PRETORIA CENTRE
JACK BENNETT - FOUNDER MEMBER

The PRETORIA CENTRE
of the
Astronomical Society of Southern Africa
www.pretoria-astronomy.co.za

NEWSLETTER AUGUST 2008

The next meeting of the Pretoria Centre will take place at Christian Brothers College, Pretoria Road, Silverton, Pretoria

Date and time	Wednesday 27 August at 19h15
Chairperson	Percy Jacobs
Beginner's Corner	"Astronomy Starter Package" by Percy J & Danie B
What's Up in the Sky?	Danie Barnardo

++++++++++ LEG BREAK - Library open +++++++++++++

MAIN TALK

"A Lunar Geotechnical GIS* "

by

Leon Croukamp

The meeting will be followed by tea/coffee and biscuits as usual.
The next observing evening will be held on Friday 22 August at the Pretoria Centre Observatory, which is also situated at CBC. Arrive anytime from 18h30 onwards.

*A Lunar Geotechnical GIS for future exploration starting with some comments on why we go back to the moon

INSIDE THIS NEWSLETTER

Last month's meeting — Michael Poll

The meeting opened with the Annual General Meeting, the minutes of which will be published elsewhere.

After the AGM, Johan Smit presented **"What's Up?"** for August. First, Johan gave us the dates of the phases of the moon, and noted that there are two ***new*** moons in August – on the 1st and the 30th. This is not one of the definitions of a "Blue Moon" – the relevant "Blue Moon" definition applies to two ***full*** moons in a month. Sunrise times were given – the sun rises 26 minutes earlier at the end of August than at the beginning (6.21 am versus 6.47 am), and sunset is 14 minutes later at the end of the month (5.55 pm versus 5.41 pm). However, the night is still longer than the day, so the Earth still has a chance to cool off at night. Definitions of twilight were given – Civil, Nautical and Astronomical – when the disc of the sun is 6, 12 and 18 degrees below the horizon respectively.

There is a "Dance of the Planets" in August. The "star" of the show is Jupiter, but there was a discussion about the number of satellite shadow transits that are mentioned in the "Sky Guide", following on from the transit seen at the observing evening on the previous Friday. Otherwise, the other naked eye planets are in the west in the August evenings, with Venus close to Saturn on the 13th, and Mercury is close to Venus on the 20th. Towards the end of the month there is a grouping of Mercury, Venus and Mars, which carries on into early September.

There are some colourful stars in the evening sky this month – orange Arcturus in the north, (and to the east of it, Northern Crown and the "Keystone" of Hercules); bright white Vega in the north east, and, higher in the east north east, Altair in Aquila. Overhead is the red giant, Antares.

For the southern objects and constellations, Johan mentioned the Giraffes – represented by the two Pointers and the two bright stars of the Southern Cross; two globular clusters –Omega Centauri and 47 Tucanae; three galaxies – the Milky Way, and the Large and Small Magellanic Clouds; and the constellation of Mensa (originally Mons Mensa), which represents Table Mountain - the only geographical feature on the Earth that has its own place in the sky. The LMC is the tablecloth. Also mentioned were constellations representing birds, water creatures and scientific instruments – constellations that were devised by the Abbe de LaCaille.

The **Main Topic** was presented by Gary Els from the Johannesburg Centre and was entitled ***"Sunspots – their History, Legends and Influence On Us Today"***. Gary started with a comprehensive history of sun worship and possible pre-telescopic observations of sunspots - for example the Greeks, Japanese and Egyptians had temples to the sun gods, but of some ancient temples there is not much written history. A few of them, such as Stonehenge, have particular astronomical orientations. The Aztecs did not worship the sun itself, but worshipped a sun god which was a personification of the sun.

A Babylonian tablet of about 100 BC speaks about "blemishes" on the sun, and a certain John of Worcester in 1128 also referred to blemishes. Johannes Kepler may have observed sunspots with a camera obscura. However, the problem with admitting that there were features on the face of the sun was affected by a mindset created by the teachings of Aristotle (384 BC – 322 BC) who had said that the sun is perfect and constant, (so there could be no blemishes).

Things began to change when Copernicus proposed that the solar system was sun-centred, and, using observations made by Tycho Brahe, Kepler showed that the planetary orbits were ellipses. Aristotle had stated that the orbits must be "perfect" and therefore be circles, but Kepler's finding showed that the universe was not as "perfect" as might be thought. Things changed further with the invention of the telescope in 1608 and its use in 1609 by Galileo to look at the sky.

In 1611 there were four independent discoveries of sunspots. Johan Fabricius saw them when using a camera obscura, and Christoph Schreiner saw them in the spring of that year. He was a priest, and so to avoid a conflict with the church, he wrote under a pseudonym. Schreiner wondered if the spots were possibly planets, or clouds. Schreiner's writings were seen by Galilieo, who also thought that the “spots” were clouds on the sun. He noted that there were seasonal patterns (due to the tilt in the Earth’s axis the orientation of the spots changed as the earth moved around the sun), and he also deduced that the sun was rotating, and calculated the rotation period. Also in 1611, the spots were noticed by Thomas Harriot (1560-1621), an English scholar. Pierre Gassendi, who was the first person ever to see a transit of a planet across the face of the sun (that of Mercury in 1631), correctly deduced that the spots were actually on the surface of the sun.

After the first 50 years of observations the following was known: (1) the spots move from east to west across the sun; (2) the spots are on the disc; (3) the angle of the sun’s axis of rotation had been determined; (4) the spots move at unequal speed across the sun, the speed depends on their latitude; (5) the rotation period of the sun is 25 – 29 days : the period varies with latitude; and (6) the outer layer of the sun is not solid.

Rene Descartes thought that sunspots were scum floating on a boiling liquid. Arthansius Kircher in 1625 said that he saw “flames” (which could have possibly been a solar flare). John Flamsteed had amateur astronomers sending drawings of the sun to him, and in it was noted that for a period in the late 1600s and early 1700s that the sunspots practically disappeared. (This was the Maunder Minimum). From about 1715 the activity increased again.

Edmund Halley saw aurorae, and wondered if they were due to magnetic activity. In 1769 Alexander Wilson modelled the sunspots as being depressions on the sun’s surface. In the early 1800s, Sir William Herschel noted that sunspots “affect the price of grain”, which was probably the first suggestion that the sun could affect the earth’s climate. In 1859 Richard Carrington was the first to record a solar flare, and in the same year, Kirchoff used the newly invented spectroscope to determine some of the chemical composition of the sun. Using a thermocouple in 1879, Joseph Henry determined that sunspots were cooler than the surrounding surface, and in 1913 George Ellery Hale found that sunspots were magnetic, with one end of a pair being positive and the other negative. The 11 year sunspot cycle was discovered in the 1840s by Rudolf Wolf and Heinrich Schwabe.

Gary then gave some perspective to the effect of the solar cycles on the Earth’s weather. There have been sunspot minima that affected the weather – the Sporer Minimum, the Maunder Minimum and the Dalton Minimum. In August 1998 it was found from satellite measurements that the upper atmosphere of the earth (14 –22 km up) has been cooling for the last 10 years, and the temperature of the atmosphere from the surface up to 8 km has increased by only ½ degree in the last 20 years. It is also noted that CO_2 is heavier than air, and will therefore settle near the surface of the earth, thereby distorting the greenhouse effect. There is a theory that it is not the CO_2 so much that controls the Earth’s temperature, but that it is water vapour (also a green house gas), and the amount of precipitation on Earth increases with an increase in solar activity. It is further suggested that the melting of the glaciers on Kilimanjaro is due rather more to a sub-Saharan drought than to global warming. Some studies have suggested that the Earth will go through a period of cooling starting in a decade or two. With reference to the sunspot cycle, it is noted that we are currently at sunspot minimum and some predictions suggest that the next cycle will be very active.

This was a very interesting talk and much appreciated.

Last Month's Observing Evening — by Johan Smit and Michael Poll

A clear evening, not too hazy, and not too cold for the time of year, so all in all, quite nice. About 10 to 20 people came, and we did some good observing in spite of the full moon. Saturn and Mars were setting early in the north west, so we had a look at those. Saturn's rings are nearly edge on now so that they look like a couple of small spikes sticking out. Saturn's disc was larger than that of Mars, in spite of Saturn being about 4 1/2 times further away.

We turned our attention to the moon, which was well up in the east when we arrived. Some newcomers had not seen it through a telescope before, so we noted the craters Tycho (with its rays of ejecta); Grimaldi, near the limb, which is the darkest bit of terrain on the moon; Aristarchus, (the brightest spot on the moon); Copernicus (diameter 93 km), which with the degree of libration, was fairly central; and the distinct dark oval of Plato. We also noted Mare Tranquillitatis – the Apollo Eleven landing site is roughly where the mare divides into Mare Foecunditatis and Mare Nectaris.

An exciting event on this evening was a transit of Io across the face of Jupiter. Although the satellite itself was not seen with some smaller scopes, the transit of the shadow was seen. The shadow had been noted by Percy before some of us arrived. We could see it projected against the North Equatorial Belt. Although we could not see Io, we figured that, with the current geometry of the Earth, the Sun and Jupiter, that the satellite would move off the disc before the shadow did, and this is what was observed. When the satellite transit ended at 20h19, Io was a pimple at the edge of Jupiter's disc, whereas the shadow could still be seen on Jupiter. It took about 2 hours and 20 minutes for the shadow to transit Jupiter from one side to the other.

However, Johan reports : Io was seen against the surface of the planet with the 12 inch in the dome. Io was not visible while in the centre of the planet, but became visible when about 1/5 Jupiter diameter from the edge. Because of the slight darkening of the planet's limb, the little bright spot stood out quite well. Once we worked out the angles and were concentrating on the area where the moon should be, we saw it clearly. If I had tried harder earlier I may have spotted it closer to the centre of the disk. It was quite something to see the bright moon followed by its shadow. Once I had seen it and described to Pat where it could be seen, he soon saw it also with his home-made 6 inch telescope. He could also see the shadow clearly in the 6 inch – this little telescope traded punches with the big guns and came out of the fight with honour. It was also noted that the South Equatorial belt seemed to be divided into two thinner parallel belts. During moments of clarity allowed by the atmosphere, the 12 inch showed at least 6 belts on Jupiter. This was the best view of the planet in a long time. Perhaps the cleaning of the mirror last year did help!

The bright southern clusters were washed out by the moonlight, but we did get a nice view of M 7 in Scorpius. Otherwise we looked at double stars, including Alpha Centauri, Alpha Crucis, Gamma Crucis, (a line-of- sight double with contrasting colours, rediscovered by Gareth); Alpha Circini, and in the north, the double-double, Epsilon (ε) Lyrae. Pat's telescope managed to cleanly split both pairs of this star in one field of view. This could not be done as cleanly with the bigger telescopes - to say that Pat was pleased with the performance of his telescope is an understatement. Gareth also found another nice double, lying between epsilon Lyrae and Zeta (ζ) Lyrae.

For variable stars, we had a look at R Centauri, which can be found via a star hop starting from Beta Centauri.

Star Nomenclature or "Not Alpha Crux, Alpha *Crucis*!" – by Michael Poll

The *First Dictionary of the Nomenclature of Celestial Objects* (1983) describes over 1000 different naming systems for celestial objects. The authors felt that the list would never be orderly, reasonable or complete. However, there are only a few naming systems used by amateur astronomers, and this essay covers some of the systems used for naming stars.

Since ancient times many stars have had a proper name, such as Rigel or Deneb, but only a few stars have a proper name that is in common use. Many of the star names are in garbled Arabic, and some are quite obscure , and so do not readily spring to mind (e.g Mu Bootis is "Alkalurops" meaning "Shepherd's Crook" and Gamma Ceti is called "Kaffaljidhma", meaning "Part of a Hand"). In the case of the name "Deneb" there are other stars that use the same name word : Delta Capricorni is Deneb Algiedi, Beta Ceti is Deneb Kaitos, and Delta Aquilae is Deneb Okab. ("Deneb" means "a tail")

The familiar Greek letter system was introduced in 1603 by Johan Bayer, a German astronomer, in his star atlas *Uranometria*. Bayer labeled many stars with lower case Greek letters, usually the brightest star was Alpha, (α), then he sorted the rest of the stars in the constellation into brightness classes, and assigned letters - beta (β) gamma (γ) and delta (δ) and so on.

The Bayer's letter for each star is used with the Latin **genitive** of the constellation name. Latin does not have those pesky little troublesome words : "a", "of" , "to", "with", "from", and "by", but incorporates them by changing the ending of the noun i.e the ending of the naming word. The genitive case indicates "possession or close association", and the little word the genitive replaces is "of". For example the nominative "Cetus" means "a whale", but the genitive "Ceti" means "of a whale" or "of the whale".

Not every noun has the same set of endings, because, as in many languages, some nouns are masculine, some feminine and some neuter, and in Latin each class has a different set of endings. The plurals of the nouns have another set of endings. (note Gemini in the table. The word "Gemini" is in the plural form). Needless to say, as well as the "regular" nouns there are plenty of "irregular" nouns, also with a particular set of endings. The variation in the form of the noun is called its "declension", and generations of Latin students spent a good deal of time and homework hours learning the correct set of endings for each class of noun. The verb from "declension" is "decline", so the Latin master would invite a student to "decline" the noun. In this case "decline" meant you had to recite it with all the correct endings, and not interpret the instruction in another sense of the word which is "I would rather not".

What this means is that, when using Bayer letters, **when we mention a particular star in a particular constellation we have to change the name of the constellation to its genitive case**, which hopefully amateur astronomers are, or will become, familiar with. If we want to talk about the Alpha star of Orion we have to say "Alpha Orionis", meaning "Alpha of Orion" – "Orionis" being the genitive of Orion. Likewise, Eta of Carina is "Eta Carinae", **not** "Eta Carina". A list of the genitive cases of some constellations is listed in the table. (Of course, one also needs to know the Greek alphabet!)

Talking about the Greek alphabet, there are only 24 letters, and far more stars than that in each constellation. Sometimes one Greek letter is used a number of times to cover stars close together, e.g. Pi^1 (π^1) to Pi^6 (π^6) Orionis, (the row of stars forming the shield), or Mu^1 (μ^1) and Mu^2 ($\mu^{2)}$, Scorpii, the naked eye pair in Scorpius.

Even so, the Greek letters are not enough. Bayer (and others) used upper and lower case Roman letters, which were originally put all over the sky but have generally fallen into disuse in the case of northern hemisphere stars. They are encountered frequently in southern constellations e.g G Scorpii (near M7) and p and q Carinae (near Theta).

Numbers instead of letters came next. In 1712, John Flamsteed, the English Astronomer Royal, numbered stars from west to east in order of right ascension (e.g 80 Virginis is east of 79 Virginis). He numbered all bright stars, whether they had a Bayer Greek letter or not, so Vega is "3

Lyrae" as well as Alpha Lyrae. In all 2682 stars received Flamsteed numbers, the highest in any particular constellation was 140 Tauri. However, at the time of Flamsteed, there were no formal constellation boundaries, so when "official" boundaries were implemented by the IAU in 1930, many Flamsteed stars were now in the "wrong" constellation – Flamsteed's 30 Monocerotis is in Hydra, and his 49 Serpentis is in Hercules. The stars not visible from England did not get numbered (so who labeled 47 Tucanae?). Note that the Flamsteed numbers are also used with the genitive case.

By the 19th century telescopes had revealed hundreds of thousands of stars, each one needing an identity. In 1859, the German astronomer F W A Argelander, at the observatory in Bonn, began measuring star positions with a 3 inch refractor which resulted in the publication of the *Bonner Durchmusterung* (Bonn Survey) which contained 324 188 stars. The survey was done by dividing the sky into 1 degree bands of declination and numbering the stars eastwards around the 24 hours of right ascension. Constellations were ignored. Thus Vega became BD +38° 3238, which means that it was the 3238th star eastwards from 0h right ascension in the zone between declination +38° and +39°. The original BD covered the sky from the north celestial pole to declination -2° deg. Later the southward extension (SBD) covered the sky to -23° with an additional 133 659 stars, and the *Cordoba Durchmusterung* (CBD) added 613 953 stars from -23° to the south celestial pole, so that, in total, 1 071 800 stars, down to about magnitude 9.5 were included. The BD remained in use for nearly a century, although the brightness estimates were not very accurate.

Argelander also introduced the system for the naming of variable stars. He labeled the first variable found in any constellation with a capital R followed by the genitive of the constellation name (e.g. R Centauri). He started at R because Q was the highest letter that had been used in labeling stars in Roman upper case. The next variable was S and so on until Z (eg Z Camelopardalis). After Z came RR then RS up to RZ then SS to SZ, TT to TZ all the way to ZZ. If a star already had a Greek letter it was not included. With the discovery of more and more variables the designations then went on to AA, AB and so on to AZ. (J was not included). This system provided for the labeling of 334 variables per constellation, but this was still not enough. It was decided that the next variable would be V335, V336 and so on. By 1990 the highest number for a variable star in Sagittarius was V4153 Sagittarii.

The next major star list after the BD was the *Henry Draper Catalogue of Stellar Spectra* compiled by Annie Jump Cannon at Harvard between 1911 and 1915, and published between 1918 and 1924. This catalogue contained 225 300 stars, labeled "HD", and numbered in order of right ascension. (Vega is HD172167). More stars were added later in an extension catalogue (HD Extension – "HDE"). Another catalogue issued at Harvard, in 1908, was the *Revised Harvard Photometry*. This aimed to provide accurate brightness measurements for the brightest 9 110 stars to about magnitude 6.5. Stars have HR numbers (Vega is HR 7001) and this catalogue is the basis of the widely used *Yale Bright Star Catalogue*.

A further common star designation is its SAO number – named from the *Smithsonian Astrophysical Observatory Star Catalogue*, published in 1966. This gives accurate positions for 258 997 stars to about 9th magnitude. The stars are numbered in 10° bands of declination from the North Celestial Pole to the South Celestial Pole. (Vega is SAO 67174). Another catalogue that may be encountered is the Zodiacal Catalogue (ZC). This catalogue lists the stars that the moon can pass in front of.

However, since the date of the article on which most of this essay is based, bigger and more accurate catalogues based on space based observations have been published. The Hubble Space Telescope Guide Star Catalogue lists 18 819 291 objects, of which about 15 million are stars, and the other 3 point something million are faint galaxies………………

References

Alan M MacRobert Backyard Astronomy. Sky & Telescope September 1992, p. 278.
Michael Poll Personal experience of the Latin Master.

Constellation Name	Genitive Case	Constellation Name	Genitive Case
Andromeda	Andromedae	Grus	Gruis
Apus	Apodis	Hydra	Hydrae
Aquarius	Aquarii	Hydrus	Hydri
Aquila	Aquilae	Leo	Leonis
Ara	Arae	Libra	Librae
Aries	Arietis	Lyra	Lyrae
Boötes	Boötis	Monoceros	Moncerotis
Cancer	Cancri	Octans	Octantis
Canes Venatici	Canum Venaticorum	Orion	Orionis
Canis Major	Canis Majoris	Pegasus	Pegasi
Capricornus	Capricorni	Pisces	Piscium
Carina	Carinae	Pyxis	Pyxidis
Centaurus	Centauri	Sagittarius	Sagittarii
Corona Australis	Coronae Australis	Scorpius	Scorpii
Crux	Crucis	Taurus	Tauri
Cygnus	Cygni	Tucana	Tucanae
Fornax	Fornacis	Vela	Velorum
Gemini	Geminorum	Virgo	Virginis

New kind of star discovered in Ursa Major

Astronomers have spotted a new type of stripped-down white dwarf star with a pulsating carbon surface. The new and so far unique white dwarf was predicted to exist somewhere in the cosmos, but was found only because of some massive surveys of the sky.

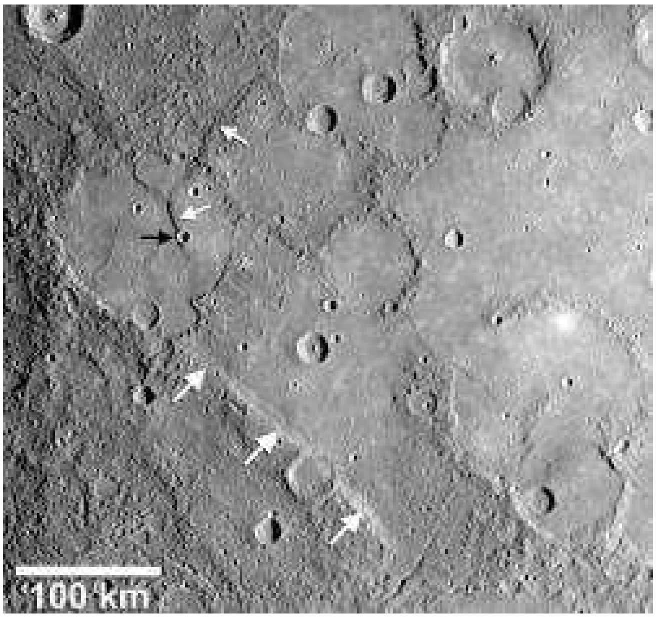
"They're extremely rare," said astronomer Kurtis Williams of the University of Texas at Austin's McDonald Observatory, where the discovery was made. "It's a real needle in a haystack to find one."

The white dwarf star they discovered is 800 light-years away in the constellation Ursa Major -- a.k.a. the Big Dipper. Its light wavers by almost 2 percent every eight minutes. Like other white dwarfs, this new star is the remnant of a star which, in its youth, was probably a bright shining star no more than nine times the mass of the sun. In other words, it was neither exceptionally large nor small as stars go.

Today what remains is a sphere glowing at 19500 ℃, smaller than Earth but with a mass equal to that of the Sun and a brightness that's only one six-hundredth that of the Sun.

Website:

http://dsc.discovery.com/news/2008/05/02/pulsating-white-dwarf.html



The cliffs of Mercury

When NASA's Mariner 10 probe flew by Mercury in 1974 and 1975, it returned images of strange cliffs called 'scarps' that cut across all sorts of geological formations. That suggested that the planet's surface has contracted over time.

Now, pictures of Mercury's surface taken with NASA's Messenger spacecraft confirm that the crust appears to have buckled. In fact, the planet seems to have shrunk more than previously thought.

The image shows scarps that cut across the surface of Mercury. The one at the bottom is about 200 km long. Try and imagine it.

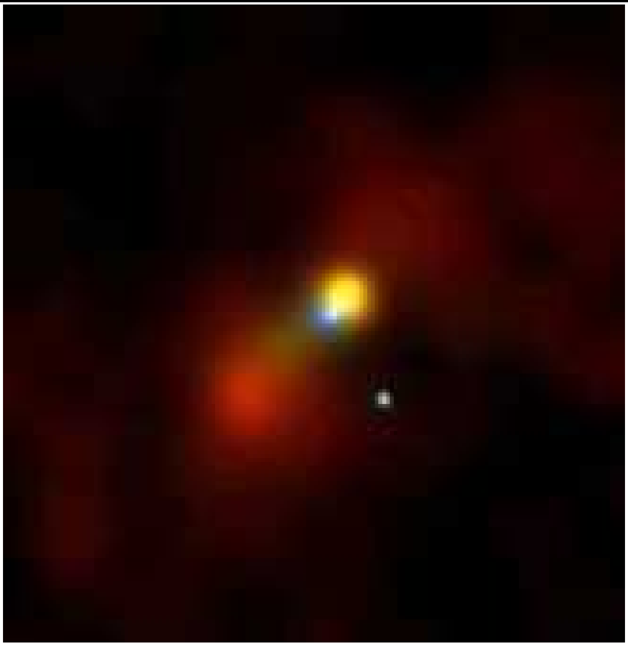
Websites:

The scarps of Mercury:

http://space.newscientist.com/article/dn14255-mercury-the-incredible-shrinking-planet.html

General information about Mercury: **http://en.wikipedia.org/wiki/Mercury_(planet)**

The Messenger mission: **The August 2007 newsletter, page 5.**



Building Blocks of Life Detected in Distant Galaxy

The discovery of an amino acid precursor in a far-flung galaxy is fresh evidence that life has potential to form throughout the universe, scientists say.

Researchers using the world's largest radio telescope—the Arecibo Observatory in Puerto Rico—have detected methanimine in the distant galaxy Arp 220.

Researchers had previously detected evidence of formaldehyde, ammonia, hydrogen cyanide, and possibly formic acid in the star-forming region.

"The fact that we can observe these substances at such a vast distance means that there are huge amounts of them in Arp 220. It is indeed very intriguing to find that the ingredients of life appear in large quantities where new stars and planets are born," said an astronomer.

A Chandra X-Ray Observatory image from year 2000 shows the unusual galaxy Arp 220, the product of a collision between two Milky-Way-size galaxies.

Website:

http://news.nationalgeographic.com/news/2008/02/080204-galaxy-life.html

Twenty-Five of Hubble's Greatest Hits

Relive the Hubble Space Telescope's first 17 years of drama and discovery by clicking through 25 of its greatest hits. Go to website

http://magma.nationalgeographic.com/ngm/2007-11/hubble/hubble-interactive.html?email=Inside22Oct07

The Whirlpool Galaxy

The **Whirlpool Galaxy** (also known as **Messier 51a**, **M51a**, or **NGC 5194**) is an interacting grand-design spiral galaxy located at a distance of approximately 23 million light-years in the constellation Canes Venatici (Latin for “Hunting Dogs”), a northern constellation at declination +53°. It is one of the most famous spiral galaxies in the sky. The galaxy and its companion (NGC 5195) are easily observed by amateur astronomers, and the two galaxies may even be seen with binoculars. The Whirlpool Galaxy is also a popular target for professional astronomers, who study it to further understand galaxy structure (particularly structure associated with the spiral arms) and galaxy interactions.

See website **http://en.wikipedia.org/wiki/Whirlpool_Galaxy** for web links to this

Milky Way twice as thick as we thought

Our home galaxy, the Milky Way, is twice as thick as we thought it was. Professor Bryan Gaensler from the University of Sydney and his team found that the enormous spiral-shaped collection of gas and stars is 12,000 light-years thick when seen edge-on, not 6000 as scientists previously had thought. "This was quite a stunning result," Gaensler says. "It was a bit of a shock to us. It's like walking out into your backyard and finding your tree is twice the size you remembered."

Website:

http://www.abc.net.au/science/articles/2008/02/20/2167674.htm?

Many Planets Could Circle Twin Suns

The latest data from NASA's Spitzer Space Telescope suggests that the universe might be brimming with planets that have two suns like the desert world that Luke Skywalker called home.

More than half of all known star systems are binaries, with twin stars locked in a gravitational dance. The new data show that dusty disks of debris that could be indicators of planet formation are just as abundant around binaries as they are around single stars.

"There could be countless planets out there with two or more suns," said lead study author David Trilling of the University of Arizona, Tucson, Arizona, USA.

When the sun shines on rocks on Earth, they absorb some of the solar radiation and heat up. They then reradiate the absorbed energy as infrared light. Exactly the same thing happens when the starlight from a binary shines on the disk of debris around it. The disk contains rock particles from dust size upward. The rock particles absorb some of the starlight, heat up and then reradiate the absorbed energy in the form of infrared light. It is this infrared light that is detected by the Spitzer Space Telescope, which is an infrared telescope.

The image is a scene from the SF film "Star Wars", showing the fictitious character Luke Skywalker on the imaginary planet Tatooine with its twin suns.

Read more on website

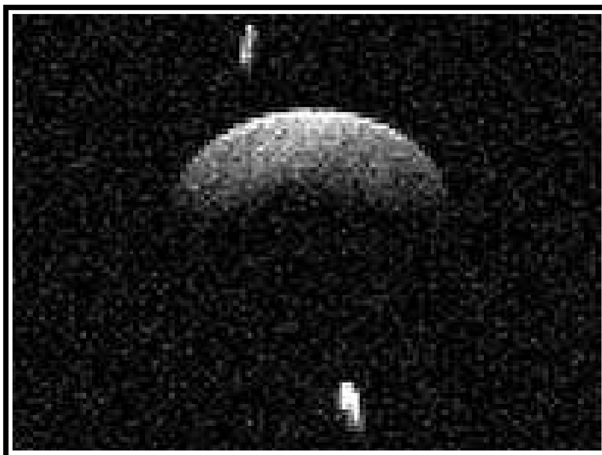
http://news.nationalgeographic.com/news/2007/03/070330-twin-suns.html

Found: Milky Way's Second-Brightest Star

If you can't be the brightest star out of 100 billion, second brightest isn't bad. That's just what astronomers have found, hidden in a flowery dust cloud near the center of the Milky Way: the second-brightest star (and one of the most dangerous) in our home galaxy.

What's being called the Peony Nebula star is calculated to be as bright as 3.2 million suns. That's approaching the supremacy of the brightest known star in the galaxy, Eta Carinae, which blazes at 4.7 million times our sun's light output. Unlike stars the size of the sun and smaller, which are a dime a dozen, super-giant stars are very rare in the universe today.

Website: **http://dsc.discovery.com/news/2008/07/16/bright-star-galaxy.html**



Near- Earth triple asteroid found

Once considered just your average single asteroid, 2001 SN263 has now been revealed as the first near-Earth triple asteroid ever found. The asteroid - with three bodies orbiting each other - was discovered by astronomers with the radio telescope at the National Science Foundation's (NSF) Arecibo Observatory in Puerto Rico.

On the left is a photograph taken by the Arecibo Observatory.

Website:

http://www.spacedaily.com/reports/Arecibo_Observatory_Astronomers_Discover_First_Near_Earth_Triple_Asteroid_999.html

Nuwe hantering van "What's Up in the Sky?"

By die laaste komiteevergadering is daar besluit om in die vervolg 'n opsomming van wat aangebied gaan word in "**What's Up in the Sky?**" by 'n maandelikse byeenkoms, in die nuusbrief vir daardie maand te plaas, tesame met webskakels (en ander bronne) waar sulke inligting verkry kan word.

As die aanbieder dit nie betyds vir plasing in die nuusbrief stuur nie, sal maar net webskakels (en ander bronne) geplaas word.

Ons het gedink dit sal beter wees as lede die geleentheid het om hulle bietjie voor te berei vir "**What's Up in the Sky?**" en ook om later inligting op te soek wat hulle by die maandelikse byeenkoms gehoor het, maar vergeet het.

Redakteur

Summary of "What's Up in the Sky?" to be presented on 27 August 2008

Phases of the Moon

First Quarter – 7 September
Full Moon – 15 September
Last Quarter – 22 September
New Moon – 29 September

Dance of the Planets

During the second half of August and nearly the full September, the planets Mercurius, Venus and Mars put up a fantastic display and are all grouped closely together in the West in the constellation Virgo, shortly after sunset. On 1 September a quarter moon joins the party and forms a tight grouping with these planets at about 19:00. Watch out for these groupings, which change daily. Later in September Spica forms part of the group. This is one of the best chances to see elusive Mercury. It is 26 degrees above the horizon at sunset on 11 September and should be visible for about 1½ hours after sunset.
Jupiter is high overhead the whole month early in the night and remains visible up to about midnight.
Saturn disappears from the sky and becomes an early morning object at the end of September.

Other objects

In the north, in Lyra the fabulous Ring nebula is visible and not far away, forming the head of Cygnus, the Swan, is the magnificent binary, Albireo.
In the east, the square of Pegasus is rising and nearby, in the faint constellation of Sculptor, the Sculptor Galaxy (NGC 253) is a difficult, but very interesting object.
In the south Crux, the Southern Cross, is dipping towards the horizon. The Pointers, Alpha and Beta Centauri, low on the horizon, visible above the trees, gave rise to the San name for these stars, the giraffes. While Crux is dipping lower, 47 Tucanae rises on the other side of the South Celestial Pole, in the constellation Tucana, near the Small Magellanic Cloud. This is the second brightest globular cluster after Omega Centauri, which is also visible for a few hours after sunset.
Overhead, the Milky Way shines brightly, with the constellations of Scorpius and Sagittarius high overhead. The central part of the Milky Way is located in the area between these two constellations. Many beautiful globulars and clusters are visible in this very rich area of the sky.

Websites: **http://www.saao.ac.za/public-info/sun-moon-stars/**

http://www2.jpl.nasa.gov/calendar/

http://www.skyandtelescope.com/observing/highlights/19981449.html

Also: **Sky Guide Africa South 2008**.

Dark Sky Weekend

ASSA Pretoria will be hosting a Dark Sky Weekend on Friday 26th and Saturday 27th September 2008. The venue lends itself to 1st class observing due to its location (approx. 20km East of Bela Bela). Temperature should be perfect at this time of the year. The entire campus has 24 hr security and the observing fields are situated far from any lights.

Accommodation has been provided for in the dormitories. Each member will have access to their own room. Each room has four beds that will lend itself to family / children etc. The dormitories are fully equipped with showers and baths. You are required to bring your own linen.

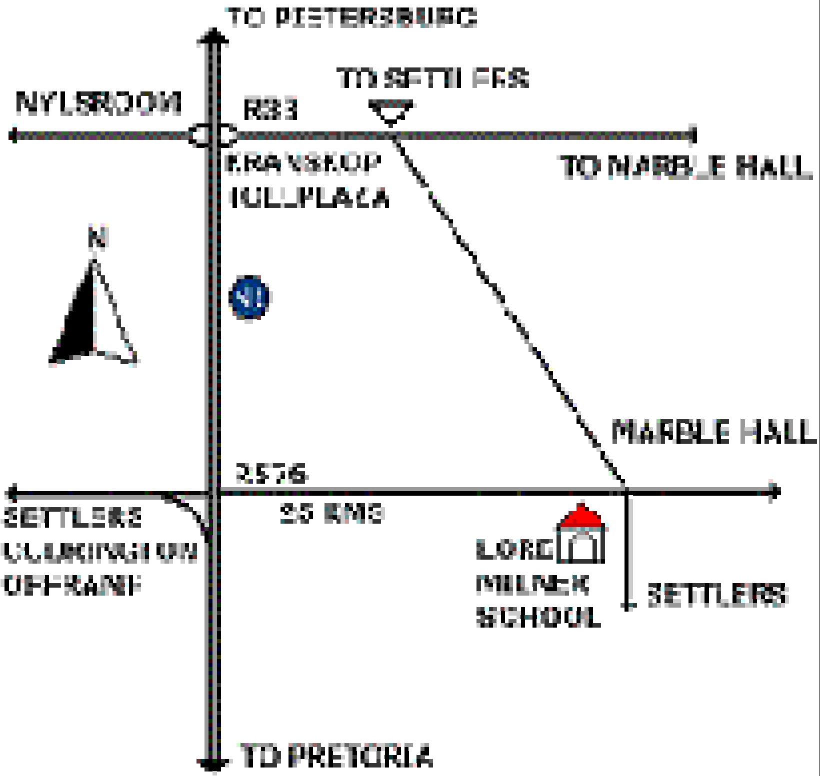
Food & Beverage: Each member is responsible for their own requirements. There is a hotel near to the school, overall feedback has been positive. Braai facilities are provided. There is a pool for the day time hours.

Date: 26/27th September 2008.
Venue : Lord Milner School
(email address:
www.lordmilner.co.za)
Directions: Map Attached.
Cost: R50pp per night

Provided:	**You need to bring:**
Dark Sky	Linen
Dormitories	Food & Beverage
Braai Facilities	Mosquito repellent
Braai Wood	Skottel for
24hr Security	breakfast

RSVP – SMS name and number of people to 073 220 6824 or e-mail

gareth.gregory@gregoryint.com



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