



The PRETORIA CENTRE

of the

Astronomical Society of Southern Africa

www.pretoria-astronomy.co.za

NEWSLETTER SEPTEMBER 2012

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 September at 19h15.

Programme:

- **Beginner's Corner:** "Celestial coordinate systems" by Johan Smit
- **What's Up:** by Percy Jacobs
- 10 minute break — library will be open
- **Main talk: Live from CERN by Claire Lee**
- Socializing over tea/coffee and biscuits.

The chairperson at the meeting will be Fred Oosthuizen.

Next observing evening

Friday 21 September 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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Summary of "What's Up?" to be presented on 26 September 2012 by Percy Jacobs

Phases of the Moon

Dark Sky - from about 6th Oct to 21st Oct 12

1st Full Moon – 30th Sept

2nd Full Moon – 29th Oct

Last Quarter – 8th Oct

New Moon – 15th Oct (dark sky)

First Quarter – 22nd Oct

SOUTH AFRICA MOON CALENDAR OCTOBER 2012

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
 <p style="text-align: right; color: red; font-size: 24pt;">30</p> <p style="text-align: center; color: blue; font-weight: bold;">FULL</p> <p style="text-align: center; color: red; font-size: 10pt;">05:19</p> <p>Sun Rise: 05:48 Set: 18:07</p> <p>Moon Set: 05:39 Rise: 18:32</p>	 <p style="text-align: right; color: red; font-size: 24pt;">1</p> <p>Sun Rise: 05:46 Set: 18:07</p> <p>Moon Set: 06:15 Rise: 19:25</p>	 <p style="text-align: right; color: red; font-size: 24pt;">2</p> <p>Sun Rise: 05:45 Set: 18:08</p> <p>Moon Set: 06:53 Rise: 20:18</p>	 <p style="text-align: right; color: red; font-size: 24pt;">3</p> <p>Sun Rise: 05:44 Set: 18:08</p> <p>Moon Set: 07:32 Rise: 21:10</p>	 <p style="text-align: right; color: red; font-size: 24pt;">4</p> <p>Sun Rise: 05:43 Set: 18:08</p> <p>Moon Set: 08:14 Rise: 22:01</p>	 <p style="text-align: right; color: red; font-size: 24pt;">5</p> <p>Sun Rise: 05:42 Set: 18:09</p> <p>Moon Set: 08:59 Rise: 22:51</p> <p style="text-align: center; background-color: yellow;">Moon Apogee</p>	 <p style="text-align: right; color: red; font-size: 24pt;">6</p> <p>Sun Rise: 05:41 Set: 18:09</p> <p>Moon Set: 09:47 Rise: 23:39</p>
 <p style="text-align: right; color: red; font-size: 24pt;">7</p> <p>Sun Rise: 05:40 Set: 18:10</p> <p>Moon Set: 10:37</p>	 <p style="text-align: right; color: red; font-size: 24pt;">8</p> <p style="text-align: center; color: blue; font-weight: bold;">3rdQ</p> <p style="text-align: center; color: red; font-size: 10pt;">09:35</p> <p>Sun Rise: 05:39 Set: 18:10</p> <p>Moon Rise: 00:24 Set: 11:30</p>	 <p style="text-align: right; color: red; font-size: 24pt;">9</p> <p>Sun Rise: 05:38 Set: 18:11</p> <p>Moon Rise: 01:07 Set: 12:23</p>	 <p style="text-align: right; color: red; font-size: 24pt;">10</p> <p>Sun Rise: 05:37 Set: 18:11</p> <p>Moon Rise: 01:48 Set: 13:19</p>	 <p style="text-align: right; color: red; font-size: 24pt;">11</p> <p>Sun Rise: 05:36 Set: 18:12</p> <p>Moon Rise: 02:28 Set: 14:16</p>	 <p style="text-align: right; color: red; font-size: 24pt;">12</p> <p>Sun Rise: 05:35 Set: 18:12</p> <p>Moon Rise: 03:07 Set: 15:14</p>	 <p style="text-align: right; color: red; font-size: 24pt;">13</p> <p>Sun Rise: 05:34 Set: 18:13</p> <p>Moon Rise: 03:46 Set: 16:15</p>
 <p style="text-align: right; color: red; font-size: 24pt;">14</p> <p>Sun Rise: 05:33 Set: 18:13</p> <p>Moon Rise: 04:27 Set: 17:17</p>	 <p style="text-align: right; color: red; font-size: 24pt;">15</p> <p style="text-align: center; color: blue; font-weight: bold;">NEW</p> <p style="text-align: center; color: red; font-size: 10pt;">14:03</p> <p>Sun Rise: 05:32 Set: 18:14</p> <p>Moon Rise: 05:10 Set: 18:22</p>	 <p style="text-align: right; color: red; font-size: 24pt;">16</p> <p>Sun Rise: 05:31 Set: 18:14</p> <p>Moon Rise: 05:56 Set: 19:29</p>	 <p style="text-align: right; color: red; font-size: 24pt;">17</p> <p>Sun Rise: 05:30 Set: 18:15</p> <p>Moon Rise: 06:47 Set: 20:36</p> <p style="text-align: center; background-color: yellow;">Moon Perigee</p>	 <p style="text-align: right; color: red; font-size: 24pt;">18</p> <p>Sun Rise: 05:29 Set: 18:15</p> <p>Moon Rise: 07:43 Set: 21:41</p>	 <p style="text-align: right; color: red; font-size: 24pt;">19</p> <p>Sun Rise: 05:28 Set: 18:16</p> <p>Moon Rise: 08:43 Set: 22:42</p>	 <p style="text-align: right; color: red; font-size: 24pt;">20</p> <p>Sun Rise: 05:28 Set: 18:16</p> <p>Moon Rise: 09:45 Set: 23:37</p>
 <p style="text-align: right; color: red; font-size: 24pt;">21</p> <p>Sun Rise: 05:27 Set: 18:17</p> <p>Moon Rise: 10:47</p>	 <p style="text-align: right; color: red; font-size: 24pt;">22</p> <p style="text-align: center; color: blue; font-weight: bold;">1stQ</p> <p style="text-align: center; color: red; font-size: 10pt;">09:34</p> <p>Sun Rise: 05:26 Set: 18:18</p> <p>Moon Set: 00:26 Rise: 11:48</p>	 <p style="text-align: right; color: red; font-size: 24pt;">23</p> <p>Sun Rise: 05:25 Set: 18:18</p> <p>Moon Set: 01:11 Rise: 12:47</p>	 <p style="text-align: right; color: red; font-size: 24pt;">24</p> <p>Sun Rise: 05:24 Set: 18:19</p> <p>Moon Set: 01:51 Rise: 13:44</p>	 <p style="text-align: right; color: red; font-size: 24pt;">25</p> <p>Sun Rise: 05:23 Set: 18:19</p> <p>Moon Set: 02:28 Rise: 14:39</p>	 <p style="text-align: right; color: red; font-size: 24pt;">26</p> <p>Sun Rise: 05:23 Set: 18:20</p> <p>Moon Set: 03:04 Rise: 15:33</p>	 <p style="text-align: right; color: red; font-size: 24pt;">27</p> <p>Sun Rise: 05:22 Set: 18:20</p> <p>Moon Set: 03:39 Rise: 16:26</p>
 <p style="text-align: right; color: red; font-size: 24pt;">28</p> <p>Sun Rise: 05:21 Set: 18:21</p> <p>Moon Set: 04:15 Rise: 17:19</p>	 <p style="text-align: right; color: red; font-size: 24pt;">29</p> <p style="text-align: center; color: blue; font-weight: bold;">FULL</p> <p style="text-align: center; color: red; font-size: 10pt;">21:51</p> <p>Sun Rise: 05:20 Set: 18:22</p> <p>Moon Set: 04:51 Rise: 18:11</p>	 <p style="text-align: right; color: red; font-size: 24pt;">30</p> <p>Sun Rise: 05:19 Set: 18:22</p> <p>Moon Set: 05:30 Rise: 19:04</p>	 <p style="text-align: right; color: red; font-size: 24pt;">31</p> <p>Sun Rise: 05:19 Set: 18:23</p> <p>Moon Set: 06:11 Rise: 19:55</p>	 <p style="text-align: right; color: red; font-size: 24pt;">1</p> <p>Sun Rise: 05:18 Set: 18:24</p> <p>Moon Set: 06:56 Rise: 20:46</p> <p style="text-align: center; background-color: yellow;">Moon Apogee</p>	 <p style="text-align: right; color: red; font-size: 24pt;">2</p> <p>Sun Rise: 05:17 Set: 18:24</p> <p>Moon Set: 07:42 Rise: 21:34</p>	 <p style="text-align: right; color: red; font-size: 24pt;">3</p> <p>Sun Rise: 05:17 Set: 18:25</p> <p>Moon Set: 08:31 Rise: 22:20</p>

Planets

Mercury - evening star in the west
 can be seen for approx. 1hr after sunset early in month
 can be seen for approx 2hrs after sunset late in the month

Venus	morning star in the east Can be seen for approx. 2hrs before sunrise
Mars	setting in the west can be seen for approx. 3 to 4 hrs after sunset
Saturn	setting in west can be seen for approx. 1/2hr to 1hr after sunset
Jupiter	early in the month, rises at about 22:30 in the east
Uranus	in Pisces (NE) –requires a detailed map to locate can be viewed anytime from sunset
Neptune	in Aquarius (NE) – require a detailed map to locate can be viewed anytime from sunset

Events

Meteor Showers – Orionids – peak at 21st Oct – approx 30/hr – view from 00:00 to 04:00 – look East

Look of for the grouping of Mercury, Saturn, Spica & Mars in the west early to mid month

Constellations – shall be discussed in more detail at meeting

Cetus	- E	- “the Whale”- α Ceti (Menkar) / β Ceti Deneb Kaitos
Sculptor	- SE	- “a Sculptor”
Eridanus	- E	- “river” achernar
Aries	- NE	- “the Ram” - α - Hamal
Taurus	- E	- “the bull” - Aldebaran
Andromeda	- NE	- “the princess named Andromeda”
Pisces	- NE	- “the fish”
Pegasus	- N	- “flying horse” (“the great square of Pegasus”)
Horologium	- SE	- “clock”
Tucana	- S	- “toucan bird”
Reticulum	- SE	- “a net of crosshairs or crosshairs”
Dorado	- SE	- “sword fish”
Octans	- S	- “octant” – used for location of south celestial pole Ω

Last month’s meeting on 22nd Aug 2012 - by Percy Jacobs

To our visitors and members, we offer a warm welcome to the Pretoria ASSA Society. Attending the meeting we had 6 visitors & 31 members.

The meeting started with Pat Kuhn (a Pretoria ASSA Committee Member) presenting “Essentials of Astronomical Sketching”.

Then it was Danie Barnardo (Pretoria ASSA Vice Chairman) who presented What’s Up for the month of Sept 2012.

After that, in place of our regular main speaker, who was absent at this time, Johan Smit played a video on the issue of Pluto being a planet or not presented by the BBC.

Essentials of Astronomical Sketching

Sketching as Pat described, is not something new. It started way back in time.

Why Draw

Improves your observing skills

Provides a record

Increases enjoyment of observing

Anyone can do this – no skill needed – draw as you see it

Techniques

Pencil on white paper – negative

Chalk on black paper - positive

Paintings

Suggested Resources

Red illumination light – head lamp or drawing board with red light

Clip board

Drawing paper

Pencils – 2H / HB

Clean sharp eraser

“Blending Stump” or finger – for smudging

Tissue paper – also for smudging

Method

Start with a circle resembling the roundness of the sky in the eyepiece

1st observe the picture

Mentally segment the eyepiece into a clock

Draw the bright stars

Add other seen structures and stars

Shield your eye at the eyepiece

Not the movement of the stars

Note the FOV of the eyepiece and your picture

Go inside and clean up your picture

For example, you can create and invert the picture by scanning

There are plenty of web resources available – just Google “astronomical sketching”. A useful site Pat mentioned was Astronomical Society of Canada.

Pluto – a planet or not? Should it have been demoted or not?

This is an argument that will go on for many years to come. The hard core scientific community will accept the demotion and the nostalgic community will not accept the demotion and Pluto will always remain a planet to them.

If Pluto was classified as a planet, we would have to classify & call all the other “minor planets”, and Pluto’s moon Charon, for example, planets, and end up with many, many more planets.

If we apply one of the current definitions, “gravity stronger than mass of object and therefore round”, our moon should be a planet?

With Pluto being so small, smaller than the USA, and basically a “rock”, then all the other Kuiper Belt objects should be planets?

What is a planet today?

According to the new definition, a full-fledged planet is an object that orbits the Sun and is large enough to have become round due to the force of its own gravity. In addition, a planet has to dominate the neighborhood around its orbit.

Pluto has been demoted because it does not dominate its neighborhood. Charon, its large “moon,” is only about half the size of Pluto, while all the true planets are far larger than their moons.

In addition, bodies that dominate their neighborhoods, “sweep up” asteroids, comets, and other debris, clearing a path along their orbits. By contrast, Pluto’s orbit is somewhat untidy.

Under this definition, Pluto has been demoted to a “dwarf planet” and joins the many, many other classified dwarf planets out there.

But it's no longer part of an exclusive club, since there are more than 40 of these dwarfs, including the large asteroid Ceres and 2003 UB313, nicknamed Xena - a distant object slightly larger than Pluto discovered by Brown last year. Ω

Exoplanet discoveries as on 11 September 2012

793 planets around 627 stars. 2 320 Kepler planetary candidates.

Millions of stars

The Lone Ranger and Tonto went camping in the desert. After they had pitched their tent, both men fell sound asleep.

Some hours later, Tonto wakes the Lone Ranger and says,

“Kemo Sabe, look towards sky, what you see?”

The Lone Ranger replies: “I see millions of stars.”

“What that tell you?” asked Tonto.

The Lone Ranger ponders for a minute then says: “Astronomically speaking, it tells me there are millions of galaxies and potentially billions of planets. Astrologically speaking, it tells me that Saturn is in Leo. Time-wise, it appears to be approximately a quarter past three in the morning. Theologically speaking, it tells me that the Lord is all-powerful and we are small and insignificant. Meteorologically speaking, it seems we will have a beautiful day tomorrow. What does it tell you, Tonto?”

“You dumber than buffalo shit. It tells me someone stole the tent!”

This joke was sent in by Michelle Ferreira, a new committee member. She is now the only woman on the committee. (I think she is the most attractive woman on the committee!) And of course men need women. Below left is shown conclusive proof of this.– Editor. Ω

Proof that men need women



Bookmark your diaries: fifth National Karoo Star Party

9 - 11 August 2013

The ASSA Pretoria Centre wants to hold its fifth National Karoo Star Party during the weekend of 9 to 11 August 2013 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 huge success. The Karoo lived up to its reputation and provided magnificent views to those lucky enough to be present.

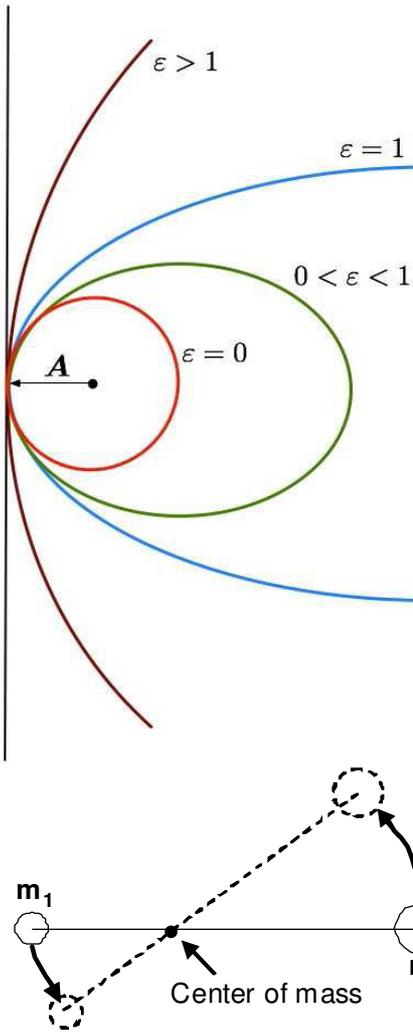
More information from:

Johan Smit cellphone 072 806 2939 e-mail JohanS@firsttech.co.za

Danie Barnardo cellphone 084 588 6668 e-mail daniebar@webmail.co.za

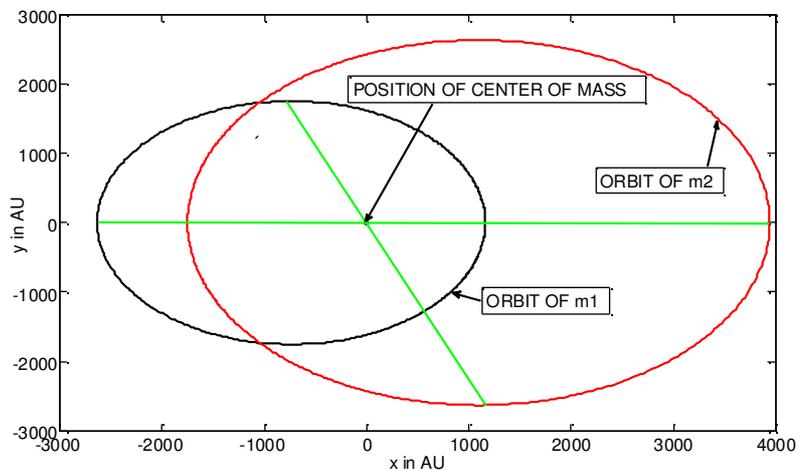
To book, please contact Wilma Strauss, the Manager of the Kambro Padstal, directly at 083 305 6668 or at e-mail: kambro@albieswireless.co.za Ω

Basics: The two-body problem in celestial mechanics - by Pierre Lourens



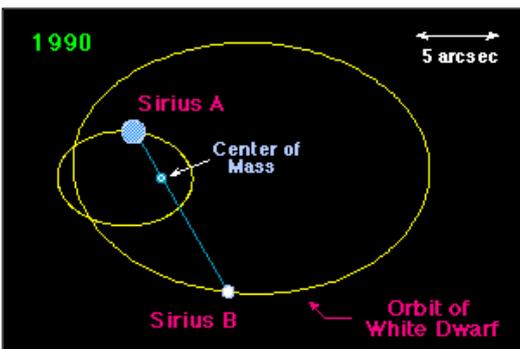
This is the problem of the motion of two bodies with masses m_1 and m_2 around one another under the influence of their mutual gravitational attraction. Examples are the motion of two stars around one another, the motion of a moon around a planet, the motion of a planet around a star and a comet or asteroid around the Sun.

The laws that determine the motion are just Newton's second law of motion and his law of gravitation. Let us first consider the orbit of m_2 relative to m_1 . This motion takes place in a plane, which means that the position and velocity vectors of m_2 relative to m_1 lie in the plane at all times. L , the total angular momentum of the system, is a constant vector perpendicular to this plane at all times. E , the total energy of the system, is also a constant. In the solution of the differential equations describing this



orbit, E and L appear. They are determined by the initial conditions (i.e., the initial position and velocity vectors of m_2 relative to m_1). The values of E , L , m_1 and m_2 determine the value of ϵ , the eccentricity of the orbit.

The different possible orbits of m_2 relative to m_1 are shown in the figure at uppermost left. Open orbits are possible. This can be a hyperbola ($\epsilon > 1$) or a parabola ($\epsilon = 1$), which is a special case of a hyperbola. Closed orbits are also possible. This can be an ellipse ($0 < \epsilon < 1$) or a circle ($\epsilon = 0$), which is a special case of an ellipse.



It turns out that each of m_1 and m_2 moves around the center of mass (com) of the two bodies, and with m_1 , the com and m_2 on a straight line that lies in the same plane as the plane in which the motion of m_2 relative to m_1 takes place. This is shown in the figure second from top, left. It also turns out that **the orbit of m_1 relative to the com, and the orbit of m_2 relative to the com, are orbits of the same type and with the same ϵ than the orbit of m_2 relative to m_1 .** For example, a closed elliptical orbit of m_2 relative to m_1 and with a certain value of ϵ will then result in closed elliptical orbits of m_1 and m_2 relative to the com, both with that same value of ϵ . An example is shown in the figure at top right. (Black: orbit of m_1 and red: orbit of m_2 , both relative to the com) I calculated the orbits in that figure for a system with $m_1 = 1.5M_{\odot}$, $m_2 = 1M_{\odot}$ and $\epsilon = 0.38635$ and plotted them myself, using **MATLAB**.

See a simulated example of this type of motion under the heading "Astrophysics" at http://en.wikipedia.org/wiki/Binary_star Click on the image there to see other versions where the ratio

m_1/m_2 is increased. As the ratio is increased/decreased, the size of the orbit of m_1 relative to the com becomes smaller/larger in comparison with that of m_2 relative to the com. The case of the orbits of the star Sirius A and its companion star Sirius B around their center of mass is an example for which m_1/m_2 is large, as shown in the figure at bottom left on the previous page. In the case of the Sun and any of the bodies orbiting it, the ratio m_1/m_2 is so large that it is a very good approximation to consider the Sun as stationary at the com.

For all types of orbits, the speeds of the two bodies relative to the com are greatest at perihelion. In the case of the closed orbits, these speeds are smallest at aphelion. Perihelion is reached simultaneously by the two bodies. The same applies to aphelion. (In the case of the open orbits, there is of course no aphelion.)

Two interactive animations that allow you to explore the motion of the stars in a binary star system can be found at <http://csep10.phys.utk.edu/astr162/lect/binaries/visual.html>. To run "Binary Orbits" you need to run a Java Applet. Java is a programming language that is independent of the operating system, so it can be used in Windows or Apple Macs. You will need Java to run this Applet. Most PC's will at some time need Java. Go to <http://www.java.com/en/download/index.jsp>, click on the Free Java Download button and follow the prompts to let it install Java on your computer. When you run a Java Applet, it automatically runs Java. Ω

Feature of the month: Omega Centauri - by Pierre Lourens

The disk of the Galaxy is surrounded by a spheroidal halo of old stars and about 157 known globular clusters, of which 90% lie within 100 000 light-years of the Galactic Center. The globular clusters move in orbits around the Galaxy. A typical globular cluster contains 100 000 to 700 000 stars, all orbiting around the centre of mass of the cluster in random elliptical orbits.

Omega Centauri (aka ω Cen or NGC 5139) is located 15 800 light-years away in the constellation of Centaurus, at declination $-47^\circ 28' 46.1''$. It was "discovered" by Edmond Halley in 1677 who listed it as a nebula. ω Cen had been listed in Ptolemy's catalogue 2000 years ago as a star. Lacaille included it in his catalogue number I on nebulae as nebula number I.5. "Omega Centauri" is a Bayer designation for a star, even though the object is not a star. It was first recognized as a globular cluster by the English astronomer John William Herschel in the 1830s. However, research has produced the following results:



- It contains about 10 million stars, which are many more than those in any other globular cluster in the Galaxy.
- It rotates - like a galaxy - while other globular clusters do not.
- Its stars show a spectrum of metallicities (concentrations of elements with greater atomic masses than helium). This indicates that they were formed over a period spanning billions of years - like in a galaxy. The stars in any other globular cluster contain the same low metallicity, indicating that the stars in that cluster formed at the same time, early in the history of the Universe.
- There is some evidence that there is a black hole with mass $\sim 10^4$ solar masses at its centre - like in a galaxy.

This is all evidence that ω Cen is not a globular cluster at all, but the remaining nucleus of a dwarf galaxy that was drawn in by the gravity of the Galaxy and ripped apart by the tidal forces of the Galaxy. The strong gravitational attraction of the tightly huddled nucleus members prevented them from being torn away from the nucleus. The image shows ω Cen. Ω

See Venus in daylight during the next few months - by Neville Young *

In my recently released book *Astronomy Within Reach (Sterrekunde Binne Bereik)* I explained how Venus could be seen in daylight with your own naked eyes. (If you have the book, see page 76). Ideal opportunities for seeing Venus in daylight occur several times in the next few months and then we wait until 2014 for equally ideal opportunities. There are other opportunities but not as ideal as they will be on these dates. Follow the link on the home page to find how you can see Venus and for the dates and times when it can best be seen during the next few months. The link to the home page is www.starwaders.com

Meanwhile the book continues to sell beyond expectations. Friends have told me how they have heard it mentioned on TV or radio (even a North Sotho radio station). There has been a favourable review in VroueKeur magazine. I am dying to know from LAPA Publishers, the numbers sold by Exclusive Books, CNA, Kalahari, Leisure Books, Bargain Books and smaller bookshops countrywide. It is early days and I know things are going well so will just have to be patient, I suppose. Sales of my astronomy models are picking up too as a result of the exposure in the book and at events we have attended. So all in all life is exciting for Jenny and me these days. Will keep you up to date.

* Neville is a former chairman of the Pretoria Centre of the ASSA. He and Jenny Els are a young and eager couple. Judging from his surname, you would think that he's the one who is young and she the one who is eager, but actually it is the other way round: she is young and he is eager. Ω

Left: A two-in-one astrophoto taken by Neville Young.

Deep Sky Observing report by Percy Jacobs

The Observing Section of the Pretoria Centre of the ASSA began on the 29th October 2010. Members were encouraged to take up the challenge of learning and improving on their Deep Sky observation skills. The program started with the ASSA Top 100 Deep Sky List, compiled by Auke Slotegraaf, Deep Sky Director of the ASSA.

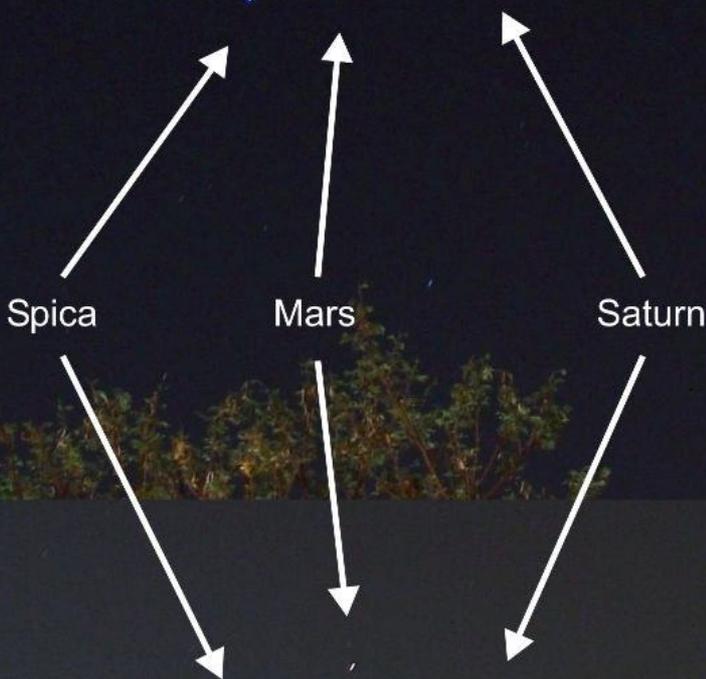
To date (27th August 2012), the Pretoria Centre has 8 participants with 241 observations logged. The names are:

1 George Dehlen	73 observations	
2 Louis Kloke	56	"
3 Percy Jacobs	33	"
4 Craig Kloke	20	"
5 Grant Thompson	20	"
6 Michael Poll	18	"
7 Pat Kühn	15	"
8 Andre de la Ponte	6	"
Total	241	"

Ω

MARS on the MOVE

14 August 2012



15 August 2012

Noteworthy items

- **NASA's Spitzer finds galaxy with split personality.** While some galaxies are rotund and others are slender disks like our spiral Milky Way, new observations from NASA's Spitzer Space Telescope show that the Sombrero galaxy is both.
http://www.nasa.gov/home/hqnews/2012/apr/HQ12-130_Spitzer_Sombrero.html
- **Phoenix cluster breaking several important cosmic records.** This cluster is one of the largest objects in the Universe. Stars are forming in the cluster at the highest rate ever observed for the middle of a galaxy cluster. It is also the most powerful producer of X-rays of any known cluster and among the most massive. The rate of hot gas cooling in the central regions of the cluster is the largest ever observed.
http://www.nasa.gov/home/hqnews/2012/aug/HQ_12-278_Chandra_Phoenix_Cluster.html
- **Neil Armstrong dies at age 82.**
http://www.nasa.gov/home/hqnews/2012/aug/HQ_12-601_Bolden_Statement.html
- **The shock of separation.** The BepiColombo mission to Mercury has undergone a series of shock tests at ESA's test facilities to replicate conditions it will experience during its intense ride into space. This video shows tests to mimic the moment it separates from the launch vehicle. http://www.esa.int/esaSC/SEM4IA4Y96H_index_0.html
- **NASA's Kepler discovers multiple planets orbiting a pair of stars.** This is a first.
http://www.nasa.gov/home/hqnews/2012/aug/HQ_12-298_Kepler_Circumbinary.html
- **NASA launches radiation belt storm probes mission.** NASA's Radiation Belt Storm Probes (RBSP), the first twin-spacecraft mission designed to explore our planet's radiation belts, was recently launched.
http://www.nasa.gov/home/hqnews/2012/aug/HQ_12-289_RBSP_Launches.html
- **Blue moon of 31 August 2012 as seen from around the world.**
<http://news.discovery.com/space/blue-moon-big-pics-120902.html#mkcpgn=emnws1>
- **Suspected asteroid smashes into Jupiter.** <http://news.discovery.com/space/suspected-asteroid-impact-on-jupiter-120911.html#mkcpgn=emnws1>

Mars.

- **Earth's weird life helps Curiosity's search.** A real-life realm of strange life forms lurks near hydrothermal vents at undersea volcanoes on Earth and understanding these ecosystems helps in the search for past and present life on Mars. <http://news.discovery.com/earth/what-lives-within-rocks-on-ocean-floor-120809.html#mkcpgn=emnws1>
- **First video captures Curiosity's descent onto Mars.**
http://www.newscientist.com/blogs/nstv/2012/08/first-video-captures-curiositys-descent-onto-mars.html?cmpid=NLC|NSNS|2012-1308-GLOBAL|mars&utm_medium=NLC&utm_source=NSNS&utm_content=mars
- **A 360° colour image of Gale crater from Curiosity and other images of Mars.**
http://www.nasa.gov/home/hqnews/2012/aug/HQ_12-275_Curiosity_Aug_9.html
- **Curiosity hits the Martian road.** <http://news.discovery.com/space/big-pic-mars-rover-curiosity-first-drive-120822.html#mkcpgn=emnws1>
- **The Curiosity mission and other current Mars missions.**
http://www.nasa.gov/mission_pages/mars/main/index.html
- **New NASA mission to take first look deep inside Mars.** NASA has selected a new mission, named InSight and set to launch in 2016, that will take the first look into the deep interior of Mars to see why the Red Planet evolved so differently from Earth.
http://www.nasa.gov/home/hqnews/2012/aug/HQ_12-288-New_Discovery_Mars_Mission.html

- **Fantastic Phobos.** See a Mars Express HRSC (High Resolution Stereo Camera) image of Phobos from a distance of 100 km. http://www.esa.int/esaSC/SEMDAB1YZ5H_index_1.html
- **See an animation of the launching and landing of Martian rover Spirit.**
<http://www.youtube.com/embed/XRCIzZHpFtY?rel=0> Ω

ASSA Symposium 12 - 14 October 2012 Cape Town

<http://symposium2012.assa.sao.ac.za/>

Shekinah Camp - by Bosman Olivier

Soon after the first visit to Shekinah Camp, approximately 50 km west of Bela Bela, many members expressed the wish to visit the venue again.

The Centre's second visit to Shekinah during the weekend of 7 to 9 September 2012 was attended by some 13 members and visitors, who thoroughly enjoyed the weekend.

The Friday morning was totally overcast in Pretoria and many people probably thought the weekend would be wasted, but as we drove north during the afternoon the sky started clearing. The evening's viewing started under partly cloudy skies, but the clouds quickly disappeared and great viewing was possible until around 11:30 when dew settled on finder scopes and eyepieces of the two telescopes that were set up, making viewing impossible. That put an end to the evening's activities and everyone retired for a warm drink and bed. Compared to the first visit, this was a warm weekend and no one really complained as a result of the cold.

The Saturday evening's viewing was much easier, since there was no cloud by the time the sun had set. Percy Jacobs and Johann Moolman continued their quest for the ASSA 100, while some other people tackled the very difficult task of finding and measuring W Sagitarii, a variable star in Sagittarius. Much time was also spent teaching the four young visitors about the sky and astronomy. In the end Percy had trained one of them to be his navigator through the dark skies!

A highlight of the evening was the handing over of an eight inch Orion reflector to the manager of Shekinah Camp, Piet Bennet. This 'scope was donated to the Centre by Johann Moolman and it was decided to present it to Piet, due to his more than average knowledge of astronomy. (See the photograph on the next page.)

His parting words on Sunday morning was that our members must remember that they can come visit any time and there is a telescope available with which to view the Shekinah skies.

This visit was arranged by Michelle Ferreira, a new committee member, who unfortunately could not attend the event. We all thank her for her hard work, making the arrangements for an enjoyable weekend. And to those who were doubtful of the weather: you missed a great weekend of star gazing and camaraderie.

Shekinah has excellent facilities for stargazers, with clear views of the northern, western and southern horizons and very little reflected light from human settlements. During new moon the sky is really dark, with the Milky Way bright and clear above. This makes for great viewing of all the faint and fuzzies in the sky. A well planned viewing programme should enable the star gazer to reach the target of the 100 ASSA list easily.

The accommodation is varied, consisting amongst others, of 13 dormitory style rooms each sleeping up to 18 people, with communal ablution blocks. The resort also has four small flatlets with two beds each and private bathrooms. There are also more luxurious houses, each sleeping 12 people in various configurations. More information is available on their website at <http://www.shekinahkamp.co.za>.

The camp is situated in the greater Mabula nature reserve and game drives are also provided by the staff at the camp. Ω



Die storie agter hierdie foto is dat Johan (aka Georg) Moolman (regs) sy ou 8" Orion teleskoop geskenk het aan die Pretoria Sentrum van die ASSA nou dat hy sy nuwe groot teleskoop het om mee te speel. Die Pretoria Sentrum het dit goed gedink om die teleskoop te skenk aan Piet Benet (middel), die bestuurder van Shekinah Kamp, omdat hy geweldig belangstel in die sterrekunde en 'n beter as net terloopse kennis van die hemelruim het. Piet het sommer die eerste aand reeds bewys dat hy die teleskoop waardig is toe hy binne 'n paar minute self Omega Centauri in die hemelruim kon vind. Heel links op die foto is Bosman Olivier (ons nuwe voorsitter). Ω

Report of observing evening on 17 August 2012 - by Michael Poll & Percy Jacobs

Not a very successful evening viewing wise – a dusty sky then a huge fan of cloud loomed up in the east, and soon joined up with cloud in the west to eventually give total cloud cover. The cloud brought with it an unpleasant breeze with an icy tinge. Nevertheless, some people managed to see some things before all the gaps in the sky closed up. There were about 6 or 8 telescopes and up to 20 people there.

To the naked eye, Saturn was still forming a tight trio with Mars and Spica. We had a telescopic look at Saturn before the clouds got to it, and this was probably the end of the Saturn viewing season. A look for NGC 4103 and NGC 6025 (open clusters), both of which we saw last month, proved fruitless in Michael's 6 inch, but Percy did acquire NGC 3766, (the Pearl Cluster) which we had also seen last month.

A look with Albie at the northern sky located Arcturus, Alphekka (Alpha Coronae Borealis, also known as Gemma), and Vega. Hardly any other stars of in the area could be seen with the naked eye, but we did note that a line from Arcturus to Vega would pass through Alphekka and M13, the globular cluster in Hercules (we could not see any stars of Hercules).

August is our traditional month for the Ring Nebula (M57, NGC6720) in Lyra, which was *really* ghostly in those telescopes that caught it, and the other August tradition is viewing Epsilon Lyrae, the "Double Double", although only the first split was seen.

A few people looked at the Jewel Box, someone noted that the Λ or V pattern in this group seems to show up better with smaller telescopes. Alpha Centauri was also viewed. Craig was one of those who sighted the Ring Nebula, and he also managed to pick up the Lagoon Nebula (M8, NGC 6523) and the Trifid Nebula (M20, NGC6514), both of the latter being in Sagittarius. Ω



http://en.wikipedia.org/wiki/Lagoon_Nebula

Pretoria Centre committee

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Public Relations Officer	Fred Oosthuizen	072 373 2865
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Member	Michael Poll	074 473 4785

Photo of M8 (aka NGC6523 or the Lagoon Nebula) taken by Louis Kloke, a member of the Pretoria Centre of the ASSA and an ASSA 100 Observer. 8" Newtonian reflector Skywatcher on EQ5 mount (Synscan goto). Orion short 80mm Guide scope with Orion Starshoot autoguider. Orion Starshoot Proll Deep Space Colour CCD imager. Orion 2" Skyglow Astrophotography Imaging filter. Maxim DL Essentials software for main CCD image capture. PHD auto guider software for guiding.Ω