



## **INTERNATIONAL YEAR OF ASTRONOMY (IYA 2009)** **(Limpopo Astronomy Outreach & Soutpansberg Astronomy Club / July to October 2009)** Second edition

### **INTRODUCTION**

The Soutpansberg Astronomy Club (est. 2002) has been involved in astronomy in Limpopo Province, South Africa for a number of years. Based in the town of Louis Trichardt 100 km south of the Zimbabwe / South African border in the northern Limpopo Province, the Club has enjoyed substantial growth since inception. We have over 200 amateur and professional astronomers, interested persons and schools, who receive the Club's monthly newsletter and related astronomy information, some are as far as Australia, Sweden and the USA. The newsletter is also available online [www.foton.co.za/Soutpansberg\\_Astronomy\\_Club.htm](http://www.foton.co.za/Soutpansberg_Astronomy_Club.htm). The web site is sponsored by Foton Optoelectronics, manufacturer of the Foton AstroCam used during some of the outreach events during the year.

The Soutpansberg Astronomy Club has been prominent in organizing astronomy related projects in and around Louis Trichardt and with IYA 2009 it was only logical that we would continue to do so and include the whole Province. This was made possible by a grant from the South African Agency for Science and Technology Advancement (SAASTA) a business unit of the National Research Foundation (NRF), and the South African Astronomical Observatory (SAAO) who kindly donated brochures, posters and various other handout material during the course of the year.

A number of local businesses were also instrumental in assuring the success of this initiative with Office National Maranga Phanda, the main business sponsor, donating 300 MoonScopes, stationary and equipment to the Limpopo Astronomy Outreach Project. The Zoutpansberger and its sister newspaper, The Mirror, made Southern Star Wheels (*designed by Auke Slotegraaf*) available to thousands of its readers via inserts in their newspapers over a period of four weeks, while Leach Printers assisted with the printing and laminating of Edward Foster's display of "Fossils, Light and Time".

A full list of contributors can be found in the first edition.

Kos Coronaios  
(Project Manager, Limpopo Astronomy Outreach)  
(Chairman, Soutpansberg Astronomy Club)

We are all part of the Universe - what happens up there affects us down here, every day of our lives.

## JULY 2009

Well into our winter now with temperatures falling rapidly after sunset I advised James and Cuan to have extra jackets with beanies and scarves handy at the numerous outreach events planned for the following months.

The smallest full Moon rose above the eastern horizon on the 7<sup>th</sup> of July and this time around James and I did not have to chase clear skies to image it. This Moon was 46 000 km further away and the difference in the diameter was easily noticeable when comparing the two pictures (see 1<sup>st</sup> edition of IYA 2009 January to June, page 2).

### LIMPOPO ASTRONOMY AND THE SUMBANDILA KIDS

Limpopo Astronomy Outreach visited Ridgeway College on the 14<sup>th</sup> and 15<sup>th</sup> of July. The college was identified as an ideal candidate for the Sumbandila project as it is a small school with a good ethnic and cultural mix among learners and an ethos, tradition and capacity for seeing each learner as an individual. This also made it an ideal venue for the Limpopo Astronomy Outreach Project to visit during the course of IYA 2009. The Sumbandila Trust in partnership with Marwyn Investments London and Study Trust South Africa is a non-profit organization in the field of secondary education and was formed to meet a particular need.

Hidden in the rural villages of Limpopo are the children who do not have the opportunity or the way forward in some of those under resourced schools for a decent education. These children with limited experience of life outside their villages and narrow confines of their society are bright enough to know there's another world if only they can get there. The Sumbandila Trust seeks out some of the brightest and most determined of these children as they complete primary school and offers them full bursaries at good schools for their entire secondary education, in the first tier. The second tier consists of those applicants for bursaries who progressed as far as the final phase of the selection process but did not quite make it. These children are assisted in applying for bursaries and if successful, a Study Trust Bursary will pay for students to attend one of the better schools in the area, assisting with school fees, transport costs and the purchase of books and stationary.





The two evenings consisted of an astronomy presentation including posters showing the Solar System, Planets, Stellar Birth, Our Place in The Universe and Ed Foster's series of posters, "Fossils, Light and Time".

Activities the students participated in were building a MoonScope, Southern Star Wheels and pacing out a scaled down version of the solar system. We ran out of space for the seventh and eighth planets! The view through the telescope of Saturn was accompanied by lots of delighted exclamations and at around 200 times magnification I certainly had one of the best views of the planet during the course of the year. A few of the constellations and mythology were discussed and as always the laser pointer was a hit. The constellations Scorpius and Sagittarius had everyone looking skywards as I explained the mythology surrounding them. Projections on the big screen included clips of how our Moon was formed and sizes of planets and stars. A total of 50 children participated in the two evenings with some of the school's teachers joining in.

The Pretoria Centre of the ASSA hosted a dark sky weekend on the 17<sup>th</sup> and 18<sup>th</sup> July at Settlers and extended an invitation to the Soutpansberg Astronomy Club. Unfortunately I could not entertain the invitation as it coincided with the Club's astronomy evening also on Saturday 18<sup>th</sup> of July.

This was one of the best viewing evenings of the year with two naked-eye planets on view, Saturn and Jupiter, and a host of deep sky objects such as M57 (Ring Nebula), M27 (Dumbbell Nebula), M11 (Wild Duck Cluster), M8 (Lagoon Nebula), NGC 7009 (Saturn Nebula) to name but a few of the objects that we looked at.

With the focus on Jupiter for the upcoming Galilean Nights and on the anniversary of Shoemaker-Levy impact on the planet: - **What happens next is.....!**



Preliminary image on the 19<sup>th</sup> July 2009 showing a black mark in Jupiter's South Polar Region (SPR) which is almost certainly the result of a large impact - either an asteroid or comet - similar to the Shoemaker-Levy impacts in 1994.

Anthony Wesley, an astrophotographer and planetary observer from just outside Canberra in Australia, discovered the mark. He writes:

"It took another 15 minutes to really believe that I was seeing something new - I'd imaged that exact region only 2 days earlier and checking back to that image showed no sign of any anomalous black spot."

*Image above captured by Anthony Wesley on 19th July 2009 at 1554UTC from Murrumbateman, Australia.*

### ELIM



Limpopo Astronomy Outreach visited Elim Secondary High School on July 30 and August 31st. Phatu joined Cuan, James and I on her first of many trips with us and by the start of the second day was familiar with proceedings. In the image on the left, Phatu and Cuan are looking at the Moon while waiting for the learners to arrive.

Students in Grade 11 & 12 built MoonScopes, Southern Star Wheels and had fantastic views of the gibbous Moon. Proceedings started at 15:00 with information on how the Moon was formed, lunar phases and eclipses, the Solar System specifically covering the planets Jupiter and Saturn that we were to see later on. Unfortunately incoming cloud prevented us from looking at the planets and deepsky objects but a promise to return during clear skies was greeted enthusiastically by all. The question and answer session held in the evening had us busy as these Grade 11 & 12 learners were full of questions. Once again modern technology helped tremendously with the answers.



Cuan's first attempt at explaining how to build the Southern Star Wheel on camera in the middle image above: he was a natural!



Towards the middle of July readers of the Zoutpansberger and Mirror started collecting the weekly inserts to build their own Southern Star Wheels.



July ended with the astronomy world focused on the giant gas planet Jupiter and with Galilean Nights around the corner, rather appropriate.

## AUGUST 2009

The Club's astronomy evening was held on the 3<sup>rd</sup> of August and coincided with the occultation of the 6<sup>th</sup> mag. star 45 Capricorni by Jupiter. The early morning disappearance of the star meant that most of the keen stargazers were already at home and asleep.

The full Moon on the 6<sup>th</sup> August saw a penumbral eclipse which went unnoticed once again due to the early hour (Contacts penumbra 01:09:37) and because the Moon does not darken much during the eclipse as it does during a full lunar eclipse. The image on the right shows the lunar eclipse on February 2008.



### TZANEEN

Limpopo Astronomy Outreach visited the Letaba show in Tzaneen on the 6<sup>th</sup>, 7<sup>th</sup> and 8<sup>th</sup> August. The Show, covering an area from Phalaborwa through to Polokwane, has been in existence since 1913 and started out as an agricultural, produce and cattle show.

It was easy to find the astronomy display: one just had to follow the images of stars, planets, nebula and arrows that were stuck to the floor. Over a three day period, Cuan and I, with help from the Warriors (post matriculate students) promoted astronomy in the region. Pamphlets on SALT and SAAO were handed out, amongst some of the more traditional information on the Sun, Moon, planets, solar system, etc. A scaled down solar system with information on the planets and Sun was on display outside with the outer planets Uranus and Neptune in the distance. Edward Foster's poster display, an illustrated time-line of cosmic and fossil history going back 2.1 billion years, drew lots of interest and comments.



The tropical town of Tzaneen was on our IYA 2009 target list and when Kevin Govender (SAAO) asked us if we would be able to assist with an astronomy display and related activities during the Letaba show, I was convinced that the show would be a fantastic opportunity to promote astronomy. It certainly turned out to be as successful as anticipated and we were kept very busy manning the display during the day and telescope in the evenings. With attendance figures in excess of 20 000 visitors over the three day event, the organizers and exhibitors alike were very pleased with the turnout.

The evenings were spent projecting displays of the Moon and Jupiter on the screen and it was rewarding watching the kids run off to call their parents to come and look. Various lunar features were pointed out and on the first evening Jupiter's Giant Red Spot slowly rotated into view. Disbelieving comments such as: "Are the images real that we are seeing?", were heard as the Moon rose, filling the big screen.





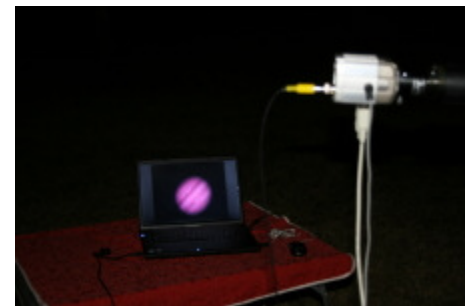
**One of the IYA 2009 Goals** was to reach as many people (scholars, children, adults, young & old) as possible during the year. One way of accomplishing this was by means of a road show with astronomy related activities during the day, followed by stargazing at night. This was certainly accomplished at the Letaba show.

The following article appeared in the Zoutpansberger, 13 August 2009 edition:

Those of you, who have collected the various parts of the Southern Star Wheel in the Zoutpansberger, come and try it out at the club's astronomy evening on Saturday 15th August. For those that want to relax and enjoy the view, pull



up a chair and enjoy "out of this world" views of Jupiter, the biggest planet in the solar system, on the big screen or laptop. Rising earlier and earlier as the month progresses it is easily visible as the brightest "star" in the east shortly after sunset.



## VAALWATER

Limpopo Astronomy Outreach headed to the Waterberg and visited Vaalwater on the 19th and 20th of August.

Two hours after leaving Louis Trichardt the road headed up the northern slopes of the Waterberg Mountains and saw me dodging fallen rock slides and baboons rushing across the road. Arriving at Boschdraai Primary 40km from Vaalwater shortly after lunch, I was greeted by the learners who rushed towards the vehicle and trailer. They were expecting me one hour earlier and could not wait for my arrival, teachers Katie and Toboha explained, as they welcomed me to the school. My two assistants helped with translation and the handing out of material etc. They explained that the Headmistress was away for the day on a workshop but would join us for the evening's stargazing later on. The next couple of hours were spent building Southern Star Wheels and MoonScopes with the eager learners who had loads of question to ask.



During the afternoon we practiced using the Star Wheel and the MoonScope stressing that they must not look at the Sun with it. Explaining the basic principals of the Star Wheel, I had a couple of the kids imagining that they were the Sun and Earth and showed them as the Earth rotated while at the same time orbiting the Sun how the view of the sky changed.

Information on the Moon with some interesting facts found the kids especially excited when they learned that they could jump really far and that they could not hear their teachers shouting at them to keep quiet. A few future astronauts in the making...!

After the presentation I had just enough time to head to Windsong Cottages to meet Dr. Philip Calcott who had kindly supplied the accommodation for the evening. After hurriedly unpacking I rushed back to the school to set up equipment for the evening's stargazing.



Teachers, parents and learners arrived at the school around sunset and after meeting headmistress Johanna Motshodi, who apologized for being unable to attend the afternoon session, we started the evening's proceedings.

Views of Jupiter and deep sky objects were shown on the improvised screen, including various clips explaining how big and far stars are. Once again the children had lots of questions to ask about falling stars, rockets and space travel. The audience found our South African star lore very interesting and we finished the evening with a quick look at some of the constellations that were visible in the crystal clear, unpolluted and light-free Waterberg skies. Unfortunately views of the Moon with their newly built MoonScope would have to wait for a couple of nights when the crescent Moon would be visible in the west.



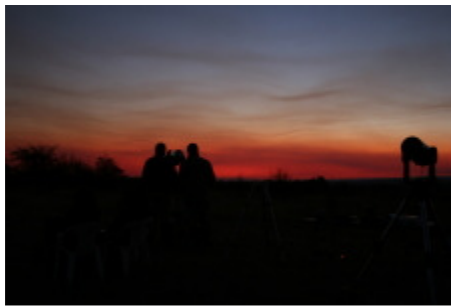
Midday the following day found me addressing pupils and a few of the teachers at the Waterberg Academy a few kilometers outside the small town of Vaalwater. The Director of the ASSA's Imaging Section, Oleg Toumilovitch, and his daughter Alicia, joined us, and Alicia helped with handing out material, scissors, glue, and the various components to construct the MoonScopes and Star Wheels. The very capable Mike Burton, a teacher at the school, was instrumental at "crowd control" and once again the learners were full of enthusiasm and questions.

Oleg was called upon to assist in answering a couple of the questions and it was a pleasure having someone with his knowledge to help out. About 130 people, mostly learners, attended both sessions and it was really great to see the interest and their willingness to learn about astronomy and science. Last year's Planetary Festival and the upcoming one had surely had some positive significance.

A warm thank you to Phil and his team (Windsong Cottages), the heads of the two schools, Ray Gordon and Johanna Motshodi, their staff and of course to all the students.

### **WATERBERG PLANETARY FESTIVAL**

Below are some of the images of the Waterberg Planetary Festival held on the 21<sup>st</sup> and 22<sup>nd</sup> of August. The festival hosted by Dr. Phil Calcott is in its third successful year and is a must on the SA astronomy calendar. Contact Phil at <http://waterbergcottages.co.za> to book your spot for 2010.



#### **The "Mars" email**

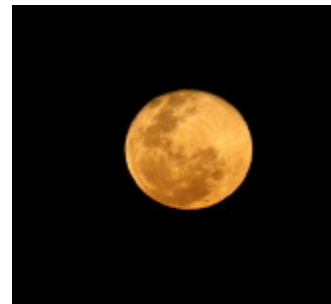
Every year around this time **the "Mars" email does the rounds** and it is quite amazing that after all these years people are still fooled by this chain mail, stating that Mars will appear as big as the Moon as it approaches close to Earth.

**For the record:** Mars approached closer to the Earth in August 2003, coming near enough to appear 25" (that's arcseconds) wide, looking like a bright star to the naked eye. Those of you that have looked at Saturn through the telescope this year will know that the planet has an apparent diameter of 16" to 18" and that Jupiter is around 45" at present. All very tiny and nowhere near the apparent size of the Moon as seen with the naked eye, which by the way is ½ a degree in diameter or 30' (arcminutes).

## SEPTEMBER 2009

Impromptu stargazing at the Mall:

Soutpansberg Astronomy was at [Makhado Crossing on Friday the 4th September](#) from 18:00, for an impromptu stargazing evening to view the "King of the Planets", Jupiter, rise followed by the full Moon.



Armed with new supplies of SAAO pamphlets and left over handout material on Jupiter and the Moon from the last outreach event, we decided to have an impromptu stargazing evening at the local shopping centre "Makhado Mall", full Moon and all.

Checking out for any transits of Jupiter's moons and visibility of the GRS, I was pleasantly surprised the GRS would be on the central meridian early in the evening. That was settled then, a chance to show everyone the GRS was all I needed to convince myself that a little sidewalk astronomy was called for.

An email to Jacaranda RMFM and club members to advertise the event was all there was time for, including contacting Cuan and asking him to come and assist.

As always he was willing and I soon had him up to speed on [the LX 90 kindly on loan from Dr. Philip Calcott for my outreach events](#). I was kept busy with the 10 inch alternating with various views of Jupiter and the Moon at different magnifications, while Cuan showed everyone Jupiter through the eyepiece of the 8 inch. My tick book showed four ticks by 10pm, translating to 40 visitors for the evening and the register had 35 names with 5 new email addresses. Highlights of the evening were Cuan saying to me, "Must tell my dad that a "Go To" scope is fine, he does not have to rebuild that jalopy in the garage for me!", and meeting the headmaster of a secondary school 15 kilometers away who was thrilled to hear that we could come and visit the school in a few weeks time. [Exactly what IYA 2009 is all about.](#)



## POLOKWANE



Limpopo Astronomy Outreach visited [Mitchell House College in Polokwane](#) on the 15th and 16th of September during the schools Science Expo. A late request by Bronwyn Egan (Curator, University of Limpopo Herbarium) to include an evening of stargazing after the opening ceremony on the eve of the Science Expo found me in Polokwane one day earlier than expected. The request was easily entertained. How could I refuse the opportunity of including "real live" astronomy and telescope viewing to the astronomy display and activities for the following day.

The Science Expo was officially opened on Wednesday the 15th by Dr. Benoist Olliver the managing director of the Silicon Smelters in Polokwane. Dr. Olliver's key note address was "*Why Study Science*", emphasizing that it is fun, useful, and that you don't have to be a brilliant student in order to be interested in science or to study it.

With the opening ceremony complete and the sky darkening, the 150 strong audience (a mix of students, parents, teachers and members of the public), made themselves comfortable on the playing field, where two telescopes, data projectors, screens and I were waiting. Concerns regarding light pollution were unfounded and beautiful clear views of the evening sky all around were had. After Bronwyn's introductions were over, the evening started with explanations of why this year is the International Year of Astronomy (IYA 2009) and included Galileo's various contributions to astronomy followed by views of Jupiter through the telescope projected on the screen. Jupiter's Great Red Spot was clearly visible as were all four of the Galilean moons. Information on the planet had everyone captivated as they looked at this bright object high up in the east while listening to the commentary. Phil Calcott's 8 inch was tracking the planet and with the headmaster controlling the growing queue the audience had a chance to look at Jupiter through the telescope.

A "what's up" followed, utilising the ever popular Stellarium program, and the seeing conditions were so favourable that the audience were able to pick out some of the fainter stars making up constellations such as Lyra, Aquila, Sagitta, Delphinus and Equuleus that are sometimes not visible from a light polluted site (earlier in the week, at the second Sumbandila Outreach at Ridgeway College, conditions were terrible with the wind and dust at altitude making visibility just as bad as having cloud cover). Once the "constellation art" mode on the software was toggled "on" (and with a little help from the laser pointer), cries of "Gosh, I can see the Eagle!", and, "There is the Dolphin!", could be heard. The evening's telescope viewing included Alpha Centauri, 47 Tuc, Ring Nebula and NGC 6231 followed by M4 in Scorpius.



The next day views of the Sun through the telescope were enjoyed, as well as activities such as building of Southern Star Wheels and MoonScopes. Handout material on the Solar System, planets, South African star lore as well as pamphlets on the South African Large Telescope (SALT) and the South African Astronomical Observatory (SAAO) were available. Conservative estimates of around 400 (mainly scholars, but also teachers and members of the public) took part in the IYA 2009 astronomy activities at the Mitchell House Science Expo 2009.



A warm thank you to the organizers, the Headmaster and teachers who assisted, Bronwyn, Kirsten and family for the accommodation, everyone involved with the Astronomy Outreach Project in Limpopo (SAASTA DST) and all the students, kids and parents for participating.

Equipment and activity material sponsored or supplied by: *Dr. Calcott (Waterberg Cottages)* 8 inch telescope, *Ian Purdon (Maranga Phanda Office National)* MoonScopes, *Anton van Zyl (Zoutpansberger & Mirror newspapers)* data projector and Southern Star Wheel, *Bronwyn Egan, Adrian & Kirsten Lucas*, screen, cables, data projector, meals and accommodation.

**Some of the activities, displays and presentations during the course of the Science Expo included:**

- 1) **Solar Cooking.**
- 2) **The University of Limpopo Science Centre:** experiments, science boxes and mobile planetarium.
- 3) **University of Limpopo Botany Department:** Hydroponics display.
- 4) **Xerox's** solar powered photocopier.
- 5) **Eskom** with low energy light bulbs.
- 6) **Toyota** hybrid vehicle.
- 7) Vermiculture display.
- 8) **Limpopo Astronomy Outreach:** Astronomy display, solar viewing, MoonScope and Southern Star Wheel activities.

## Presentations:

- 1) **Limpopo Economic Development, Environment and Tourism:** Our Ecological Footprint (talk about climate change and activity where participants measured our impact on the environment) by Dr. Antoanetta Letsoalo.
- 2) **Limpopo Eco-schools Programme:** How Ecoschools are tackling climate change: talk about how schools in the Limpopo area are changing their behavior to try to minimize their impact on environmental degradation, by Mrs. Cathy Dzerefos.
- 3) **South African Environmental Observation Network:** (SAEON) Talk on Climate Change and how it is affecting South Africa plus how South Africa is monitoring the changes, then a quiz on what we can do to change our behavior and also the launch of citizens' projects where the man in the street can contribute to monitoring the changes, given by Dr. Dave Thomson.
- 4) IT Dept. of the **Limpopo Economic Development Environment and Tourism:** Talk on using GIS in spatial planning in particular for conservation issues, by Mr. Vincent Egan.
- 5) **Limpopo Astronomy Outreach:** astronomy presentation and telescope viewing, by Kos Coronaios.

## A few of the schools that participated:

Mitchell House,  
PEPPS High School  
PEMPS Primary School and  
Polokwane Northern Muslim School.

## SumbandilaSat LAUNCHED

South Africa's second micro-satellite SumbandilaSat (meaning "lead the way" in Venda) was eventually [launched on the 17<sup>th</sup> September 2009](#) on Russian Soyuz-2 rocket from the Baikonur Cosmodrome. The 81 kg micro-satellite blasted into space at 17:55 SAST. The satellite carries a high-resolution camera that will produce images for use in monitoring agriculture, mapping infrastructure and land use, tracking population movement, and measuring the water levels of dams. The satellite will also be used to monitor and manage disasters such as flooding, oil spills and fires.

Article appearing in the Zoutpansberger, 15 September 2009 edition:

Do you want to learn more about the evening skies, identify constellations, learn about South African starlore or look through a telescope? [Soutpansberg Astronomy Club invites you for an evening under the stars on Saturday the 17th September.](#) View the stellar "Big Five" at the eyepiece of a 10 inch Newtonian reflector or an 8 inch Schmidt Cassegrain, both these telescopes with "Go To" capabilities have over 30 000 objects each in their data base. Otherwise sit back and enjoy a real-time, live image of the "King of the Planets" Jupiter with a view of the Giant Red Spot, a massive rotating high pressure weather system the size of the Earth.

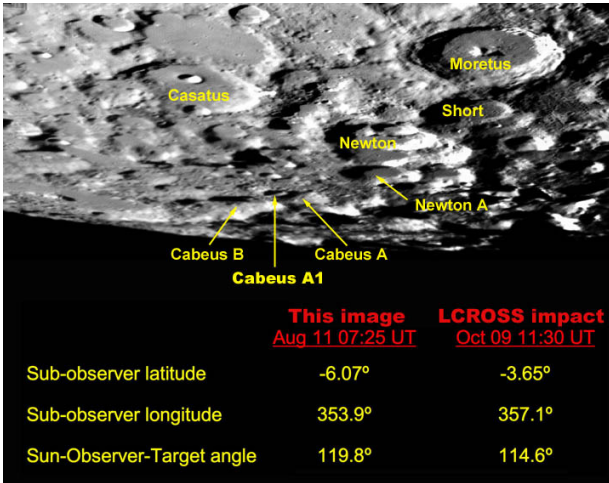


# OCTOBER

## LUNAR FIREWORKS

Graphic and text from Sky & Telescope: <http://www.skyandtelescope.com/news/home/59090432.html>

Image: New Mexico State Univ. / NASA-MSFC



On the morning of the 9<sup>th</sup> October 11:30 UT (13:30 SAST), NASA's LCROSS spacecraft and its Centaur rocket will slam into the Cabeus A crater on the Moon near the South Pole. The impact hopes to strike a permanently shadowed and presumably water-rich area.

The crater formed around 4 billion years is 17 km across and might contain deposits of water ice. The Cabeus has desirable target characteristics – a flat boulder free floor and a location favourable for Earth based telescopes to watch the resulting plume of debris that should balloon above the crash site. NASA officials analyzed information from the Lunar Reconnaissance Orbiter (LRO) that accompanied LCROSS to the Moon, hinting that the always-dark dust might contain

roughly 1½ % water ice. Situated at latitude 81½ ° both professional and amateur astronomers hope to catch a glimpse of the impacts. Unfortunately this was not to be and the event could not be seen from Earth with small telescopes.

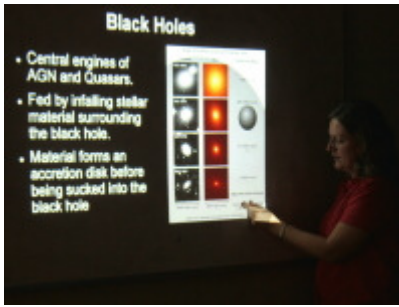
Some of the deepsky objects that we have looked at during the course of the year, from the left to right, NGC 6853 (Dumbbell Nebula), NGC 2070 (Tarantula Nebula) and NGC 6618 (Swan Nebula).



## UNIVERSITY OF VENDA

[Limpopo Astronomy Outreach](#) was invited by Sandile Rikhotso from the University of Limpopo Science Centre to attend a presentation on "The Physics Behind Astrophysics" by Dr. Nicola Loaring from SAAO at the [University of Venda in Thohoyandou on the 16th October](#) as part of the world wide IYA 2009 celebrations. The invitation would include an evening of stargazing at the campus.

Proceedings started with a short address by the Programme Director, Dr. J. Kirui (HOD, Physics Department, UNIVEN) followed by a welcome from Prof. Amey (Vice Dean, School of Mathematical and Natural Sciences at UNIVEN). The IYA background and introduction of the presenter was handled by Sandile Rikhotso.



Nicola hails from London, UK, and studied Astronomy and Physics at University College London before completing her PhD in Astrophysics at Oxford University. Her thesis investigated Quasar clustering using the 2dF QSO Redshift Survey. She began working at the Mullard Space Science Laboratory in the UK in 2001, using the XMM-Newton satellite. She joined the SAAO / SALT telescope team in October 2005 as a SALT astronomer. She spends much of her time helping with the re-commissioning of the SALT telescope and its instruments. Nicola's professionalism and knowledge of astrophysics had everyone in the packed auditorium listening attentively and the subsequent question and answer session was most informative. Maphefo Chauke from SAASTA handled the vote of thanks and brought proceedings to a close inviting everyone to return for the evenings stargazing. An enjoyable lunch organised by the campus's cafeteria was followed by a quick look at weather conditions to confirm that we would be setting up for the evening. We all agreed to meet back on site at 17:00 to organise electricity cables, screens and setup equipment.

Shortly after 18:00 we had our first views of Jupiter projected on the screen and the two six inch Dobsonians manned by Sandile and Nicola were also pointing at the giant planet. Proceedings officially started at 19:00 after an introduction on IYA 2009 and Galileo's contributions to astronomy. This was followed by views of Jupiter and its moons through the eyepiece and also projected onto the screen.

Astronomy clips were shown and a few of the visible constellations pointed out to the 100 strong crowd when suddenly the flood lights around the immediate area went off. Grabbing the opportunity to look at some of the brighter deepsky objects that would be visible, I asked everyone to gather around so as to explain what we would be looking at. Apart from the usual double stars, open clusters etc. highlights at the eyepiece were 47 Tuc, Dumbbell Nebula and The Silver Coin Galaxy. Nicola in the meantime was surrounded by groups of students asking questions while Sandile had his hands full tracking Jupiter with the two Dobsonians.

The following morning found me on the phone to Dr. Kirui and Professor Jan Crafford, Dean, School of Mathematical and Natural Sciences at UNIVEN, organizing the first evening of the upcoming Galilean Nights to be held on campus.

[The club's observation evening was held one day before new Moon on Saturday the 17<sup>th</sup> October.](#) Jupiter's Giant Red Spot (GRS) would be well placed for observation from 19:00 onwards and at the central meridian at 20:04. The GRS is a large cyclonic storm that has been raging for over 300 years rotating in a counter-clockwise direction in Jupiter's southern hemisphere, showing that it is a *high-pressure* system. The spot, reddish in colour when it was first spotted, is 30 000 miles long and 7000 miles wide and can be easily seen in amateur telescopes of 4.5 inch apertures and larger.

## UFO's, ROCKETS and FUEL DUMPS on Sunday evening:

I can't believe we missed this on Sunday the 18th October! Intermittent cloud was not conducive to setting up the telescope or camera and every so often I would go out and glance upwards at Jupiter trying very hard to peep out from behind the clouds. The evening before (Club's observation evening), we had clear skies and after everyone had left, I stayed up till around midnight taking images of M31 and M77. Now why did it not happen that evening? The adults and group of children would have been suitably impressed at the Club's astronomy evening.

A Centaur rocket caused a minor sensation on Sunday night, Oct. 18th, when it flew over Europe and dumped a load of excess propellant. That was a US military weather satellite (DMSP F-18), which the Centaur booster had helped launch earlier in the evening from Vandenberg Air Force Base in California. A halo in the sky seen by observers was probably an expanding puff of gas emitted during an earlier firing of the Centaur. This remarkable display took observers by surprise in South Africa, England, France, Germany, Italy, Finland, and many other places.



Following the unprecedented success of IYA2009's 100 Hours of Astronomy, which featured hugely popular projects such as a Global Star Party, the live 24-hour webcast "Around the World in 80 Telescopes", a Science Centre webcast, and Sun Day, another weekend of astronomy events has been highlighted for 22-23-24 October 2009. This new IYA2009 Cornerstone Project is called [Galilean Nights](#) and will see amateur and professional astronomers around the globe taking to the streets, pointing their telescopes to the wonders that

Galileo observed 400 years ago. The project's focus is sidewalk observations of gas giant Jupiter and its moons and members of the public will as also be able to observe the Sun, our own Moon and many more celestial marvels with the own eyes, much like Galileo did 400 years ago.

### [GALILEAN NIGHTS, what it was all about:](#)

Over three nights amateur, professional astronomers and enthusiasts shared their knowledge and enthusiasm for the Universe by encouraging as many people as possible to look through a telescope at our neighbouring planets. The focus for the Galilean Nights was on the observations made by the Italian astronomer Galileo 400 years ago. These included Jupiter and the Moon, which would be well-positioned in the night sky for observing during the event. For many members of the public it was their first look through a telescope, seeing such breathtaking sights such as the cloud bands of the gas giant, Jupiter, the four Galilean moons and intricate details on our cratered Moon.



Anyone, from any background and with any level of experience, was encouraged to organise events, from one person sharing the night sky through a telescope with a small group of neighbours and friends, to large astronomical groups holding major observing sessions in public areas. To keep track of developments, assist with promotion and to help people to find local Galilean Nights activities, all events were registered on the project website: [www.galileannights.org](http://www.galileannights.org). Hundreds of events worldwide were registered.

Limpopo Astronomy Outreach visited [University of Venda on the 22nd October](#) and [Makhado Crossing on the 24th October](#) as part of the International Year of Astronomy (IYA 2009) and *Galilean Nights*, the global celebration of Galileo's discoveries 400 years ago. This included an astronomy display and telescope viewing of Jupiter and the Moon.



IYA2009 Executive Committee Chair, Catherine Cesarsky had this to say: "Amateur observations have always played an important role in astronomy, a fact highlighted by one of the most exciting events of this year when it was an **amateur astronomer** who noticed that Jupiter had suffered a massive impact by an asteroid or comet. So it is fitting that *Galilean Nights* continues this tradition as thousands of amateur astronomers and the public will turn their attention to Jupiter and other objects that Galileo observed 400 years ago."



**No written comments to add to this edition, but the picture below tells a story!**



Some of the **HIGHS** & a few of the

Lows. Lows, what lows?

**FANTASTIC** views of Saturn with the Sumbandila Kids.

The continuous flow of children and adults at the LETABA SHOW.

Visiting the University of Venda (UNIVEN), students were just so willing and keen.

Galilean Nights, what a successful event in SA and World wide.

Receiving awards from the Astronomical Society of Southern Africa.

**For the next and final edition:**

We hear reports of a bright meteor seen by hundreds across the country.

Get rained out when we visit the Mvelelo Spring Show.

Real live telescopic views of the end of the solar minimum.

Visit Savannah Mall.

&

Watch the final sunset of IYA 2009, followed by the Full (Blue) Moon rising at the last astronomy outreach of the year as we carry on the momentum into 2010.



To everyone who has been part of this IYA project, visited the astronomy display, looked through the telescope, all of you, young and old, parents and children, students and teachers, we sincerely hope that you have enjoyed yourselves and may your interest in science and astronomy grow and grow and grow.

**Kos, Cuan, Phatu, James & Sarah**