



The PRETORIA CENTRE

of the

Astronomical Society of Southern Africa

www.pretoria-astronomy.co.za

NEWSLETTER MAY 2010

Next meeting

Venue: The auditorium behind the main building at Christian Brothers College (CBC), Mount Edmund, Pretoria Road, Silverton, Pretoria.

Date and time: Wednesday 26 May at 19h15.

Programme:

- **Beginner's Corner:** "Basic Optics" by Johan Smit
- **What's Up in the Sky:** by Fred Oosthuizen
- 10 minute break — library will be open
- **Main talk:** "Spacecraft Instrumentation" by Johann Hartmann
- Socializing over tea/coffee and biscuits.

The chairperson at the meeting will be Percy Jacobs.

Next observing evening: Friday 21 May at the Pretoria Centre Observatory, which is also situated at CBC. Turn left immediately after entering the main gate and follow the road. Arrive from sunset onwards.

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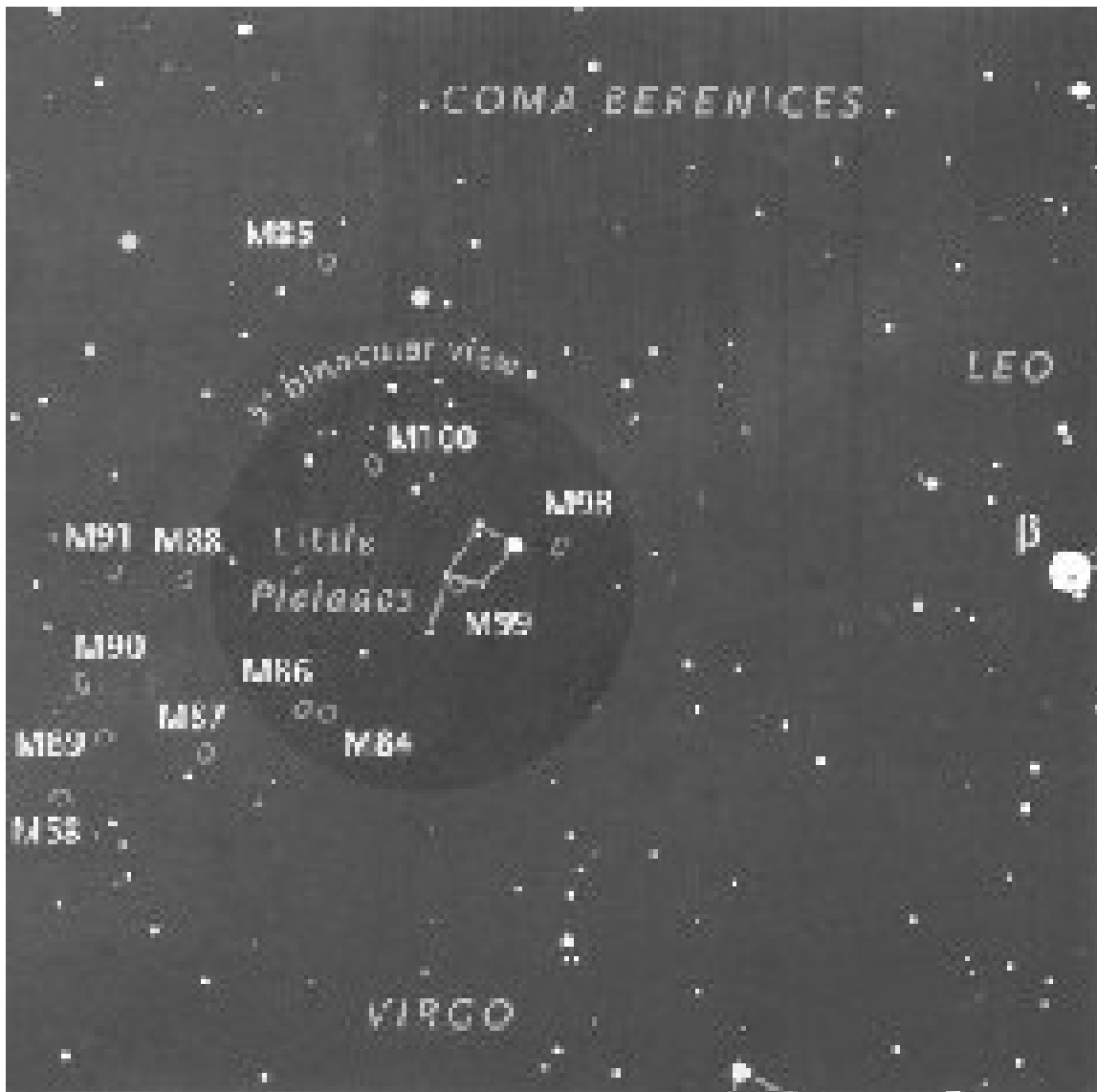
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Last month's observing evening - by Michael Poll

The clouds came and went all day, and in the evening came and stayed, and then emptied out over the city and our observing evening. The rain added to the wet month, a month which saw the highest April rainfall figure (154 mm) for this writer since his records began in 1972-73. Danie and Michael were in attendance at CBC. The Centre practice is that someone always attends the Observing Evening, just in case a newcomer arrives. Not surprisingly, no observations were made, except to note how wet it was.

For when the skies are clear, or for the next observing evening, the following is offered for those who, like me, grapple with the galaxies in Virgo. This summary, and the chart, is taken from "Binocular Highlights" in *Sky and Telescope* for May 2010, page 45. Although written with binoculars in mind, the article is relevant for amateur telescopes. Remember that the chart, as printed, has north at the top and east to the right, and should be turned up side down for use in the southern hemisphere. North will then be at the bottom and east on the left.

The densest concentration of Messier Objects lies at the intersection of Leo, Coma Berenices and Virgo. A convenient starting point is Denebola (Beta Leonis – on the right hand side of the chart). About two binocular fields to the east is a grouping of 6th and 7th magnitude stars which the author Gary Seronik calls the "Little Pleiades". This asterism directs one to **M99** and **M100**. **M98** nearby is a little more difficult than M99 and M100. Slightly to the north, **M85** is a little easier to see, being the most prominent of the galaxies in this region. Of the grouping of **M84**, **M86** and **M87**, the M87 is the most conspicuous. **M89** and **M90** are described as being a difficult pair for binoculars, and of **M88** and **M91**, the latter is the more difficult.



Last month's meeting – by Tony Viljoen

There was a power failure at CBC when the meeting was due to start, but it was quite pleasant standing outside, talking mainly astronomy, of course, and Michael Poll used the opportunity to acquaint people with the stars. The power returned at about 20h35, and the meeting could start. Although some people had left by this time, the meeting was fairly well attended, with some visitors also.

The Beginners Corner was handled by Andrie van der Linde, talking about "Celestial Objects". Andrie gave us a run down of the main types of object to see in the sky. He broke it down into the following categories and showed photographs of examples :

Solar System objects, namely the Sun, Moon and planets.

Nebulae, split into emission types eg the Orion nebula and then planetary types such as the Cat's Eye and Helix Nebula.

Clusters, broken into globulars, such as the Omega Centauri, and open types such as the Hyades, Pleiades, and Southern Pleiades in Carina.

Other objects, such as comets, asteroids, meteor showers, Near Earth Objects (NEO's), and then double stars and variable stars

Finally he showed us a picture of the effects of light pollution, taken before and then after a power failure in a city, showing how one could again see the Milky Way when the light pollution was absent.

Danie Barnardo delivered What's Up, starting with the phases of the Moon, emphasizing that New Moon is on 14th May, when we may observe without Moon interference. He then mentioned the planets, particularly that Jupiter is now in the morning sky, and Saturn is visible all night. He mentioned groupings such as on 18th May (Mars, Beehive[M44], and the Moon), and 20th May, when the Moon is near Jupiter in the morning sky. He mentioned that Vesta is in Leo, and the coming winter constellation of Scorpius (M4 near Antares), Crux in the southern Milky Way, and the Leo/Virgo galaxies (35 Million light years away), and the Ghost of Jupiter planetary near Lambda Hydri.

Michael Poll was the main speaker, with a talk entitled "The Sun – a Matter of Mass and Magnetism". He started with the amusing story of how people had originally believed that when the Sun went down, it then went back over the top of the sky to shine through holes and produce the stars. Michael's talk was authoritative as usual, and packed with information.

Michael said that:

The Sun is a star.

It creates light and heat.

Rotated very rapidly initially, and now does much slower.

Eventually will puff out a planetary nebula and become a white dwarf.

He gave figures for its volume, mass and density, and that it contains 99% of the mass of the solar system. It has differential rotation between its poles, equator and internally. He talked about its internal structure, the core, radiative zone, convective zone and photosphere. Michael emphasized how the Sun's magnetic field influences all its internal, surface and atmospheric phenomena. He mentioned sunspots, faculae, the chromospheres and the corona, which becomes visible during a solar eclipse.

Michael mentioned prominences, solar flares, and Coronal Mass Ejections (CME's), which can be so disruptive to our power systems on earth. He said that the Sun radiates mainly in yellow light, and that it is not a co-incidence that our eyes are most sensitive at this wavelength. Different temperatures on the sun result in it radiating at X-rays, extreme ultra-violet, and visible wavelengths. It has a solar wind flowing out at 500 km/sec, first detected by Mariner 2 in 1962. The aurora is caused by charged particles caused by this wind, being caught in the earth's magnetic field. Finally he talked about the sunspot cycle and how this has a period of about 11 years.

Saturn's Moon Iapetus - by Michael Poll

Iapetus was discovered by Giovanni Domenico Cassini in 1671. (In 1675 Cassini also discovered the most prominent gap in the rings of Saturn). Iapetus is the third largest satellite of Saturn with a diameter of 1470 km. It orbits Saturn at a distance of about 3 500 000 km in a period of 79.3 days. Iapetus is named after one of the Titans, who were a set of siblings born of Ouranos ("Sky") and Gaia ("Earth"). Others of the Titans were Cronus, Hyperion, Rhea, Phoebe, Tethys and Dione.

An odd finding about Iapetus was that when it is furthest west of Saturn it has a magnitude of 10, and when furthest east, it is fainter, at magnitude 12. Cassini himself first noticed this variation in brightness the year after the discovery. Initially, Cassini could not even *find* Iapetus when it was to the east of Saturn – but with better telescopes, he eventually saw it on the east side, but even then, this was not until 1705. Because Iapetus' rotation period is locked to its orbital period, it means that one side always faces forward, and the other side trails, and it was Cassini himself who concluded that one side (the leading side) must be darker than the other, but that is far as it got, and so the reason for this brightness anomaly long remained a mystery.

In 1979 Patrick Moore wrote "[GD Cassini] first noted the variation in brightness in 1672...like all fairly large satellites, its axial rotation period is equal to its revolution period, so that clearly the variation in brightness lies either in the irregularity of shape, or the unequal reflecting power of its two hemispheres. If the latter explanation is correct, one hemisphere is as dark as a blackboard and the other as reflective as snow! In 1974 Steven Soter [then at Cornell University] suggested that the leading hemisphere of Iapetus might have been darkened by the accumulation of dust eroded from Phoebe, but this idea will be very difficult to prove or disprove....."

In spite of the two tone colour, Iapetus is geologically dead. Both hemispheres are thickly scarred with impact craters, and there is a long ridge of mountains lying exactly on the equator, in places 20 km high, and 70 km across the base. This ridge disappears in one place where it is obliterated by a huge impact basin. (**Figure 1**). The shape of the ridge suggests that it is very old. The overall lumpy appearance of Iapetus indicates that it has been frozen rigid for most of its history.

If Iapetus has been solid for that long, internal geological activity would not have caused the dichotomy in colour of the hemispheres. Impacts would have not caused the effect either, because an impact on the dark side would expose ice, and dark material would be distributed to the bright side. A different external origin had to be sought.

Images from the Voyager and Cassini space craft led to the dark material on the leading side being described as "like dark powdered chocolate", and the trailing side was shown to be covered with grey ice. The dark material on the leading side overlays ice.

The Cassini spacecraft found that, although there is a sharp division between dark and light areas where they occur, dark material does occur on the bright side around the equator, and the north and south poles are bright on both hemispheres. (**Figure 2**). There is however a colour difference that follows the leading / trailing boundary between the two hemispheres (the leading side is redder than the trailing side).

Dark material is concentrated on the *equator-facing* rims in the bright regions, whereas bright material is concentrated on the *pole-facing* rims in dark region. – this is due to a phenomenon called thermal segregation. When dark material lands on Iapetan ice, this dark ice heats more rapidly and to higher temperatures than brighter ice (darker material is more absorptive of heat, light material is more reflective). When exposed to sunlight, ice within warm dark regions vaporizes more rapidly than ice within bright regions. Vaporization is facilitated by Iapetus' slow rotation rate – just less than 80 days – which means that the sun shines on any particular area for a long time, and daytime temperatures rise proportionally higher than on the other moons of Saturn. The water vapour eventually freezes back - but is more likely to freeze on to the colder surfaces i.e. the bright areas of the trailing hemisphere and the pole-facing crater walls. By losing ice in this manner, the dark areas get darker, and this is a runaway process which blackens dusted areas in only a few tens millions of years.

Detailed maps of Iapetus obtained by the Cassini spacecraft in 2007 confirmed the sharp transition zone between the black and white areas – there are no shades of grey, even where they intermingle at the transition zones. These observations confirm the thermal segregation model. (**Figure 3**- each frame is about 30 km along the vertical edge).

Much of the above information was published in *Sky and Telescope* in June 2009, but the article indicated that, although the mechanism of the creation of dark and light areas was established, the *initial source* of the dark material on the leading edge was still not known. However, only four months later (October 2009) the discovery of a tenuous dust ring around Phoebe, the next moon out from Iapetus, and Saturn's outermost major moon, was announced. (**Figure 4**).

Phoebe (**Figure 5**) orbits Saturn (in 550 days) at an average distance of 13 000 000 km from Saturn, and orbits Saturn in a retrograde motion, which suggests that it is almost certainly a captured Kuiper Belt Object.

The ring around Phoebe was discovered by the Spitzer Space Telescope, which operates in the infra red. This ring was soon thought to be the key to solving the problem of Iapetus. Phoebe is only 215 km across, but the ring of material, although tenuous, is very big. It extends up to 12 million km from Saturn - by contrast, the largest of Saturn's other rings, the E ring, is only 240 000 km in diameter. The ring around Phoebe is tilted 27° to the plane of Saturn's equator, as is the orbit of Phoebe. The orbit of Iapetus is tilted 15° to the plane of Saturn's equator. Calculations indicate that the ring around Phoebe may extend outward as far as 18 000 000 000 km from Saturn, and inward to the orbit of Iapetus. The ring is about 2.4 million km thick. The ring's particles are presumed to have originated from micrometeoroid impacts on Phoebe, and so they would probably also show retrograde motion. The retrograde motion is therefore opposite to the prograde orbital motion of Iapetus.

It is now thought that the material on the leading side of Iapetus is swept up from the huge sparse dust ring that is associated with Phoebe. Because Phoebe and its ring revolve in a retrograde manner Iapetus drives head on into the ring material. Steven Soter's 1974 theory was proven.

References:

Patrick Moore. Guinness Book of Astronomy Facts and Feats. Guinness Superlatives 1979.
Ice Worlds of the Ringed Planet. Emily Lakwallada. *Sky and Telescope* June 2009 p27.
Saturn's New King Ring. News Note. *Sky and Telescope* January 2010 p 18.
Iapetus Solved? News Note. *Sky and Telescope* March 2010 p16.

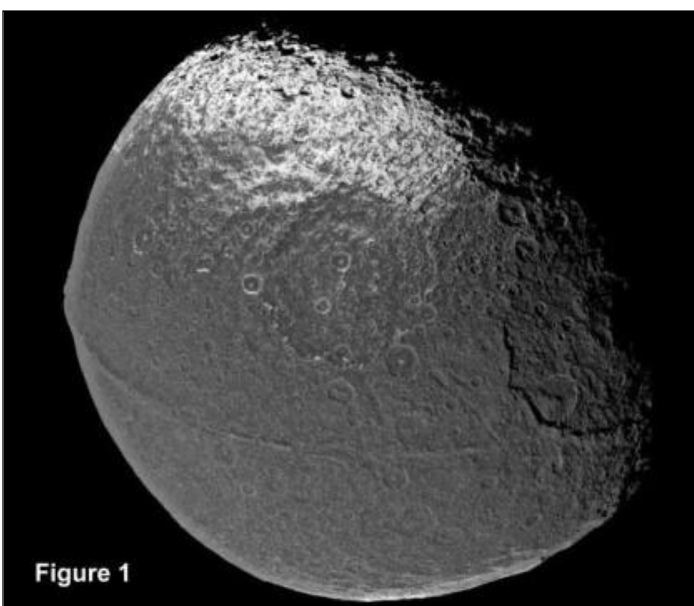


Figure 1



Figure 2

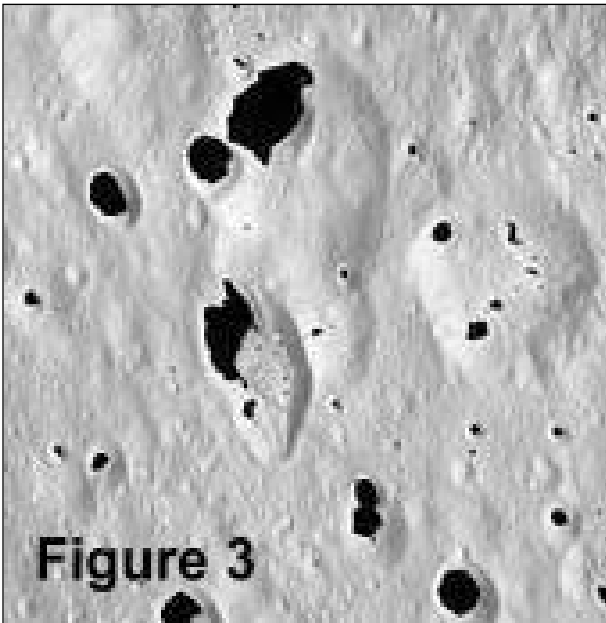


Figure 3

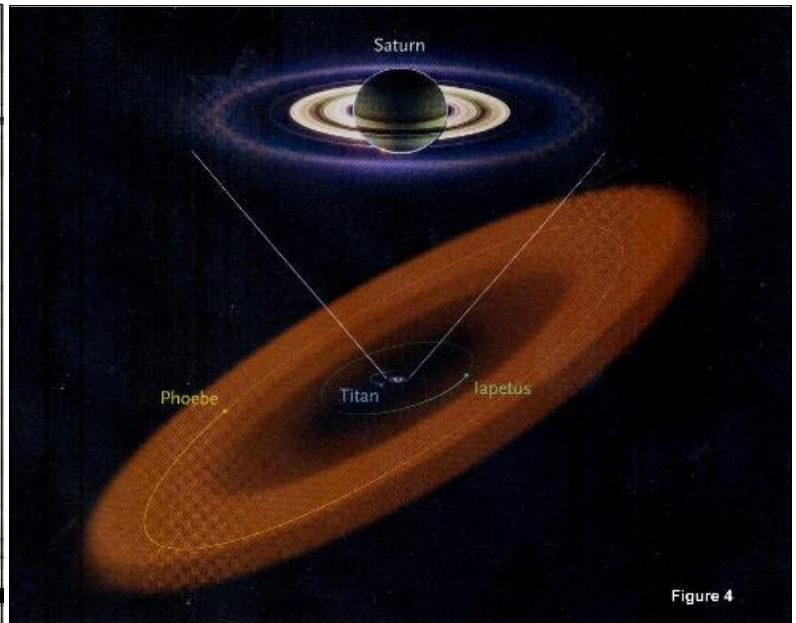


Figure 4



Figure 5

ASSA Pretoria outreach event

This will take place on Wednesday 19 May 2010, at Menlo Park Primary School.

We are planning a talk and stargazing for the children who belong to the school's science club.

We have been doing a similar event for the last couple of years and it is always a pleasure to entertain these children and their parents.

From 17:30 to 18:00 Johan Smit will do a short presentation in the school hall. From 18:00 we move to the rugby field next to the hall where we will show them the stars and planets.

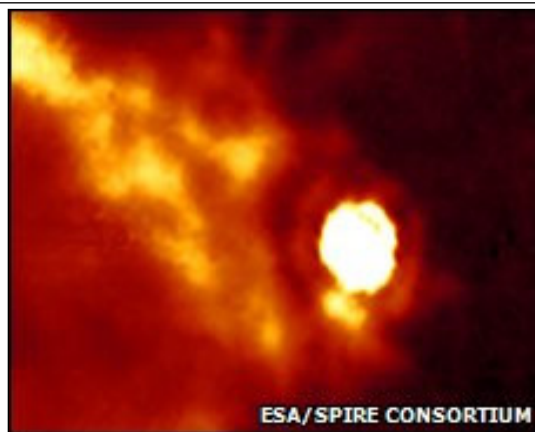
We invite anyone to bring his telescope to help with viewing and to get a chance to meet children who are really interested in science.

It is an experience that you will enjoy and you will enable the children to have an unforgettable experience. Because

the children are all conscientious learners they go to bed early. We usually finish by 21:00.

The school entrance gate is at the corner of 10th and Thomas Edison Street, Menlo Park, Pretoria. If you plan to attend, try to be there before 18:00.

You can contact Johan Smit at 072 806 2939 for more information.



ESA/SPIRE CONSORTIUM

Herschel telescope 'fingerprints' colossal star

The death throes of one of the biggest stars known to science have been spied by Europe's Herschel space telescope. The observatory, launched in May 2009, has subjected VY Canis Majoris to a detailed spectroscopic analysis. It has allowed Herschel to identify the different types of molecules and atoms that swirl away from the star, which has a mass between 20 and 25 times the mass of our Sun.

VY Canis Majoris is some 4,500 light-years from Earth and it may explode as a supernova at any time. It is

colossal. If it were sited at the centre of our Solar System, its surface would extend out towards the orbit of Saturn. The star has been recorded by astronomers for at least 200 years. It is what is called a red hypergiant - a highly evolved object that is exhausting its nuclear fuel.

This image, made by the Spire camera aboard Herschel, shows the star which is situated at the edge of a huge cloud of gas and dust.

- VY Canis Majoris: <http://news.bbc.co.uk/2/hi/science/nature/8382348.stm>
- Herschel: <http://www.esa.int/SPECIALS/Herschel/index.html>

Flying "moth" star and stellar quadruplets discovered

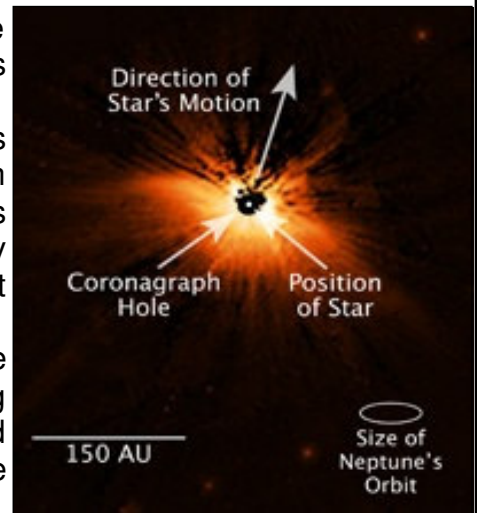
Astronomers studying our corner of the galaxy have found a strange object that looks like a moth spreading its wings and a never before seen system of four tightly grouped stars.

The first of these phenomena is a disk of dust and gas illuminated by a young star in the constellation Puppis. Such disks, believed to be made of the material from which planets form, are common around young stars. But this one is oddly bent, as though flying into a headwind, and that's exactly what it's doing, said Glenn Schneider of the University of Arizona.

Near-infrared images (right) taken by NASA's Hubble Space Telescope show the wing-shaped dust disk surrounding the young, nearby star HD 61005. Astronomers have dubbed the star system the Moth because the dust disk resembles the wings of the flying insect.

The other (unrelated) odd finding is a unique quadruple star system that packs four stars into a region smaller than the orbit of Jupiter. The stars are grouped into two closely spaced pairs, 20 and 80 million kilometers apart, respectively. "It's really quite amazing that four stars all orbit each other at this distance," an astronomer said.

<http://news.nationalgeographic.com/news/2008/01/080111-moth-stars.html>



Summary of coming presentation "What's Up in the Sky" - by Fred Oosthuizen

THE MOON: Phases and major points of interest.

LAST QUARTER: - First Week of the month.

Light grey areas: - Centre right – **Oceanus Procellarum**. Bottom left – **Mare Imbrium**. Upper centre - **Mare Nubium** and **Mare Frigoris**.

Mountains: - Top – The **Straight Wall range**. Centre –The **Carpathians** and The **Riphaeus** ranges. Bottom – The **Spitzbergen** and The **Straight Range**.

Craters: - Top – **Maginus**, **Clavius** and **Tycho**. Centre - **Arzachel**, **Albategnius**, **Herschel**, **Copernicus** and **Kepler**. Bottom - **Archimedes**, **Aristillus** and **Plato**.

NEW MOON: - Saturday 12th

FIRST QUARTER: - 2ND third of the month.

Light grey areas: - Centre – **Mare Fecunditatis**, **Mare Tranquillitatis** and **Mare Serentatis**. Top – **Mare Nectaris**. Bottom – **Mare Frigoris**.

Mountains: - Bottom – **Taurus** and **Caucasus**.

Craters: - Top – **Maurolycus**, **Aliacensis**, **Werner**, **Piccolomini** and **Fracastotius**. Centre – **Hipparchus**, **Horrocks**, **Delambre** and **Manilius**.

Bottom – **Atlas**, **Hercules**, **Burg**, **Eudoxus** and **Aristoteles**.

FULL MOON: - 26th

CONSTELLATIONS: - and major points of interest

EAST:-

LUPUS The wolf – NGC 5986 Gb 7.1 mag, 34.000 i.y. and IC 4406 Pl 11 mag.

SCORPIUS The Scorpion – Antares a mag I red giant star. M4 and M80 Gb, M6, M7 and NGC 6231 all OC.

SAGITTARIUS The Archer - contains masses of Open and Closed Clusters Nebulae, Double and Variable Stars. The easiest and most impressive to view and should not be missed are the open and closed clusters, M6 The Butterfly cluster, M21, M22, M23, M24, M25 and The Lagoon, The Swan and The Trifid Nebulae M8, M17 and M20.

SOUTH:-

CENTAURUS:- The Centaur with the brilliant cluster containing several million stars NGC 5139, "Omega Centauri" the Planetary Nebula NGC 3918 and NGC 5128 The Hamburger Galaxy.

CRUX The Southern Cross – NGC 4755 The famous "Jewel Box Cluster, and The Coal – Sack Nebula.

CARINA The Keel – NGC 3372 The Carina Nebula with the bright reddish very unstable and unpredictable Star ETA Carinae near the centre. The Open Clusters IC 2602 known as The "Southern Pleiades" and the very impressive NGC 3532.

Also the Diamond Cross and then the False Cross which is on the eastern boundary of **VELA The Sails**.

WEST: -

CORVUS – The Crow – Open Cluster NGC752 and M 104 "The Sombrero Galaxy".

PUPPIS – The Stern – has some bright Open Clusters M47, M46, M93 and NGC 2477.

PLANETS:-

Mercury rises two hours before sunrise. *Venus* is visible in the evening sky for about 2 hours after sunset. *Mars* and *Saturn* can be seen for most of the night. *Jupiter* is visible from Midnight until sunrise. *Neptune* rises at 23h00 and is also visible until sunrise.



Second Karoo Star Party

The ASSA Pretoria Centre wants to hold its second National Karoo Star Party during the long weekend of 6 to 9 August 2010 about 20 km north of Britstown in the Karoo, right next to the N12 at the Kambro Padstal. The reason for this locality, apart from the fabulous Karoo skies, is that it is almost exactly halfway between Gauteng and the Cape Town area, so we can all drive the same distance to the site. The first event of this type was held during April 2009 and proved to be a big success. The Karoo lived up to its reputation and provided magnificent views to those lucky enough to be present.

More information from:

- Johan Smit, cellphone: 072 806 2939, e-mail: JohanS@firsttech.co.za
- Danie Barnardo, cellphone: 084 588 6668, e-mail: daniebar@telkomsa.net

To book, please contact Wilma Strauss, the Manager of Kambro directly at 083 305 6668 or at e-mail: kambro@worldonline.co.za. You can also view their website (with a report on the star party that took place last year) at: <http://www.kambroaccom.co.za/>

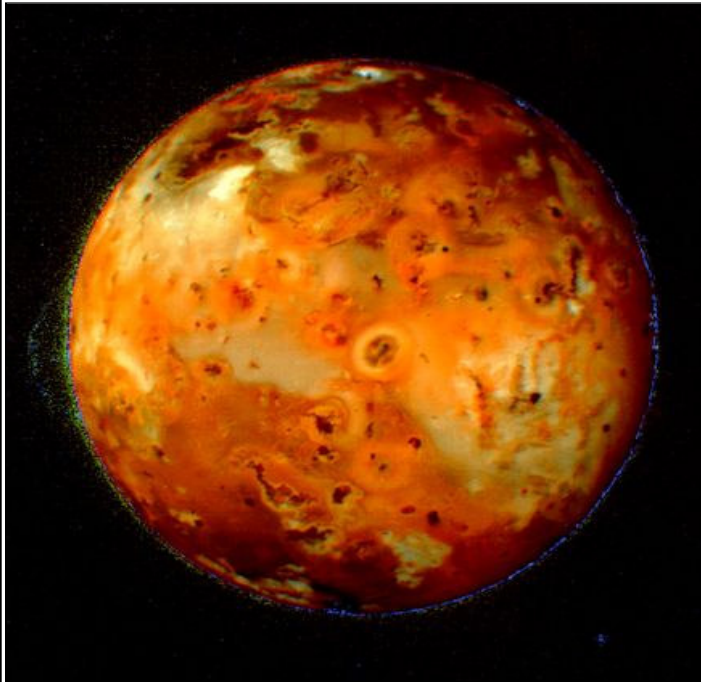
Book again available

PROXIMA - The nearest star (other than the Sun) - by I S Glass

pp 88+vii. Price in SA: R85 including postage

Orders: glass.ian@gmail.com

Extrasolar planet may be a new planet type: "Super-Io"



Oceans of lava might bubble on its surface. Hot pebbles may rain down from the sky. But the extrasolar planet CoRoT-7b is considered to be the most Earthlike world yet found outside our solar system.

A recent study, however, suggests that Earth might not be the best basis for comparison. Instead, the authors argue, CoRoT-7b is the first in a new class of exoplanets: a super-Io. Like Jupiter's moon Io, CoRoT-7b could easily be in the right kind of orbit to experience what's known as tidal heating.

On Io, tidal heating is a result of the crust being constantly deformed by the push and pull of Jupiter's gravity. This action generates enough internal heat to drive hundreds of active volcanoes—and the same could be true for CoRoT-7b. But unlike Io, CoRoT-7b closely orbits a star, not a planet, so tides aren't its

only source of heat.

Based on previous observations, astronomers know that CoRoT-7b's surface temperature is between 1 000 and 1 500 degrees Celsius.

The image shows Jupiter's volcanic moon Io, as seen by the Voyager 1 spacecraft.

<http://news.nationalgeographic.com/news/2010/02/100205-new-type-planet-corot-7b-io/>

Australia launches scramjet consortium

The University of Queensland (UQ) in Australia will lead a \$14 million international consortium to help develop scramjet-based access-to-space systems, flying an autonomous scramjet vehicle at eight times the speed of sound - Mach 8, or 8600 km/h.

In parallel, scramjet concepts will be tested at even greater speeds, up to Mach 14, in UQ's world class hypersonic ground-test facilities.

Scramjets are air-breathing engines capable of travelling at hypersonic speeds, greater than Mach 5. Scramjet-based launch systems offer considerable promise for safe, reliable and economical access to space.

http://www.space-travel.com/reports/Australia_Launches_Scramjet_Consortium_999.html

Library website of the Pretoria Centre of the ASSA by Danie Barnardo

After two years in the making, the Website of the Pretoria Centre is finally available on the Internet. We believe it is a first for the Centre – as far as we know, no other ASSA Centre has a similar website.

The website came into being after a database, containing the most common bibliographic details of the books comprising the collection in the Library was developed in Delphi and the Firebird database by Nols Smit. Nols is a Civil Engineer by profession, but has taught himself programming and is currently an experienced programmer. Part of the database comprises of images of the front and back covers of each book, so that viewers can get an idea what the book looks like.

Subsequently, the laborious task of scanning the front and rear covers of each book and entering information for each book into the system followed. The database has been in use for the last year at the meetings of the Centre, since a system to keep track of loans is designed into

the system. If you want to see the system in operation, visit the Library during the regular Wednesday evening meetings. It is at the back of the auditorium where we have our meetings on the 4th Wednesday of each month (except December) and is open during the break before the main talk.

The last part of the process involved an Internet-enabled front end to make the system available over the Internet. Nols recently acquired a new Internet server and the Centre's Library system runs on this server. The Internet site is linked through a web link from the main page of the Pretoria Centre's website at <http://www.pretoria-astronomy.co.za/>

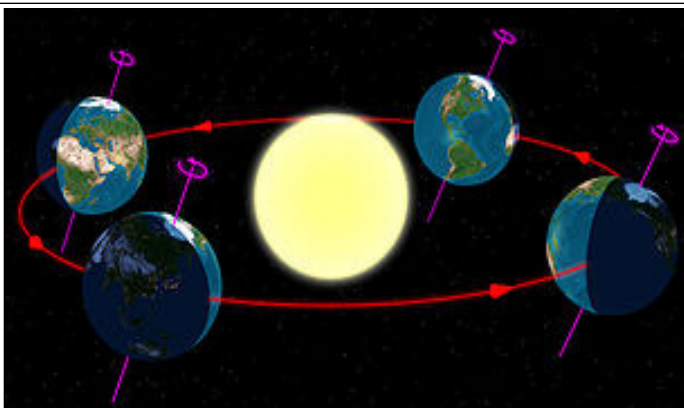
Nols Smit is thanked for his work on this database, which took many hours of programming and tweaking to perfect. For further details of the database and other queries related to database and Internet design, he can be contacted through e-mail at nols@infoveld.com.

Editor's notes:

- **Congratulations and sincere gratitude to Danie and Nols for what they have done for our Centre.**
- Fifty additional books for the library were bought with club funds from the estate of the late Louis Barendse.

Basics - deur Pierre Lourens

Die komitee bied altyd by ons maandelikse byeenkomste iets aan vir beide beginnende en gevorderde amateurs. Daarom is daar altyd "**Beginner's Corner**" vir beginnende en die "**Main Talk**" vir gevorderde amateurs. Ek wil van hierdie maand af elke maand iets in die nuusbrieff plaas wat spesifiek vir beginnende amateurs is. Ek hoop nie dit gaan die gevorderde amateurs altyd verveel nie. Ek gaan dit "**Basics**" noem. Lede word uitgenooi om bydraes in te stuur hiervoor. My e-pos adres is pierre.lourens@pbmr.co.za



Basics: Solstices - by Pierre Lourens

A **solstice** is one of two points on the ecliptic at which the Sun's apparent yearly path along the ecliptic reaches its greatest declination north or south. Then the tilt of the Earth's axis is most inclined toward or away from the Sun, causing the Sun's apparent position in the sky to reach its northernmost or southernmost extreme. The name is derived from the Latin **sol** (sun) and **sistere** (to stand still), because at the solstices, the Sun stands still in declination; that is, the apparent

movement of the Sun's path north or south comes to a stop before reversing direction.

The Sun will be at the next solstice (the winter solstice for the southern hemisphere) on 21 June 2010 at 13:28 SAST (**S**outh **A**frican **S**tandard **T**ime). In its orbit around the Sun, the Earth will then be in the position at leftmost in the diagram (which is not to scale). The apparent position of the Sun in the sky will then reach its northernmost extreme.

The solstice that the Sun will reach after that will be the summer solstice for the southern hemisphere and it will happen on 22 December 2010 at 01:38 SAST. In its orbit around the Sun, the Earth will then be in the position at rightmost in the diagram. The apparent position of the Sun in the sky will then reach its southernmost extreme.

An **equinox** is one of two points on the ecliptic where it intersects the celestial equator. When the Sun is at one of these points, the Earth is at one of the positions second from right or second from left in the diagram, and the terminator (the line between light and darkness) runs exactly through the north and south poles of the Earth.

The Earth is now between the position second from right in the diagram (which it had when the Sun was at the autumn equinox for the southern hemisphere on 20 March 2010) and the position at leftmost in the diagram (when the Sun will be at the winter solstice for the southern hemisphere).

Kennisgewing

Vanaf Julie 2010 sal nuusbriewe slegs per e-pos uitgestuur word.

Small observatory for sale

Mauritz geysers, a former committee member of the Pretoria Centre of the ASSA, offers a small observatory in Pierre van Ryneveld, Pretoria, for sale. If the observatory isn't sold, it will be sold as scrap metal. To view the observatory, please contact his father Frik at 082 856 4163.

For sale

Observatory contents of the late Tony Hilton. Full planetary imaging system with 9.25" Celestron instrument in excellent condition as well as many miscellaneous extras. Visit www.toad.co.za/astro or e-mail astro@toad.co.za for more details.

ASSA Symposium 2010

First announcement and invitation to submit papers

The Society will hold its 2010 Symposium on 7, 8 and 9 October 2010 at the Council for Geoscience, Pretoria Road 280, Silverton, Pretoria. The Symposium will be hosted by the Pretoria Centre of ASSA.

The symposium will be focusing on light/spectrum pollution, but will not be limited to these topics. All other aspects of astronomy will be allowed during the Symposium.

We wish to invite both professional and amateur astronomers to present papers at the symposium.

The organizing committee is calling for abstracts (non-technical overviews of the papers that will eventually be presented. No mathematical or diagrammatic content required).

Verbal papers may be submitted in two categories:

- Short papers, for delivery in 20 minutes, with 10 minutes for discussion and questions.
- Long papers, for delivery in 40 minutes, with 20 minutes for discussion and questions.

A third available category is:

Presentations in the form of displays. These may use one standard folding table (about 1 800 X 600 mm in size) and a poster board behind it to display any subject pertaining to astronomy.

Authors should indicate in the abstract in which category the paper is being submitted. Please make submissions in .doc (MS Word) or Adobe PDF format. Only e-mailed submissions, with the file attached, will be accepted. Full contact details (including e-mail address) and the full title of the paper MUST be submitted with the abstract. The latest date for submission is 31 July 2010.

Please indicate a preferred date and time to present your paper.

The Symposium committee reserves the right to accept or reject papers and to decide in which session of the Symposium it will be placed, although all efforts will be made to accommodate presenters.

Persons interested in attending the Symposium, delivering a paper or presenting a display should contact the Symposium committee at:

symposium2010@pretoria-astronomy.co.za

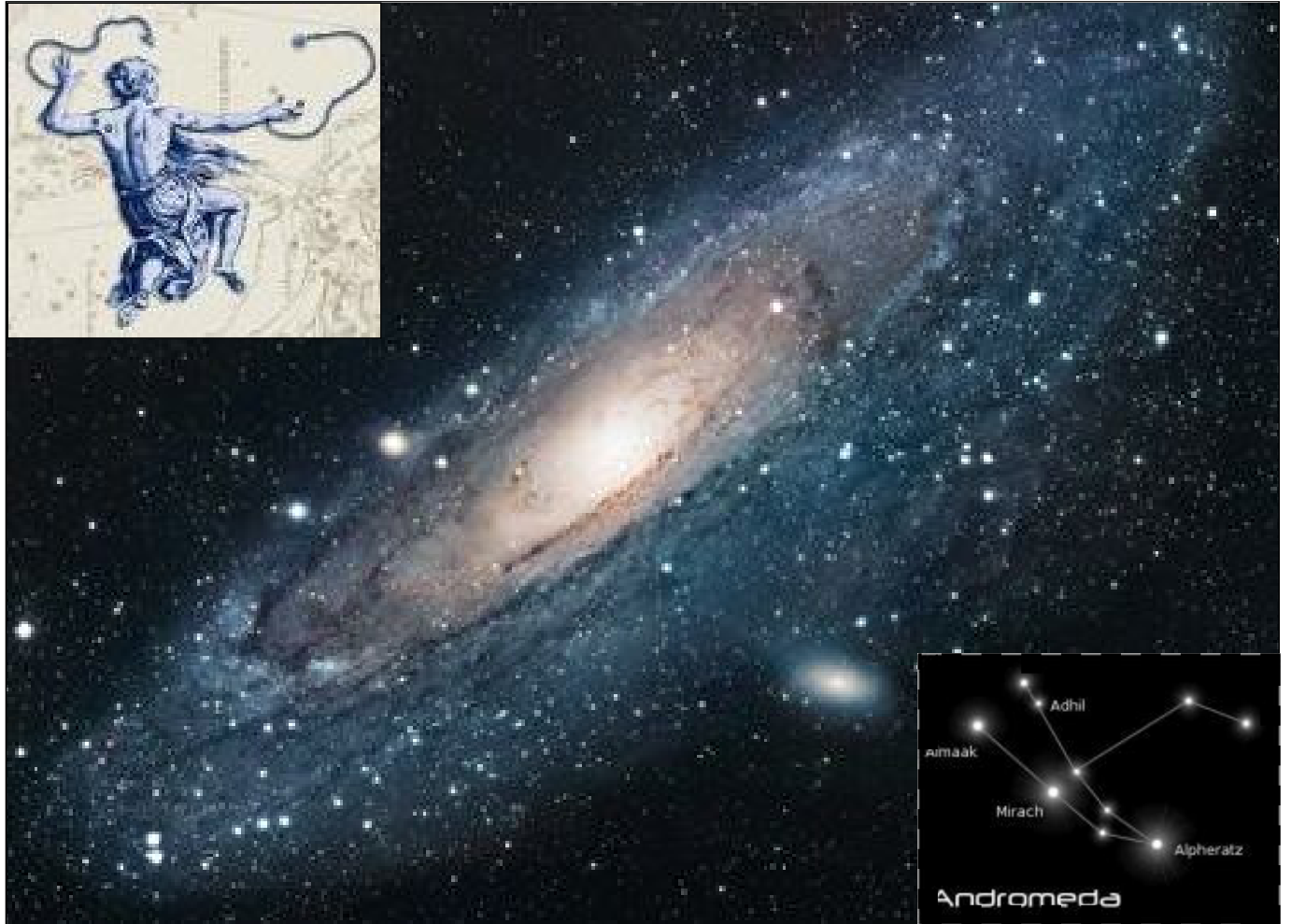
More details and a subscription form can also be downloaded from:

<http://www.pretoria-astronomy.co.za>

Alternatively, the phone contact is: Andrie van der Linde at: 083 632 4894

M31

M31, also known as **Messier 31**, **NGC 224** or the **Andromeda Galaxy**, is a spiral galaxy approximately 2 500 000 light-years away in the northern constellation Andromeda, named after princess Andromeda in Greek mythology. It is the nearest spiral galaxy to our own (spiral) Galaxy. The Local Group of galaxies consists of M31, our own Galaxy, the Triangulum Galaxy and about 30 other smaller galaxies. M31 is the largest galaxy of the Local Group. M31 is visible to the naked eye. http://en.wikipedia.org/wiki/Andromeda_Galaxy



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