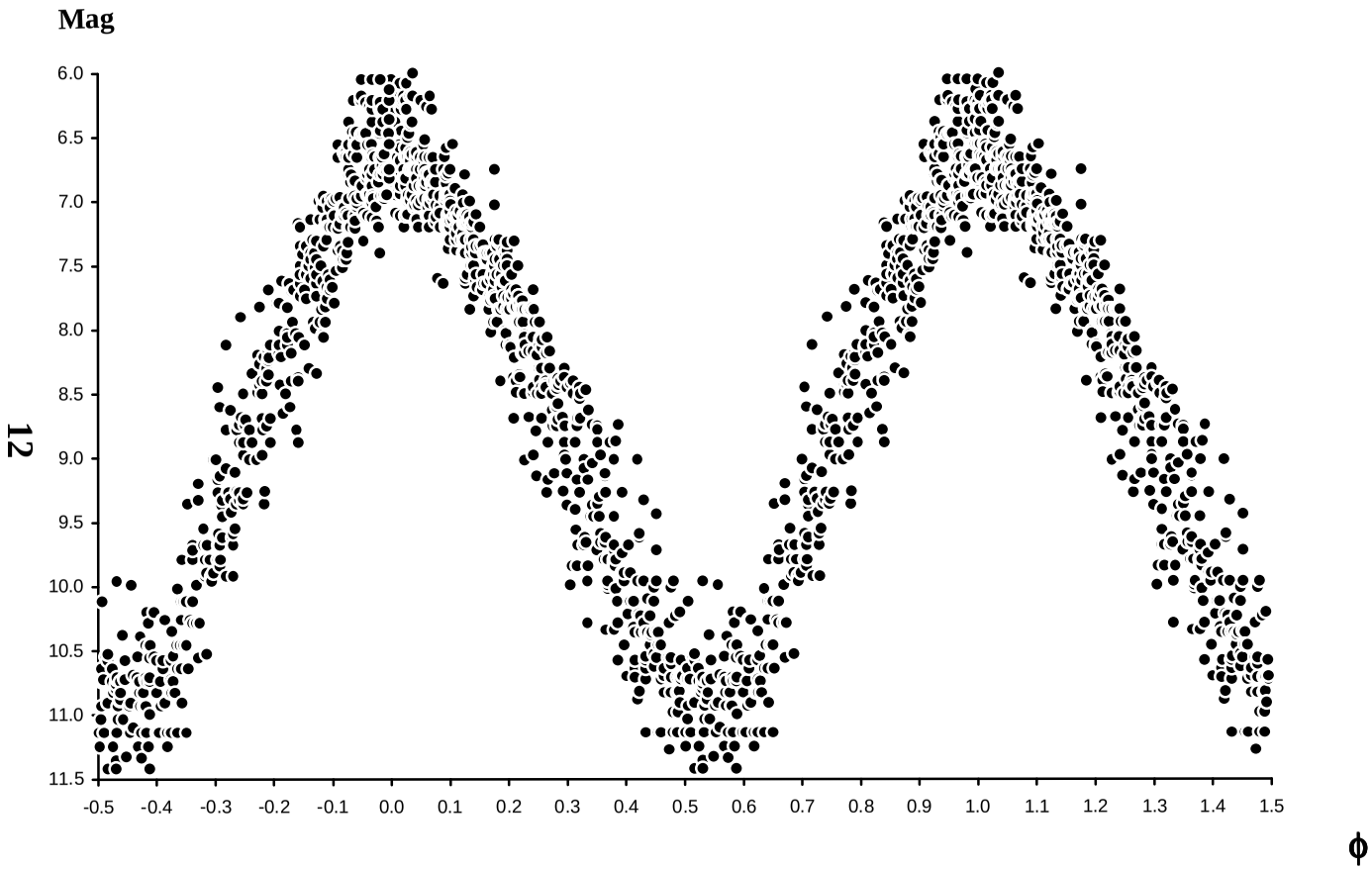
By simply subtracting the previous date from each of the current ones and assuming an (unreal) smooth decline in period, as these predictions suggest, we find that by 2010 the period has declined to around 269 days, not greatly dissimilar from the 270 days derived by the completely independent approach used above.

Finally, by folding the BAAVSS data for the last dozen complete periods around their derived average period of 277 days we obtain the following phase diagram, which is included both as a representative light curve and an indication of the "goodness of fit" of the data (two complete cycles are shown for illustrative purposes):

[1] **AFOEV CDS Archive: details care of Emile Schweitzer, AFOEV, 16 rue de Plobsheim, 67100, FRANCE.**

[2] **Written by Andreas Widjaja, Department of Astronomy, Faculty of Mathematics and Science, Bandung Institute of Technology (ITB), Jalan Ganesha 10, Bandung 40132, INDONESIA**

[3] **Percy, John R (Ed). The Study of Variable Stars Using Small Telescopes, CUP 1986**


Mag
6.0
6.5
7.0
7.5
8.0
8.5
9.0
9.5
10.0
10.5
11.0
11.5
12
-0.5
-0.4
-0.3
-0.2
-0.1
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0.9
1.0
1.1
1.2
1.3
1.4
1.5
ϕ

FINDING VARIABLE STARS ON THE WEB

TONY MARKHAM

So you've bought a PC and modem and registered with an Internet Service Provider. But how do you find sites on the World Wide Web which relate to variable stars ?

One way is to start from a web site for which you know the address - for example, the BAA VSS site, whose address is :
http://www.telf-ast.demon.co.uk/index.html. This site includes links to a number of other web sites which relate to variable stars, such as the AAVSO site and the SPA VSS site. From these other sites, you can follow links to other variable star sites,and so on ....

Such a method will hopefully lead you to the most interesting sites. However, it could take a long time to find a site which has few links pointing to it, and there's always the risk of going around in circles. Is there a quicker way to find more sites?

The best solution is to use a “search engine”. There are many of these available. All you have to do is type in a phrase for which you wish to search, and the search engine will then look for matches in its database of web site contents and list the matches that it finds.

Below are the number of matches found in some recent searches using four search engines:

Search for	Alta Vista	Yahoo	Lycos	Infoseek
“variable star”	1702	1702	397	1920
"mira”	50230	109	5055	10948
"omicron ceti”	90	90	32	54
"nova”	678020	879	34492	72982
"nova cas”	134	134	10	120
"dwarf novae”	312	312	77	520
"ss cygni”	125	125	11	60
"ip pegasi”	7	7	0	8
"algol”	9960	8	1130	2959
"beta persei”	49	49	14	18
"beta lyrae”	114	114	48	39
"rz cassiopeiae”	11	11	2	3
"rz cas”	32	32	9	40
"baa vss”	8	8	0	28
"gary poyner”	52	52	2	86
"variable star section”	114	114	52	69

The above totals are not totals for the whole web - no search engine searches the whole web. The totals for Yahoo and Alta Vista are the same in some cases because, after performing an “intelligent search”,Yahoo will, if no matches have been found, fall back on an Alta Vista search. In general, sites will be listed in an order such that the “best”matches come first. Some search engines, such as Infoseek, give a rating as to how good a match each site is.

Alta Vista identifies the language in which each site is written - curiously rather a lot of the matches for “omicron ceti” are in Swedish.

Different search engines use different criteria to decide on which are the best matches. For example, when searching for “variable starsection” using Alta Vista, a SPA VSS page is the 1st match whereas the BAA VSS pages don't appear until the 21st match (which happens to be a link to an article about the SPA Variable Star Section).However, the BAA VSS pages appear ahead of the SPA VSS pages when using Lycos (4th) and Infoseek (11th).

Some searches, such as Infoseek, try to avoid “duplication” in their matches , others don't. For example, 7 out of the first 10 matches listed for “variable star section” by Alta Vista are for individual pages within the SPA VSS site

Bear in mind that not all sites found will be relevant to astronomy - matches for “mira” include fan clubs for the actress Mira Furlan (“Delenn” in Babylon 5), matches for “omicron ceti” included descriptions of some Star Trek episodes in which the USS Enterprise visited the Omicron Ceti system (but forgot to make any brightness estimates), and matches for “algol” include sites about algol programming languages.

Yahoo's “intelligent” search is not always intelligent - none of the 8 matches listed by Yahoo for “algol” refer to the star algol !

Obviously, the more precise you are in your search criteria the more likely it is (usually) that the sites found will contain genuine references to what you have searched for. As seen above, if you want to find pages about Nova Cas 1993 (V705 Cas), searching for “novacas” will get you to the relevant web pages quicker than will searching for just “nova”. However, there was also a Nova Cas 1995and whereas Alta Vista found 134 matches for “nova cas”, it found just 36 for “nova cas 1993”, 4 for “nova cas 93” and 71 for “v705cas”.

The above searches have been fairly basic. Most search engines allow more sophisticated searches such as searching for sites which contain “algol” but not “language”, or which contain both “mira” and “omicron”. In this way, spurious matches can be minimised.

Search engine web addresses :

Alta Vista :	http://www.altavista.digital.com
Infoseek :	http://www.infoseek.com
Lycos :	http://www.lycos.com
Yahoo :	http://www.yahoo.com

PRO-AM EXCHANGES REPORT 14

GUY HURST

Covering period 1995 Jan 1 to June 30.

Date **Subject** **Professional**
Remarks

The following additional entries for 1994 exchanges were supplied by Dave McAdam in early 1995. 1994 totals have therefore been amended.

940824 T CrB, X Per, VY UMa Eran Ofek, Israel
Sequence charts supplied to Eran Ofek from BAAVSS records. In Sept we also supply JBAA papers relating to T CrB.

941001 AY Lyr Ivan Andronov, Ukraine
6336 observations of AY Lyr for 1969-1994 supplied to Ivan.

941111 X Per Eran Ofek, Israel
6708 observations of X Per for 1969-1994 supplied to Eran.

941231 Various variables F.M.Bateson, New Zealand
Data on UU Aql, VY Aqr, omicron Cet, U Mon, RS Oph, CN Ori, R Sct for 1992-1994.

950102 SN 1994ak in NGC 2782 A.Filippenko, Univ.of Calif.
Advises confirmation of new object in NGC 2782, 58"W, 33"S. Later announced as SN 1994ak on IAUC 6123.

950102 OJ 287 and 3C 66A Tapio Pursimo, Mark Kidger
Observations of above objects by Poyner and Hewitt supplied.

950118 Cataclysmics & Novae Alon Retter, Israel
Requests details of database duly supplied by Dave McAdam.

950121 LMC/SMC plates Sue Tritton, ROE
Paul Camilleri, Australia asks if we have a contact who can supply plates of LMC/SMC. Sue Tritton supplies details of plates which can be supplied from ROE to assist in nova/variable star research in these objects.

950121 3C66 and OJ287 Tapio Pursimo, Mark Kidger
Further observations by Poyner and Hewitt supplied.

950123 V635 Cas Diane Roussel-Dupre, Los Alamos Nat.Obsy.
Observations by G.Poyner of optical outburst supplied to Diane. GRO-BATSE is observing in X-rays.

950129 V1251 Cygni Ron Downes, STSI
Precise positions by Brian Manning and Nick James supplied to aid revisions for the forthcoming Downes and Shara catalogue of cataclysmics (edition 2).

950201 Dwarf novae Bill Welsh, Keele
Observing run La Palma, Feb 17-19 and requests current state for each star. Project is to study dwarf nova oscillations.

950202 3C66 and OJ287 Tapio Pursimo
Data by Gary Poyner of recent activity supplied to Tapio.

950203 S Persei Brian Skiff, Lowell
Possible standstill brought to our attention by Brian and observers alerted.

950203 GK Persei Craig Wheeler, Univ.Texas
Encourages monitoring at all wavelengths for this 'intermediate polar' and mentions prediction of outburst in Ap J 384, 269, 1992 by Kim. We respond with data from the latest 'The Astronomer' files and are encouraged to advise him when a brightening greater than 1 mag occurs.

950207 Possible SN NGC 3346 H.Yamaoka, Kyushu, R.Kushida, S Base Obsy
Lifan Wang, McDonald
Possible SN reported by Bob Evans, Australia investigated by three observatories but no new object found.

950207 Nova-like variables Kent Honeycutt
Paper on secondary photometric standards supplied to us to assist in chart/sequence improvement.

950209 Object in UGC 4699 Dave Balam, Climenhaga, Victoria
Position for new object reported as a possible SN by Dave Balam. Later suspected to be a flare star?

950210 Possible nova in Aql Tom Harrison, New Mexico State Univ.
Object reported by Takamizawa, Japan confirmed as a nova according to a report from T.Harrison based on spectra.

950212 SN 1995D in NGC 2962 D.Nogami, Japan
Observations with 0.6-m refl.+CCD in B/V/Rc/Ic on this new object sent to us.

950213 Cataclysmics Bill Welsh, Keele
Jan data on various stars extracted from 'The Astronomer' supplied to Bill Welsh re forthcoming observing run.

950213 SN patrolling Robert Mutel, Univ.of Iowa
We exchange notes on automated SN searches, one particular programme being operated by a graduate student, Allen Rogel.

950213 SN 1995D Robert Mutel
Also supplied B,V, Rc data on this supernova indicating object already fading.

950214 SN robotic surveys Dave Balam
Offers to help check SN suspects and gives details of robotic surveys at Climenhaga.

950223 SN 1995D Brian Marsden, CBAT
Visual estimates by Hurst supplied to Central Bureau Feb 21.92UT, 12.9; 22.95, 12.8; 25.94, 12.7

950226 UW Persei Hilmar Duerbeck
Congratulations received on the location of the long-missing discovery plate for this object.

950224 SN 1995E in NGC 2441 Dave Balam, Climenhaga
Fax received from Mirko Villi, Italy requesting confirmation of a possible SN in NGC 2441 found by A.Gabrijelcic. We e-mail Dave Balam who provides confirmation for Feb 23.3UT with precise position. Discovery announced on IAUC 6137.
Balam's astrometry then appears on IAUC 6138.

950227 Pos SN NGC 2654 Dave Balam
Report from R.Arbour of mag 17 object recorded Feb 26 investigated for us by Dave Balam who confirms its presence but as HII region.

950227 UW Persei Hilmar Duerbeck
Finds obscure paper with observations by Himpel at the apparent 1947 Jan 23 outburst which is supplied to aid our research and forthcoming paper in BAAJ.

950227 SN 1995E Brian Marsden, CBAT
Precise position by N.James supplied to Central Bureau.

960227 Pos new object N3368 Chris Steyaert
Relays to us report from Canonaco, Belgium of a possible new object in NGC 3368 detected 1995 Feb 26.9UT at mag 11. Later research indicates false alarm although after they had reported to Central Bureau. We suggest alerts routed through TA for full investigation.
950228 DV UMa outburst Ron Downes STSI
Outburst found by Vanmunster Feb 26.8, 14.6v confirmed by G.Poyner Feb 26.8, 14.7. Nick James obtains precise position which is relayed to Ron for next catalogue update.
950305 Astro-2 stars AAVSO
Re PRO-AM exchange arranged by AAVSO during Astro-2, we supply various observations of cataclysmics for 1995 Mar.
950310 U Gem Steve Fossey, Univ. of London
Steve planning V band differential CCD photometry and as requested we supply chart with sequence.
950312 Pos new object N3379 Rob McNaught, Anglo-Australian
Suspect reported by Bob Evans in NGC 3379. Plate taken by Rob McNaught on 1995 Mar 10 finds no SN but reports query due to error in Thompson-Bryan charts.
950322 V1974 Cygni Christine Rabaja, Iowa
Enquiry received re paper in Scientific American (1995 Jan) relating to V1974 Cyg. We supply background details.
950326 Asteroids Gareth Williams, MPC
Data from Stephen McAndrew on paper which we relay to MPC who stress that preference is for e-mail reports.
950315 3C66 and OJ287 Tapio Pursimo
Data by Poyner for 1995 Mar supplied to Tapio.
950404 AK Cnc Ronald Mennickent, Univ.de Concepcion
Requests chart by FAX for determine zero point for differential photometry and this is transmitted.
950405 AL Com Janet Mattei, AAVSO
Janet relays news that David York and Thomas Cragg have detected an outburst on Apr 5. Last seen 1975 March.
950405 Nova Aql 1995 Brian Skiff, Lowell
Sequence supplied by Brian Skiff.
950409 AL Com Steve Howell, Planetary SI. Tucson
Astrometry by N.James and M.Mobberley supplied to Steve.
950426 Pos object NGC 6207 Charles Petrik, Comenius University Slovak Republic
Report received from Charles of pos SN in NGC 6207 on CCD imaging of 1995 Apr 21. However this was found to be an existing field star in Vickers CCD atlas and is also mentioned in Longo/Vaucouleurs Catalogue.
950426 R CVn Brian Skiff, Lowell
Photometric sequence supplied to us by Brian Skiff
950513 Novae/Supernovae Pedro Saizar,Univ.of Pennsylvania
Our attention is drawn to a WWW server on novae and supernovae which we are invited to monitor.
950516 Cataclysmics Brian Espey, John Hopkins Univ.
We supply details of database on cats. as Brian's request.
950602 V344 Lyr Tim Naylor, Keele
We supply chart and sequence to Tim and agree to monitor for outbursts.

950604 Mark 421 Massimo Fiorucci
We supply more up to date data, to help Massimo determine periodicity.
950604 Nova Cas 1993 Chris Lloyd, Rutherford
Data to date on this nova supplied to Chris Lloyd.
9**50624** HZ Herculis Paul Roche, Sussex
We are asked to monitor this star and a chart is developed for distribution to our observers. Giovanni Sostero. Italy also offers to carry out CCD photometry.
950628 NSV 1702 Chris Lloyd, Rutherford
We are asked for any historical information on this former 'Alcock Variable'. We trace to Binocular Sky Society Report 1967/1968 and e-mail full details. John Isles, USA also adds further details.

PRO-AM Exchanges Summary Updated

Half year ending	Number of exchanges	My Report Nos
1988 Dec 31	42	1
1989 Jun 30	51	2,3
1989 Dec 31	45	3
1990 Jun 30	69	4
1990 Dec 31	23	5
1991 Jun 30	40	6
1991 Dec 31	43	7
1992 Jun 30	52	8
1992 Dec 31	42	9
1993 Jun 30	63	10
1993 Dec 31	59	11
1994 Jun 30	58	12
1994 Dec 31	52	13
1995 Jun 30	47	14
To Date	686	

Updated 1997 July 5

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INTERNET: guy@tahq.demon.co.uk OR gmh@uk.ac.rl.star.ast
WWW http://www.demon.co.uk/astronomer

ECLIPSING BINARY PREDICTIONS

TRISTRAM BRELSTAFF

The following predictions are calculated for an observer at 53 degrees north, 1.5 degrees west but should be usable for observers throughout the British Isles. The times of mid-eclipse appear in parentheses with the start and end times of visibility on either side. The times are hours GMAT, that is UT-12h. 'D' and 'L' are used to indicate where daylight and low altitude, respectively, prevent part of the eclipse from being visible. Charts for all of the stars included in these predictions (17 in all - see VSSC 90 for a list) are available from the Eclipsing Binary Secretary at 10p each (please enclose a large SAE). Melvyn Taylor helped update the light elements on which these predictions are based.

1998 Jan 1 Thu
Z Per D05(03)07
X Tri D05(04)06
RZ Cas D05(06)08
TX UMa L05(09)14
Z Vul 08(13)08L
Z Vul L17(13)18

1998 Jan 2 Fri
X Tri D05(03)05
Z Dra 05(08)10
V640 Ori L07(06)09
RZ Cas 08(10)13
TW Dra 10(15)19D
U Cep 12(16)19D

1998 Jan 3 Sat
SS Cet D05(01)06
SW Cyg D05(07)12L
RW Gem 06(11)16
RW Tau 07(12)17L
RZ Cas 13(15)18
Z Dra 14(16)19
Z Vul 19(24)19D

1998 Jan 4 Sun
Z Vul D05(00)05
Z Per D05(04)09
U Sge D05(06)07L
TX UMa 06(11)16
V640 Ori L07(06)09
ST Per 11(15)17L
RZ Cas 17(20)19D

1998 Jan 5 Mon
U Cep D05(04)09
S Equ D05(09)07L
TW Dra D05(10)15

1998 Jan 6 Tue
SS Cet D05(01)05
RW Tau D05(07)11
RW Gem D05(08)13
Z Vul 06(11)07L
V640 Ori L07(07)10
Z Dra 07(10)12

1998 Jan 7 Wed
RZ Cas D05(05)08
Z Per D05(05)10
ST Per D05(06)11
TX UMa 08(12)17
U Cep 11(16)19D
SW Cyg 14(20)19D
Z Dra 16(18)19D
U Sge L17(15)19D

1998 Jan 8 Thu
TW Dra D05(05)11
V640 Ori L07(07)10
RZ Cas 07(10)12
Z Vul L17(22)19D

1998 Jan 9 Fri
RW Tau D05(01)06
RW Gem D05(04)10
RZ Cas 12(15)17

1998 Jan 10 Sat
U Cep D05(04)09
Z Per D05(07)12
Y Psc 06(11)10L
V640 Ori L07(08)11
Z Dra 09(11)14
TX UMa 09(14)19
RZ Cas 17(19)19D

1998 Jan 11 Sun
U Sge D05(01)06
TW Dra D05(01)06
Z Vul D05(09)07L
RW Tau 15(19)16L
Z Dra 17(20)19D

1998 Jan 12 Mon
RW Gem D05(01)06
S Equ D05(06)07L
SW Cyg D05(10)12L
V640 Ori L06(08)11
ST Per 09(14)16L
U Cep 11(16)19D
SW Cyg L13(10)16

1998 Jan 13 Tue
Z Dra D05(04)07
RZ Cas D05(05)07
Z Per D05(08)13
TX UMa 11(16)19D
TW Dra 15(20)19D
Z Vul L16(20)19D

1998 Jan 14 Wed
Y Psc D05(05)09L
U Sge D05(10)06L
V640 Ori 06(09)12
RZ Cas 07(09)12
RW Tau 09(14)16L
Z Dra 11(13)15
RW Gem 17(22)17L

1998 Jan 15 Thu
U Cep D05(04)08
ST Per D05(05)09
RZ Cas 12(14)16

1998 Jan 16 Fri
Z Vul D05(07)07L
Z Per D05(09)14
V640 Ori 07(09)12
TW Dra 11(16)19D
TX UMa 12(17)19D
RZ Cas 16(19)19D
SW Cyg 18(24)19D

1998 Jan 17 Sat
SW Cyg D05(00)06
Z Dra D05(06)09
RW Tau D05(08)13
U Cep 11(15)19D
X Tri 13(16)14L
RW Gem 14(19)17L
U Sge L17(19)19D

1998 Jan 18 Sun
V640 Ori 07(10)13
Z Dra 12(15)17
X Tri 13(15)13L
Z Vul L16(17)19D

1998 Jan 19 Mon
S Equ D05(03)06L
RZ Cas D05(04)06
TW Dra 06(11)16
Z Per 06(11)16
X Tri 12(15)13L
TX UMa 14(19)19D

1998 Jan 20 Tue
RW Tau D05(03)08
U Cep D05(03)08
RZ Cas 06(09)11
V640 Ori 08(10)13
ST Per 08(12)16L
RW Gem 10(15)17L
X Tri 11(14)13L

1998 Jan 21 Wed
U Sge D05(04)06L
Z Vul D05(04)06L
Z Dra 05(08)10

SW Cyg 08(14)11L
X Tri 11(13)13L
RZ Cas 11(13)16
SW Cyg L13(14)19D

1998 Jan 22 Thu

TW Dra D05(06)11
Z Per 07(12)16L
V640 Ori 08(11)14
X Tri 10(13)13L
U Cep 10(15)19D
Z Dra 14(16)19D
TX UMa 15(20)19D
RZ Cas 16(18)19D

1998 Jan 23 Fri

ST Per D05(04)08
RW Gem 07(12)17L
X Tri 09(12)13L
Z Vul L16(15)19D

1998 Jan 24 Sat

X Tri 09(11)13L
V640 Ori 09(11)13L
U Sge L16(13)19D

1998 Jan 25 Sun

TW Dra D06(02)07
U Cep D06(03)08
RZ Cas D06(04)06
Z Dra 07(10)12
Y Psc 08(12)09L
X Tri 08(10)13
Z Per 09(13)16L
RW Tau 11(16)15L
ST Per 15(19)16L
TX UMa 17(22)19D

1998 Jan 26 Mon

Z Vul D06(02)06L
SW Cyg D06(03)09
RW Gem D06(09)14
RZ Cas 06(08)11
X Tri 07(10)12
V640 Ori 09(12)13L
Z Dra 16(18)19D

1998 Jan 27 Tue

X Tri 07(09)12
U Cep 10(15)19D
RZ Cas 10(13)15
TW Dra 16(21)19D
U Sge 17(22)19D

1998 Jan 28 Wed

RW Tau D06(10)15
X Tri 06(08)11
ST Per 07(11)15
V640 Ori 10(12)13L
Z Per 10(15)16L
RZ Cas 15(18)19D
Z Vul L15(13)18
TX UMa 18(23)19D

1998 Jan 29 Thu

RW Gem D06(06)11
Y Psc D06(07)08L
X Tri D06(08)10
Z Dra 09(11)14

1998 Jan 30 Fri

U Cep D06(03)07
X Tri D06(07)10
V640 Ori 10(13)13L
TW Dra 11(16)19D
SW Cyg L12(17)19D
Z Dra 18(20)19D

1998 Jan 31 Sat

ST Per D06(02)07
RW Tau D06(05)09
X Tri D06(06)09
Z Per 11(16)15L

1998 Feb 1 Sun

RW Gem D06(03)08
Z Dra D06(05)07
X Tri D06(06)08
RZ Cas D06(08)10
U Cep 10(14)19D
V640 Ori 11(13)13L

1998 Feb 2 Mon

X Tri D06(05)07
TW Dra 07(12)17
RZ Cas 10(12)15
Z Dra 11(13)16
ST Per 14(18)15L
Z Vul L15(11)16

1998 Feb 3 Tue

X Tri D06(04)07
V640 Ori 11(14)13L
Z Per 13(18)15L
RZ Cas 15(17)18D
U Sge L16(17)18D

1998 Feb 4 Wed

TX UMa D06(02)07
U Cep D06(02)07
X Tri D06(04)06
SW Cyg D06(07)10L
SW Cyg L12(07)13
Z Vul 17(22)18D

1998 Feb 5 Thu

Z Dra D06(06)09
TW Dra D06(07)12
ST Per D06(10)14
V640 Ori 12(14)13L
RW Tau 13(17)14L

1998 Feb 6 Fri

U Cep 09(14)18D
Z Dra 12(15)17
Z Per 14(19)15L
RW Gem 15(20)16L

1998 Feb 7 Sat

TX UMa D06(04)08
RZ Cas D06(07)09
V640 Ori 12(15)13L

1998 Feb 8 Sun

TW Dra D06(02)08
RW Tau 07(12)14L
RZ Cas 09(12)14
SW Cyg 15(21)18D
S Equ L18(18)18D

1998 Feb 9 Mon

U Cep D06(02)07
Z Dra D06(08)10
RW Gem 12(17)16L
RZ Cas 14(16)18D
Z Vul L15(20)18D

1998 Feb 10 Tue

TX UMa D06(05)10
ST Per 13(17)14L
Z Dra 14(17)18D
U Sge L15(11)17
TW Dra 17(22)18D

1998 Feb 11 Wed

RW Tau D06(06)11
U Cep 09(14)18D

1998 Feb 12 Thu

RW Gem 08(14)15L

1998 Feb 13 Fri

RZ Cas D06(06)09
TX UMa D06(07)11
Y Psc D06(08)07L
ST Per D06(08)12
SW Cyg D06(10)09L
Z Dra 07(10)12
SW Cyg L11(10)16
TW Dra 12(17)18D
U Sge L15(20)18D

1998 Feb 14 Sat

U Cep D06(02)06
RZ Cas 09(11)14
Z Vul L14(18)18D
Z Dra 16(18)18D

1998 Feb 15 Sun

RW Gem D06(10)15L
RZ Cas 13(16)18D
S Equ L18(15)18D

1998 Feb 16 Mon

TX UMa D06(08)13
TW Dra 08(13)18
U Cep 09(13)18D

1998 Feb 17 Tue

Y Psc D06(02)07
Z Dra 09(11)14

1998 Feb 18 Wed

RW Gem D06(07)12
ST Per 11(15)14L
Z Dra 18(20)18D

1998 Feb 19 Thu

RZ Cas D06(06)08
TW Dra D06(08)13
TX UMa D06(10)14
RW Tau 09(14)13L
Z Vul L14(15)18D

1998 Feb 20 Fri

Z Dra D06(05)07
RZ Cas 08(11)13
U Sge L15(14)18D

1998 Feb 21 Sat

RW Gem D06(04)09
ST Per D06(07)11
U Cep 08(13)18
Z Dra 11(13)16
RZ Cas 13(15)18

1998 Feb 22 Sun

Z Per D06(02)06
TW Dra D06(03)08
RW Tau D06(08)13
TX UMa 07(11)16
SW Cyg 08(14)09L
SW Cyg L11(14)18D
RZ Cas 18(20)18D

1998 Feb 23 Mon

U Sge 18(23)18D

1998 Feb 24 Tue

Z Dra D06(06)09

X Tri 11(13)11L
Z Vul L14(13)18D
TW Dra 18(23)18D
1998 Feb 25 Wed
RW Tau D06(03)07
Z Per D06(03)08
RZ Cas D06(05)08
TX UMa 08(13)17
SS Cet 09(14)09L
X Tri 10(13)11L
Z Dra 13(15)17
S Equ L17(22)18D
1998 Feb 26 Thu
RZ Cas 08(10)12
U Cep 08(13)18
X Tri 09(12)11L
ST Per 10(14)13L
1998 Feb 27 Fri
SW Cyg D06(04)09L
X Tri 09(11)11L
RZ Cas 12(15)17
TW Dra 13(18)18D
U Sge L14(08)14
1998 Feb 28 Sat
Z Per D07(04)09
Z Dra D07(08)10
X Tri 08(11)11L
SS Cet 09(13)09L
TX UMa 10(14)18D
RZ Cas 17(19)18D
1998 Mar 1 Sun
ST Per D07(06)10
X Tri 07(10)11L
RW Gem 13(18)14L
Z Vul L13(11)16
Z Dra 14(17)18D
1998 Mar 2 Mon
X Tri 07(09)11L
TW Dra 08(13)18D
RW Tau 11(16)13L
U Sge L14(18)18D
1998 Mar 3 Tue
RZ Cas D07(05)07
Z Per D07(06)10
X Tri D07(08)11L
U Cep 08(12)17
SS Cet 08(13)09L
TX UMa 11(16)18D
SW Cyg 11(17)18D
Z Vul 17(22)18D
1998 Mar 4 Wed
X Tri D07(08)10
RZ Cas 07(09)12
Z Dra 07(10)12
RW Gem 10(15)14L
S Equ L17(19)18D
1998 Mar 5 Thu
X Tri D07(07)10
TW Dra D07(09)14
RW Tau D07(10)13L
RZ Cas 12(14)17
Z Dra 16(18)18D
1998 Mar 6 Fri
X Tri D07(06)09
Z Per D07(07)12
SS Cet 07(12)09L
ST Per 09(13)13L
TX UMa 13(17)17D
Z Vul L13(09)14
RZ Cas 16(19)17D
1998 Mar 7 Sat
X Tri D07(06)08
RW Gem D07(12)14L
1998 Mar 8 Sun
TW Dra D07(04)09
RW Tau D07(04)09
X Tri D07(05)08
SW Cyg D07(07)08L
U Cep 07(12)17
Z Dra 09(12)14
SW Cyg L10(07)13
Z Vul 14(20)17D
1998 Mar 9 Mon
ST Per D07(04)08
X Tri D07(04)07
Z Per D07(08)13L
SS Cet D07(11)09L
U Sge L13(12)17D
TX UMa 14(19)17D
1998 Mar 10 Tue
RW Gem D07(09)14L
RZ Cas D07(09)11
1998 Mar 11 Wed
Z Dra D07(05)07
RZ Cas 11(14)16
S Equ L16(16)17D
1998 Mar 12 Thu
Z Per D07(10)13L
SS Cet D07(11)08L
Z Dra 11(13)16
SW Cyg 15(21)17D
U Sge 15(21)17D
TX UMa 16(20)17D
RZ Cas 16(18)17D
1998 Mar 13 Fri
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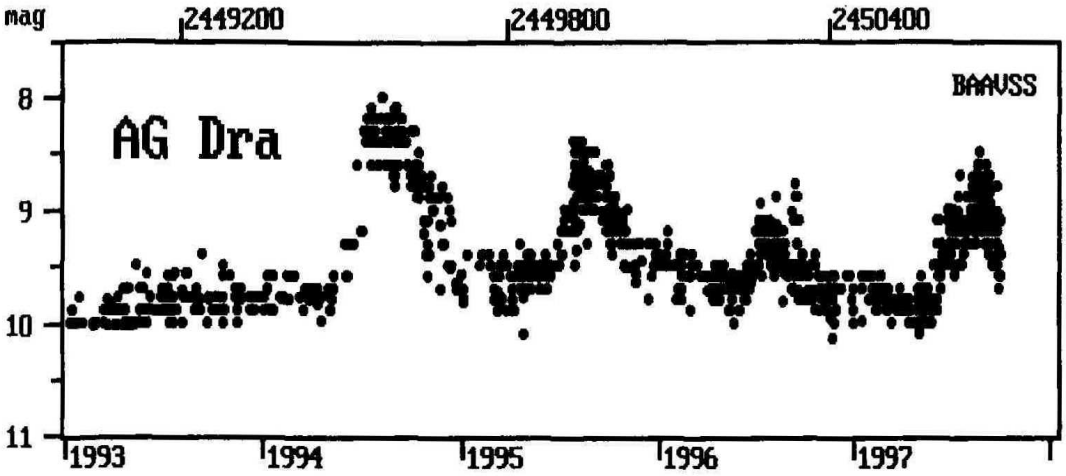
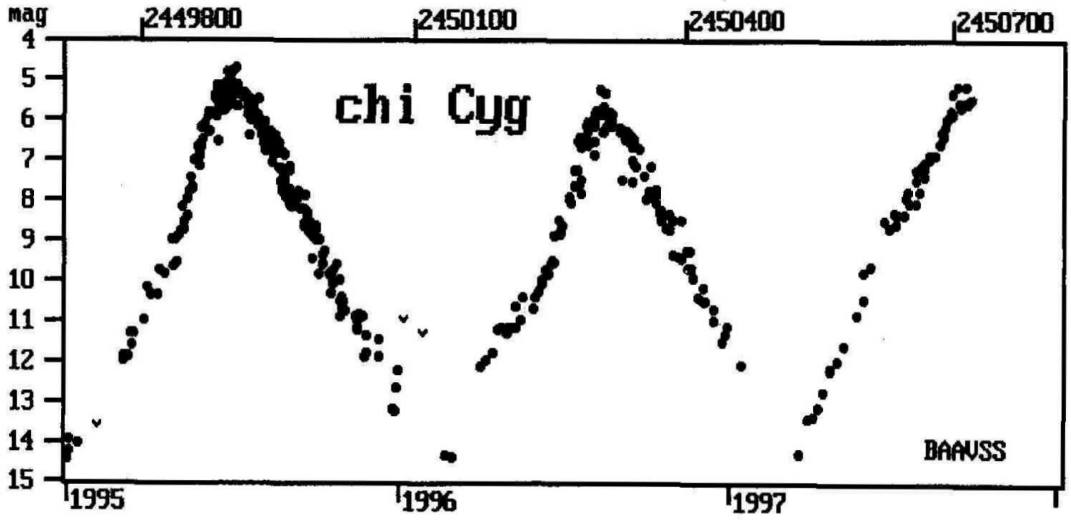
Z Vul L13(18)17D
TW Dra 14(19)17D
1998 Mar 14 Sat
ST Per 07(11)12L
1998 Mar 15 Sun
Z Dra D07(06)09
SS Cet D07(10)08L
Z Per D07(11)13L
1998 Mar 16 Mon
RW Gem D07(02)07
RZ Cas D07(08)11
RW Tau 07(12)12L
TW Dra 09(14)17D
Z Dra 13(15)17D
1998 Mar 17 Tue
ST Per D07(03)07
SW Cyg D07(11)07L
SW Cyg L09(11)17
RZ Cas 11(13)15
1998 Mar 18 Wed
SS Cet D07(10)08L
U Cep D07(11)16
Z Per 08(12)12L
Z Vul L12(15)17D
RZ Cas 15(18)17D
S Equ L16(13)17D
1998 Mar 19 Thu
RW Tau D07(06)11
Z Dra D07(08)11
TW Dra D07(10)15
U Sge L13(15)17D
1998 Mar 20 Fri
Z Dra 14(17)17D
1998 Mar 21 Sat
SS Cet D07(09)08L
Z Per 09(14)12L
1998 Mar 22 Sun
TW Dra D07(05)10
RZ Cas D07(08)10
ST Per D07(10)12L
1998 Mar 23 Mon
U Cep D07(11)16
Z Dra 08(10)12
RZ Cas 10(12)15
Z Vul L12(13)17D
1998 Mar 24 Tue
SS Cet D07(08)08L
Z Per 10(15)12L
RW Gem 11(16)13L
RZ Cas 15(17)17D
Z Dra 16(19)17D
1998 Mar 26 Thu
SW Cyg L09(14)17D
U Sge L12(10)15
1998 Mar 27 Fri
SS Cet D07(08)07L
RW Gem 08(13)13L
RW Tau 09(14)11L
Z Dra 09(12)14
Z Per 12(16)12L
TW Dra 15(20)17D
Z Per L17(16)17D
1998 Mar 28 Sat
TX UMa D07(04)09
RZ Cas D07(07)10
U Cep D07(11)16
Z Vul L12(11)16
S Equ L15(20)17D
1998 Mar 29 Sun
RZ Cas 09(12)14
U Sge 13(19)17D
1998 Mar 30 Mon
RW Tau D07(08)11L
ST Per D07(09)11L
RW Gem D07(10)12L
TW Dra 10(15)17D



AG Dra observers 1993 to 1997. S W Albrighton, A R Baransky, R J Bouma, J S Day, D Gill, B H Granslo, G M Hurst, Miroslav Komorous, S Koushiappas, T Markham, G Poyner, M D Taylor, E J W West.



Chi Cyg observers 1995 to 1997. S W Albrighton, M Barrett, N M Bone, R J Bouma, M Clarke, K Darbyshire, R C Dryden, S Godwin, B H Granslo, L Green, F Hamilton, C Henshaw, E H Horsley, P Jenkins, T Markham, J Meacham, T J C A Moseley, I P Nartowicz, R A H Paterson, G Poyner, G W Salmon, D M Swain, M D Taylor, J Toone.

See the BAAVSS Web page for more light curves

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TELEPHONE ALERT NUMBERS

Nova and Supernova discoveries
First telephone the Nova/Supernova Secretary. If only answering machine response, leave a message and then try the following: Denis Buczynski 01524-68530, Glyn Marsh 01772-690502, or Martin Mobberley 01245-475297 (weekdays) 01284-828431 (weekends).
Variable Star Alerts
Telephone Gary Poyner (see above for number)

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