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

# NEWSLETTER SEPTEMBER 2006

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

| | |
|---|---|
| Date and time | Wednesday 27 September at 19h15 |
| Chairperson | Fred Oosthuizen |
| Beginner's Corner | "The Electromagnetic Spectrum" by Michael Poll |
| What's Up | Wayne Mitchell |

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

**MAIN TALK**

## "The Bennett Catalogue" by Johan Smit

The meeting will be followed by tea/coffee and biscuits as usual.

The next social/practical evening will be held on Friday 22 September at the Pretoria Centre Observatory, which is also situated at CBC. Arrive anytime from 18h30 onwards.

**INSIDE THIS NEWSLETTER**

## Report of Meeting on August 23rd 2006 - by Michael Poll

In the absence of a key, we had to transfer to a rather cramped classroom for our meeting, and sit at desks not designed for those who need more space these days!

The meeting opened with a farewell presentation from Neville Young. We were pleased to see Neville at the meeting, but sad to know that he is leaving for Port Elizabeth. We wish him well in his new environment. Neville has been a member since 1985, and has held various committee posts including that of Chairman. He showed us some memorable pictures of the past.

Beginner's Corner was a "Telescope Show and Tell" by telescope builders Johan Smit, Fred Oosthuizen and Dirk Wolmarans. Johan described the pains and pleasures of grinding glass, and of polishing and parabolising ("figuring"), and Fred and Dirk described their own particular problems. Nevertheless, the results were there for all to see - three superbly made and aesthetically pleasing scopes, in spite of the amount of scrap that was used to build them. The Foucault test machines were works of engineering art in themselves. Johan recommended starting with a 6 inch (15 cm) mirror, but the size of things to come was indicated by the display of even bigger pieces of glass that are destined to become telescope mirrors, topped by Henry Viviers' 20 inch (50 cm) disc. The telescopes attracted much attention during the interval.

The second part of the evening was presented by Lorna Higgs, who gave us "What's Up" and a talk about eclipses. Although not easy to see in September, Mercury and Mars are in the early evening sky, but Jupiter is in the sky all evening and Venus and Saturn are low in the morning sky.

There are partial eclipses of the moon and the sun in September. Lorna showed us how to watch a solar eclipse safely, and also what not to do. She then showed us her observing set up for watching solar eclipses, and it was illuminating to note that the observing can be done without high tech equipment. Lorna showed drawings she had made of several eclipses, and photos she had taken to illustrate, for example, the change in light intensity and foliage acting as a myriad of pinhole cameras. This was a lesson to us all in simple astronomy. The meeting ended with tea and biscuits as usual.

## New Horizons Project

In all respects, the New Horizons probe is still doing fine. The probe on its way to Pluto crossed the orbit of Mars in April, speeding away at over 75,000 kilometres an hour. But it still has another 10 years to go.

Most of the activities so far centred on instrument checkouts, e.g. the SWAP solar wind detector, which opened its launch door on 13 March 2006 and successfully turned on its detectors later in the month.

For more information, go to website http://pluto.jhuapl.edu/index.php

## Break-up of Comet 73P/ Schwassmann-Wachmann 3 captured by Hubble

The Hubble Space Telescope provided astronomers with spectacular detail of comet 73P/S-W 3's break-up. The comet disintegrated as it neared the Sun - additional fragments were detected by Hubble, not reported by Earth-based telescopes.

The observations provide a grand opportunity to study the break-up of a comet nucleus, which is the porous and fragile mixes of dust and ice making up the body of the comet. The comet is already a long chain of over three dozen fragments, stretched over a distance several times the angular separation of the Moon.

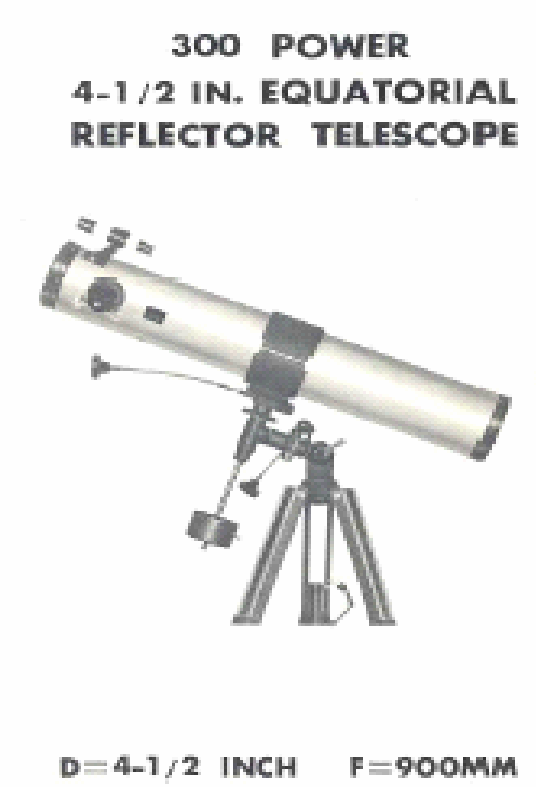
Website:
http://hubblesite.org/newscenter/newsdesk/archive/releases/2006/18/

## Telescope for sale

Reflector Telescope for sale. Good condition. 20 mm and 6 mm eye pieces.

Sun and moon filters. Barlow lens included. Sturdy wooden tripod.

Please contact Christo Barnard on 083 406 7277. Price: R 2 200. See image below.

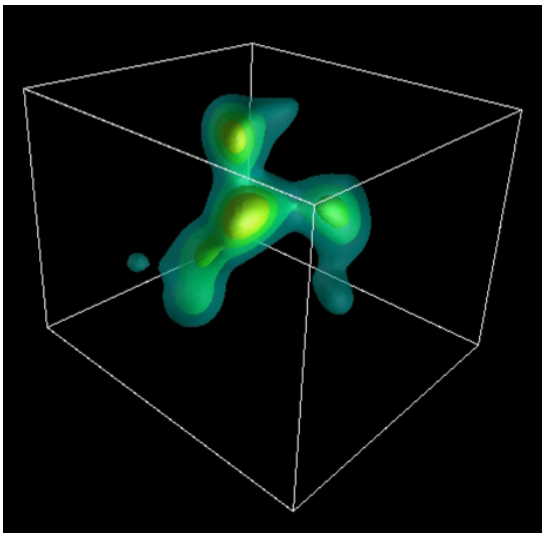



## Biggest structure in universe

Japanese astronomers have discovered what they call the largest object in the universe: a colossal structure 200 million light-years wide containing galaxies and gas clouds. It resembles a swarm of giant green jellyfish.

Using the Subaru and Keck telescopes on the Mauna Kea volcano in Hawaii, the research team found an enormous object containing clusters of galaxies surrounded by gas clouds known as Lyman alpha blobs.

The structure, seen below in a three-dimensional image, is reportedly 12 billion years old and may hold clues about the formation of the earliest stars and galaxies.



## Series of articles on astronomical software

The first of this series appeared in MNASSA, Vol 65, Nos 7 & 8, August 2006, page 112. Watch future issues of MNASSA for the rest.
(MNASSA = Monthly Notes of the Astronomical Society of Southern Africa)

## Visit to Tswaing Crater, August 26th 2006 - by Michael Poll

Situated less than an hour to the north of Pretoria is a beautiful bit of bush that is almost a secret – the reserve around the Tswaing Crater. There were only a few of us there for the weekend – 13 in a place that can sleep 64. The authorities there have created a wonderful accommodation site, the kgotla ("meeting place") which is well appointed and very comfortable.

We arrived on Saturday afternoon, and some sat and some visited the crater. After supper we were out observing with about 4 or 5 telescopes. Intermittent cloud banks came and went, but otherwise the sky to the north and west was quite acceptable. As well as the familiar sights in Scorpius and Sagittarius, in the north we were able to spot M 27 (the Dumbbell Nebula) in Vulpecula; M 56, a globular in Lyra, and M 71, a globular in Sagitta. We also looked at Uranus and Neptune – the latter finally pinpointed after the effort at previous Friday observing evening.

The next morning was bright and sunny, and those who did not go the previous day walked to the crater, passing a herd of zebra, and the odd impala along the way. At that time of day one had the place to oneself, and the crater is still a magic place to visit. The lake was reflecting the blue of the sky and the bare trees at the time of year allowed good views as one walked around the rim. Also, the Waterberg could be seen from the northern side of the rim.

Back to the kgotla and an open air breakfast, and a reluctant leaving.

## PRETORIA ASTRONOMICAL SOCIETY

### FINANCIAL STATEMENTS 1 JULY 2005 - 30 JUNE 2006 (Unaudited)

| | RAND |
|---|---|
| **INCOME** | |
| Observations | 670 |
| Subscriptions (2006 82; 2007 56) | 9975 |
| Donations | 1495 |
| Sky guide sales | 960 |
| Interest received | 295 |
| Sky and Telescope sales | 375 |
| Mugs (16) sold | 400 |
| Vredefort visit | 40 |
| Recovered | 740 |
| Expenditure | 700 |
| Nylsvlei visit | 900 |
| Recovered | 4500 |
| Expenditure | 3600 |
| **TOTAL INCOME** | 15110 |
| **EXPENDITURE** | |
| Books purchased | 3400 |
| Laser pointer purchased | 995 |
| Stationary | 1241 |
| Bank fees | 768 |
| Website | 2080 |
| Refreshments | 296 |
| Gifts guest speakers | 1017 |
| **TOTAL EXPENDITURE** | 9797 |
| **NET INCOME 01/07/05 - 30/06/06** | 5313 |
| PLUS: NON CASH ITEMS | 980 |
| **NET CASH INCOME FOR THE YEAR** | **6293** |

## Observing Evening Report. August 18th 2006. By Michael Poll & Johan Smit

Not a cloud in sight! There was some haze, but it was a splendid evening, with more than 30, perhaps 40 or more attending, including some visitors and newcomers, and the Voortrekker group. Early in the evening Jupiter was the main attraction, three moons visible - Io was in eclipse. Initial expectations of it re-appearing at 19h 23 were rapidly revised. Consultation of the Sky Guide showed us that the times of the events of Jupiter's moons are Universal Time (UT) so we had to wait until 21h 23. There was then some discussion as the orientation of Jupiter's shadow on the sky, and speculation as to where Io would re-appear.

The August observing evening is the one when Lyra is at its highest. Several telescopes split epsilon Lyrae, the "double double" into its 4 components, and we noted, or were reminded, that the stars in the pairs are orientated at right angles to each other. Later on we looked at the Ring Nebula (M57), with its characteristic doughnut shape. Also in this part of the northern sky is Albireo (beta Cygni), an easily split double with distinctive colours.

M7 and NGC6231 in Scorpius were scrutinised, as was Alpha Crucis, which at first sight looks like a bright component with a well separated fainter companion. However, careful examination shows that the bright star is actually two of equal brightness, making Alpha a triple.

Michael and another Michael spent some time looking for Neptune, which is slightly to the north of iota Capricornii. Although the correct field was found, a positive identification was not made. We are sure that this search will be resumed next month! Meanwhile Uranus was located, showing its distinctly greenish disc. On this night it was east of (below) lambda (l) Aquarii, near the star 81 Aquarii. Uranus is in retrograde motion at present, so over the next two months it will be moving westwards ("upwards") towards lambda Aquarii, and will be quite closely south of it at the beginning of October.

The re-appearance of Io from Jupiter's shadow at 21h23 was duly observed – first glimpse indicated that Io seemed fainter than usual, but it was soon realised that it was caught as it gradually emerged from the shadow.

The globular cluster NGC 6752 in Pavo was located through the haze, and the individual stars were resolved. This magnitude 5.4 cluster has a magnitude 7.5 star lying very close to it, and the cluster can be found slightly to the north of lambda Pavonis,

Due to Johan's informal introductory talk to the Voortrekker group not much time was spent with the 12 inch. It was aimed at the Jewel box and stayed on target for about 2 hours giving everyone a good chance to really appreciate this beautiful cluster. This proved that the tracking of the 12 inch is not too shabby either.

Meanwhile Johan gave his talk to some very eager kids and their parents, as well as anyone else wishing to listen. This went very well with plenty of exclamations like: "I did not know that" and "Oh, that is how it works". It was really a pleasure to talk to such an enthusiastic audience. We hope to see many of them return as members.

After the talk most of the already mentioned objects were shown to the children. For some or other reason they enjoyed looking through Johan's homebuilt telescope more than any of the commercial ones. Maybe, they could not believe that such an ugly thing can actually work. After using it, quite a few mentioned that they would also like to build one, so we may get some young builders in the class soon!

Binocular astronomy was also introduced to some of the visitors and they enjoyed the views of the Coathanger, M6 and M7, and a faint glimpse of Omega Centauri low in the south-west. Eventually the 12 inch was pointed at Jupiter. We were lucky with the red spot and it was again seen by most of the observers. One visiting Johannesburg member, Ken was amongst the first time observers to see the red spot during a first view of the planet.

As has happened on the last few observing evenings Johan and Hein were again the last to leave at just after 24:00. It was a very busy but thoroughly enjoyable evening.

## Suffering from Severe Telescope Disorder (STD)?

It too often happens that people spend thousands of Rands on a commercial telescope and rarely using it thereafter. It then quickly becomes nothing but a second-hand classified ad, or an ornamental piece of furniture. Why is this so?

Some of the reasons can be 1)an insufficient understanding of the telescope's workings, 2) too high expectations created beforehand, 3) the telescope becoming more of a hassle to operate than anything else and 4) probably the biggest reason: shortage of TIME.

What to do about these problems?

1) A telescope doesn't have a mind of its own. Even if it is highly automated, you will still have to go through many hours of experimentation and practice. You must learn the workings and tricks of your telescope, sometimes hour after painstaking hour.
2) Rushing in to buy a telescope is big no-no. Study up on the types of telescopes before-hand, do research on the internet, read books, look through a fellow amateur astronomer's telescope and make peace with the fact that you will never own the Hubble.
3) Make it easy and user-friendly. It is essential to make the whole experience of transportation and use as comfortable as possible. Build a little wagon to transport it on, set aside an area in the garden, even build a tiny shed with a roll-off cover. Make it ready to roll!
4) Make time. If you are unsure whether you will have time to use the telescope, think twice before investing in something expensive. It will only depress the living electrons out of you if you walk by your telescope each day and it screams "I WANT TO GO OUTSIDE!!"

Remember that you can also build your own telescope - much cheaper than buying. It takes a lot of time during the first try, but can be a very rewarding and fulfilling experience. Some become so good, that their self-built telescopes rival the quality of comparative commercial instruments!

Article taken from SpaceTides e-zine #42 - 4 May 2006

## Two new Companions to our Galaxy found

The Sloan Digital Sky Survey (SDSS-II) announced the discoveries of two new, very faint companion galaxies in the neighbourhood of the Milky Way galaxy. The first was found in the direction of the constellation Canes Venatici about 640,000 light years away. The second, much fainter dwarf lies towards the constellation of Bootes.

This brings the total of dwarf galaxies near our Milky Way galaxy to 14 (the most well known are the Large and Small Magellanic Clouds - both visible even with the naked eye in the southern skies). Theory of galaxy formation predicts that hundreds of clumps of "cold dark matter" should be orbiting the Milky Way and each one might be massive enough to host a visible dwarf galaxy.

The Milky Way, M31 (Andromeda galaxy) and M33 (Pinwheel) are the largest members of the Local Group of galaxies. M31 and M33 also have various dwarf galaxies in their close vicinity.

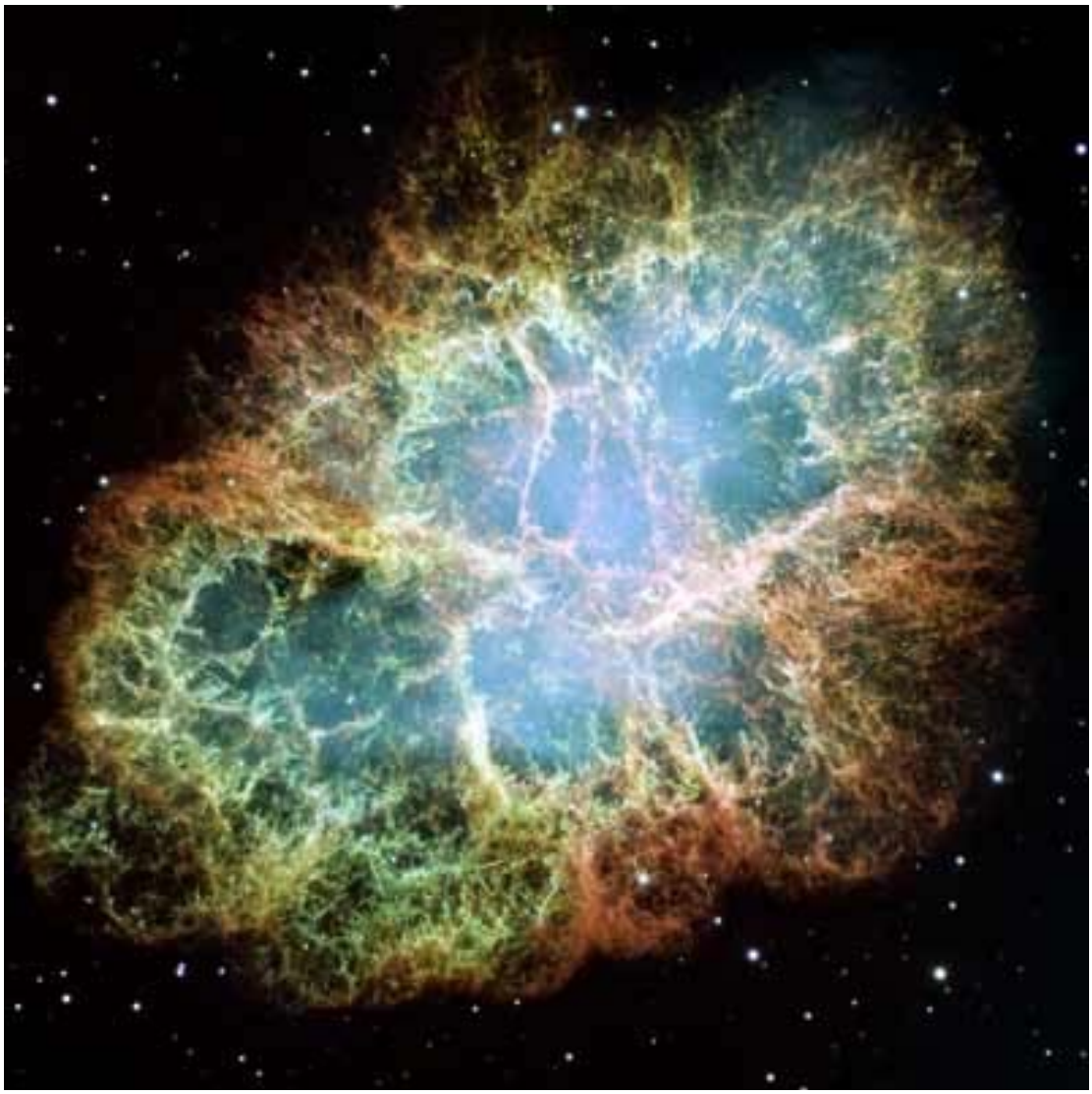
For the complete article, go to website

http://www.ras.org.uk/index.php?

The largest nearby dwarf galaxy, the large Magellanic Cloud. Read more about the Local Group of Galaxies at website

http://www.seds.org/messier/more/local.html

## The Crab Nebula, as seen by the Hubble Space Telescope



## PRETORIA CENTRE COMMITTEE

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| Newsletter Editor : | Pierre Lourens | 012 654 6366 (h) | 072 207 1403 (c) |
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| Member : | Dirk Wolmarans | 083 303 0348 (c) | |
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| Member : | Hein Stoltsz | 083 302 5096 (c) | |