

**PRETORIA CENTRE OF THE
ASTRONOMICAL SOCIETY OF SOUTHERN AFRICA
ANNUAL REPORT July 1st 2018 – June 30th 2019**

This has again been an active and successful year.

The paid-up membership for the period July 2018 – June 2019 was 57.

Monthly meetings have been held as usual on the fourth Wednesday of the month, and still follow the format of previous years, with a Beginner's Corner, "What's Up?" and a main topic.

The average attendance for the year ending June 2019 was 25.

The following main topics were presented.

2018 07	Video: Apollo Lunar landing program: The Lunar Excursion Module (LEM).	
2018 08	Investigating exoplanet atmospheres	by Jose da Silva.
2018 09	Our dynamic Earth	by Danie Barnardo.
2018 10	Video: The development of the Apollo Lunar Orbiter	
2018 11	The surface of Pluto	by Michael Poll.
2019 01	Plans for ASSA Astrophotography Section of and techniques	of Astrophotography by Martin Heigan
2019 02	Video : Moon machines - The Lunar Exploration Rover	
2019 03	Practical considerations in the use of equatorial mounts	by Johan Smit.
2019 04	Spectroscopic project results	by Percy Jacobs.
2019 05	Sunspots and the sunspot cycle part 2	by Michael Poll
2019 06	Imaging a Black Hole	by Prof Roger Deane

Beginner's Corner topics and presenter were:

The Great Conjunction of December 2020	Michael Poll
Feedback from Karoo Star Party 2018 and ScopeX 2018"	Johan Moolman.
Trans Neptunian Objects aka TNO's	Michael Poll.
Southern hemisphere summer constellations	Johan Smit.
Uses of 3D printing in astronomy	Johan Smit.
Autumn constellations	Danie Barnardo.
Basic principles of equatorial mounts	Johan Smit.
What makes the Sun shine?	Michael Poll.
Sunspots and the sunspot cycle, Part 1	Michael Poll
Titan	Pierre Lourens

"What's Up?" has been presented by Percy Jacobs, Michael Moller, Bosman Olivier, Johan Smit, Michael Poll, Danie Barnardo

Meetings have been chaired by

Johan Smit, Bosman Olivier, Fred Oosthuizen, Danie Barnardo, Pierre Lourens, Michelle Ferreira.

The Centre thanks all these speakers for their contributions. Thanks go to those people who chaired the meetings, and dutifully submitted reports to the newsletter. Thanks are also due to those who make the running of our monthly meetings a success

Monthly Observing Evenings.

Observing Evenings Report. Michael Poll

The observing evenings continue to be supported by a few regular members, and we usually have at least two or three telescopes. There have been fewer visitors attending this year, although there were at least some visitors for every viewing evening, (except for Good Friday!) Some of the visitors brought their own telescopes with a view to learning more about them and becoming proficient in their use. Cloud has not been such a problem as last year, and, although there has been cloud on and off, only one evening was a total cloud-out. Light pollution continues to be a bane, only the Moon, planets and bright stars are regularly seen, and only the brightest of deep sky objects. Nevertheless we were able to show a number of double stars and star clusters, and quite a few nebulae. In spite of the lower numbers there were quite a number of rewarding viewing evenings. On most evenings we took the opportunity of introducing beginners to the Skymap.com – a free download. Although no official record of observations is kept, objects viewed are recorded in the report in the monthly newsletter.

The latter half of 2018 was a good period for showing the planets – Jupiter, Saturn, Mars and Venus were all visible, and on occasions so also was Mercury. In July all five naked eye planets were visible, and

there were still four in **August**, when Neville Young was there with students who were doing an optional third year astronomy module at Sefako Makgatho University (SMU) under his tutelage. Neville was aiming to test them on what they had learned, but as they arrived so did some patches of indolent cloud. We were still able to show them and the other visitors the four planets which were still on view. A similar viewing scenario was repeated in **September**, with the Moon also in the sky but there were only two members and two visitors. The viewing was nevertheless enjoyable. In **October** there were five members with telescopes and five visitors, but a three-quarter Moon and light pollution compromised a clear sky – the four stars of the Square of Pegasus were barely visible, but we still had the planets and we even caught Venus only seven days before inferior conjunction. There were limited opportunities for viewing in **November** – high cloud and Full Moon, but about a dozen people were still able to view Saturn and Mars.

In **2019 January** there were some clouds and a 12-day old Moon. We were able to visit few less viewed craters (Schickard, Phocylides, Schiller, Longomontanus, Zucchi, Bettinus, Kircher and Wilson) and could see enough bright stars to compare their colours in the telescope. **February** was clouded out – three members and four visitors discussed the various telescope configurations and use of the Skymap. The seeing was so awful in **March** that we thought there was something wrong with our telescopes but the early evening cloud dissipated, and we did a lot of constellation viewing and gave details about the bright stars therein. These constellations were mainly to the north – including Orion, Taurus and Gemini, and Auriga which includes the bright star Capella. Our **April** viewing evening fell on Good Friday – four members only were present, but we had a good tour of a number of double stars (at least seven were recorded) and a number of deep sky objects. **May** was clear with no clouds. We were about a dozen people including seven students from Sefako Makgatho University (SMU), who were the 2019 third year students. The Moon was almost full, but we did note the craters Cavalerius, Hevelius and Grimaldi near the limb. The SMU students have learned about measuring cosmic distances, and that triangulation by parallax was an early step. Their task on the lower sports field was to measure the angle to each of a red and a green simulated star from one end of a 15m baseline. **June** had a clear sky and no Moon. There were four members, a number of visitors together with the SMU students. We discussed the various parts of Argo Navis; about the planets moving against the star background; synodic periods; the ecliptic and the zodiacal constellations; the Latin names of the constellations. We looked at Jupiter and Saturn, some open clusters and double stars.

Activities during the year

A number of activities were mounted during the year, including outreach to schools and the general public. Presentations to other organisations are done by the Centre in the interests of the promotion of astronomy, and willing donations from the institutions go towards Centre funds.

2018 July 20th Hoerskool Die Wilgers – Suiderkruis Voortrekkerkommando

About 100 attendees. Johan Smit, Wessel Nel, Anton Grobler, Bosman Olivier & Rudolph Strydom attended.

2018 July 27th Lunar Eclipse at CBC School & parents viewing evening

Very successful, much appreciation from teachers. At least 100 attendees, possibly 150.

Johan Smit, Danie Barnardo, Bosman Olivier, Anton Grobler, Michael Poll, Neville Young attended. Also attended: Chris Freemantle & Etsou Takayanagi from the ATM Class.

2018 August 9th – 13th Karoo Star Party. Kambro near Britstown

About 50 people attended, including members from the Johannesburg Centre, West Rand Astronomy Club and the telescope making class.

2018 August 18th Japanese School, Johannesburg.

Etsou Takayanagi from the telescope making class invited members of the Centre. Michael Poll, Johan Smit, Percy Jacobs, Anton Grobler and Rudolph Strydom attended. Cloudy and cold but we were able to show the planets through cloud breaks. Presentation was much appreciated.

2018 September 15th Scopex Percy Jacobs won an award for his spectroscopy work.

2018 September 24th & 25th Voortrekker Training, Johannesburg

The second training event this year. About 80 learners. Johan Smit attended on both nights, assisted by Bosman Olivier on the 24th & Etsou Takayanagi on the 25th.

2018 September 29th ASSA/ESSA at Deelfontein

Johan Smit & Rudolph Strydom attended. Stargazing for about 30 people, although weather was windy.

2018 October 5th – 7th Dark Sky Weekend at Deelfontein

Percy Jacobs, Michael Poll, Fred Oosthuizen and Wessel Nel attended. Sky clear but not at its best. Michael Poll completed the ASSA 100.

2018 October 6th Girl Guides at Guides HQ, North Riding, Johannesburg

Handover of one of two telescopes donated by SSVI in Belgium (Sterren Schitteren Voor Iedereen - Stars Shine for Everyone) (Jan Pierre Grootaerd). Johan Smit had put Jan Pierre in touch with Lerika Cross via Scopex. Johan Smit & Rudolf Strydom attended, as well as members from the West Rand Astronomy Club.

2018 October 20th Brain Waves Development at Ditsong Willem Prinsloo Museum

Handover of second telescope donated by SSVI to Brain Waves Development (Lesego Masethe). Sheldon Herbst gave a talk in the afternoon. Johan Smit and Rudolph Strydom were present at handover. Views of the Moon at dusk. Michael Poll and Percy Jacobs also attended for a proposed viewing evening but aborted because of bad weather.

2018 October 27th Vredefort Dome Conservancy Group, Deelfontein

Johan Smit, Rudolph Strydom together with Neil Viljoen (Johannesburg Centre) presented a stargazing evening to this local group. Johan Smit gave a talk on light pollution. Successful evening.

2019 February 8th Boy's High Science Club. Johan Smit gave talk on life history of stars.

2019 (JS to confirm date) Girl Guides National Conference Johannesburg

Johan Smit & Etsuo Takayanagi gave a presentation

2019 May 11th Church Group (Craig Kloke)

Percy Jacobs, Michael Poll, Johan Smit and Rudolph Strydom attended
About 50 attendees. Michael Poll gave talk about the use of the Skymap.

2019 May 17th – 18th Johannesburg Voortrekkers

Johan Smit and Etsuo Takayanagi gave Astronomy Badge Training.

2019 May 30th – June 2nd Karoo Star Party

Well attended – about 20 Centre members & 10 from West Rand.

2019 June 28th – 30th Free State Star Party

Johan Smit, Rudolph Strydom, Etsuo Takayanagi & Bill Potgeiter (ATM class) attended. Not too cold!

Section Reports

Telescope Making Class, including ScopeX : Johan Smit

Johan Smit and Percy Jacobs serve as permanent instructors at the class.

No projects were completed by Pretoria members this year, but we are looking forward to a few that are in progress..

At ScopeX 2019 Percy Jacobs was awarded a prize for his work in amateur spectroscopy.

Formal relationships are being maintained with Stellafane in the USA

Curator of instruments: Johan Smit

There is little to report on the use of our 12-inch Newtonian in the dome at CBC, due to the fact that it is very difficult to use the dome effectively because the dome rotation mechanism and slit bearings need maintenance.

Once the dome drive bearings and slit drive are serviced, I look forward to us using our main telescope again regularly. Otherwise, the system remains viable.

In addition it is more sociable to use telescopes outside, resulting in the observatory just being opened on request and then just to show everyone what an observatory looks like inside. Space has been created in the dome by placing our 12-inch Meade telescope at our regular dark sky site at Deelfontein.

Library: Danie Barnardo.

The Library functioned very well this past year. At Centre Wednesday meeting the Library was opened and manned. The Library database is continuing to function extremely well and is stable. It simplifies the loan of Library books and keeps a decent record of transactions. The Library database is also available on the ASSA Pretoria Centre website and can be searched by users. The online library database is still a unique feature of the ASSA Pretoria Centre Library.

It is noted that use of the library is on the decline as a result of the availability of a vast amount of reference material and information on the Internet.

Website: Danie Barnardo

The website is functioning as planned. It is possible to contact the Committee members via the website, eliciting several queries to Committee members during the year. The website proved extremely useful for the advertisement of the Kambro weekend and other Centre meetings during the year. A website section to advertise used equipment remains popular.

Compliments for the look and functionality of the website are frequently received and it is generally expressed that the website is fulfilling its role admirably.

The Archive section of the website contains all newsletters as far back as 1988.

The website is hosted by Afrihost, who provides a reliable service. Below are statistics of usage; note that we constantly have over 1,000 hits per month.

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2018	842	1,282	4,520	20,456	2.00 GB
Feb 2018	801	1,295	4,870	19,252	1.22 GB
Mar 2018	789	1,375	7,780	20,436	1.45 GB
Apr 2018	791	1,411	4,654	18,574	1.69 GB
May 2018	770	1,406	4,292	16,774	1.26 GB
Jun 2018	667	1,257	4,196	21,582	1.48 GB
Jul 2018	848	1,473	4,882	25,304	1.66 GB
Aug 2018	690	1,361	4,756	17,092	1.18 GB
Sep 2018	587	1,267	4,282	17,668	951.31 MB
Oct 2018	614	1,267	3,997	16,030	1.01 GB
Nov 2018	540	1,102	3,479	12,737	1.48 GB
Dec 2018	548	1,125	3,476	12,399	863.36 MB
Total	8,487	15,621	55,184	218,304	16.20 GB

Month	Unique visitors	Number of visits	Pages	Hits	Bandwidth
Jan 2019	602	1,290	4,110	21,141	987.86 MB
Feb 2019	636	1,223	3,844	14,474	1.50 GB
Mar 2019	753	1,335	3,726	14,409	857.49 MB
Apr 2019	638	1,277	3,606	14,922	1.25 GB
May 2019	571	1,190	3,499	13,917	1.23 GB
Jun 2019	516	1,084	3,050	10,854	1.13 GB
Jul 2019	142	219	545	1,862	129.72 MB
Aug 2019	0	0	0	0	0
Sep 2019	0	0	0	0	0
Oct 2019	0	0	0	0	0
Nov 2019	0	0	0	0	0
Dec 2019	0	0	0	0	0
Total	3,858	7,618	22,380	91,579	7.04 GB

Newsletter Editor: Pierre Lourens:

The newsletter was written and sent out for all the months during the year under review, except December 2018. It was sent out to all members, to people on a list who receive complimentary copies and to visitors at the previous monthly meeting.

In all months, except June 2019, it was sent out before the monthly viewing evening.

In June 2019, it was sent out after that, but before the monthly meeting.

It was written with Libre Office Writer, and then converted to pdf format, which was sent out.

The regular items in the newsletter were the following:

- On the front page: an announcement of the place, date and time of and the programme at the next monthly meeting; the place, date and time of the next monthly viewing evening and the index of contents.
- The report of the Chairman of the previous monthly meeting.
- A summary of what will be presented under “What’s Up?” at the next monthly meeting, written by the person who will do the presentation.
- A report of the previous observing evening by a committee member, usually Michael Poll.
- An article on observing by Magda Streicher.
- A “NOTICE BOARD” with notices.
- A feature titled “Astronomy-related articles on the Internet” which gives a list of web links to such articles.
- Another titled “Astronomy-related images and video clips on the Internet” which gives a list of web links to such items.
- Another titled “Feature of the month” written by the editor.
- Another titled “Astronomy basics” written by the editor.
- Several astrophotos taken by members, with captions.
- A list of committee members of the Pretoria Centre with e-mail addresses and cellphone numbers.

Occasionally, members sent in articles about astronomy-related topics. The Editor has written a few articles himself which were also published in the newsletter.

Observations Co-ordinator Percy Jacobs

The year has been rather slow and low on observing activity. As to the ASSA 100 Project, Michael Poll completed the ASSA 100 list at the October 2018, Deelfontein Star Party, leaving Neville Young as the only remaining active chaser of the ASSA 100 list.

Publicity Fred Oosthuizen

Notices of meetings have been submitted to newspaper(s) and there have been some direct responses.

Committee

The committee comprised 9 persons after the last AGM. The Committee met 5 times during the year. Thanks go to all the committee members for their support and for helping the Centre to remain active.

We are fortunate to have obtained some quality outside speakers for the main topics, and thanks are due to those committee members who were able to make contacts. It is noted that finding suitable speakers is becoming a problem, and any contribution from the membership is always welcome. Thanks are due to Michael Moller for making available a venue for Committee Meetings

Thanks

Christian Brothers College

We are, as usual, grateful to Christian Brothers College for allowing us the use of the Auditorium and Classroom for our formal meetings, and the playing fields for our viewing evenings.

Other

Thanks are due to all others, who may have not been mentioned, who contributed to the successful activities of the Centre during the year

Commentary

In this 2019 annual report we can note the shortage of speakers and falling membership numbers and attendances.

- In 2002 – 2003 paid up membership was 121 the average attendance was about 70.
- In 2008 -2009 paid-up membership was 111
- In 2016 – 2017 paid up membership 80.
The average attendance for the six months ending June 2017 was 28.
- For the period July 2017 – June 2018 the paid-up membership was 65.
The average attendance for the year was 23.
- For the period July 2018 – June 2019 the paid-up membership was 57.
The average attendance for the year was 23.

With changes in lifestyles and priorities, this falling away of numbers may be a general trend for societies such as this. It has been noted that there are Country Members around Pretoria who are not members of the Centre.

It can also be noted from the number of times that we have shown videos as main topics at the meetings this year that it is not always possible to find live speakers. Even then, the Main Speaker has mostly been a Committee Member, and at two meetings during the year under review, Beginners Corner and the Main Topic were presented by one and the same person – the person being a Committee Member on each occasion.

In addition, the Beginner's Corner and What's Up? are almost exclusively presented by Committee Members. Appeals for offers from other members to present Beginner's Corner and /or What's Up were circulated in the August 2018 and November 2018 Newsletters but there were no responses.

There may be a need to consider adapting the format of the Meetings to deal with the shortage of speakers.

The membership of the Committee is also stagnant –all except one of the present committee members have been on the committee since 2013. Some persons have left the committee since 2013 and only one new member has joined the Committee meanwhile. The present Committee Members are those who were elected at the 2015 AGM – there have been no changes since.

On the positive side, the Centre has presented quite a number of Outreach events during this and previous years, and it should be noted with gratitude that a number of members other than Committee Members have participated.

Johan Smit
July 24th 2019