British Astronomical Association

VARIABLE STAR SECTION CIRCULAR

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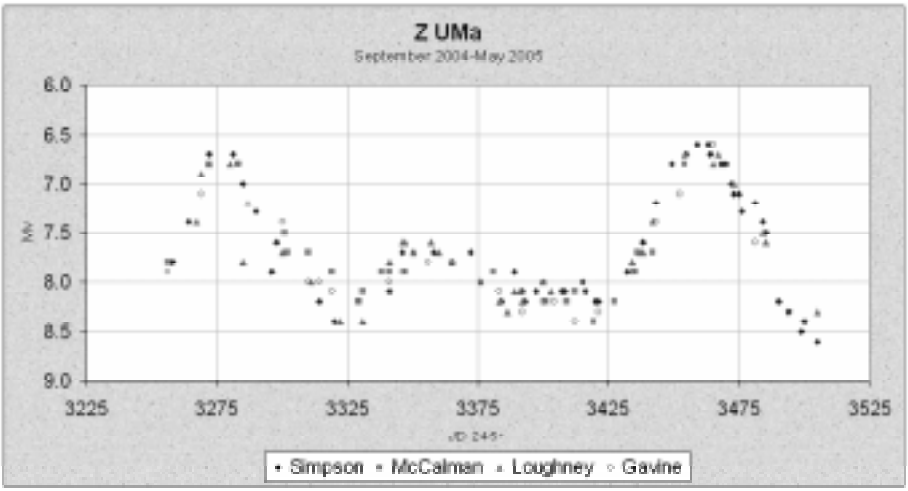
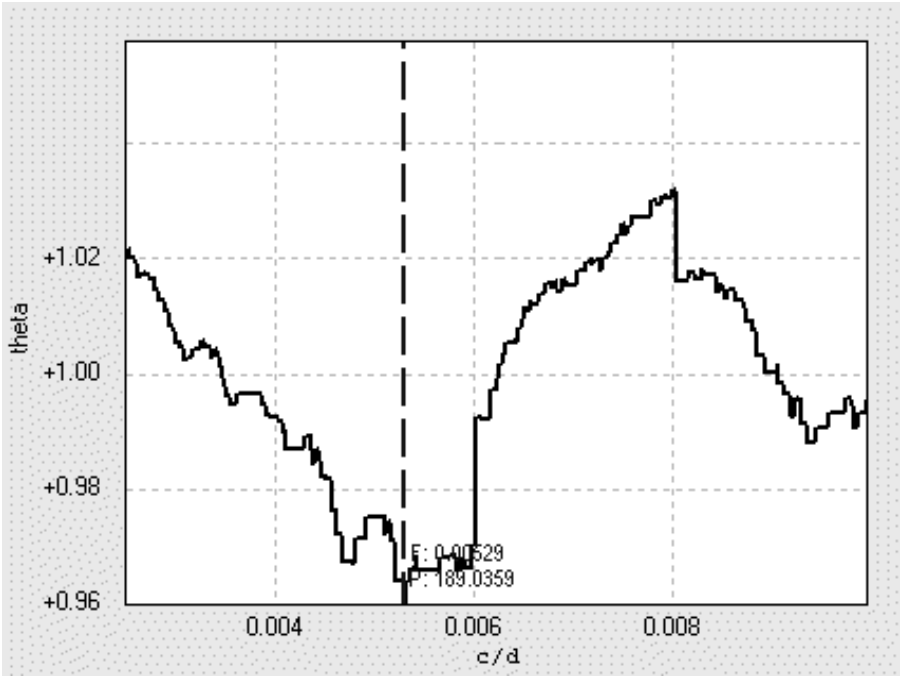


Observations made by of ZUMa (above) between September 2004 and May 2005 by a team of Scottish observers (Janet Simpson, Lorna McCalman, Des Loughney, David Gavine).

A *Peranso* analysis of the 93 observations (below), has been run by Gary Poyner on the data. Peranso would usually be used to analyse data comprising many more observations, but it was interesting for this observing team to see what period their observations were tending towards. Gary has previously run this software on data for the same star, comprising more than 3,000 observations from the BAAVSS database.



FROM THE DIRECTOR

ROGER PICKARD

VSS Meeting Saturday 6th August 2005

I'm delighted to announce that there will be a VSS Meeting this year. This will be held at Sussex University, and the principal speaker will be Professor Brian Warner, the world authority on cataclysmic variables, who will be giving two talks that day. The full list of speakers is: Brian Warner, Darren Baskill, Richard Miles, Chris Jones and Roger Dymock. However, there will still be plenty of time left at each break to chat and discuss matters variable.

The meeting will be held in lecture room PB1A6 which is located in block Pevensey; see http://astronomy.sussex.ac.uk/ for further details.

There will be a small charge of £5 for admission, but this will include morning coffee and afternoon tea.

A range of sandwiches will be available for purchase during the lunch break. However, as these will have to be pre-ordered, I shall be grateful if members could give me an indication of whether they will be attending or not.

The University is on the A27 road between Brighton and Lewes, about four miles from the centre of Brighton. Visitors driving from London and the north should follow the M23/A23 road towards Brighton. Before you reach Brighton town centre, take the A27 eastbound which is signposted to Lewes. Drivers from the east or west should take the A27 direct to the University. Please note that, opposite the University of Sussex campus at Falmer is the University of Brighton's Falmer site. You should follow the signs to 'Sussex University'.

Full details will appear on the web page in due course, but if you do not have Internet access then please drop me a line (including an SAE) and I'll post details to you.

Observing Guide

I'm delighted to announce that the long awaited Observer's Guide was published the day of the Astrofest meeting, so that copies were available for the general public to purchase. The Guide is intended for newcomers to VS observing, but I'm sure some of the more regular observers will find some of the material provides a useful refresher. It is available from the BAA Office for just £4.50. Members may well feel it is worthwhile purchasing a copy to be able to show and attract new observers.

Mike Simonsen

I'm sure most members will be aware of the monumental efforts Mike Simonson makes to modern variable star sequences. It was wonderful, therefore, to hear that Mike was awarded the AAVSO Director's Award by Arne Henden at a recent meeting. Mike was selected for this unique award, for his many contributions to, and efforts on behalf of the AAVSO. Congratulations Mike.

VSS Director's Award

Prompted by the above news, I was reminded that Karen Holland had suggested to me a while back that it would be nice to have our own "Director's Award". Not necessarily given for the same or similar reasons as the AAVSO award, but for any notable achievement by a VSS member - other than an Officer. Therefore, if you know of anyone who you feel should receive some acknowledgement for their achievements please let me know and I'll endeavour to make a reasoned judgement.

DATABASE NEWS

JOHN SAXTON

In the last circular I expressed my hope that the database input software would soon be available via the VSS web pages. I am now pleased to report that the software can indeed be downloaded from the internet.

I have set up my own web site at **www.lymmobservatory.net** (there should be a link from the VSS page). Although this site will eventually contain material on a variety of topics, I have started by using it to make certain database materials more widely available. I have three aims in this respect:

- First, I intend to put the database documentation on the web. This will contain the formal definitions of the data formats, and other information on how the database works. The site already contains a definition of the input format, although I expect these notes to undergo some revision in the next few months, before settling down.

- Second, the site allows observers to download the current database input soft ware. The full package is available as a zipped file (about 1.3 MB); observers who have already installed the software on their PC also have the option to download the most recent version of the program itself, VSS.exe.

- Thirdly, I hope to provide some feedback to observers, in the form of a table showing the number of observations from each (current) observer presently in the database. This feature is almost working; I am presently modifying the database software to generate the tables automatically, in html format. Please note that your observations will find their way into the database more quickly if you send me pre-processed buffer files, so it is a case of 'Help me to help you'!

I hope you find these web pages useful. I can also supply this software on CD-ROM if required.

I'd like to express my thanks to the growing number of observers who are sending me pre-processed data, and also to those who've tried the software and provided useful feedback. I would encourage other observers who submit data electronically, especially those of you who submit Excel files, to use the software. I would much rather spend time now showing you how run your data through my checking program, than have to sort out problems after data have been submitted!

RECURRENT OBJECTS NEWS

GARY POYNER

1RXSJ053234.9+624755 – Flickering in the new UGSU star in Cam

Discovery details of this new UGSU star in Camelopardalis are a little vague. What is known, is that Austrian observer Klaus Bernhard discovered this new CV whilst comparing X-ray sources with NSVS data. The new star was given the name Bernhard 01 by a group of observers (Mike Simonsen coined it actually) who began to monitor for further outbursts. Initial reports suggested a Supercycle of ~150d, with the possibility of more frequent outbursts. The variability was eventually confirmed by Thomas Berthold (Sonneberg, Germany) and Chris Lloyd, who checked more than 200 plates and found six outbursts with a mean interval of 134.27d, reaching around magnitude 11 [1]. Once the variability had been confirmed, the star received an 1RXS designation. The next outburst was thought to be due sometime in April! We didn't have to wait that long, however, as Wolfgang Kriebel (Germany) detected an outburst on March 16.809 at magnitude 12.0. This indeed proved to be a Superoutburst, with many CCD observers carrying out time series observations.

It was, of course, an obvious target for visual observers, and thanks to Mike Simonsen preparing a chart very quickly (even before the outburst was detected), it was possible to make observations both prior to, and during the outburst. My first positive observation was made on March 18.856 at 12.8 with a 35cm SCT. By March 23.819 the object had brightened to magnitude 12.0. Cloudy weather prevented further observations until April 4th, by which time the star had faded to 14.6. On April 8.901, I observed it at 14.8, but noticed that the star was 'flickering'. This isn't too unusual, and I have seen it many times in the past in several dwarf novae in outburst. What was unusual, was the intensity of the variations. As I watched, the star was varying in brightness by nearly

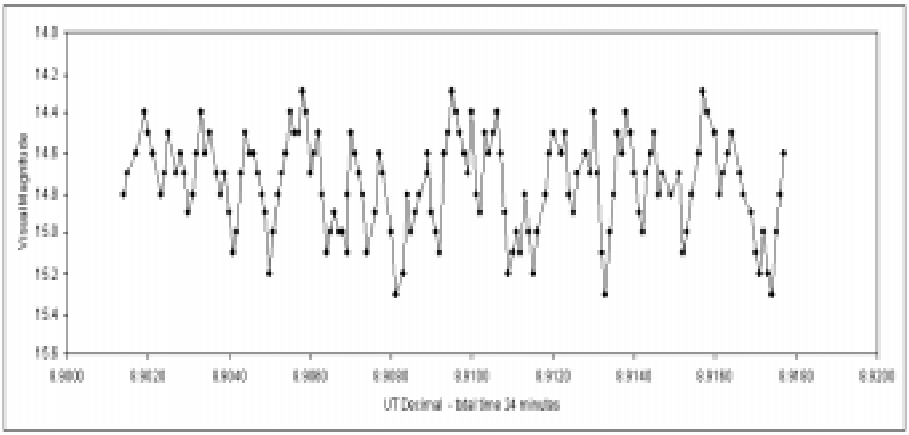


Figure 1: The authors visual observations of the flickering, made every10 seconds for 24 minutes.

one magnitude in under thirty seconds! I continued to observe this for about five minutes before I eventually decided to try to record this amazing phenomenon. The variations were so rapid that I made an estimate every ten seconds for twenty four minutes from 21h 38m UT to 22h 02m UT. By that time my eyes were beginning to get tired and I needed a rest. The light curve for this period is shown on the previous page. The largest variation was 0.9 magnitude in twenty seconds!

Obviously the accuracy expected from an observation like this won't be the usual 0.1 we all strive for in our visual observations. The time between estimates was very short (it had to be for the variations were happening so quickly), and just one comparison star was used (147). However the light curve does show the amazing rate at which the star was varying. Further observations on April 10 and 11 revealed further flickering (whilst the star was at magnitude 14.9), but to a lesser extent. It was also gratifying to learn that CCD observers had also detected flickering at this time.

1RXSJ053234.9+624755 will be a star to watch in the future, and it's high declination means that it is circumpolar from the UK. If the 134.27d cycle is correct, we are looking at the next outburst sometime in the first week of August this year!

1: CVnet-discussion Feb 18th 2005

100K REFLECTIONS

PETER WILLIAMS

During November, I passed a small personal milestone by recording my 100,000th variable star observation to be submitted the Variable Star Section of the Royal Astronomical Society of New Zealand.

This humble magnitude estimate was made during the evening of November 26, under a near Full Moon, within a run of stars regularly observed in the neighbouring LMC galaxy. The observation itself was, in hindsight, perhaps a bit of a let-down for such a milestone, being a negative observation of **RY Doradus** (Nova Dor 1926 = V1674 LMC), a suspected recurrent nova that was (not unexpectedly) fainter than magnitude 13 on the night. An outbursting dwarf nova or RBC star in decline may have been more fitting but as the saying goes "that's life".

This started me thinking about some of the interesting observations and events I have been fortunate enough to witness during this time, some of which I probably did not fully appreciate at the time.

Prominent in my memory is the 1987 decline of the RCB star **V854 Centauri**. At that time, just one year after its third 'discovery' by Australian amateur Glenn Dawes, the true nature of this magnitude 7 star was still uncertain, and it was commonly referred to as the suspected variable star **NSV6708**. Few, if any, other amateurs were then regularly monitoring it. The 1987 decline was the first fade to be observed as a real time event, and saw it fall 7 magnitudes in a matter of weeks, then slowly return to maximum by the year's end. The initial stages of the decline were reported in the IAU Circulars

of the time. When I showed the complete light curve to Rob McNaught at the 1988 Sydney NACCA, his eyes lit up at seeing the unmistakable RCB behaviour of this star. This light curve was later used to support infrared observations made in South Africa by professional researchers.

During 1986 Bob Evans discovered a magnitude 12 supernova (**SN 1986G**) in the southern peculiar galaxy **NGC5128 = Cen A**. Less than a year later, the magnitude 3 supernova **SN 1987A** held spellbound any amateur astronomer with access to the southern skies, lying adjacent to the Tarantula Nebula within the LMC galaxy. This was the first naked eye supernova in nearly 400 years.

I recall showing SN 1987A, than at magnitude 4, to members of the local Sutherland Astronomical Society in Sydney through the 41cm Selby reflector. The common response was "doesn't the Tarantula Nebula look great". Seen one star, I guess you've seen them all?

Further back in 1975, I made my very first observation of the dwarf nova **VW Hydri** at magnitude 11.7, and I thought how easy it was to catch this star during outburst. As a reality check, it would be many months before I again saw VW Hyi in a bright state.

I recall observing at Heathcote one evening with long time friend Col Shepherd through my 30cm reflector, a telescope I had purchased from Col several years earlier. After the usual round of deep sky objects, I decided to check on some LMC variable stars on my regular working list. Of these, **HV12842** is a rather obscure extra galactic RCB star that had been at maximum 13.5 for the several previous years. That evening, however, I found HV12842 had faded to fainter than 15.0 and I was naturally quite excited.

Although not a variable star enthusiast, Col was keen to share in the excitement. Looking through the eyepiece Col saw - nothing. After all, the star had faded to invisibility. The blank expression on his face suggested I got more out of this than he did.

And I could not overlook my first observation of the bright **Nova Velorum 1999** (V382 Vel) on May 22 at 3.1 magnitude. Two extremely rare outbursts of the intermediate polar **EX Hydrae**, an eruption of the black hole x-ray binary **V4641 Sagittarii**, the visual recovery and subsequent investigation of **X Muscae**, **NSV4491**, **NSV5087** plus 8 eclipses of the long period Algol binary **BL Telescopii**.

The list could go on and on.

Fortunately, there has also been the occasional comet, grazing occultation, planetary encounter, eclipse, and some really nice deep sky objects and lunar craters to view. Otherwise I may have become one-tracked!

Erratum

It has been pointed out that in the last circular, the Alston Hall report incorrectly cited that David Boyd jointly opened this meeting with the Variable Star Section Director, Roger Pickard, rather than Denis Buczynski, who actually opened the meeting. The editor apologises for this mistake, which was an error on her part.

HIDDEN MAGNETIC ACCRETORS IN V426 OPHIUCHI AND LS PEGASI

DARREN BASKILL

Cataclysmic variable stars are tight binary star systems, consisting of a white dwarf star (with a similar mass to the Sun, but confined to the size of the Earth) which gravitationally drags gas from a red dwarf star (which, when unmolested by a companion star, are not that disimilar to our own Sun).

This gas can fall towards (accrete onto) the white dwarf in one of three ways: if the white dwarf is strongly magnetic, the gas is funnelled directly onto the magnetic poles of the star; if the white dwarf is non-magnetic, the gas forms a disc before settling onto the equator of the star; somewhere between these two extremes, and the gas forms a disc, but at a certain distance from the white dwarf the disc is truncated and the gas follows the magnetic field lines onto the magnetic poles of the white dwarf.

Whatever the level of magnetism, the gas still plummets into the white dwarf star at around a thousand million tonnes per second, causing the local area to heat up to millions of degrees and so emit X-ray radiation.

We looked in detail at all the non-magnetic cataclysmic variables (NMCV's) observed with the Japanese X-ray observatory, ASCA (Baskill, Wheatley and Osborne, 2005), and a surprising result emerged.

We found two extremely hard systems, where *hard* means that twice as many high-energy X-rays (2.5-10 keV) were observed than *soft* X-rays (0.8-2.5 keV). Usually, more soft X-rays are observed from NMCV's than hard.

This pair, V426 Oph and LS Peg, appeared spectrally distinct from the rest of the sample. These are probably weakly magnetic accretors, but there is no evidence of any periodic variability, which currently is the only accepted method of identifying such a system.

The ASCA results are intriguing. The observations show CVs with the spectral characteristics of magnetic accretors, but without the convincing detection of a period. Patterson (1994) carried out a comprehensive review of known *intermediate polars* (intermediately-magnetic accreting systems), stating: "The basic criterion for membership in this class, is the presence of a highly coherent periodicity in a CV's light curve, typically at optical or X-ray wavelengths''. So by this criteria, our systems are not magnetic.

However, we believe that the X-ray spectra of LS Peg and V426 Oph are sufficiently distinct from NMCV, and are so spectrally similar to weak magnetic accretors, that they should be reclassified as such, based on their spectra alone, without the detection of the white dwarf spin periods.

Normal magnetic accretors are usually easy to indentify, yet the two systems we present here are not, and so it seems possible that we have identified a subclass of magnetic accretors that do not exhibit strong periodic variability. These non-periodic systems

may have weak magnetic-fields with less collimated accretion and lower modulation amplitudes. There may also be modulations over multiple energy bands that cancel each other out, as seen in ASCA observations of WZ Sge by Patterson et al (1998). They found a modulation in both the hard (2-6 keV) and soft (below 2 keV) X-ray light-curves on a 27.9s period, both of similar amplitude, but 180 degrees out of phase with each other, thus cancelling out any signal in the full energy range power spectrum.

V426 Oph

The ASCA X-ray observation of V426 Oph shows no clear modulation to confirm its magnetic nature, and arguments rage as to the true nature of V426 Oph in the literature.

The ASCA power spectrum of V426 Oph looks like it is dominated by red noise. However, closer inspection reveals that several of the peaks are separated by precisely the orbital frequency of the ASCA satellite, so there may be one real period confused by beat frequencies between real periods and the sampling period. This is tantalising evidence that this unusually hard system has a (somewhat complicated and so hidden) X-ray modulation and hence is a magnetic accretor.

The 9 hour observation of V426 Oph is currently scheduled for early March, 2006. Optically, V426 Oph ranges from 14th to 11th magnitude.

LS Peg

A possible 30.9 minute period was detected in the ASCA observation of LS Peg, with an amplitude of 32%. Rodriguez-Gil et al. (2001) independently report a detection of a period at 29.6 min in the circular polarisation of LS Peg. This coincidence suggests that the modulation in X-rays and circular polarisation may have a common physical origin which warrants further investigation.

XMM-Newton is currently scheduled to observe LS Peg for 10 hours on the 8th of June, 2005. Optically, LS Peg can usually be found around 12th magnitude.

In looking deeper for a weaker period with XMM-Newton, we will validate the method of identifying magnetic accretors from their spectra alone, a method which works even at low signal-to-noise. This will establish X-ray spectroscopy as a method for identifying and investigating magnetic accreting systems. The extra signal-to-noise will also allow us to search for periods in different energy bands, just like Patterson et al (1998).

While XMM-Newton observes the heated gas at the white dwarf in X-rays, and the inner disc at UV (with the XMM-Newton optical/UV monitor), we would also like simultaneous high time resolution optical observations to track the movement of gas from the outer disc. We would like this optical data from 12 hours before the XMM-Newton observation, right through the observation itself. In addition, in order to see more general changes in the outer disc and what state the outer disc is in during the XMM-Newton observation, we would like optical observations spanning several weeks either side of the XMM-Newton observation.

This chart is now on line at http://www.aavso.org/charts/PEG/LS_PEG/LSPEG-F.PNG

TWO CEPHEIDS

DES LOUGHNEY AND JANET SIMPSON

People new to variable stars are often advised to practice on the two Cepheids **Delta Cephei** (the prototype of all Cepheids) and **Eta Aquilae**. These stars and their comparisons are easy binocular objects.

With an initial objective of honing observing techniques, we decided to carry out an observing campaign on both these stars, and construct light curves from the data. We expected the data to illustrate the classical light curves for Cepheids, showing a steep rise to maximum, and a gentler drop to minimum. However, our results were slightly different from our expectations.

The first phase diagram (Figure 1) plots 59 observations of eta Aquilae in the second half of 2004. The data also confirms the regularity of the 7.177 day period. In our view it suggests a 'bump' midway between maximum and minimum.

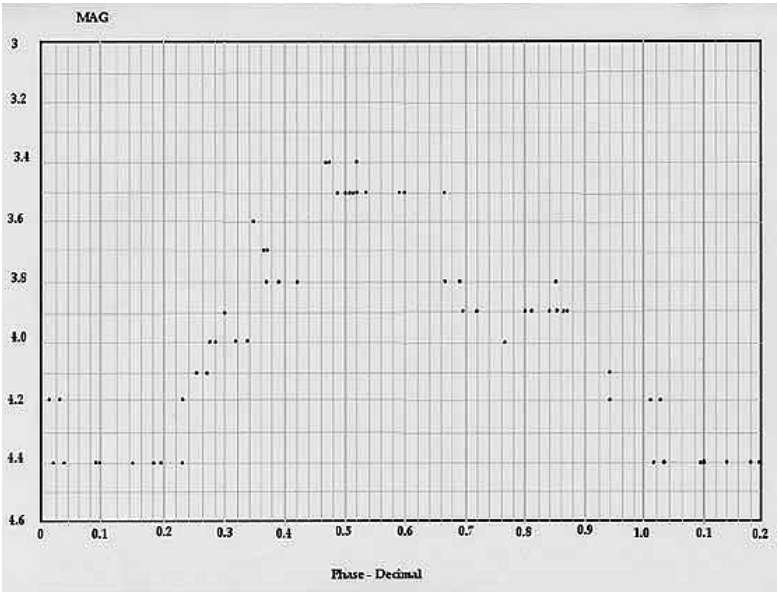
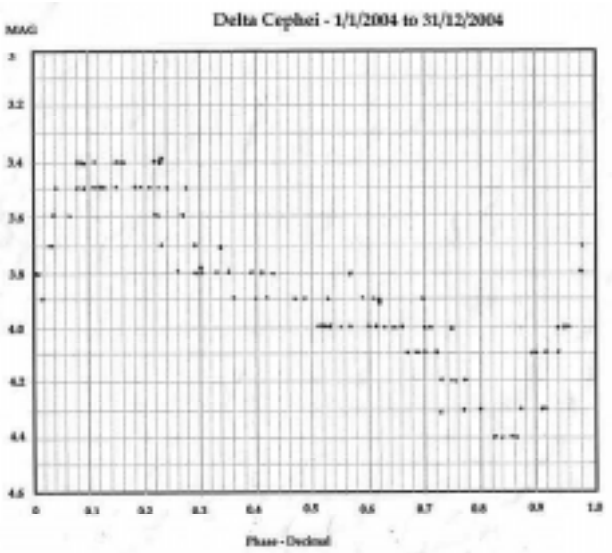


Figure 1, showing 59 observations of Eta Aquilae in the second half of 2004

The second diagram (Figure 2) plots 105 observations of delta Cephei in 2004. The data confirms the regularity of the 5.366 days period. It also suggests that there may be a 'bump' on the way to minimum.

How accurate are these observations? We think that these phase diagrams indicate that, on the whole, we are managing to estimate magnitudes to within 0.1 magnitude. This level of accuracy seems to be achievable. We noted that it takes at least 30 observations of this type of star for a proper light curve to emerge. We also noted that it was only after about 50 observations that there was a suggestion of 'bumps'. Some subtle features of these pulsating stars take time to emerge.



Are these bumps real or do they represent a particular type of observer error? We consider that they may be real. Below are two Hipparcos light curves of the two stars (Figures 3 and 4) that suggest the bumps may be real.

Figure 2 (above) showing 105 observations of Delta Cephei in 2004

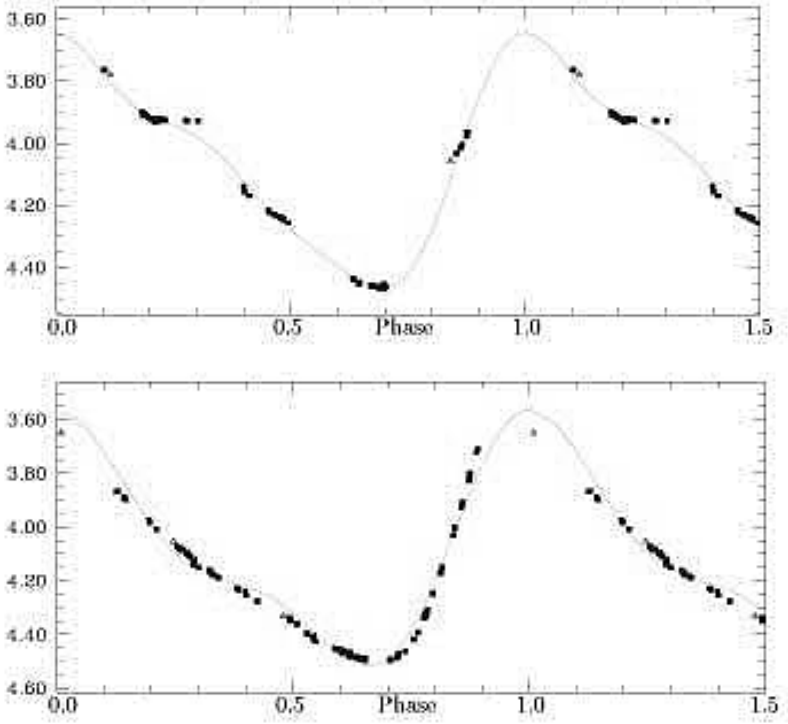


Figure 3 and 4 (above) showing the Hipparchos light curves for the two stars, Eta Aql top, and Delta Cephei bottom.

THE 2004 ECLIPSE OF ETA GEMINORUM

TONY MARKHAM

The accompanying light curve shows my observations of **Eta Gem** between August 2004 and April 2005. Observations were made using the naked eye, 10x50B and 11x80B as necessitated by the observing conditions. The comparison stars used were Mu Gem, 1 Gem and Epsilon Gem. Since Eta Gem is a red variable, you may find that your own observations are systematically brighter or fainter, but hopefully you will have seen a similar pattern of variation.

The 2004 eclipse was generally described as being unobservable due to its proximity to conjunction. However, since the predictions give the date of mid-eclipse as being around 2004 Aug 1, there would be the opportunity to observe much of the second half of the eclipse as Eta Gem moved out from the morning twilight though, with it being low in the sky, observing conditions would be far from ideal.

There was some uncertainty in advance as to the duration of the eclipse. Although the duration of totality is usually given as about 30 days, different sources gave different values for the duration of the partial phase, ranging from a few days to several weeks. Based on this light curve it isn't possible to comment on the duration of totality, but it does seem to support the longer duration for the partial phase.

Eta Gem is also a semi-regular variable with a period of about 233 days and a range of a few tenths of a magnitude; indeed some observers mistakenly reported two preceding semi-regular minima as being early starts to the eclipse. Away from the eclipse the light curve shows a semi-regular minimum in late 2004 followed by a semi-regular

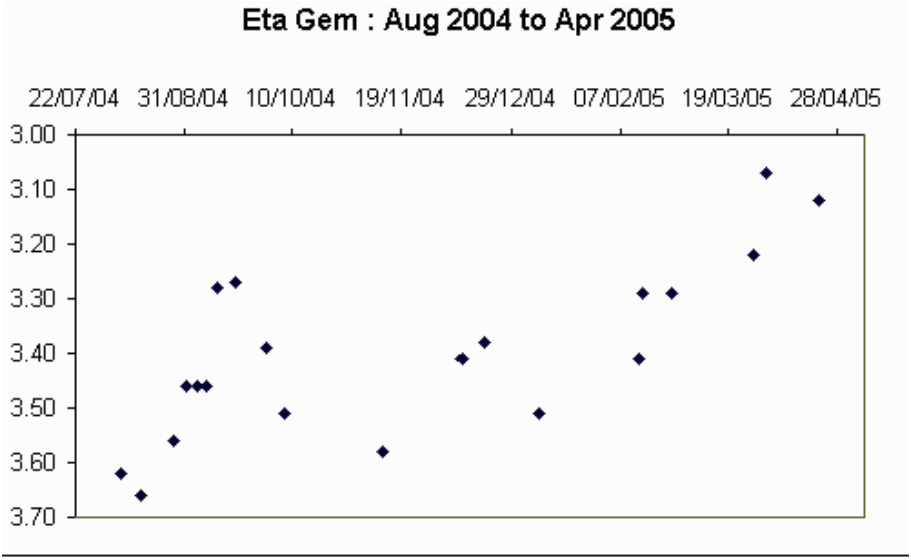


Figure 1; The authors observations of the Eta Gem eclipse

maximum in the spring of 2005. Given that the previous semi-regular minimum took place in Feb-Mar 2004, it is likely that Eta Gem was around semi-regular maximum when the eclipse started, and the semi-regular component was fading as it emerged from eclipse. This would explain why observers typically only reported it rising by 0.2-0.3 mag as it emerged from eclipse, compared with 0.5 mag reported in several previous eclipses.

The next eclipse is predicted for early October 2012. Although Eta Gem will be primarily a morning sky object, 2012 will give us the opportunity to observe an eclipse at a more convenient altitude and also to see the whole of the eclipse.

ALSTON HALL VSS MEETING 2004 REPORT, (PART 2)

KAREN HOLLAND

After dinner, **Professor Don Kurtz** talked on ***Sun Dogs and Blue Moons***. He began by pointing out that Astronomy, like Archaeology and Ornithology, was one of the few areas of study in which there was a continuum between the work of professionals and amateurs, with no clear division between the work of the two. In astronomy, it was still possible for amateurs to do work that would be valued by professionals.

After talking briefly about the properties of light, Professor Kurtz talked about some of the unusual effects that were occasionally visible on earth. He showed pictures of rainbows, and explained in some detail how they were formed; through the use of detailed diagrams, he showed how double rainbows exhibited a reversal of the colour order. He showed fogbows, holy glows (heligenschein), glitterpaths on the sea and sun dogs, amongst many other phenomena.

Saturday got off to an excellent start with **Keith Robinson** and **Denis Buczynski** talking about ***Eclipsing Binaries: CCD Observations and Subsequent Analysis***. Denis and Keith had chosen to observe EBs largely because you could obtain a complete light curve during one night's observing, and the two of them had worked in this field as a team, with Denis providing the observations by doing time-series photometry, whilst Keith did the reduction of the data.

Denis and Keith had started by picking stars that were suitable for Denis's 13" telescope and started to collect data. They showed a light curve for **EG Cep**, that was obtained on 2004 Mar 07; this data had very good resolution, having a point every 30s. Keith described, in some detail how he used the *Kwee and Van Woerden* method to analyse Denis' data, to try to obtain a good measurement of their times of minimum, using the AVE software. Once the data had been reduced, then they would add their data to Bob Nelson's database of EB data, from which O-C curves were also plotted.

Both Keith and Denis were rightly pleased with their results, and they were now looking to progress to more difficult targets like newly discovered binaries; Keith wanted to start to attempt to construct a model of a variable star, that would permit simulation of the light curve for comparison. His ultimate goal was to find a newly discovered star, obtain a light curve, and using his model to simulate the light curve, gain some insight

into the astrophysics of the new system, which he called *good amateur astrophysics*!

After the VSS team quiz challenge part 2, and a coffee break, **Mike Simonsen** spoke on ***Double Trouble - The Duplicitous Nature of Selective Variable Stars***. Mike began by describing how close companions to stars can sometimes disguise the properties in binary systems, using **Z Tauri** and **WX CMi** as examples to illustrate the potential problems.

More information concerning these objects were available on his website. He had felt that there were many such projects that observers would be interested in monitoring, if only these could be publicised better, and he had thought that a list should be created of such stars, giving a reason why these stars needed to be observed, to give more direction. He decided to pinch the BAA idea of having a ROP programme, but called it the SNOBs list (Significant or Noteworthy OutBursts! Stars on the list were monitored, with any unusual activity resulting in an alert being sent out to anyone who was monitoring any of these stars immediately.

After Lunch, **John Toone** continued with the second part of his talk on ***Two Pioneering Lancastrian VS Observers - Butterworth***. John had noticed that it was relatively easy (!) nowadays to achieve 100,000 observations with prepared charts and sequences, and a rich database of objects suggested for the observer already. What he wanted to discover, was who was the first man who achieved this distinction.

He started off by thinking that it might be Leslie Peltier, but he was surprised to find that the man who actually first achieved this total was a BAA member called Charles Butterworth, who had lived in John's own town. John went on to describe the life and observational work of Butterworth in considerable detail.

John also listed the most prolific observers for various astronomical organisations, pointing out that Butterworth had been the most prolific observer (reaching his 100,000 score in 1939) until Gary Poyner smashed the record in 1997. In the Southern Hemisphere, Albert Jones was still adding observations to his total which had now exceeded 400,000.

Bruce Sumner and **Mike Simonsen** then continued the afternoon with a talk on ***Some Mischievous ROP Objects* or *Sequences to the Rescue***, a talk which followed on from the *duplicitous* talk of the morning.

It was well known that many ROP objects did not have good sequences, so Bruce and Mike had talked to Arne Henden about producing some good charts; this had resulted in some good sequences being produced, which allowed interesting results to be obtained.

Stars for which new sequences had been produced, which were discussed were **V358 Lyr** (mag 16-<20); **V1316 Cyg** (this had a close companion problem, and its variability was uncertain); **TY Vul** (this also had a troublesome close companion); **FS Sct** (a little known nova in a crowded field, with some uncertainty over its idenitity); **V725 Aql** (an interesting object because it lay below the period gap); **V337 Cyg** (seeking to ensure correct identification, and define its minimum magnitude); **ASAS 002511+1217.2** in Psc (type not known, but could be a UGWZ); **ASAS 153616-0839.1** in Lib (a possi-

ble new bright UGSU star in the southern hemisphere); and **RX J0944.5+0357** in Sex (possibly a rare class of two-pole accreting intermediate polar, which has dwarf nova outbursts).

Clive Beech then gave a brief talk describing the ***CCD observing*** that he had recently begun using his 6" refractor and Starlight Xpress SXV-M7, having realised the potential of such a method at the CCD photometry meeting in Northampton in May 2004. His aim was to have a portable system that he could take to Dartmoor to escape light pollution. He wanted to achieve magnitude 20 detections, and magnitude 15 photometry with an error of less than 0.1 magnitude, together with astrometry consistent with the accuracy requirement of the MPC. The purpose of his work was to do variable star observing to include eclipsing binaries and cataclysmic variables; NEO search and confirmation; and supernova detection or monitoring.

Clive went on to show his methods and software used, illustrated with some of his own images, and discussed some of the teething problems that he had experienced, and this was supported with advice and guidance from the more experienced members of the audience.

After afternoon tea, there was an ***Open Forum Session***. **Roger Pickard** mentioned that the *Observing Guide* was just about complete (it has now been printed). It had been decided not to include a CD with all the charts that were produced, although the current chart catalogue was included. The VSS web pages were going to be maintained by Callum Potter from now on, who hoped to make it more interactive, so that more data could be accessed. Tony Markham had been revising the Eclipsing Binary programme, and The New Variable Star Programme (Mike Collins' discoveries) was also likely to be updated in the near future.

David Boyd, went on to say a little about the ***VS CCD Photometry Data Analysis Spreadsheet***, which had originally been developed to help reduce and analyse time series CCD data. The aim of this tool was to form a consistent record of the extracted data and of all the related information about a CCD observing session; to check the data to allow the immediate correction of problems and to get a feel for the quality of the data and an understanding of the errors; and to automatically generate report files for sending results to BAA, AAVSO etc

John Toone described the activities of the ***International Chart Working Group (ICWG)***. He explained that the situation at the end of 1999 was a bit of a mess, with all the organisations using different sequences generated in different ways. At an AAVSO meeting in Huntsville, it was suggested that the organisations should start liasing and this group (ICWG) was set up, which included representatives from the AAVSO, RASNZ and BAA to try to rationalise sequences. Good progress had been made, and guidelines had been produced which agreed upon how to produce sequences. Now the efforts were focussed on trying to accelerate this process, by eradicating duplicate work. They were also trying to embrace other observing groups from around the world also.

Michael Poxon then gave an excellent talk on ***Young Stellar Objects: UX Orionis Stars***; much of this talk was covered in a separate article on page 18 of VSSC123.

There followed a continuation of the discussion on **Star Catalogues** in which the vari-

ous catalogues that might be considered as sources for photometry were discussed. In summary, it seemed to be agreed that GSC was not suitable for photometry at all, and USNOB1 was also not suitable, although some observers felt that this might be the only option for faint stars, and that photometry could be re-reduced later when more appropriately measured comparisons had become available.

Bruce Sumner suggested that reliable magnitude sources were GCPD, ASAS-2, 2Mass, TASS, Tycho-2, and Henden. Those to avoid were listed as NSVS, HIP, UCAC2, USNO B1.0. Bruce suggested that we should all watch out for Superwasp results, and do the best we can, as there would probably not be an all-sky photometric catalogue for many years.

After dinner **Mike Simonsen** talked about ***The future of Visual Observations in Variable Star Science***. Mike had noticed that there had been a great deal of discussion recently regarding the viability of visual observations, especially with the new surveys that professionals were undertaking; he planned on talking about the perceived dangers and threats to amateur observing.

He broke the surveys into three groups: those completed, those ongoing and those not yet started. Completed surveys included the astrometric surveys USNO A2.0, USNO, UCAC, photometry by tycho2 and 2mass, NSVS (from Rotse experiment). Ongoing surveys were ASAS, TASS, SDSS and STARE. Future surveys to watch out for were Hat and Superwasp.

Mike gave a list of targets that he did not believe would be supplanted by CCDs or surveys in the near future, including naked eye and bright binocular variables with amplitudes greater than 0.2V; long-term monitoring of long period variables such as Miras and RV Tau types; monitoring outbursts of cataclysmic variables, as most surveys don't go faint enough to spot the majority of these; follow-up observations of EBs to determine approximate times of minima to be followed on by precise CCD time-series observations; and visual observations specifically requested as part of coordinated observing runs with satellites.

The main arguments for making visual estimates hold true now as they have in the past. There are still too many stars and too much sky to monitor for any survey or group to claim they have covered it all. New variable stars are being discovered all the time, and these will require years of studying in some cases to determine their properties and behaviour.

After breakfast on Sunday, and after the final session of the VSS team quiz challenge, **John Saxton** spoke about the ***VSS Visual Database***. He demonstrated the improved version of his database input software, which should be used by all observers to process their data prior to submitting it. The software carries out a number of checks on the data. It is intended to be easy to use, but is less tolerant of errors and problems in the data than the previous version which some observers had been using. John ran some real data through his program, which highlighted some of the common problems and prompted some useful discussion. John had hoped to distribute copies of the software at Alston Hall, but in view of the constructive suggestions received, he decided to amend it; observers are therefore encouraged to check the VSS web pages!

IBVS 5534-5614

GARY POYNER

5534 The Spotted Star BD+52.1602 (Robb et al, 2004)
5535 The detached Solar type binary CV Boo. (Nelson, 2004)
5536 An eclipsing near contact short period binary in the field of FS Aur. (Robertson et al, 2004)
5537 Discovery of short-periodic pulsating components in Algol-type eclipsing binary systems EF Her & CT Her. (Kim et al, 2004)
5538 Discovery of a short-periodic pulsating component in the Algol-type eclips ing binary system AO Ser. (Kim et al, 2004)
5539 Four RR Lyrae stars with variable periods in Ophiuchus (Haussler et al, 2004)
5540 Abnormal colour variations in classical T Tauri star, SU Aur (Pugach, 2004)
5541 CCD light curves of ROTSE1 Variables, XXII: GSC 2533:1519 CVn, GSC 2534:1121 CVn, GSC 2537:520 CVn & GSC 2544:1007 CVn. (Blattler & Diethelm, 2004)
5542 Updated elements for Southern eclipsing binaries. (Dvorak, 2004)
5543 163. List of minima timings of eclipsing binaries by BBSAG observers. (Diethelm, 2004)
5544 The Cataclysmic Variable V358 Lyrae: Removing ambiguities. (Antipin et al, 2004)
5545 CX CMa - An early type detached eclipsing binary. (Nelson & Terrell, 2004)
5546 GSC 3449-0688 - A new solar type overcontact binary. (Nelson et al, 2004)
5547 Preliminary solutions for the eclipsing binaries ROTSE1 J180616.31+280109.1, V883 Her, V507 Lyr, MQ Peg & MX Peg. (Wetterer et al, 2004)
5548 Times of minima for some eclipsing binaries. (Tas, G et al, 2004)
5549 Misidentified and missing southern eclipsing binaries. (Dvorak, 2004)
5550 CCD photometry of five faint Cataclysmic Variables. (Haefner, 2004)
5551 HD 173844. A new Delta Scuti Star. (Chapellier et al, 2004)
5552 Brh V128 is a double-mode high amplitude Delta Scuti star. (Bernhard et al, 2004)
5553 HD 52452: New BVRI photometry. (Barway & Pandey, 2004)
5554 Photometric analyses of the contact binaries FZ Orionis & AH Tauri. (Byboth et al, 2004)
5555 HH Nor:A double star with two variable components. (Kiss & Derekas, 2004)
5556 UBVRI observations of V350 Cep in the period 2002-2004. (Semkov, 2004)
5557 New elements for 80 eclipsing binaries IV. (Otero & Dubovsky, 2004)
5558 New variable stars in the open cluster M35 (Kim et al, 2004)
5559 Discovery of CVS ROTSE3 J151453.6+020934.2 and ROTSE3 J221519.8-003257.2 (Rykoff et al, 2004)
5560 Optical Spectrum of Y Mic. (Czart & Niedzielski, 2004)
5561 Possible RCB star DY Per: The current decline will be deep and needs observations. (Alksnis, 2004)
5562 Rapid variations in RS Oph observed by OMC/INTEGRAL.(Simon et al, 2004)
5563 Variable depths of minima of the eclipsing binary V685 Cen. (Mayer et al, 2004)
5564 CCD light curves of ROTSE1 variables, XXIII: GSC 3510.5 Her, GSC 3097:1297 Her, GSC 3101:547 Her and GSC 3106:1368 her. (Blattler & Diethelm, 2004)

5565 CCD photometry T UMi, SZ Aur, UV Aur, RU Lyr, RV Peg, SX Peg. (Smelcer, 2004)
5566 A high resolution spectrum of the TrES-1 parent star. (Strassmeier, 2004)
5567 V393 Hya: A Nova like with variable emission. (Dall & Schmidtobreick, 2004)
5568 The GEOS RR Lyr survey. (Le Borgne et al, 2004)
5569 New SU UMa type dwarf nova V344 Pup. (Uemura et al, 2004)
5570 New eclipsing binaries found in the NSVS databse 1: (Otero et al, 2004)
5571 XX Ophiuchi in deep minimum after 37 years. (Sobotka, 2004)
5572 Discovery of a short periodic pulsating component in the Algol type eclipsing binary system TU Her. (Lampens et al, 2004)
5573 New Dwarf Novae on Moscow Plates. (Antipin, 2004)
5574 Differential photometry of AW Vir April 2004 (Zboril & Djurasevic, 2004)
5575 Detection of the rotational period of HD 179949 (Wolf & Harmanec, 2004)
5576 The short time variability of GRB012004. (Kawabata et al, 2004)
5577 New times of minima of some eclipsing variables. (Lacy, 2004)
5578 VRI photometric observations of V1647 Ori (IRAS 05436-0007) (Semkov, 2004)
5579 New times of minima of eclipsing binary systems. (Borkovits et al, 2004)
5580 Thee RR Lyrae stars with variable periods in Ophiuchus (Haussler et al, 2004)
5581 Specroscopic confirmation of three suspected BY Dra variables (Dall, 2004)
5582 Light curves for recent Magellanic cloud NOvae. (Liller et al, 2004)
5583 CCD times of minima of selected eclipsing binaries. (Zejda, 2004)
5584 Discovery of spectral variability of post-AGB star SAO 40039. (Klochkova et al, 2004)
5585 Cataclysmic Variables in open clusters: EU Cnc. (Nair et al, 2005)
5586 New elements for 80 eclipsing binaries V. (Otero et al, 2005)
5587 First optical spectra of AD Mensae. (Tappert & Schmidtobreick, 2005)
5588 Photoelectric minima of some eclipsing binary stars. (Aksu et al, 2005)
5589 Delta SCuti like pulsations of H254 using ROTSE3D CCD observations. (Kiziloglu et al, 2005)
5591 Photometric investigation of a close binary system YY Cnc (Zola et al,2005)
5592 Photoelectric minima of some eclipsing binary stars. (Jrajci, 2005)
5593 Four new southern double mode RR Lyrae stars. (Wils & Otero, 2005)
5594 Precise CCD times of minima of selected eclipsing binaries. (Sarounova & Wolf, 2005)
5595 Times of minimum light of neglected eclipsing binaries. (Caton & Smith, 2005)
5596 BVRI observations of EM Cygni in the years 2003-2004 (Spogli et al, 2005)
5597 The 2003 extended low state of LQ Peg. (Kafka & Honeycutt, 2005)
5598 On a short periodic pulsating component in the Algol type eclipsing binary system VV UMa. (Kim et al, 2005)
5599 Observations of Variables. (The Editors, 2005)
5600 Reports on new discoveries. (The Editors, 2005)
5601 The 2003.5 post periastron brightening of Eta Carinae. (Allen et al, 2005)
5602 CCD minima for selected eclipsing binaries in 2004. (Nelson, 2005)
5603 Times of minima for neglected eclipsing binaries in 2004. (Dvorak, 2005)
5604 The Dwarf Nova RX Volantis in quiescence. (Schmidtobreick et al, 2005)
5605 Spectroscopic and photometric observations of SN 2004dj. (Korcakova et al, 2005)

5606 Some photoelectric minima of eclipsing binaries. (Porowski, 2005)
5607 3 RR Lyrae stars with variable periods in Ophiuchus (Haussler et al,2005)
5608 AS 325: Discovery of eclipses in an enigmatic emission line star (Otero 2005)
5609 BVRI CCD observations of the F-type near contact system ST Trianguli. (Samec et al, 2005)
5610 UBVRI CCD observations of the G-type contact system GSC 2336 0281. (Samec et al, 2005)
5611 Multicolour observations of ASAS 002511+1217.2 (Golovin et al, 2005)
5612 UBVRI analysis of the eclipsing binary V1128 Tauri. (Hawkins et al, 2005)
5613 New GCVS data for selected volume III variables. (Antipin et al, 2005)
5614 59 new variable stars from SAVS sky survey. (Maciejewski et al, 2005)

The Information Bulletin on Variable Stars (IBVS) can be accessed through the WWW in HTML format at the following URL: **http://www.konkoly.hu/IBVS/IBVS.html**

BINOCULAR PRIORITY LIST

MELVYN TAYLOR

Variable	Range	Type	Period	Chart	Variable	Range	Type	Period	Chart
AQ And	8.0-8.9	SRC	346d	82/08/16	***AH Dra***	7.1-7.9	SRB	158d?	106.01
EG And	7.1-7.8	ZA		072.01	***NQ Gem***	7.4-8.0	SR+ZA	70d?	077.01
V Aql	6.6-8.4	SRB	353d	026.03	***X Her***	6.3-7.4	SRB	95d?	223.01
UU Aur	5.1-6.8	SRB	234d	230.01.	***SX Her***	8.0-9.2	SRD	103d	113.01
AB Aur	7.2-8.4	INA		83/10/01	***UW Her***	7.8-8.7	SRB	104d	107.01
V Boo	7-12	SRA	258d	037.01	***AC Her***	6.8-9.0	RVA	75d	048.03
RW Boo	6.4-7.9	SRB	209d	104.01	***IQ Her***	7.0-7.5	SRB	75d	048.03
RX Boo	6.9-9.1	SRB	160d	219.01	***OP Her***	5.9-6.7	SRB	120d	84/04/12
ST Cam	6.0-8.0	SRB	300d?	111.01	***R Hya***	3.5-10.9	M	389d	049.01
XX Cam	7.3-9.7?	RCB?		068.01	***RX Lep***	5.0-7.4	SRB	60d?	110.01
X Cnc	5.6-7.5	SRB	195d	231.01	***SS Lep***	4.8-5.1	ZA		075.01
RS Cnc	5.1-7.0	SRC	120d?	84/04/12	***Y Lyn***	6.9-8.0	SRC	110d	229.01
V CVn	6.5-8.6	SRA	192d	214.01	***SV Lyn***	6.6-7.5	SRB	70d?	108.01
WZ Cas	6.9-8.5	SRB	186d	82/08/16	***U Mon***	5.9-7.8	RVB	91d	029.03
V465 Cas	6.2-7.2	SRB	60d	233.01	***X Oph***	5.9-9.2	M	328d	099.01
γ Cas	1.6-3.0	GC		064.01	***BQ Ori***	6.9-8.9	SR	110d	84/04/12
rho Cas	4.1-6.2	SRD	320d	064.01	***AG Peg***	6.0-9.4	NC		094.01.
W Cep	7.0-9.2	SRC		83/10/01	***X Per***	6.0-7.0	GC+XP		84/04/08
AR Cep	7.0-7.9	SRB		85/05/06	***R Sct***	4.2-8.6	RVA	146d	026.03
mu Cep	3.4-5.1	SRC	730d	112.01	***Y Tau***	6.5-9.2	SRB	242d	84/04/12
O Cet	2.0-10.1	M	332d	039.02	***W Tri***	7.5-8.8	SRC	108d	114.01
R CrB	5.7-14.8	RCB		041.02	***Z UMa***	6.2-9.4	SRB	196d	217.01
W Cyg	5.0-7.6	SRB	131d	062.1	***ST UMa***	6.0-7.6	SRB	110d?	102.01
AF Cyg	6.4-8.4	SRB	92d	232.01	***VY UMa***	5.9-7.0	LB		226.01
CH Cyg	5.6-10.0	ZA+SR		089.02	***V UMi***	7.2-9.1	SRB	72d	101.01
U Del	5.6-7.5	SRB	110d?	228.01	***SS Vir***	6.9-9.6	SRA	364d	097.01
EU Del	5.8-6.9	SRB	60d?	228.01	***SW Vir***	6.4-7.9	SRB	150d?	098.01
TX Dra	6.8-8.3	SRB	78d?	106.01					

ECLIPSING BINARY PREDICTIONS

TONY MARKHAM

The following predictions, based on the latest Krakow elements, 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 UT, with a value greater than 24 indicating a time after midnight. D indicates that the eclipse starts/end in daylight, L indicates low altitude at the start/end of the visibility and << indicates that mid eclipse occurred on an earlier date.

Thus, for example, on Aug 2, Z Dra D21(23)26 indicates that Z Dra will be in mid eclipse at approx 23h UT (midnight BST). The eclipse will be observable between approx 21h UT and "26h" UT (i.e. 02h UT on Aug 3), with the start of the eclipse having occurred during Daylight. Please contact the EB secretary if you require any further explanation of the format.

The variables covered by these predictions are :

RS CVn	7.9-9.1V	Z Dra	10.8-14.1p	U Sge	6.45-9.28V
TV Cas	7.2-8.2V	TW Dra	8.0-10.5v	RW Tau	7.98-11.59V
U Cep	6.75-9.24V	S Equ	8.0-10.08V	HU Tau	5.92-6.70V
SS Cet	9.4-13.0v	delta Lib	4.9-5.9V	X Tri	8.88-11.27V
U CrB	7.7-8.8V	Z Per	9.7-12.4p	TX UMa	7.06-8.80V
SW Cyg	9.24-11.83V	Y Psc	9.44-12.23V	Z Vul	7.25-8.90V

Note that predictions for RZ Cas, Beta Per and Lambda Tau can be found in the BAA Handbook.

Three long period eclipsing variables have eclipses due during this interval. These are BM Cas (mid eclipse Aug 05), mu Sgr (mid eclipse Aug 09) and W Cru (mid eclipse Sep 23). For further details, see VSSC 114.

2005 Jul 1 Fri
TW Dra D22(19)24
Z Per L22(24)26D
TV Cas 24(28)26D

2005 Jul 2 Sat
S Equ D22(25)26D
Y Psc L23(27)26D

2005 Jul 3 Sun
Z Vul D22(18)23
U CrB D22(22)26D
SW Cyg D22(24)26D
U Sge D22(26)26D
U Cep D22(27)26D

2005 Jul 4 Mon
Z Dra 00(02)02D

2005 Jul 5 Tue
del Lib D22(17)23
Z Vul 23(29)26D

2005 Jul 6 Wed
TV Cas D22(24)26D
Y Psc L23(22)26D

2005 Jul 7 Thu
RW Tau L01(02)02D
del Lib D22(24)24L
Z Per 22(27)26D

2005 Jul 8 Fri
TV Cas D22(19)23

2005 Jul 9 Sat
RS CVn 00(07)02D
S Equ D22(22)26D
U Cep D22(26)26D

2005 Jul 10 Sun
TW Dra 00(05)02D
X Tri 01(04)02D
U CrB D22(20)26
Z Dra D22(21)24
Z Vul D22(26)26D
Z Per 24(29)26D

2005 Jul 11 Mon
X Tri 01(03)02D
U Sge D22(20)26
X Tri 24(26)26D

2005 Jul 12 Tue
del Lib D22(16)23
TW Dra D22(25)26D
X Tri 23(26)26D

2005 Jul 13 Wed
RS CVn D22(26)26L
SW Cyg D22(28)26D
X Tri L23(25)26D

2005 Jul 14 Thu
U CrB 01(07)02D
Z Per 01(06)02D
TV Cas 01(06)02D
Z Dra D22(23)26
del Lib D22(24)23L
U Cep D22(26)26D
X Tri L23(24)26D
U Sge 23(29)26D

2005 Jul 15 Fri
TW Dra D22(20)25
Z Vul D22(24)26D
TV Cas D22(25)26D

X Tri L23(24)26
2005 Jul 16 Sat
S Equ D22(19)24
X Tri L23(23)25
2005 Jul 17 Sun
U CrB D22(18)23
TX UMa D22(18)23
TV Cas D22(21)25
X Tri L23(22)25
2005 Jul 18 Mon
Y Psc 00(05)02D
RW Tau L01(03)02D
SW Cyg D22(17)24
RS CVn D22(21)26L
Z Dra 22(25)26D
X Tri L23(22)24
2005 Jul 19 Tue
U Cep D22(26)26D
X Tri L23(21)23
S Equ 24(29)26D
2005 Jul 20 Wed
TX UMa D22(20)25
Z Vul D22(22)26D
X Tri L22(20)23
U CrB 23(28)26D
2005 Jul 21 Thu
U Sge D22(23)26D
del Lib D22(24)23L
Y Psc L22(23)26D
2005 Jul 23 Sat
Z Dra 00(03)02D
SW Cyg 01(07)02D
RS CVn D21(16)22
TX UMa D21(21)25L
2005 Jul 24 Sun
TW Dra 01(06)03D
U Cep D21(25)27D
TV Cas 22(27)27D
2005 Jul 25 Mon
Z Dra D21(20)22
Z Vul D21(20)25
2005 Jul 26 Tue
del Lib D21(15)22
TV Cas D21(22)26
TX UMa D21(23)25L
TW Dra D21(25)27D
S Equ D21(26)27D
2005 Jul 27 Wed
Z Dra 02(04)03D
SW Cyg D21(21)27D
U CrB D21(26)27D
2005 Jul 28 Thu
Z Vul 02(07)03D
TV Cas D21(18)22
U Sge D21(18)23
del Lib D21(23)22L
2005 Jul 29 Fri
RW Tau 01(05)03D
TW Dra D21(21)26
Z Dra D21(21)24
TX UMa D21(24)25L
U Cep D21(25)27D
2005 Jul 30 Sat
Z Vul D21(18)23
2005 Jul 31 Sun
U Sge D21(27)27D
RW Tau L24(24)27D
2005 Aug 1 Mon
TX UMa 21(26)25L
Z Vul 23(29)27D
2005 Aug 2 Tue
RS CVn 00(06)01L
Y Psc 02(06)03D
Z Dra D21(23)26
S Equ D21(23)27D
TV Cas 24(28)27D
2005 Aug 3 Wed
U CrB D21(24)26L
U Cep D21(25)27D
2005 Aug 4 Thu
del Lib D21(23)22L
TV Cas D21(24)27D
TX UMa 23(27)24L
2005 Aug 5 Fri
SW Cyg D21(25)27D
Y Psc D21(25)27D
2005 Aug 6 Sat
HU Tau L01(<<)03
TV Cas D21(19)23
RS CVn D21(26)24L
Z Vul 21(27)27D
Z Dra 23(25)27D
2005 Aug 7 Sun
TW Dra 02(07)03D
U Sge D21(21)27
2005 Aug 8 Mon
HU Tau L01(00)03D
TX UMa L03(05)03D
U Cep D21(24)27D
2005 Aug 9 Tue
RW Tau 02(07)03D
Y Psc D21(19)24
S Equ D21(20)25
TW Dra 21(26)27D
2005 Aug 10 Wed
HU Tau L01(02)03D
Z Per D21(18)23
U CrB D21(22)26L
2005 Aug 11 Thu
Z Dra 00(03)03D
U Sge 01(06)03D
RS CVn D21(21)24L
del Lib D21(22)22L
Z Vul D21(24)27D
RW Tau L23(25)27D
2005 Aug 12 Fri
HU Tau L00(03)03D
TV Cas 01(06)03D
X Tri 02(05)03D
TW Dra D21(22)27
2005 Aug 13 Sat
S Equ 01(07)03D
X Tri 01(04)03D
Z Per D21(19)24
Z Dra D21(20)22
U Cep D21(24)27D
TV Cas 21(25)27D
2005 Aug 14 Sun
HU Tau 01(04)03D
X Tri 01(03)03D
SW Cyg 22(28)27D
RW Tau L23(20)25
X Tri 24(26)27D
2005 Aug 15 Mon
Z Dra 02(04)03D
SS Cet 02(07)03D
TW Dra D20(17)22
TV Cas D20(21)25
X Tri 23(26)27D
2005 Aug 16 Tue
HU Tau 02(06)03D
RS CVn D20(16)22
S Equ D20(17)22
Z Per D20(21)26
Z Vul D20(22)27D
X Tri 23(25)27D
2005 Aug 17 Wed
U CrB D20(19)25
Z Dra D20(22)24
U Sge D20(24)27D
X Tri 22(24)27
2005 Aug 18 Thu
SS Cet 02(06)03D
del Lib D20(22)21L
U Cep D20(24)28D
X Tri 21(24)26
2005 Aug 19 Fri
SW Cyg D20(18)24
Z Per D20(22)27
X Tri 21(23)26
S Equ 22(28)28D
2005 Aug 20 Sat
X Tri L20(22)25
Y Psc 22(26)28D
2005 Aug 21 Sun
U CrB 00(06)01L
SS Cet 01(06)04D
TW Dra 03(08)04D
TV Cas 03(07)04D
Z Vul D20(20)25
X Tri L20(22)24
Z Dra 21(23)26
2005 Aug 22 Mon
Z Per D20(23)28D
X Tri L20(21)23
TV Cas 23(27)28D
RW Tau 23(27)28D
2005 Aug 23 Tue
U Cep D20(23)28D
X Tri L20(20)23
TW Dra 22(27)28D
2005 Aug 24 Wed
SS Cet 00(05)04D
SW Cyg 01(08)04D
Z Vul 02(07)04D
U CrB D20(17)23
U Sge D20(19)24
Y Psc D20(21)25
TV Cas D20(22)26
X Tri L20(20)22
2005 Aug 25 Thu
del Lib D20(21)21L
Z Per D20(25)28D
X Tri L20(19)21
RW Tau L22(22)26
Z Dra 23(25)27
2005 Aug 26 Fri
TV Cas D20(18)22
Z Vul D20(18)23
TW Dra D20(22)28
S Equ D20(24)28L
X Tri L20(18)21
SS Cet 24(28)28D
2005 Aug 27 Sat

X Tri L20(18)20
U CrB 22(28)25L
U Sge 22(28)27L

2005 Aug 28 Sun

Z Dra D20(18)21
SW Cyg D20(21)27
U Cep D20(23)28
Z Per 21(26)28D
Z Vul 24(29)28D

2005 Aug 29 Mon

TX UMa D20(16)20
TW Dra D20(18)23
SS Cet 23(28)28D

2005 Aug 30 Tue

Z Dra 00(03)04D
RS CVn D20(25)23L

2005 Aug 31 Wed

U CrB D20(15)20
Z Vul D20(16)21
Z Per 23(27)28D

2005 Sep 1 Thu

TV Cas 00(04)04D
TX UMa D20(17)22
Z Dra D20(20)22
del Lib D20(21)20L
SS Cet L23(27)28D

2005 Sep 2 Fri

S Equ D20(21)27
U Cep D20(23)27
TV Cas D20(24)28
Z Vul 21(27)28L

2005 Sep 3 Sat

RW Tau 00(05)04D
Z Dra 02(04)04D
U Sge D20(22)27L
U CrB 20(26)24L

2005 Sep 4 Sun

Z Per 00(05)04D
TX UMa D20(19)22L
TV Cas D20(19)23
RS CVn D20(20)23L
SS Cet L23(27)28D
Y Psc 23(28)28D

2005 Sep 5 Mon

Z Dra D20(22)24
RW Tau L21(24)28D

2005 Sep 6 Tue

SW Cyg D20(25)28D
TW Dra 23(28)28D

2005 Sep 7 Wed

Z Per 01(06)04D
U Sge 02(07)03L
TX UMa D19(20)22L
U Cep D19(22)27
Z Vul D19(25)27L
SS Cet L22(26)28D
HU Tau L23(21)24

2005 Sep 8 Thu

del Lib D19(21)20L
Y Psc D19(22)27
RW Tau L21(18)23

2005 Sep 9 Fri

RS CVn D19(16)22
S Equ D19(18)24
TW Dra D19(23)28D
Z Dra 21(23)26
HU Tau L22(22)26

2005 Sep 10 Sat

TV Cas 02(06)04D
Z Per 03(08)04D
U Sge D19(16)22
TX UMa D19(22)22L
U CrB D19(23)24L
SS Cet L22(25)28D

2005 Sep 11 Sun

TX UMa L01(<<)02
SW Cyg D19(15)21
TV Cas 21(25)28D
HU Tau L22(23)27

2005 Sep 12 Mon

Y Psc D19(17)21
TW Dra D19(19)24
U Cep D19(22)27
Z Vul D19(22)27L
S Equ 23(29)27L

2005 Sep 13 Tue

X Tri 03(06)04D
TV Cas D19(21)25
TX UMa D19(23)22L
U Sge 20(26)26L
SS Cet L22(25)28D
HU Tau L22(25)28D
Z Dra 23(25)28

2005 Sep 14 Wed

TX UMa L00(<<)04
RW Tau 02(07)04D
X Tri 03(05)04D

2005 Sep 15 Thu

X Tri 02(05)04D
TV Cas D19(16)20
del Lib D19(20)19L
HU Tau 22(26)28D
SW Cyg 22(28)28D

2005 Sep 16 Fri

X Tri 01(04)04D
S Equ D19(15)21
Z Dra D19(18)21
TX UMa 20(25)22L
RW Tau L21(25)28D
SS Cet L22(24)28D

2005 Sep 17 Sat

TX UMa L00(01)04D
X Tri 01(03)04D
Z Vul D19(20)25
U CrB D19(21)23L
U Cep D19(22)26
HU Tau 24(27)29D

2005 Sep 18 Sun

X Tri 00(03)05D
Z Dra 00(03)05D
TW Dra 04(09)05D
X Tri 23(26)28

2005 Sep 19 Mon

TV Cas 03(07)05D
S Equ 20(26)26L
RW Tau L20(20)24
TX UMa L24(26)29D
SS Cet L22(23)28
X Tri 23(25)28

2005 Sep 20 Tue

Y Psc 01(05)05D
HU Tau 01(05)05D
SW Cyg D19(18)24
U Sge D19(20)26
Z Dra D19(20)22
X Tri 22(25)27
TV Cas 23(27)29D
TW Dra 24(29)29D

2005 Sep 21 Wed

X Tri 21(24)26

2005 Sep 22 Thu

Z Dra 02(05)05D
HU Tau 02(06)05D
Z Vul D19(18)23
U Cep D19(21)26
TV Cas D19(22)26
X Tri 21(23)26
SS Cet L22(23)28
TX UMa L24(28)29D

2005 Sep 23 Fri

RS CVn D19(25)21L
TW Dra 19(24)29D
Y Psc 19(24)28
X Tri 20(22)25

U Sge 23(29)26L

2005 Sep 24 Sat

HU Tau 04(07)05D
RS CVn L04(01)05D
TV Cas D19(18)22
U CrB D19(19)23L
X Tri 19(22)24
Z Dra 19(22)24
Z Vul 24(29)26L

2005 Sep 25 Sun

SW Cyg 02(08)05D
RW Tau 04(09)05D
U Cep 04(09)05D
X Tri D19(21)24
SS Cet L21(22)27

2005 Sep 26 Mon

TX UMa 01(05)05D
Z Dra 04(06)05D
TW Dra D19(19)25
X Tri D19(20)23
S Equ D19(23)26L

2005 Sep 27 Tue

U Sge D19(14)20
Z Vul D19(16)21
Y Psc D19(18)23
X Tri D19(20)22
U Cep D19(21)26
RW Tau 22(27)29D

2005 Sep 28 Wed

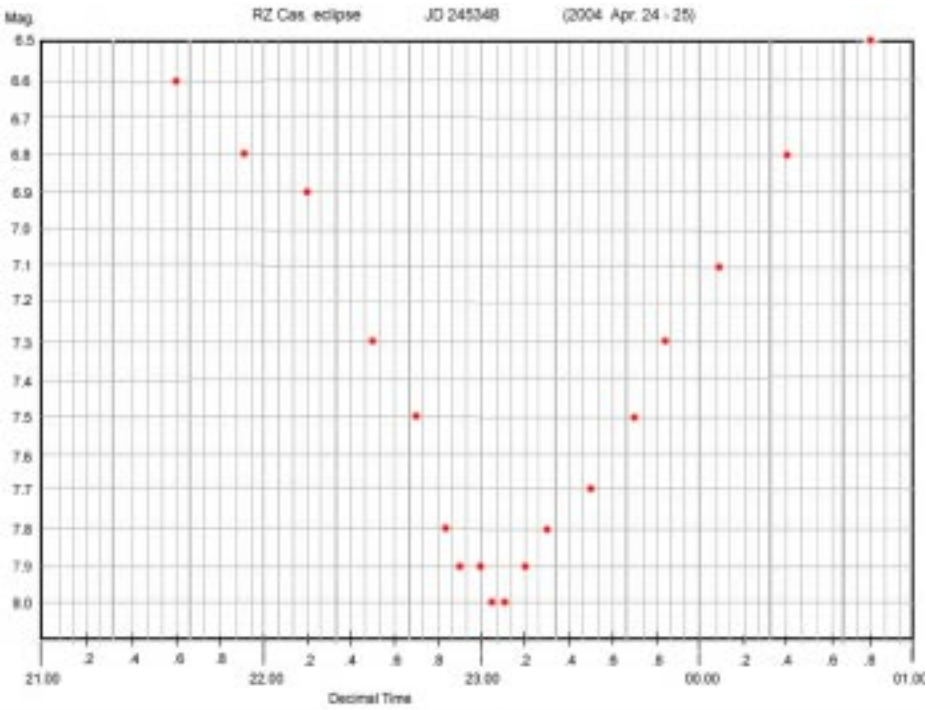
Z Per D19(16)20
X Tri D19(19)22
RS CVn D19(20)21L
Z Dra 21(23)26
SS Cet L21(22)26

2005 Sep 29 Thu

TX UMa 02(07)05D
TW Dra D19(15)20
X Tri D19(18)21
SW Cyg D19(22)28
Z Vul 21(27)26L

2005 Sep 30 Fri

TV Cas 00(04)05D
U Cep 04(09)05D
X Tri D19(18)20
U Sge D19(23)25L
RW Tau L20(22)26



Eclipse of RZ Cas, made visually by Janet Simpson using binoculars, on April 24/25, 2004 from Argyll, Scotland.

The deadline for contributions to the issue of VSSC 125 will be 7th August, 2005. All articles should be sent to the editor (details are given on the back of this issue)

Whilst every effort is made to ensure that information in this circular is correct, the Editor and Officers of the BAA cannot be held responsible for errors that may occur.

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SECTION OFFICERS

Director Roger D Pickard
3 The Birches, Shobdon, Leominster,
Herefordshire HR6 9NG T:01568 708136
E:rdp@star.ukc.ac.uk

Secretary John Saxton
11 Highfield Road, Lymm,
Cheshire, WA13 0DS T:01925 758009
E:lymmobservatory@hotmail.com

Chart Secretary John Toone
Hillside View, 17 Ashdale Road,
Cressage, Shrewsbury, SY5 6DT.
T:01952 510794 E:john.toone@dial.pipex.com

Binocular Secretary Melvyn D. Taylor
17 Cross Lane, Wakefield, West Yorks,WF2 8DA
T:01924374651E:melvyn.taylor@breathemail.net

Nova/Supernova Secretary Guy M Hurst
16 Westminster Close, Basingstoke,
Hants, RG22 4PP .
T& F:01256 471074 E:Guy@tahq.demon.co.uk

Eclipsing Binary Secretary Tony Markham
20 Hillside Drive, Leek, Staffs, ST13 8JQ
T: 01538 381174
E: tonymarkham@compuserve.com

Recurrent Objects Co-ordinator
Gary Poyner
67 Ellerton Road, Kingstanding,
Birmingham, B44 0QE.
T:0121 6053716
E:garypoyner@blueyonder.co.uk

CCD Advisor Richard Miles
Grange Cottage,Golden Hill, Stourton Caundle,
Dorset, DT10 2JP
T:01963 364651
E:rmiles@baa.u-net.com

Circulars Editor Karen Holland
136 Northampton Lane North, Moulton,
Northampton, NN3 7QW
T: 01604 671373 Fax: 01604 671570
E: karen.holland@xcam.co.uk

Webmaster Callum Potter
The Cottage, Bredon's Hardwick,
Tewkesbury, Glos., GL20 7EE, UK.
T: 01684 773256
E: callum.potter@gmail.com

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 01284 828431.

Variable Star Alerts Telephone Gary Poyner (see above for number)

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