



## NEWSLETTER JANUARY 2025

### NEXT MEETING

**From January 2025 onward, we will have our monthly meetings over the Internet, and not at CBC any more.**

**Date and time:** Wednesday 22 January at 19h00.

**Programme:**

- “What’s up in February 2025?” by Johan Smit.
- Main talk: “Exposing conspiracy theories” by Johan Smit.

The web link to join the meeting is: <https://meet.jit.si/ASSAPretoriaMonthlyMeeting> (See the note at the bottom of page 2.)

The chairperson at the meeting will be Johan Smit.

### NEXT OBSERVING EVENING

Friday 17 January from sunset onwards near the Pretoria Centre Observatory, which is also situated at CBC. Turn left immediately after entering the main gate. Carry straight on through the car park and proceed down the tarred road that drifts to the left out of the car park and then swerves to the right. About 50 to 100 metres after the last row of studs there is a cricket sight-screen on the right. Observing will be on the cricket pitch just past the sight-screen.

**Please note that we have been instructed that no one is to drive on to the sports fields because of possible damage to the irrigation systems there.**

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### **Editor's chatter: Fine-tuning of the Universe**

This is the idea that the laws of physics and the fundamental constants - such as the electron charge, the Planck constant, the gravitational constant and others - are tuned specifically for life as we know it. If some of them had been slightly different, life as we know it could not exist in the Universe. The late Stephen Hawking stated it like this: *"Most of the fundamental constants in our theories appear fine tuned. If they were altered by only modest amounts the Universe would be different and in many cases unsuitable for the development of life. ... The laws of nature form a system that is extremely fine tuned, and very little in physical law can be altered without destroying the possibility of life as we know it."*

But there is an opposing idea. This is that there exist almost infinitely many Universes – collectively called the "Multiverse" - each with its own laws of physics and set of values for the fundamental constants. Our own Universe just happens to be one of the very, very, very few in which these happen to be such that life as we know it can exist in it.  $\Omega$

### **Comet C/2023 A3 Tsuchinshan-ATLAS**



#### **Note about joining our monthly meeting over the Internet**

If you wish to attend, please be online before 19h00 SAST (= 17h00 GMT) and mute your microphone until you wish to speak.

Disabling your camera will save bandwidth on your side too.

### **Astronomy related articles on the Internet**

- Supernovas. [Could a supernova ever destroy Earth? | Space](#)
- Cataclysmic solar storm. ['Cataclysmic' solar storm hit Earth around 2,687 years ago, ancient tree rings reveal | Space](#)
- The Moon. [Fascinating and lesser-known facts about the Moon](#)
- Unsolved mysteries. [Unsolved mysteries that have intrigued scientists for centuries](#)
- The helicopter on Mars named “Ingenuity” crashed. But that’s not the end of it. [After crashing on Mars, NASA's Ingenuity helicopter could live on as a weather station for 20 years | Space](#)
- ORC s (Odd Radio Circles) in space. [ORCs in space! Astronomers find another vast odd radio circle in 'completely unexpected discovery' | Space](#)
- Skywatching events in 2025. [15 must-see naked-eye skywatching events in 2025 | Space](#)
- Images of Polaris. [Scientists collect high-resolution images of the North Star's surface for 1st time | Space](#)
- Weirdest galaxy found so far. [Nube, the almost invisible galaxy that challenges the dark matter model](#)
- Spaceflight missions in 2025. [Launches, moon landings and more: Here's the top spaceflight missions to watch in 2025 | Space](#)
- Earth had two temporary second moons in 2024 and others in earlier years. [Earth has a second moon](#)

### **Astronomy related images, video clips and documentaries on the Internet**

- Water found in a protoplanetary disk. [Scientists discover water source in outer space three times greater than Earth's oceans \(msn.com\)](#)
- Watch Sun erupt. [Watch sun erupt in 1st images from NOAA's groundbreaking new satellite \(photos\) | Space](#)
- Bubbling surface of a star. [The bubbling surface of a distant star was captured on video for the 1st time ever | Space](#)
- Fascinating exoplanets. [In pictures: Fascinating exoplanets discovered by NASA](#)
- Watch comet burn up. [Watch the 'Halloween comet' ATLAS burn up as it flies into the sun \(video\) | Space](#)
- China launches astronauts. [China launches 3 astronauts to Tiangong space station on Shenzhou 19 mission | Space](#)
- Views of Jezero crater on Mars. [NASA's Perseverance rover gets stunning view of big Mars crater from slippery slope \(video, photos\) | Space](#)
- A solar eclipse seen from Mars. [Solar eclipse on Mars! Perseverance rover sees Martian moon cross the sun \(video\) | Space](#)
- Asteroid. [Asteroid hits Earth just hours after it was detected](#)

### **Chairman's report of meeting held on November 27<sup>th</sup> 2024 – by Michael Poll**

This meeting represented the end of an era in a sense, because it has been decided to no longer have our formal monthly meetings at CBC, but to have the whole meeting online. However for this meeting we had to move to a different location because the classroom we had been using was inaccessible do to a burst watermain, and it was a much nicer venue – it was in a pavilion next to the swimming pool, and there was even a kitchen. Nevertheless, a comment was passed about the fact that for some people, we might not actually see each other anymore. Food for thought.

Michael Poll presented **What's Up**, highlighting those events when the Moon would be next to bright objects – planets and stars. Of particular note were the greatest elongation of Venus on January 10<sup>th</sup>, opposition of Mars on January 16<sup>th</sup> the conjunction of Venus and Saturn on January 18<sup>th</sup>. Michael also discussed the multiple star Sigma Orionis, and the cluster NGC 3532. A complete list of all the events mentioned was published in the November 2024 Newsletter.

The main topic was presented by Mauritz Geysler. It was “**A DIY 3-D printed star tracker**”. Mauritz first described the specifications he required, including available parts, accurate tracking, a variety of mount options - easily programmable - and the use of a standard camera tripod. It was important to get the correct ratio. The CAD used was Designspark Mechanical, and the 3D printer was a Creality Pro. The tracker assembly required a DC motor and encoder to drive the belt and pulley. The micro controller for the tracking wedge was coded via C++.

The camera used was a Canon EOS600 and converted to black and white, and the number of pixels were cropped. It was mounted on a ball joint with a counter weight. Some images were shown where the tracker was switched off and then were shown images which had been tracked for 60 seconds and 120 seconds. Focal lengths from 18 mm to 135 mm were tested.

To illustrate the results, Mauritz showed some wide angle images of the Milky Way, and he also explained how he had taken pictures of the Milky Way that included foreground objects. Finally Mauritz showed an image of the region around Antares, and one of Comet C/2023 A3 (Tsuchinshan-ATLAS).

The evening ended with coffee and biscuits. **Ω**



**Asteroid Ida. Image made by the Galileo spacecraft in 1993.**

## Give your imagination free rein – by Pierre Lourens

*"I have no doubt that in reality the future will be vastly more surprising than anything I can imagine. Now my own suspicion is that the Universe is not only queerer than we suppose, but queerer than we **can** suppose."* - J B S Haldane (1892 – 1964).

*"Somewhere, something incredible is waiting to be known."* – Carl Sagan (1934 – 1996).

- ◆ Alien civilizations and AI. [Alien Civilizations May Have Already Formed a New Kind of AI-Based Consciousness, Scientists Say](#)

- ◆ Lue Elizondo, who formerly headed the Pentagon's secretive UFO \* unit, said during a recent Congressional hearing: *"UAP \* are real. Advanced technologies not made by our government - or any other government - are monitoring sensitive military installations around the globe. Furthermore, the U.S. is in possession of UAP technologies, as are some of our adversaries. It all adds up to a multidecade, secretive arms race"*. [Immaculate Constellation: What Is the Secretive Pentagon UFO Unit?](#)



- ◆ Imaginary exoplanet landscapes. [Exoplanet Landscape - Search Images](#)

- ◆ The fastest stars in the galaxy. [The fastest-moving stars in the galaxy may be piloted by intelligent aliens, new paper suggests | Space](#)

- ◆ Scientists believe aliens are sending interstellar messages to each other - and we can eavesdrop on them.

[Scientists Have Found a New Way to Detect Alien Radio Signals.](#)

- ◆ Is reality just a simulation? [Is reality just a simulation? Some scientists think so](#)

- ◆ Do Dyson Rings exist? [Scientists Say They Know How to Find Dyson Rings—and Supercharge the Search for Aliens](#)

- ◆ Time travel possible? [A Scientist Claims He's Solved a Major Time-Travel Paradox](#)

\* UAP stands for **U**nidentified **A**nomalous **P**henomena, the new term that is used in place of the old term UFO, that stands for **U**nidentified **F**lying **O**bjects.

## NOTICE BOARD

→ **UPGRADED PLANETARIUM AT WITS WILL OPEN IN FEBRUARY!!!!**  
[Wits Anglo American Digital Dome](#)

→ **Search for cosmic cataclysms.** [Cosmic Cataclysms — Zooniverse](#)

→ **Old newsletters.** All old newsletters from January 2004 onward are on our website. They contain a record of our Centre's activities as well as astronomical information.

## Report for the observing evening on November 29<sup>th</sup> 2024 – by Michael Poll & Johan Smit

What a pleasant observing evening - and a very nice way to end the year's activities! The clearest sky we have had all year, light pollution notwithstanding. Johan at first was sceptical about the sky conditions - just after sunset the stars close to the horizon flickered a lot, but that cleared up as the night got cooler and the sky settled nicely.

We were seven people, with five telescopes. One person was Annelise, who said she had attended our meetings many years ago – she even had a copy of a 1997 Centre Newsletter loose in her Norton's! Another visitor, Jacques, is a novice telescope owner. Johan spent most of the evening assisting Jacques and Annelise.

Annelise is a country member and attends our online meetings regularly. She was encouraged to attend the viewing evening because she wanted to learn how to take photos with her smart phone coupled to an eyepiece on her telescope. After explaining some techniques images 1 and 2 on the next page were acquired. Maybe they are not perfect, but consider that these were first time images, with no post processing, the images are as they came out of the camera. There is room for improvement, but quality will improve with more practice.

During the evening Jacques managed to find a few targets all by himself, which goes to show that our viewing evenings are a good opportunity for novices to practice and get acquainted with their equipment. We would like to encourage everyone to attend the viewing evenings - it is not a waste of time.

We had a quick look at Venus before it disappeared behind the trees – the phase was just short of half pending its greatest elongation east on January 10<sup>th</sup> 2025.

Saturn is in Aquarius. In recent years it has been passing nearly overhead, but now it is only 9° south of the celestial equator so to look at it is not so painful on the neck. The rings are two little narrow slivers prior to the ring plane crossing on March 23<sup>rd</sup> 2025. Unfortunately, Saturn is in conjunction with the Sun on March 12<sup>th</sup> 2025, so will not be visible at this time. The rings are unlit for 44 days.

We could just make out the Square of Pegasus, and considering the (relative) quality of the sky, a glimpse of the Andromeda Galaxy (M31) was a possibility. An early search proved fruitless, but later on Michael picked it up. It was faint, but there was just enough visual signal to distinguish it from the background. It showed up better when the field was moved. November – December are the months when it is highest in the sky for us in the evening. It reflects on the quality of the city's sky when we get excited about seeing an object with difficulty in a telescope which is an easy naked eye catch in a dark place.

We reacquainted ourselves with Orion and the nearby constellations, which were rising in the east. The Pleiades were admired, as was The Nebula (M42). We also had a look at the multiple star Sigma ( $\sigma$ ) Orionis. It is just south of Alnitak (Zeta ( $\zeta$ ) Orionis. It is the UV radiation from Sigma Orionis that creates the scene which includes the Horsehead Nebula. The Nebula itself is a pillar of cold gas and dust that is silhouetted against the transparent (ionized) background.

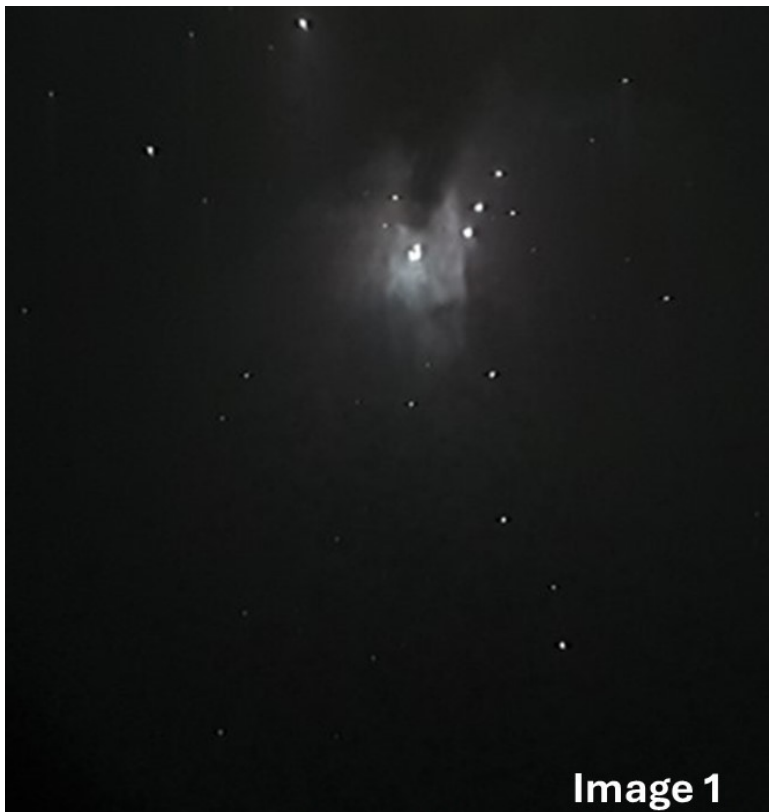
Higher up in the north was the lovely double star Gamma ( $\gamma$ ) Arietis - two white stars of equal brightness 8" apart. Michael calls them the "Owl's Eyes". The star is also known as Mesarthim, and was discovered to be double by Robert Hooke in 1664. The double stars we looked at on this evening were particularly well resolved. Jacques felt that he could enjoy hunting down double stars in future.

Jupiter was only two weeks away from its opposition date of December 7<sup>th</sup> 2024, and so was low in the north east early on. It is currently in retrograde motion in Taurus. The four bright moons were strung out in an almost dead straight line, with Europa to the west and Io, Ganymede and Callisto to the east. Two clusters we looked at were the open cluster M41 in Canis Major and the globular cluster 47 Tucanae. It got a bit chilly later on – there was even dew on the grass!  $\Omega$

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Below are two photos taken by Annelise at the previous observing evening.



## Summary of “What’s up in February 2025” to be presented on 22<sup>nd</sup> January – by Johan Smit

### Lunar phases:

5 February 2025: First Quarter

12 February 2025: Full Moon (Dassie Moon)

20 February 2025: Last Quarter

28 February 2025: New Moon

Best times for dark sky in the early evening will be before 5 February and again after 20 February.

In the talk you will learn where to find a special Valentine’s day target (NGC 2547) or as we know it, the Heart Cluster.

The typical summer constellations like Orion and Sirius are prominent.

And the southern sky favourites like Crux and the pretty area around Carina is starting to rise earlier.

Attend the talk and learn which stars to look at and where they are, to see an example of each type of spectral class stars.

Follow the Moon around and find some planets and interesting events:

01 Feb 2025: Near Venus and Neptune.

01 and 02 Feb 2025: See Venus in daytime.

06 Feb 2025: Near Jupiter and Pleiades.

08 Feb 2025: Occults Beta Taurus.

09 Feb 2025: Near Mars and Pollux.

09 Feb 2025: Occults Iota Gemini.

13 Feb 2025: Near Regulus.

17 Feb 2025: Near Spica.

21 Feb 2025: Near Antares.

24 Feb 2025: Occults Tau Sagittarius

25 Feb 2025: Near Saturn.

Use these websites to plan observations of Jupiter:

Satellite events:

<https://www.projectpluto.com/jeve25.htm#feb>

GRS visibility:

[https://www.projectpluto.com/grs\\_2025.htm#feb](https://www.projectpluto.com/grs_2025.htm#feb)

Celebrate Galileo day on 15 February with a traditional feast.

Invite friends around, cook up a meal, and toast Galileo.

It is also appropriate to do some stargazing on that night.  $\Omega$



## Observing: NGC 1596 and NGC 1602 are a contrasting pair – by Magda Streicher

To observe galaxies is a blessing, but who would guess that the slender constellation Dorado displays nearly 40 galaxies in the northwestern area of the constellation. Although faint, some of them are still not that difficult to spot through medium sized telescopes. The two galaxies that caught my attention were NGC 1596 and NGC 1602, about a degree west of alpha Doradus. NGC 1596 is a true example of a lovely edge-on galaxy, relatively bright and large. The edges are quite extended and run out towards sharp tips with a bright pinpoint nucleus. The companion galaxy NGC 1602, which is much fainter, is situated just a few arc minutes to the southeast and displays, by contrast, a much smaller and more irregular shape that appears distorted. Deep pictures show a brightening towards the western edge.  $\Omega$

OBJECT	TYPE	RA	DEC	MAG	SIZE
NGC 1596	Galaxy	04 h 27.6 m	- 55° 01.5'	11	3.7' x 1.2'



## Web links for the astronomy enthusiast

◆ **The website for all information about the ASSA and the ASSA Centres:**

<https://assa.sao.ac.za/>

◆ **ASSA Specialist Sections:**

ASSA has various areas of interest. Join and participate!

<https://assa.sao.ac.za/sections/>

◆ **ASSA Publications to download and enjoy:**

MNASSA: <https://www.mnassa.org.za/>

Nightfall: <http://assa.sao.ac.za/sections/deep-sky/nightfall/>

To receive as part of ASSA membership benefits - *Sky Guide Southern Africa*, the astronomical handbook for Southern Africa:

<http://assa.sao.ac.za/about/publications/sky-guide/>

◆ **Mail Groups to join:**

For general ASSA related information: <https://groups.io/g/ASSA-announce>

For posting general items and discussion: <https://groups.io/g/ASSA-discussion>

◆ **Social Media to join and share:**

Facebook: [https://www.facebook.com/Astrosocsa/?\\_rdc=1&\\_rdr](https://www.facebook.com/Astrosocsa/?_rdc=1&_rdr)

Youtube: <https://www.youtube.com/channel/UCJ4b1fhmPvYTOsy15YP-JA>

Twitter: <https://twitter.com/AstroSocSA>

◆ **Planetaria:**

WITS Planetarium (Johannesburg): [Welcome to Wits Planetarium](#)

Naval Hill Planetarium (Bloemfontein): [Planetarium Home \(ufs.ac.za\)](#)

Iziko Planetarium (Cape Town): [Planetarium and Digital Dome - Iziko Museums](#)

Sutherland Planetarium (Sutherland): [Sutherland Planetarium](#)

◆ **More web links can be found on page 118 of “2025 SKY GUIDE Southern Africa”. Ω**

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