

# CANOPUS

**The Astronomical Society of Southern Africa**

**Johannesburg Centre**

**Monthly Newsletter for March 2000**

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**The Sir Herbert Baker Library, 18a Gill Street, Observatory, Johannesburg  
P.O.Box 93145, Yeoville, 2143**

## Editorial

Strange weather we've been having of late - my next door neighbour has been building a wooden boat, or should I say a ship, made of gopher wood and approximately 300 cubits in length.....no, not really, it just *feels* as though that's what should have happened during the second week of February. We had in just 11 days, an amount of rain (300mm) greater than the greatest monthly maximum (barring one) that your editor has measured at home since 1987.

The upshot of this has been some pretty poor viewing for all of you out there over the last couple of weeks, although there has been one positive result of all the rain. When the sky does clear briefly, the view of the heavens is just breathtaking - clear and crisp and the stars magnificent. The rains have cleared all of the bits of muck and general pollution out of the sky and dumped it on our gardens in the form of acid rain.....well I guess we can't have *everything* perfect!! Orion in particular has been quite eye-catching - the stars big and bold and really standing out.

Articles are a little sparse of late although our regular contributors still manage to find the time to compose some interesting pieces and these of course are always most welcome - *Thanks Guys 'n Gals!*

The big news - astronomically speaking of course - was the successful insertion into orbit around the asteroid Eros by the spacecraft NEAR on Valentine's Day, 14<sup>th</sup> February 2000. The orbital mechanics must be a physicist's nightmare due largely to the odd potato shape of Eros which appears to be spinning around its long (21 mile) axis. The potential for NEAR being sideswiped by the asteroid must be great.

...and talking of NEAR, Brian has supplied an interesting article on the Minor Planets as well as his regular state of the sky tables. Your editor has managed to glean a couple of items of interest from the Astronomical media and Danie has written a short note which should be read, inwardly digested, and responded to by all of our readers.

News of Bill Wheaton is good - his follow-up operation was a resounding success and he has returned to work at IPAC - although in small doses at present.

*The Editor*     *chris@aqua.co.za*

<b>Committee of the Johannesburg Centre of the ASSA for 1999/2000</b>		
Chairman	Constant Volschenk	972-6038
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Secretary	Wolf Lange	849-6020
Treasurer ( acting )	Constant Volschenk	972-6038
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Viewing Officer	Constant Volschenk	972-6038
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## Notice of Meeting

The **March** meeting of the Johannesburg Centre of the Astronomical Society will be held in the Sir Herbert Baker Library, 18a Gill Street, Observatory, on Wednesday the 8<sup>th</sup> of March, 2000 at 20:00.

### Topic:

**Marconi**

By: **Tony Voorvelt**

### Future Meetings

April 12 <sup>th</sup>	Planetarium Meeting	Lance Kinnear
May 10 <sup>th</sup>	T.B.A.	
June 14 <sup>th</sup>	T.B.A.	
July 12 <sup>th</sup>	A.G.M.	Read Suggestion below

We will be asking Dr Nicholson of HartRAO to present a lecture at one of our meetings.

### Dark Sky Viewing

On the Saturday nearest New Moon at Tom Budge's Farm in the Magaliesberg. Remember that this is by arrangement only as most observers will be following specific viewing programmes and if you don't have your own 'scope, you should contact one of the observers ( e.g. at the monthly meeting ) to arrange some viewing time with them.

1 <sup>st</sup> April	26 <sup>th</sup> August	<b>Year End Star Party 2000</b>
6 <sup>th</sup> May	23 <sup>rd</sup> September	<i>"Under the Full Moon"</i>
3 <sup>rd</sup> June	28 <sup>th</sup> October	9 <sup>th</sup> December
1 <sup>st</sup> July	25 <sup>th</sup> November	

### Jo'burg Centre Outings for 2000

Your Committee is making arrangements for several outings during the year. Amongst these are some old favourites as well as a couple of new ones which should prove interesting. The annual jaunt to Swinburne in August will be replaced this coming year with a trip to Nylsvlei around June/July which should be more Astronomically beneficial and less financially draining. We will also be trying to arrange 2 trips to Boyden as well as trips to Hartebeeshoek, the Tswaing Crater and the Science & Technology Museum. We will also be looking at the possibility of arranging visits to other ASSA Centres during the year - more information to follow. We are also trying to set up an outing and braai at the Aloe Ridge Observatory.

### Committee Meetings

Just a reminder that committee meetings have reverted to the old time of 17:30, the day being the Monday before the monthly general meeting. Please remember that any member who has something to ask or contribute, is welcome to attend the committee meeting. The only stipulation is that you should please inform the Chairman of your intention in order to allow the committee members to prepare for your proposal/contribution.

## **Suggestion for this year's AGM**

Last year we held a braai as part of our AGM and the smallish turnout notwithstanding, it was a quite successful. One of the reasons for this was of course the fact that it was held in the middle of the week when many bodies would rather be snuggled up in bed than out late with a normal workday to follow.

The committee suggests that we move the A.G.M to the Friday ( 14<sup>th</sup> July ) instead in the hopes of attracting a larger crowd of members. The domes would be opened later for whomever is interested in viewing the wonders of the night sky.

Please let the committee know of your feelings in this regard so that we may prepare accordingly.

## **Telescope Making Classes**

Would you like to make your own telescope?...or finish off a partially finished one? Well your opportunity has arrived (once again). Join the Telescope Making Class being held under the guidance of Brian, Evan and Chris. Contact Brian on 803-8291 if you are interested.

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## **For Sale**

### **TWELVE INCH MOUNTED NEWTONIAN FOR SALE**

Mrs. Martie Pretorius, Box 181, White River, 1240, advises that the above telescope, made by her late husband, is for sale. She has no idea of its value and it would be advisable for any interested party to inspect the instrument at her home.

Perhaps a Canopus reader can visit Mrs. Pretorius on the way to or from the KNP.

Her telephone number is 013 751 1531.

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## **Some interesting Quotes.**

If you were to say to a physicist in 1899 that in 1999, a hundred years later. . . .bombs of unimaginable power would threaten the species;. . . .that millions of people would take to the air every hour in aircraft capable of taking off and landing without human touch;. . . .that humankind would travel to the Moon, and then lose interest. . . .the physicist would almost certainly pronounce you mad.

— Michael Crichton

What manner of creature are we? It took 100,000 years for humans to get inches off the ground. Then, astonishingly, it took only 66 to get from Kitty Hawk to the Moon. And then, still more astonishingly, we lost interest, spending the remaining 30 years of the 20th century going around in circles in low Earth orbit, i.e., going nowhere.

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**Black holes are where God divided by zero.**

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## Variable of the Month

Two readers have responded positively to my request last year for inputs from readers of this column. Thank you, Tony Golding and Graham Tremeer, you have made my day by demonstrating that my readership is up 100% from a decade ago when the late Mary Papadopoulos was the only person who ever commented on my articles.

Both Tony and Graham make the point that hands-on instruction at the eyepiece could be a way to get more amateurs involved in variable star observing. I agree but am simply not physically able to conduct a group instructional session any more. For one thing, I cannot adopt unusual attitudes like trying to get my eye to the eyepiece of a finder pointing high in the sky. I am not the only member who can find and identify dim objects - perhaps younger members of the Centre would like to run an instructional session. I will be only too pleased to help with advice. Also, if a beginner is motivated to visit me as Tony did, then I would be glad to get him or her started off on the first difficult-seeming steps.

As for the star of the month, amateurs should reread the S&T article referred to in the 1999 December "Variable of the Month". As a group, we can do great work in the eclipsing binary field. Cataclysmic variables are the flavour of the month; many of us neglect other fields in order to be on the cataclysmic variable bandwagon. EB's are ignored by visual observers. Hugh Lund, Luciano Pazzi and Andre de Villiers do some photoelectric work but their output is minute compared with what can be done by visual observers.

Over to you, boys and girls!

**Danie Overbeek**

*See also Danie's late-breaking message on page 9 of this issue*

*Ed.*

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## Galileo swoops by Jupiter's volcanic moon Io

Space Science News for February 21, 2000

This morning NASA's Galileo spacecraft scored another daring success by completing the closest-ever flyby of Io. The probe dipped to only 199 kilometers above the moon's fiery surface -- roughly the distance between Los Angeles and San Diego and less than the height of some of Io's high-flying volcanic plumes. FULL STORY at

[http://www.spacescience.com/headlines/y2000/ast22feb\\_1.htm](http://www.spacescience.com/headlines/y2000/ast22feb_1.htm)

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## Harare Centre

Dear Sir/Ma'am

I would be most grateful if you could update your link of the HARARE astronomical centre to our new web address:

<http://www.geocities.com/zimastro>

I have also added your web site on our web links page.

Regards

**Gunter Hofer**

V.Chairman ASSA Harare centre

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## Beatles in Outer Space?

With the advent of the year 2000, I thought I would look up the name of the minor planet numbered 2000 and see if there was anything special about it. There certainly is for it was named for William Herschel, the discoverer of the first telescopic major planet. Minor planet (1000) Piazzia also has some special significance as it is named in honour of Giuseppe Piazzia who discovered the first minor planet. The Times magazine's "person of the century", Albert Einstein has been honoured by having minor planet (2001) named for him. Minor planet studies go back almost 200 years.

The object (1) Ceres was discovered on January 1st 1801. Number 7039 (unnamed) was discovered on April 14th 1996. In the 10 years up to 1996 as many minor planets were discovered as in the previous 185 years. And since then thousands more have been discovered, many by amateurs with small backyard telescopes. It is estimated that there may be as many as 300,000 objects out there in the region of our solar system lying roughly between the orbits of Mars and Jupiter.

The history of the naming of minor planets is quite interesting. Until the middle of the nineteenth century the convention was to use names from classical Greek mythology - following on from "Uranus", and "Neptune", the "modern" planets (Pluto was to come much later). The major planets were often referred to by symbols, those ones we sometimes see on astrological charts these days. Inventing symbols that were universally recognisable for the newly discovered minor planets was a huge problem and so a numbering system was adopted. Ceres, Pallas, Juno and Vesta were mentioned in scientific literature without associated numbers. They were handled in the same way as the major planets of the time. Ferguson in 1852 initiated the use of ordinal numbers instead of symbols with (16) Psyche. He used an encircled number rather than setting the number in parentheses as is practised today. By the end of the year 1857 some 50 planets had been discovered.

Ceres, Pallas, Juno and Vesta are names taken from classical mythology. The name given to

minor planet (12) Victoria was the first of many to initiate a long controversy. It was thought to have been chosen to honour the reigning monarch, queen Victoria, and was thus rejected in some quarters. The use of non classical names was severely criticised. After about 400 minor planets had been discovered the supply of classical names became exhausted and astronomers resorted to a new convention - that of using female names. Why female names is not clear.

The BAJ (British Astronomical Journal) requested that "there is reason to ask the discoverers not to deviate from the rule of choosing female names. Male names will not be accepted by the BAJ". The one exception to this rule seems to have been the naming of the "Trojan" planets.

Objects involved with the Jovian triangular libration points are named in accordance with the traditions of honouring heroes of the Trojan war, the Greek besiegers and their Trojan counterparts. They were given male names in contrast to the normal female planets

The Trojan planets move in an orbit around the sun at about the same distance as Jupiter but 60 degrees ahead of and 60 degrees behind Jupiter.

Discoverers sought to get round the restriction of only using female names by adding the feminine suffix '-a' or '-ia' to non-feminine names. Thus cities and male names were transformed in this way to follow the rule. And so you have, for example, (416) Vaticana and (434) Hungaria. This convention seems to have ended around World War II.

After the end of World War II the rule of assigning names with female endings was finally changed and today you have very relaxed naming rules. There is one rule however that seems to be applied quite strictly - names glorifying people or events that had primarily a political or military nature will not be accepted until at least 100 years after the death of the person or the occurrence of the event.

Although there are many numbered minor planets that have not yet received names there is only one minor planet that received a name but not a number. It is Hermes, discovered October 28th 1937 at Heidelberg in Germany. It was very near earth, moving quite quickly, at an hourly rate of 20 minutes of arc, on the night of discovery. It passed from opposition to conjunction in only 2 days and passed 0.005 a.u. from Earth on October 30. Unfortunately the planet was lost soon after this and has not been seen since.

146 minor planets were discovered at the Observatory in Johannesburg. The first one was number (715) Transvaalia found on April 22nd 1911 by H E Wood. It is interesting to speculate what instrument was used at the time. One possibility is the Franklin-Adams camera/telescope which is now at Broederstroom. Two more were discovered in 1912, (790) Pretoria and (758) Mancunia (the Latin name for the city of Manchester, Wood's home town). There was then quite a gap to the

next discovery on May 21 1922 when (982) Franklina was found. It is named after John Franklin-Adams, whose one telescope, the 6-inch/7-inch refractor, we use in the Papadopoulos dome. His other telescope was a 10-inch F4.5 refractor, designed for photography, which was used extensively at the Union observatory. The observatory itself is honoured by the naming of minor planet (1585) Union, discovered in 1947 by E L Johnson at Johannesburg. Minor planet (1925) Franklin-Adams also honours our benefactor.

And then I saw the reference to minor planets (4147), (4148), (4149), (4150). They are named Lennon, Macartney, Harrison and Starr. We used to know these guys as John, Paul, George and Ringo and rock 'n roll to their music all night. Now you can spend all night looking for these little rocks that roll around space, named after them.

**Brian Fraser**

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**From: NASAnews@hq.nasa.gov**

Date: Thu, 17 Feb 2000 13:20:20 -0500 (EST)





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## NEAR BEGINS LOOKING CLOSELY AT EROS

Only a few days into the first close-up study of an asteroid, data from NASA's Near Earth Asteroid Rendezvous (NEAR) mission indicate that 433 Eros is no ordinary space rock.

Since the NEAR spacecraft met up with and began its historic orbit of Eros on Feb. 14, NEAR team members at the Johns Hopkins University Applied Physics Laboratory in Laurel, MD, which manages the mission for NASA, have pored over images and other early scientific returns. It will take months to unravel the deeper mysteries of Eros, but data from NEAR's final approach and first days of orbit offer tantalizing glimpses of an ancient surface covered with craters, grooves, layers, house-sized boulders and other complex features.

"Work is just starting, but it's already clear that Eros is much more exciting and geologically diverse than we had expected," says Dr. Andrew Cheng, of the Applied Physics Laboratory, who serves as the NEAR mission's lead scientist.

Scientists now know that Eros' mass is 2.4 grams per cubic centimeter -- about the bulk density of Earth's crust and a near match of the estimates derived from NEAR's flyby of Eros in December 1998.

"With this new data, it now looks like we have a fairly solid object," says radio science team leader Dr. Donald Yeomans of NASA's Jet Propulsion Laboratory in Pasadena, CA. "There is no strong evidence that it's a rubble pile like Mathilde," the large asteroid NEAR passed and photographed in 1997.

Even without in-depth analysis, pictures snapped with NEAR's Multispectral Imager offer several clues about Eros' age and geography. The large number and concentration of craters points to an older asteroid, uniform grooves across its craters and ridges hint at a global fabric and, perhaps, underground layers. In addition to numerous boulders, the digital camera has also captured

brighter spots on the surface that NEAR scientists are anxious to study.

NEAR's Near-Infrared Spectrometer has picked up variations in the asteroid's mineral composition, possibly the proportions of pyroxene and olivine, iron-bearing minerals commonly found in meteorites.

A low-phase flyby during last weekend's final approach put NEAR directly between the sun and Eros, allowing the instrument to gather unique data on the asteroid's mineral makeup under optimal lighting. Combined with multispectral images, this information will help form the first mineral map ever made of an asteroid.

"We want to correlate the changes in color with the geologic features," says Dr. Scott Murchie, a science team member from the Applied Physics Laboratory. "If we see a crater, for example, is it different on the outside than on the inside? Is the face of a cliff different than the ridge? This data will eventually tell us about the asteroid's history."

For the next year, NEAR's instruments will continue to examine the potato-shaped asteroid's chemistry, geology, and evolutionary history. The mission also includes a radio science experiment to more precisely calculate Eros' density and mass distribution -- clues critical to determining the asteroid's gravity and refining NEAR's orbit.

NEAR's scientific capabilities expand soon, when its X-ray/Gamma-Ray Spectrometer and Laser Rangefinder are turned on within the next two weeks. The spectrometer will measure important chemical elements such as silicon, magnesium, iron, uranium, thorium and potassium; the laser scans will determine Eros' precise shape.

Images and information about the NEAR mission are available at: <http://near.jhuapl.edu>

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## Pioneer 10

STATUS UPDATED: 17 February 2000  
Pioneer 10 (Launched 2 March 1972)

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Distance from Sun (1 February 2000): 74.46 AU  
Speed relative to the Sun: 12.24 km/sec (27,380 mph)  
Distance from Earth: 11.07 billion kilometers (6.879 billion miles)  
Round-trip Light Time: 20 hours 30 minutes

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**PIONEER 10 TO EARTH!**

One more successful precession maneuver to point the spacecraft to Earth was accomplished on 11-12 February 2000. The signal level increased 0.5-0.75 dBm as result of the maneuver.

This was the 7th successful maneuver that has been done in the dark since 26 January 1997. It was determined at that time that the RTG power had been degraded to the point where the spacecraft transmitter had to be turned off to attain enough power to perform the

For more information, visit the following website:-

[http://spaceprojects.arc.nasa.gov/Space\\_Projects/pioneer/PNStat.html](http://spaceprojects.arc.nasa.gov/Space_Projects/pioneer/PNStat.html)

procedure. After 90 minutes in the blind the transmitter was turned back on again. The round trip light time during this latest maneuver was 20 hours 34 minutes.

Larry Lasher, Pioneer Project Manager

**PIONEER 10 SUPPORTS ADVANCED TECHNOLOGY!**

Pioneer 10 continues to be tracked by the DSN. Science data are being received as the weak signal is being analyzed for advanced concept support of chaos theory.

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## VARIABLE OF THE MONTH - OY CARINAE

This star featured in one of the first VOTM articles, as far as I remember. Just to show how much our amateur observations are prized, I suggested to our Editor that he print the AAVSO announcement below. For the uninitiated, it should be pointed out that the observations by myself on February 21 and by Rod Stubbings on February 22 are crucial in that they define the time of the superoutburst.

### THE AMERICAN ASSOCIATION OF VARIABLE STAR OBSERVERS

25 Birch Street, Cambridge, MA 02138 USA

INTERNET: aavso@aavso.org

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

### SPECIAL AAVSO ALERT NOTICE (February 23, 2000)

1004-69 OY CAR IN OUTBURST - EUVE SATELLITE SCHEDULED TO OBSERVE IT FOR AAVSO OBSERVERS!

As reported in AAVSO News Flash 580 on February 22, the dwarf nova type, SU UMa subtype, cataclysmic variable OY Car is in superoutburst. The following observations have been reported to the AAVSO:

Feb 17.7340 UT, <15.0, R. Stubbings, Drouin, Victoria; Australia; 17.773, <15.0, A. Pearce, Nedlands, Western Australia; 18.4604, <13.2, Stubbings; 21.8, <12.5, D. Overbeek, Edenvale, South Africa; 22.4354, 12.0, Stubbings; 22.4576, 11.9, Stubbings; 22.5826, 11.2, Pearce; 22.6000, 12.4, Pearce; 22.6014, 12.1, Pearce; 22.6021, 11.8, Pearce; 22.6028, 11.6, Pearce; 22.6042, 11.3, Pearce; 22.6049, 11.3, Pearce; 22.795, 11.5, J. Smit, Pretoria, South Africa.

AAVSO observers around the world have been awarded 100,000 seconds of EUVE satellite time to observe the current superoutburst of OY Car with the satellite! This is the very first time that amateur astronomers have been awarded time on the EUVE satellite.

The EUVE time has been awarded to the observers by the Director of EUVE, from his own discretionary time, because of the vital contributions of variable star observers in the scheduling of EUVE observations of cataclysmic variables and the important results that have been obtained in correlating the EUV and x-ray data with optical observations.

In choosing the target of opportunity for EUVE observations, we checked the good EUV candidates, and of these, four cataclysmic variables stand out, namely SS Cyg, U Gem, VW Hyi, and OY Car. These stars are bright, close, and have low hydrogen column densities.

For this first-ever Target-of-Opportunity observation by AAVSO observers we have chosen the dwarf nova (SU UMa subtype) cataclysmic variable OY Car, because it is a very interesting eclipsing system, it has been observed only once with EUVE, its superoutburst was expected during the EUVE observing window, and observations of it can answer some very important questions about these systems, and also because we want to give a unique opportunity to our Southern-Hemisphere observers. Later this year we will be collaborating in the observations of SS Cyg with EUVE and Chandra x-ray satellite.

For our EUVE observing run on OY Car, we are collaborating with our colleague Dr. Christopher Mauche at Lawrence Livermore National Laboratory in California.

The purpose of the EUVE observations is:

- First, to measure the delay between the turn-on in the optical and EUV, and thereby better understand the heating waves which cause the accretion disks of dwarf novae to go from quiescence (low accretion rate) to outburst (high accretion rate);

- Second, to better understand the interaction between the boundary layer and the stellar wind of OY Car;

- Third, to better understand the cause of superoutbursts. Existing FUV and EUV data on OY Car and VW Hyi hint that the short-wavelength light curves of superoutbursts are double-humped. This same phenomenon is quite apparent in the optical in some SU UMa systems, but in OY Car and VW Hyi it appears that the short-wavelength-flux light curves are double-humped, whereas the optical light curves are smooth (optical light falls only slowly throughout the light curve). The EUV flux tell us about the accretion rate at the very center of the accretion disk, whereas the optical light comes primarily from the outer disk. Simultaneous optical and EUV light curves therefore provide a spatial dissection of the accretion disk and provide information to constrain the cause of superoutbursts.

The period of eclipses of OY Car is 01h 30m 54s. The eclipse elements are given in the General Catalogue of Variable Stars (4th edition, Kholopov et al., 1985) as:

Min (I) Heliocentric = 2443993.553241 + 0.0631209247 E (days)

The first predicted eclipse for Feb 23 is at 01 hr 00m 06s (vsnet-alert 4253).

As OY Car is an SU UMa-type dwarf nova, during a superoutburst it exhibits superhumps, small-amplitude variations slightly longer in period than the orbital period of the system. For OY Car, the superhump period is 01hr 32m 57s.

A plea to our Southern-Hemisphere observers in particular -- please monitor the superoutburst of OY Car as closely as you can, particularly the eclipses and superhumps, with observations every 3 to 5 minutes. We highly recommend CCD observations. Good optical coverage is essential in correlating and analyzing the EUVE data.

Accompanying is an AAVSO preliminary 'f' scale chart for OY Car prepared by C. Scovill and incorporating the comparison star sequence from Publ. RASNZ #8, p. 10, 1980. Please use

this chart to observe OY Car, and report your observations to AAVSO Headquarters. Please be sure to indicate which comparison stars you used to make your estimates.

We very much appreciate the EUVE Director's allocation of 100,000 seconds to AAVSO observers worldwide. We sincerely thank the observers above for their valuable observations which alerted us to the superoutburst and the superb EUVE team for their efforts.

#### CHARTS AVAILABLE ON AAVSO WEB AND FTP SITES

Electronic copies of the chart for OY Car mentioned in this Alert Notice are available through our web site at the following address:

<http://www.aavso.org>

The charts may also be obtained directly from our FTP site:

<ftp.aavso.org> (198.116.78.5)  
in /alerts/oycar-euve

The answering machine at AAVSO Headquarters is on nights and weekends for your convenience. Please call our charge-free number (888-802-STAR = 888-802-7827) to report your observations. We also encourage observers to send observations by fax to 617-354-0665 or by e-mail through the Internet to [observations@aavso.org](mailto:observations@aavso.org).

Please note that this Special Alert Notice is being distributed electronically only and not on paper.

Many thanks for your valuable astronomical contributions and your efforts.

Good observing!

Janet A. Mattei  
Director

Elizabeth O. Waagen  
Senior Technical Assistant

**Danie Overbeek**

## Meteoritical Society Web Sites

*After requests by persons attending the ASSA February monthly meeting, where Trevor Gould gave a presentation on METSOC '99 as well as talking generally on Meteor Recovery, he sent the following eMail for the information of all readers who are interested in this field.*

The URL's I quoted on Wednesday night are:

The Meteoritical Society and their bulletin "Meteoritics and Planetary Science"

[http://www.uark.edu/studorg/meteor/public\\_html/](http://www.uark.edu/studorg/meteor/public_html/)

<http://www.uark.edu/studorg/metsoc/>

<http://www.uark.edu/studorg/metbull/>

The Meteorite site at Council for Geosciences: this is still being developed but is worth watching

<http://www.geoscience.org.za/pmsu/meteorite/main.htm>

Regards!

Trevor Gould

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## ASSA Banner for Centres

*The following eMail was received and forwarded to your editor by Brian Fraser and read out at the last ( February ) monthly meeting. It is included here for information to those of you who were unable to attend said meeting. The Editor.*

From: Skinner, B, Brian [SMTP:basbs@bremner.uct.ac.za]

Sent: Monday, February 07, 2000 6:24 PM

Subject: ASSA banner for Centres

Dear Centre Chairman

At the last meeting of Council there was a proposal to provide each Centre with a banner bearing the logo of the ASSA, the object being to have a means of identifying the Society to all and sundry. This banner would be displayed at meeting venues and wherever the members are active, the idea being to indicate that there exists an umbrella body besides the local Centre.

Council asked that the Centres be canvassed for their opinions before incurring any expenditure. The banner could either be: (1) a strong wind-proof canvas type with a hem through which a rope is passed so that it can be tied to any convenient fence or railing (2) a laminated poster Obviously there is considerable difference in the cost of each (although there will be no cost to the Centres).

Kindly send me a message before 15 February 2000 indicating whether your Centre will use a banner at meetings and outings if this was provided, and preference, if any.

The next meeting of Council is on 15 February 2000.

Thank you,

**Brian**

*A vote by show of hands indicated a majority interest in obtaining a Banner. Ed.*

## In the Sky this Month

### March 2000

dd hh	dd hh
1 15 Mercury in inferior conjn.	15 00 Mercury 2.5 N of Venus
2 23 Neptune 0.3 N of Moon Occn.	15 01 Moon at perigee
4 00 Uranus 0.6 N of Moon Occn.	16 09 Pluto stationary
4 00 Venus 0.6 N of Moon Occn.	20 04 <b>FULL MOON</b>
4 00 Venus 0.1 S of Uranus	20 07 Equinox
5 09 Mercury 6.3 N of Moon	24 00 Mercury greatest brilliancy
6 05 <b>NEW MOON</b>	27 17 Moon at apogee
8 13 Mars 5.1 N of Moon	28 00 <b>LAST QUARTER</b>
9 17 Jupiter 4.5 N of Moon	28 23 Mercury greatest elong. W(27)
10 09 Saturn 3.2 N of Moon	30 09 Neptune 0.5 N of Moon Occn.
13 07 <b>FIRST QUARTER</b>	31 11 Uranus 0.8 N of Moon Occn.
14 03 Mercury stationary	

### April 2000

dd hh	dd hh
2 12 Mercury 1.5 N of Moon	11 13 <b>FIRST QUARTER</b>
3 05 Venus 2.7 N of Moon	16 23 Mars 2.4 N of Saturn
4 18 <b>NEW MOON</b>	18 18 <b>FULL MOON</b>
6 10 Mars 5.5 N of Moon	24 11 Moon at apogee
6 10 Jupiter 4.4 N of Moon	26 18 Neptune 0.9 N of Moon Occn.
6 21 Saturn 3.0 N of Moon	26 20 <b>LAST QUARTER</b>
6 23 Mars 1.1 N of Jupiter	27 22 Uranus 1.2 N of Moon
8 20 Moon at perigee	28 08 Mercury 0.4 S of Venus

### LOCAL TIMES of RISE and SET for the MAJOR PLANETS, 2000

Site Location:- Long. +28.0 deg. Lat. -26.0 deg. Local Time:- UT +2.0 hrs.

Date	Sun		Mercury		Venus		Mars		Jupiter		Saturn	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
Mar 01	06.03	18.38	06.10	18.29	04.03	17.17	08.29	20.15	09.55	21.15	10.38	21.50
Mar 11	06.08	18.28	04.52	17.29	04.21	17.19	08.23	19.57	09.24	20.41	10.03	21.13
Mar 21	06.13	18.17	04.16	17.01	04.37	17.19	08.17	19.40	08.55	20.09	09.28	20.37
Mar 31	06.18	18.06	04.14	16.52	04.53	17.16	08.11	19.23	08.25	19.36	08.54	20.01
Apr 10	06.22	17.56	04.31	16.52	05.09	17.13	08.05	19.07	07.56	19.04	08.20	19.26
Apr 20	06.27	17.46	05.01	16.58	05.24	17.09	07.59	18.51	07.27	18.32	07.46	18.50
Apr 30	06.32	17.38	05.45	17.10	05.40	17.06	07.53	18.37	06.59	18.01	07.12	18.15

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