

# CANOPUS

**The Astronomical Society of Southern Africa**

**Johannesburg Centre**

**Monthly Newsletter for July 2002**

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

## Editorial

For those of you who have been following the gradual brightening of the central star of the head of the Scorpion, Delta Sco., there is an opportunity to take part in some interesting observations. Brian has send in a request for members to observe the strange goings on of this star, especially after the sudden drop in magnitude experienced on the 19<sup>th</sup> of June. Read Brian's article for more information and contact details.

Some interesting items have been gleaned from the NASA websites and emails, including one on another near miss experienced on Friday the 14<sup>th</sup> of June - this one was much closer than many of the past decade in that it actually passed well within the orbit of the moon - in fact, at less than one third of the distance to the moon. The asteroid is about the size of a football field and could have made quite an impressive impact if it had landed anywhere on Earth.

**Brian Fraser** gives us some pointers to a few heavenly happenings for the next 2 months, as well as the piece on Delta Scorpii from Sebastian Otero. **Trevor Gould** has submitted a report on the last Easter Meteorite hunting expedition which makes interesting reading and certainly makes one feel that those of us who weren't there, missed out on some fun and dark skies.

ECLIPSE chasers - remember we have a solar eclipse on 4<sup>th</sup> December. If you would like to be there, contact a committee member, or Brian Fraser for further details on how to get to the area of interest.

*Last but not least* - Please remember that the July meeting is the **ANNUAL GENERAL MEETING** and we would like as many of you as possible to be there and vote for those who you wish to represent you on the committee for the period 2002/2003. You may nominate any member in good standing ( i.e. who've paid their subs ) as long as they themselves are prepared ( and willing ) to be elected. Your committee are the people who set the direction for the year to come, dependant on your input of course, so it is important that not only do you nominate people that you feel can do the job, but that they should also lend a sympathetic ear to all of your requests in respect of the society's activities for the next year.

*The Editor*

*chris@penberthy.co.za*

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## Notice of Annual General Meeting

The Annual General 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 10<sup>th</sup> of July, 2002 at 20:00.

Agenda:-

- **Presentation of annual reports**
- **Election of committee for 2002/2003**
- **Draw for the Binoculars Raffle.**

*and an entertaining presentation for you all to enjoy*

( but you'll have to be there to enjoy it!!! )

## Telescope Making Classes

Would you like to make your own telescope?...or finish off a partially completed 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 (016) 366-0955 if you are interested. You may also subscribe to the email list server by sending an email to [assa\\_telescopemaking-request@list.to](mailto:assa_telescopemaking-request@list.to) with the word SUBSCRIBE in the body of the message. It will mail you back asking for confirmation - just follow the instructions.

To send email to all subscribers to the list, merely send a single message to [assa\\_telescopemaking@list.to](mailto:assa_telescopemaking@list.to) and the list server will distribute the message to everyone concerned.

## Public Viewing ( *weather permitting* )

Public viewing nights are held *subject to suitable weather conditions* on the Friday nearest First Quarter, and are held at the Old Republic Observatory, 18a Gill Street, Observatory, Johannesburg. Starting time around 19:30. *See the ASSA event calendar for the proposed viewing dates.*

## Delta Scorpii strange fading

Delta Sco is behaving strangely and confusing the experts. After getting brighter than mag 1.7, it has now faded to around 1.9, in an erratic and puzzling manner. Many more estimates are now needed quite urgently. You can observe this variable with the naked eye!! No telescope needed.

### Brian Fraser

-----Original Message-----

From: Sebastian Otero

Sent: 23 June 2002 09:55

To: Be Stars

Subject: [vsnet-chat 5357] Delta Scorpii strange fading

There is some important news on delta Scorpii. Take a look at the recent photometry:

20020615.125	1.77V	Doug West
20020616.065	1.77	Sebastian Otero
20020616.969	1.77V	Brian Fraser (B-V= -0.05)
20020619.049	1.76:	Sebastian Otero
20020619.700	1.89V	Brian Fraser (B-V= -0.06)
20020622.074	1.88	Sebastian Otero

There was an important fading on June 19. The star wasn't this faint since September 11, 2001. But such a rapid drop in brightness is strange.

Thom Gandet is analysing the observational data from **Brian Fraser**, Doug West and myself and we'll be publishing results soon. So, keep an eye on Delta Scorpii because it is very active. Spectra are strongly needed.

Regards,  
**Sebastian Otero.**

## ASSA Jo'burg Centre - Calendar of Events

Month	Day/ Date	Event	Details
Jul	Mon 8	Committee Meeting 17:30	
	Wed 10	<b>ASSA Jo'burg Centre A.G.M.</b>	Video on John Dobson and telescope making
	Fri 12	<i>Public viewing</i>	
Aug	Fri 9	<i>Public Holiday</i> - probably no viewing	
	Mon 12	Committee Meeting 17:30	
	Wed 14	<b>Monthly Meeting</b>	TBA
Sep	Fri 6	<i>Public viewing</i>	
	Mon 9	Committee Meeting 17:30	
	Wed 11	<b>Monthly Meeting</b>	Quantum Computing <b>Evan Dembskey</b>
Oct	Mon 7	Committee Meeting 17:30	
	Wed 9	<b>Monthly Meeting</b>	Eyepieces and telescope mounts <b>Chris Stewart</b>
	Fri 11	<i>Public viewing</i>	
Nov	Fri 8	<i>Public viewing</i>	
	Mon 11	Committee Meeting 17:30	
	Wed 13	<b>Monthly Meeting</b>	TBA
Dec	Tue 3	Star Party at Tshipese before	
	Wed 4	Solar Eclipse 2002	
	Mon 9	Committee meeting	
	Wed 11	<b>Year End Monthly Meeting</b>	Informal get together and viewing

### Reminders

2002	ASSA Symposium / hosted by Pretoria Centre/ At Aloe Ridge Hotel and Conference Centre LEONIDS Nov 19 <b>December 4, Solar Eclipse</b>
2003	Centenary of Flight <b>August: Mars opposition</b> <b>Mercury Transit</b>
2004	Centenary Sir Herbert Baker Library Building Johannesburg Centre to host 2004 ASSA Symposium <b>June 8, Venus Transit</b>

### Annual Subscription Fees

There is a small change to the Johannesburg Centre's subscription fee structure for the 2002/3 year. The joining fee remains R50-00 and the Annual fee is now R125-00. The Family subscription fee is now R150-00. The Family membership is restricted to couples and their co-resident dependants and although all Family members receive full rights as members of the Centre, only one copy of the monthly magazine, Canopus, will be posted to the family address. The annual subscription form is included with this issue of the Canopus and we would like to urge you as members to pay your subs as early as possible to enable your committee to plan the Centre's projects for the year ahead.

Please post your subscription fee, or deposit/transfer it directly into the Society's bank account at **NEDBANK**.

The Account information is as follows:-

Bank:		NEDBANK
Branch	Name:	Park Plaza
	Code:	19 21 42 44
Account	Type:	Current Account
	Number:	1921 013761
	Name:	<u>ASSA Johannesburg Centre</u>

*Please remember to write your name on the deposit slip or to include your name as a reference on a direct transfer. Then fax the details to the Treasurer to let him know that you have paid via direct deposit or transfer so that you will be kept on the Canopus mailing list.*

## A Really Close Shave

From **Kevin Yates**

*keviny@spacecentre.co.uk*

Near Earth Object Information Centre  
National Space Centre, Exploration Drive, Leicester  
Press Release, Thursday 20th June 2002: Asteroid 2002MN

*For immediate release*

Asteroid 2002MN gives Earth its closest shave in years

On Friday 14 June, an asteroid the size of a football pitch made one of the closest ever recorded approaches to Earth. Astronomers working on the LINEAR search programme, near Socorro, New Mexico first detected the giant rock on 17 June, a few days after its close approach.

The Near Earth Object, known to astronomers as '2002MN', was travelling at over 10 km/s (23,000 miles per hour) when it passed Earth at a distance of around 120,000 km (75,000 miles), bringing it well inside the Moon's orbit. The last time a known asteroid passed this close was back in December 1994.

Asteroids are typically too small and distant to measure their size directly from Earth, so scientists use the amount of light they reflect, along with a basic understanding of the materials they are made of, to estimate their size. With a diameter between 50-120 metres, 2002 MN is a lightweight among asteroids and incapable of causing damage on a global scale, such as the object associated with the extinction of the dinosaurs.

However, if it had hit the Earth, 2002MN may have caused local devastation similar to that which occurred in Tunguska, Siberia in 1908,

when 2000 square kilometres of forest were flattened. Whilst the vast majority of NEOs discovered do not come this close, such near misses do highlight the importance of detecting these objects. This reminder comes in a week when the UK telescopes on La Palma are being tested to search for NEOs.

Brief Description of Object

Object Designation: 2002MN

Date of First Observation: 17/06/02

Number of Observations: 14

Search Team: LINEAR (Lincoln Near Earth Asteroid Research)

Date of Closest Approach: 14/06/02

Closest Approach Distance: 0.000797 AU or 119,229 km (0.3 Lunar Distances)

Asteroids Velocity Relative to Earth at Closest Approach: 10.58 km/s (23,667 miles per hour)

Estimated Diameter of Asteroid: 50-120 metres

Orbital Period: 894.9 days

For further information contact: Kevin Yates (Project Officer) Near Earth Object Information Centre. +44(0)116 2582130 or 07740 896141;

*email: keviny@spacecentre.co.uk*

## NASA SELECTS INSTRUMENT AND SCIENCE TEAM FOR NEXT GENERATION SPACE TELESCOPE

*NASAnews@hq.nasa.gov*

RELEASE: 02-109

NASA has selected a team led by the University of Arizona, Tucson, to provide the primary near-infrared science camera for the Next Generation Space Telescope (NGST), NASA's successor to the Hubble Space Telescope.

Scheduled for launch in 2010, the new telescope's primary science objective will be to look back to an extremely important period in the early history of the Universe when the first stars and galaxies began to form shortly after the big bang.

To achieve this goal, the NGST will require much more light-gathering capability than Hubble, meaning it will need a much larger primary mirror. At approximately 6 meters (20 feet) in diameter, NGST's primary mirror will be more than two-and-a-half times as large as the Hubble telescope, which is scheduled for "retirement" in 2010 after a 20-year mission in space.

In addition to a large light-gathering mirror, NGST will need to operate at near- and mid-infrared wavelengths to better detect the light from extremely distant and faint objects. NGST will study infrared (heat) emissions from objects that formed when the Universe was between one million and a few billion years old. It will be capable of seeing objects 400 times fainter than those currently studied with large ground-based telescopes or the current generation of space-based infrared telescopes. Its tennis-court-size sunshade will help eliminate heat from the sun, which is necessary for reducing heat "pollution" from the surrounding environment.

The telescope will be built by an industry team that NASA will select later this summer.

The winning primary camera team includes members from the University of Arizona; Lockheed-Martin Advanced Technology Center, Palo Alto, Calif.; EMS Technologies, Ottawa, Canada; and COMDEV, Ltd., Cambridge, Canada, and will be led by Dr. Marcia Rieke of the University of Arizona. In addition to selecting the main imaging camera, NASA has chosen the U.S. portion of an international team that will construct a mid-infrared instrument. The members of this team are Dr. Thomas Greene,

NASA's Ames Research Center, Moffett Field, Calif.; Dr. Margaret Meixner, University of Illinois, Urbana-Champaign; and Dr. George Rieke, University of Arizona.

These scientists, lead by Dr. George Rieke, will work in collaboration with scientists and engineers led by Dr. Gene Serabyn from NASA's Jet Propulsion Laboratory, Pasadena, Calif., and the European Space Agency to enable NGST to see farther into the infrared portion of the spectrum. This capability will permit NGST to study stars forming inside dense clouds of interstellar dust that block Hubble's vision.

NASA has also selected several scientists to serve, with the principal instrument scientists, on the NGST science working group. This group will provide scientific guidance during the development of the telescope. The selected scientists are Dr. Heidi Hammel, Space Science Institute, Ridgefield, Conn.; Dr. Simon Lilly, ETH- Hoenggerberg, Zurich, Switzerland; Dr. Jonathan Lunine, Lunar and Planetary Laboratory, Tucson, Ariz.; Dr. Mark McCaughrean, Potsdam, Germany; Dr. Massimo Stiavelli, Space Telescope Science Institute, Baltimore; and Dr. Rogier Windhorst, Arizona State University, Tempe.

NGST is managed for NASA by the Goddard Space Flight Center, Greenbelt, Md.

Contributions come from a number of industry, academic and government partners.

Information about NGST is available at:

<http://ngst.gsfc.nasa.gov/>

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## USGS ASTROGEOLOGY RESEARCH PROGRAM WEBSITE LAUNCH

News Release

2002/06/06

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We are pleased to announce the recent launch of the new USGS Astrogeology Research Program website:

<http://astrogeology.usgs.gov>

The site is a portal to information on our research, projects, and products. Featured on the site is information about our long history in planetary and terrestrial mapping and geology, our past and current mission involvement, and where we're headed in the future. Plus, you'll find news, solar system information, career postings,

image galleries, and more! Whether you're a kid, scientist, teacher, or enthusiast, you'll find a wealth of information and resources about our solar system and the work we're doing to unlock its secrets.

The mission of the USGS Astrogeology Research Program is to establish and maintain geoscientific and technical expertise in planetary science and remote sensing to:

\* scientifically study and map the solar system's planetary bodies, asteroids, and comets,

\* plan and conduct planetary exploration missions, and

\* explore and develop new technologies in data processing and analysis, archiving, and distribution.

The Astrogeology Research Program contributes to and serves to support a variety of projects for agencies throughout the Federal Government, including NASA, JPL, Departments of Defense and Energy, and the USGS.

We participate in all phases of flight mission support through providing scientific input for mission planning, creating precise planetary images and maps, and supplying landing site maps and characterization. Our mission participation and activities include the 2003 Mars Exploration Rover, the Cassini Mission to Saturn, Clementine, Galileo, Mars Odyssey, Near/Shoemaker, Deep Space 1, and Space Shuttle Imaging Radar.

Scientists in the Astrogeology Research Program research topics in a number of fields such as

terrestrial and planetary remote sensing and monitoring, planetary geologic processes, and astrobiology. An important aspect of the Astrogeology Research Program's work is involved in planetary cartography and mapping. There is a wide variety of information developed in this field, including geodesy, photogrammetry, image processing, geologic mapping, and nomenclature.

If you have questions about the Astrogeology Research Program, see our website for contact information:

<http://astrogeology.usgs.gov/About/Contact/>

Deborah Lee Soltesz  
Web Development & Administration

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USGS Astrogeology Research Program  
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## NEWFOUND PLANETARY SYSTEM HAS "HOMETOWN" LOOK

NASANews@hq.nasa.gov

RELEASE: 02-111

After 15 years of observation and a lot of patience, the world's premier planet-hunting team has finally found a planetary system that reminds them of our own home solar system.

Dr. Geoffrey Marcy, astronomy professor at the University of California, Berkeley, and astronomer Dr. Paul Butler of the Carnegie Institution of Washington, Washington, D.C., today announced the discovery of a Jupiter-like planet orbiting a Sun-like star at nearly the same distance as the Jovian system orbits our Sun.

"All other extrasolar planets discovered up to now orbit closer to the parent star, and most of them have had elongated, eccentric orbits. This new planet orbits as far from its star as our own Jupiter orbits the Sun," said Marcy. NASA and the National Science Foundation fund the planet-hunting team.

The star, 55 Cancri in the constellation Cancer, was already known to have one planet, announced by Butler and Marcy in 1996. That planet is a gas giant slightly smaller than the mass of Jupiter and whips around the star in 14.6

days at a distance only one-tenth that from Earth to the Sun.

Using as a yardstick the 93-million mile Earth-Sun distance, called an astronomical unit or AU, the newfound planet orbits at 5.5 AU, comparable to Jupiter's distance from our Sun of 5.2 AU (or about 512 million miles). Its slightly elongated orbit takes it around the star in about 13 years, comparable to Jupiter's orbital period of 11.86 years. It is 3.5 to 5 times the mass of Jupiter.

"We haven't yet found an exact solar system analog, which would have a circular orbit and a mass closer to that of Jupiter. But this shows we are getting close, we are at the point of finding planets at distances greater than 4 AU from the host star," said Butler. "I think we will be finding more of them among the 1,200 stars we are now monitoring."

The team shared its data with Dr. Greg Laughlin, assistant professor of astronomy and astrophysics at the University of California, Santa Cruz. His dynamical calculations show that an Earth-sized planet could survive in a stable orbit between the

two gas giants. For the foreseeable future, existence of any such planet around 55 Cancri will remain speculative.

"The existence of analogs to our solar system adds urgency to missions capable of detecting Earth-sized planets - first the Space Interferometry Mission and then the Terrestrial Planet Finder," said Dr. Charles Beichman, NASA's Origins Program chief scientist at the agency's Jet Propulsion Laboratory, Pasadena, Calif.

"This planetary system will be the best candidate for direct pictures when the Terrestrial Planet Finder is launched later this decade," said UC Berkeley astronomer Dr. Debra A. Fischer.

Marcy, Butler, Fischer and their team also announced a total of 13 new planets today, including the smallest ever detected: a planet circling the star HD49674 in the constellation Auriga at a distance of .05 AU, one-twentieth the distance from Earth to the Sun. Its mass is about 15 percent that of Jupiter and 40 times that of Earth. This brings the total number of known planets outside our solar system to more than 90.

Discovery of a second planet orbiting 55 Cancri culminates 15 years of observations with the 3-meter (118-inch) telescope at Lick Observatory, owned and operated by the University of California. The team also includes Dr. Steve Vogt, UC Santa Cruz; Dr. Greg Henry, Tennessee State University, Nashville; and Dr. Dimitri Pourbaix, the Institut d'Astronomie et d'Astrophysique, Universite Libre de Bruxelles.

The star 55 Cancri is 41 light years from Earth and is about 5-billion years old. Further data are needed to determine whether yet another planet is orbiting it, because the two known planets do not explain all the observed Doppler wobbling. One possible explanation is a Saturn-mass planet orbiting about .24 AU from the star.

JPL manages the Terrestrial Planet Finder and Space Interferometry Mission for NASA. JPL is a division of the California Institute of Technology in Pasadena. More information, including artist concept and animations, can be found on the Internet at:

<http://www.jpl.nasa.gov/images/newplanets>

<http://exoplanets.org>

<http://planetquest.jpl.nasa.gov>

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## Stardust Tests New ESA Deep-Space Ground Station In Australia

ESA News - <http://www.esa.int>

21 June 2002

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The spacecraft Stardust, which is on its way to meet the Comet Wild 2 in January 2004, last week helped ESA to carry out final testing of the Agency's first deep-space ground station, situated just 140 km north of Perth in New Norcia, Australia.

ESA's new 35-metre telemetry, tracking and command antenna has a pointing accuracy of 0.01 degrees and will be a vital link in ESA's Rosetta mission to the comet Wirtanen. This is one of the most ambitious scientific missions ever to be launched and is scheduled to take place early in 2003.

The 630-tonne antenna will be the main communications link between Rosetta and Mission Control at ESA's European Space Operations Centre (ESOC) in Germany. It will also be used to transmit and receive data from other space missions sent to explore the Universe beyond the Moon, such as ESA's Mars Express, also scheduled for launch in 2003.

Stardust, which is a NASA Jet Propulsion Laboratory mission, was selected for the tracking tests as it is on an interplanetary trajectory currently more than 300 million km from the Earth. As it passed over Australia

on 8 June, at a maximum elevation of over 70 degrees, the New Norcia ground station successfully tracked the spacecraft and received its signals.

The main objectives of the tests were to confirm the quality of the pointing of the antenna and to see the downlink signal on a spectrum analyser -- configured by a team from ESOC -- to catch the low signals coming from the spacecraft. The characteristics of the signal, together with precise orbital data, were kindly provided by the Stardust team based at JPL. Their cooperation made it possible to localise the spacecraft spectrum approximately half an hour after the nominal downlink switch on.

Three days later additional tests were carried out to check the pointing and to confirm the capability of the Intermediate Frequency Modem System (IFMS) to track precisely the downlink carrier for orbit determination purposes. All the objectives were successfully achieved and the antenna has demonstrated that it is working well. Everything is now ready for the official handover to ESA in July 2002.

# Southern African Meteorite Recovery Program

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**Amateurs in the Service of Science**

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South Africa

*Deo Gloria*  
2002.06.02

## Easter 2002 Expedition

### Members

Trevor Gould
Peter Baxter
Eric Brindeau
Tim & Janet Cooper and Christopher

### Results

No meteorites were found on this expedition. Returns were all handed over to Prof W U Reimold of Wits Geosciences.

### Acknowledgments and thanks

The team wish to thank the South African Heritage Resources Agency for kindly providing a permit to collect any meteorite finds in specific areas, and especially Ms Mary Leslie.

Thanks also go to the Department of Geology, University of the Witwatersrand, for general and specific assistance with the expedition and its objective.

### Expedition Area

The previous expedition looked at the feasibility of finding meteorites on the permanent dunes, as well as inter-dune erg surfaces. However, it was discovered that the red Kalahari sand dunes were covered completely in a variety of grasses, effectively hiding any rocks that may have been on the surface.

It was further discovered that the interdune areas were not erg surfaces, but were covered with Kalahari red sand, which, itself was vegetated with grasses and small trees. [See previous report].

The search area was therefore defined as dry pan surfaces North of Upington and South of the Kalahari Gemsbok Park.

The specific defined pans were Kaksteenpan and an adjacent large pan known as Koppieskraal pan.

However, local knowledge suggested that we avoid that area as:

- [1] there was a busy guest farm on the pan;
- [2] which included camel rides across it;
- [3] the pans include a 4X4 trail;
- [4] a film crew was working one of the pans.

On local suggestion we opted for Grootaarpan, to the South of the two pans mentioned above.

### Site Description

The area searched included sections of Grootaarpan, Kleinaarpan and Vrysoutpan.

Grootaarpan and Kleinaarpan are separated by a narrow strip of Kalahari dune and are surrounded by permanent dunes. This gives rise to fascinating 'bays' and 'promontories' on the 'shoreline'.

Grootaarpan was covered with rocks of varying sizes, but interestingly, of local provenance only. The underlying rock was volcanic ash, with surface rocks including some lavas and other volcanics. The Southern end had a protrusion slightly above the mean pan surface with felsic ash containing some xenoliths, as well as secondary pyrite, calcite and quartz crystals.

Kleinaarpan demonstrated fewer rocks on the surface, but of similar type.

Both pans had small areas bulldozed out, which were filled with water, presumably to see if salt would accumulate in commercial quantities.

Vrysoutpan was completely different. It was covered with a white sand, with very few rocks. In one area it had been excavated and several thousand tons of salt was regularly recovered from each excavation at six week intervals for several months of the year.

Vrysoutpan also had thin underlying limonite / goethite deposits, bits of which accumulated around circular features associated with rising water.

A number of highly magnetic dark rocks were recovered from Grootaarpan, which proved on analysis by Wits to be volcanics.

Interestingly, one of the finds handed in by Peter Baxter was very highly magnetic and showed metal. On analysis, it showed a high iron and calcium content, indicative of slag from iron smelting!

**Expedition Diary**

Good Friday March 29 2002	<p>After leaving Johannesburg at 02:00, we met up in Upington. Eric, Peter and the writer headed North from Upington on the Kalahari Gemsbok road to a small B 'n B. The owners provided good local insight, and also showed us the pan the writer had camped in on the previous expedition, now under water. It boasted 150 bird species!</p> <p>Lacking time, we pushed on and called on the owner of Grootaarpan, and advised our mission of finding South Africa's 50<sup>th</sup> meteorite. He allowed us to camp on the pan, and promptly departed to Hentjies Bay for a month of fishing!</p>
Saturday 30 March	For the first time, a GPS was used to track search patterns and record locations of finds. The weather was extremely hot, 42 degrees in the shade [digital thermometer]. The prevented conducting traverses in the heat of the day. On return from traverses, the water in 51 bottles was 37 degrees, and did not provide a cool drink, but an acceptable hot bath.
Easter Sunday 31 March	<p>A similar pattern was adopted for the remainder of the week, with morning traverses starting at 09:00 until lunch, then a 'siesta' until the temperature dropped, and then a late afternoon traverse.</p> <p>The Moon was rising around 21:00, which made for early evening viewing using the writer's 8" Dobsonian. Some fine objects were observed, but the comets proved elusive.</p>
Monday 1 April	Tim, Janet and their son Christopher arrived and set up camp. We visited the farmer on Kleinaarpan, who claimed to have heard a meteor pass overhead and land in the dunes behind the farmhouse. Despite searches, he found nothing.
Tuesday 2 April	Traversing. There were a number of trips by car to Askham for ice and cold water. We traversed Vrysoutpan.
Wednesday 3 April	Peter and Eric broke camp and left. We continued traversing Grootaarpan. Owing to its size, perhaps only 10% was searched.
Thursday 4 April	We broke camp and traveled to Upington. The writer had a puncture in the Hyundai and needed to get it fixed. We left Upington and traveled to Keimoes

	and searched for chialstolite crystals unsuccessfully, but did recover some interesting epidote crystals. We then drove to Kenhardt and turned off to the rose quartz mine at Steyns Puts, which always provided interesting minerals. We were not disappointed. We drove from Steyns Puts to Putsonderwater, having to stop and move tortoises out of the road before proceeding.  We then journeyed via Groblershoop and Griekwastad to Kimberley, where we split up.
Friday 5 April	Back to Johannesburg

### Comment

Prof Reimold was asked to comment on whether our unsuccessful returns were close to what real meteorites might look like, or whether we were collecting completely wrong looking rocks.

He placed a sliver of a martian meteorite next to one of the returns and it looked practically identical.

We are looking for the "right stuff", and in due course will find a real meteorite, but this is a function of the amount of time spent searching [less than 2 weeks per annum] and the number of volunteers [average 6] and the effectiveness of the terrain chosen [ideal search areas are yet to be found].

### Spring 2002

The Spring Expedition 2002 will return to the same area, and details will be published once arrangements have been made.

Volunteers who are fit and prepared to 'rough it' are encouraged to camp with us, those who would like to stay in a comfortable B 'n B can do so, and for the not-so-fit, we could certainly have some help guarding the camp, writing up the records etc.

### South Africa's 50 Meteorite is an L4 chondrite!

Prospecting in the data and talking to people may be more effective ways of finding meteorites. Bill Hollenbach advised that a meteorite broke through the roof of a warehouse in George in 1989. This was analysed and found to be an L4 chondrite.

The data is being followed up and if the information proves to be correct, it will be added to the database as Number 50!

If you hear of any meteorites that fell in your area, why not investigate and provide any information you discovered?

There may be others that somehow missed getting added to the database.

We could really be searching for South Africa's one hundred and fiftieth meteorite!

Again, if you have a digital camera [or an ordinary camera and access to a scanner], we need images of meteorites in local museums and institutions, together with data about the museum and the meteorite. If you can help the project, we'd love to know about it.

Unfortunately, meteorites are being stolen from museums in South Africa. If you hear of anything, please let us know and we'll inform the appropriate authorities.

## Virtual Lunar Atlas

This free program (by Patrick Chevalley, author of Cartes du Ciel) promises to be what Lunar observers have been waiting for. This is a "1.0" release, but it works well, and Patrick has big plans for additional features, data, etc. You can download the software from :- [http://astrosurf.com/avl/UK\\_index.html](http://astrosurf.com/avl/UK_index.html)

Sent to the Shallow-Sky List by **Rod Mollise**

Author of: "[Choosing and Using a Schmidt Cassegrain Telescope](http://members.aol.com/RMOLLISE/index.html)"

<http://members.aol.com/RMOLLISE/index.html>

# The Sky this Month

## July 2002

dd hh	dd hh
2 07 Moon at apogee	13 12 Venus 3.8 S of Moon
2 10 Mercury 0.3 S of Saturn	14 00 Mercury greatest brilliancy
2 18 <b>LAST QUARTER</b>	14 11 Moon at perigee
3 06 Mars 0.9 N of Jupiter	17 05 <b>FIRST QUARTER</b>
4 17 Mars 5.7 S of Pollux	19 06 Mercury 5.5 S of Pollux
5 04 Earth at Aphelion	20 01 Jupiter in conj. with Sun
7 13 Jupiter 6.5 S of Pollux	20 14 Mercury 1.2 N of Jupiter
8 12 Saturn 1.5 S of Moon	21 02 Mercury in superior conjn.
9 09 Mercury 1.3 S of Moon	24 10 <b>FULL MOON</b>
10 10 Venus 1.1 N of Regulus	24 23 Neptune 4.3 N of Moon
10 10 <b>NEW MOON</b>	25 13 Mercury 0.7 N of Mars
10 22 Jupiter 2.8 S of Moon	26 09 Uranus 4.2 N of Moon
11 03 Mars 2.2 S of Moon	30 00 Moon at apogee

## August 2002

dd hh	dd hh
1 11 <b>LAST QUARTER</b>	15 11 <b>FIRST QUARTER</b>
2 00 Neptune at opposition	20 01 Uranus at opposition
5 04 Saturn 2.0 S of Moon	21 05 Neptune 4.2 N of Moon
6 05 Mercury 0.9 N of Regulus	22 09 Venus greatest elong. E(46)
7 18 Jupiter 3.1 S of Moon	22 14 Uranus 4.1 N of Moon
8 19 Mars 3.2 S of Moon	22 23 <b>FULL MOON</b>
8 19 <b>NEW MOON</b>	26 17 Moon at apogee
10 02 Mercury 4.3 S of Moon	27 11 Pluto stationary
10 23 Mars in conj. with Sun	29 00 Mars 0.8 N of Regulus
11 01 Moon at perigee	31 03 <b>LAST QUARTER</b>
11 23 Venus 6.1 S of Moon	

### LOCAL TIMES of RISE and SET for the MAJOR PLANETS, 2002

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
Jul 10	06.56	17.30	06.04	16.32	09.27	20.40	07.39	18.15	07.26	18.03	05.06	15.41
Jul 20	06.54	17.34	06.54	17.26	09.20	20.51	07.23	18.05	06.55	17.34	04.32	15.07
Jul 30	06.49	17.39	07.28	18.23	09.11	21.01	07.06	17.56	06.24	17.05	03.58	14.32
Aug 09	06.43	17.44	07.44	19.06	08.59	21.09	06.49	17.46	05.53	16.36	03.23	13.57
Aug 19	06.35	17.49	07.46	19.36	08.46	21.15	06.30	17.36	05.21	16.06	02.48	13.22
Aug 29	06.25	17.53	07.38	19.53	08.31	21.18	06.11	17.26	04.49	15.37	02.12	12.46