



NEWSLETTER MAY 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 28 May at 19h00.

Programme:

- “What’s up in June 2025?” by Michael Poll.
 - Video about South African astronomy history/heritage (if there is time left over).
- The web link to join the meeting is: <https://meet.jit.si/ASSAPretoriaMonthlyMeeting> (See the note at the bottom of page .)
- The chairperson at the meeting will be Johan Smit.

NEXT OBSERVING EVENING

Friday 23 May 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.

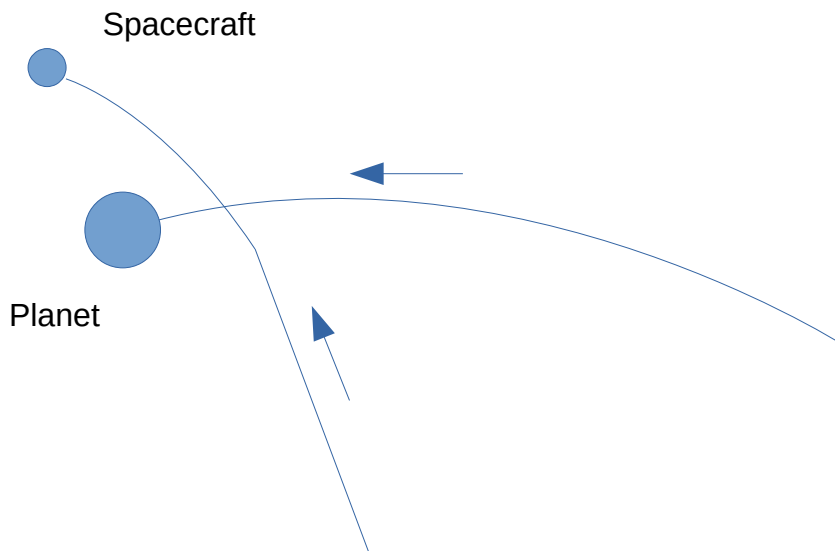
Please note that we have been instructed that no one is to drive on to the sports fields because of possible damage to the irrigation systems there.

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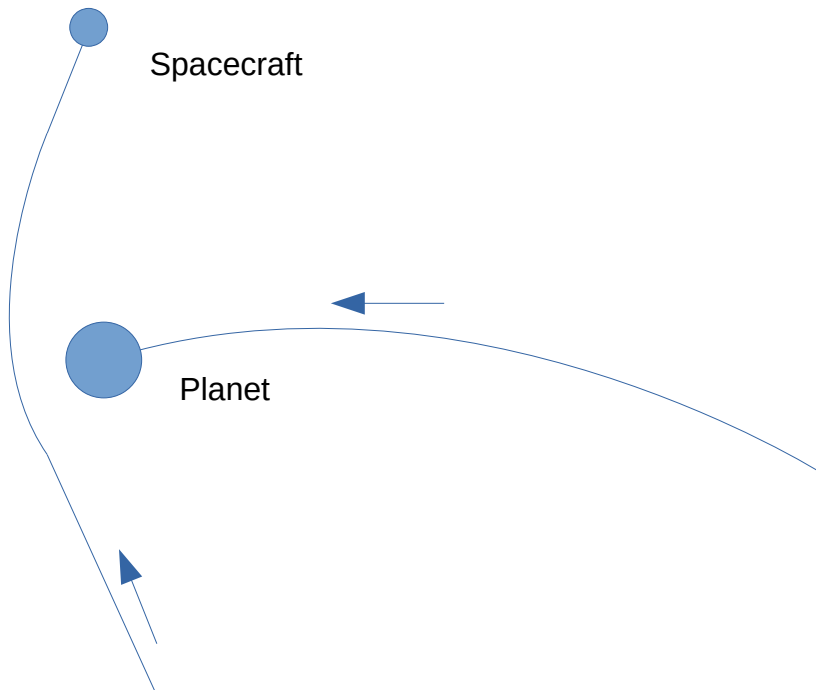
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Editor's chatter: Gravity assist

A gravity assist is a type of spaceflight flyby which makes use of the relative movement and gravity of a planet to alter the path and speed of a spacecraft, typically to save propellant and reduce expense. Gravity assistance can be used to increase or decrease a spacecraft's speed and redirect its path. The "assist" is provided by the planet as it pulls on the spacecraft.



Above is shown how a planet increases the speed of a spacecraft and also changes its direction, saving propellant. Below is shown how a planet decreases the speed of a spacecraft and also changes its direction. Ω



Astronomy related articles on the Internet

- The 'LIFE' space telescope fleet. [How rare are inhabited worlds in the universe? The 'LIFE' space telescope fleet could find out | Space](#)
- Baby galaxy cluster. [This baby galaxy cluster is powering extreme star formation with a hidden fuel tank | Space](#)
- Monster black hole erupts. [NASA spacecraft spots monster black hole bursting with X-rays 'releasing a hundred times more energy than we have seen elsewhere' | Space](#)
- The Hercules–Corona Borealis Great Wall is the largest known structure in the observable Universe. [Hercules–Corona Borealis Great Wall – Wikipedia](#)
- Oddly pulsating, supermassive black hole. [A Black Hole Has Been Mysteriously Pulsing for Years. Scientists Might Finally Know Why.](#)
- Planet destroyed by a white dwarf star. [Mystery solved! Odd X-ray signal was 'death knell' of planet destroyed by zombie star \(video\) | Space](#)
- The LMC is gradually destroying the SMC. [A gravitational war next door: The Large Magellanic Cloud is gradually destroying the Small Magellanic Cloud | Space](#)
- A bit of history: Yuri Gagarin was the first human in space. He made one orbit around Earth. [On this day in space! April 12, 1961: Yuri Gagarin becomes 1st human in space | Space](#)
- Another bit of history: world's 1st space station. [On this day in space! April 19, 1971: World's 1st space station launches into orbit | Space](#)
- AI is helping in the hunt for alien Earths. [How artificial intelligence is helping scientists hunt for alien Earths | Space](#)
- Galaxy without dark matter. [Ghostly galaxy without dark matter baffles astronomers | Space](#)
- Happy 35th birthday, Hubble Space Telescope! [Happy 35th birthday, Hubble Telescope! 10 times the iconic observatory blew astronomers' minds \(photos\) | Space](#)
- Progress with the construction of the ELT with its 39 meter primary mirror. [Incredible photo catches the sun rising behind the world's largest telescope | Space](#)
- NASA Juno probe's latest discoveries. [Cyclones on Jupiter and a moon with flowing magma: NASA Juno probe's latest discoveries are awesome | Space](#)
- Minimoons near Earth. [A whole 'population' of minimoons may be lurking near Earth, researchers say | Space](#)

Give your imagination free rein – by Pierre Lourens

- The Universe is intelligent. [The Universe Is Intelligent, and It's Helping Your Brain Create Your Consciousness, Scientist Says](#)
- Teleportation. [Scientists Achieve Quantum Teleportation Over Public Internet](#)
- Warmer climates than Earth's could accelerate life's development. [Advanced Aliens Could Be a Reality on Warm Planets with an Evolution Boost](#) Ω



What's up in June 2025, to be presented on May 28th 2025 – by Michael Poll

Selected events : Evening sky

- 2025 May 28th : Moon near Jupiter
- 2025 June 1st : Moon near Mars
- 2025 June 6th : Moon near Spica
- 2025 June 8th : Jupiter near Mercury
- 2025 June 10th : Moon near Antares
- 2025 June 17th : Mars near Regulus
- 2025 June 29th : Moon near Mars & Regulus
- 2025 June 30th : Mercury sets two hours after the Sun

Selected events : Morning sky

- 2025 June 1st : Venus : greatest elongation west
- 2025 June 19th : Moon near Saturn & Neptune
- 2025 June 22nd : Moon near Venus
- 2025 June 23rd : Moon near Pleiades
- 2025 June 21st : Solstice at 04h 41m
- 2025 June 8th : Earliest sunset

There will be a discussion about The Plough (an asterism that is part of Ursa Major) – its various names, its visibility from various latitudes, and its connection with the (Caribbean) One Legged God of the Weather.

Circumpolar stars are stars that never set from a particular location – specifically the observer's latitude. At the poles (north and south) all the stars are circumpolar, at the equator, no stars are circumpolar. In between these extremes the number of stars and constellations that are circumpolar, and the number of stars and constellations that never rise at any particular location vary with latitude. This change in visibility will be detailed with respect to the Plough (how far south can it be seen?), the Southern Cross (from how far north can it be seen?) and Canopus (when does it become circumpolar?).

Finally there will be a description of and discussion about the constellation of Libra – its mythology, and the period when the September Equinox was in Libra. Stars of Libra to be highlighted are Beta, Alpha, Sigma and the star that is believed to be one of the oldest in the Universe. Ω

“Awe in astronomy - The deep sky is Black and Void”
- presentation given by Johan Jordaan at the meeting on 23 April 2025

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1. AWE IN OUR PERSONAL LIFE

I would like to entice you to explore **definitions of awe** e.g. the Internet.

Awe and a star-filled sky

Many experiences can generate awe. Scenic vistas, symphonies, paintings, grand architecture, and the birth of a child are commonly cited sources of this emotion.

But perhaps the most common and accessible source of awe are the stars.

What more compelling source of awe is there than a star-filled sky?

There is nothing more vast than the deep sky.

Nothing can make you feel less significant or more humbled than gazing deeply into the night sky.

Advantages of experiencing awe

James Doty, Neurosurgeon at Stanford:

- Awe's ability to make us **feel connected** to something much larger than ourselves.

We **are all one**, not only with each other but with every living being and in fact, with **the universe**.

- Creates this deep sense of **purpose and connection**.

And in some ways, creates **happiness**.

My definition

When you realize that you experience a vastness that is indeed beyond your comprehension with an element of wonder, respect, bordering on fear.

2. THE HURDLE AND THE ANSWER TO EXPERIENCE AWE

The hurdle

- Light pollution is pervasive in the urban environment.
- We don't spend much time under the heavens.
- Darkness is elusive, even at the telescope especially if you observe bright deep-sky objects.
- We are driven to see and share elusive deep sky objects, not to experience the darkness of space.

The answer

- Utilize astronomy as a platform to wonder and amazement.
- If in the city, envisage dark skies, although it is light polluted.
- Spend time under dark skies.

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- Pursue scientific facts (e.g. from Wikipedia) even for a few deep-sky objects and relate that to observed objects when you explore the heavens.

3. APPROACHES TO INTRODUCE AWE

- **Contemplations of God** inspires awe.
- **Ancient civilisations' cosmology.** Their astronomy is proof thereof.
 - Ancient civilizations had pitch black skies –perpetually awe inspiring.
 - The Babylonians, Greeks, Chinese, Japanese studied the heavens.
- **Nature on earth.** Always awe inspiring.
- **Music** instills awe – think of the massive organs in cathedrals, operas.
- **Astronomy:** Various aspects of amateur and scientific astronomy:
 - Astrophysics: Scientific research and facts about heavenly objects.
 - Observing through the telescopes.
 - Deep-sky photography.

4 RELIGIOUS COSMOLOGY

Religious cosmology is an explanation of the origin, evolution, and eventual fate of the universe from a religious perspective.

Scientific cosmology is in a sense an emanation from religious cosmology.

A few verses from the Old Testament were presented as examples of the Abrahamic faith: Genesis 1 verses 1-3 and Job 38 verses 1-7 and 16 to 19.

The concepts of Void, Black, Light and its Spectroscopy were presented. These concepts are mentioned in the Genesis 1 verses.

From the book Job, the particulars of the Pleiades and Orion's Belt were discussed.

5. NATURE ON EARTH

Every so often we are privileged to experience awe around us, especially out on holidays:

- The Vaal River in flood
- The Atlantic Ocean with the ships on the horizon
- The hiking trails in the Drakensberg
- A drive through the Karoo
- The Kruger National Park

6. AWE IN MUSIC

Sir Brian Harold May: Music

Brian May founded the Queen rock band with Freddie Mercury and Roger Taylor.

Wrote 60 songs for Queen, e.g.

- **Keep Yourself Alive, I want It All,**
- **The Show Must Go On, Hammer to Fall**
- **Fat Bottomed Girls, Father to Son**
- **Crazy Little Thing Like Love.**

In 2012 - ranked the second-greatest guitarist in a Guitar World magazine readers poll.

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In 2001, May was inducted into the **Rock and Roll Hall of Fame** as member of Queen.

In 2018, the band received the **Grammy Lifetime Achievement Award**.

Brian May was appointed a **Commander of the Most Excellent Order of the British Empire** (CBE) in 2005 for services to the music industry and charity.

The lyrics in his song "**Who Want to Live Forever**" speak of our short lifespan under the eternal heavens.

7. AWE IN ASTRONOMY

Sir Brian Harold May: Scientific career

Brian May Obtained a **PhD in Astrophysics** from Imperial College, London (2008).

He **investigated radial velocity** using spectroscopy of zodiacal light at the Teide Observatory in Tenerife.

Co-author, with Sir Patrick Moore and Chris Lintott, of **Bang! – The Complete History of the Universe** and **The Cosmic Tourist**.

From 2007 to 2013 - appointed **Chancellor of Liverpool John Moores University**.

In 2014, May **co-founded Asteroid Day** with Apollo 9 astronaut Rusty Schweickart Danica Remy and German filmmaker Grigorij Richters. .

In 2020, he participated with NASA team - **contributed the stereography images of numerical simulations of asteroid disruptions**.

In 2021, he contributed the **stereography images** of the structural stability of double asteroid (65803) Didymos.

He was awarded the **JAXA Hayabusa2 Honor Award** for his contribution by making stereoscopic images of Ryugu.

In 2022, awarded a **Doctorate of Science honoris causa** by Professor Brad Gibson at the University of Hull.

He was made a **Knight Bachelor** in the **2023 New Year Honours**, in the first list of **King Charles III's reign**.

In March 2023, May was **officially knighted by the King**. (Wikipedia).

AWE FROM DEEP SKY IMAGES – JAMES WEBB TELESCOPE

The **James Webb Space Telescope** images captured details of the cosmos, leaving the scientific community and public alike in a state of awe.

Stanford cosmologist **Zeeshan Ahmed**, for whom such images are commonplace, admitted: "You can't contain it in your head. I think this is true for everybody – I mean, scientists are human still."

The following images were presented:

- Pillars of Creation – Eagle Nebula
- Crab Nebula – Taurus Constellation
- Leo P in the Constellation Leo
- NGC 602 near the edge of the Small Magellanic Cloud
- Phantom Galaxy
- Stephan's Quintet

7. CONCLUSION

- Awe must be pursued, otherwise it will elude us.
 - Life is short, it doesn't come by itself!
- To really enjoy astronomy, open your mind to AWE.
- Please continue your involvement and stay amazed!

"For thine is the kingdom, and the power,
and the glory, forever. Amen." (Mt. 6:13). **Ω**

NOTICE BOARD

- ➔ **Exciting citizen science project.** It invites you to explore how the Sun releases energy into interplanetary space through Type III solar radio bursts.
[Solar Radio Burst Tracker — 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.

Astronomy related images, video clips and documentaries on the Internet

- The outflow from a newborn star happened to align with a distant spiral galaxy. ['Cosmic tornado' swirls in breathtaking new James Webb Space Telescope image | Space](#)
- Close up images of asteroid. [NASA's Lucy probe captures 1st close-up images of asteroid Donaldjohanson, revealing 'strikingly complicated geology' | Space](#)
- “Cosmic cliffs”. [New visualisation shows dramatic 'cosmic cliffs' in space | Watch](#)
- Eta Aquariids. [Eta Aquariids meteor shower lights up the skies over China](#)
- The pillars of creation as you've never seen them. [Hubble telescope captures hidden structure dubbed 'pillar of creation' in breathtaking image](#)
- Jupiter's auroras. See a video clip. [James Webb Space Telescope captures stunning images of bright auroras on Jupiter \(video\) | Space](#)

Report of the observing evening on April 25th 2025 – by Michael Poll

After weeks of cloud, and not a little rain, the sky on this evening was totally clear. I arrived at 6.00 p.m. and no one there! Only myself! I thought that if there was no one there at that time, no one else was likely to come, but I thought I would wait. I got my chair out and was watching the stars come out in the north. Jupiter heading down in the north west, Orion sinking to the west, Gemini and Mars high in the north. In the north east, Leo was fighting the light pollution. I even got a glimpse of Capella scraping the northern horizon.

At about half past six, Jacques arrived, so we had a quick look around through his 6 inch reflector. Jupiter first, with Io, Europa and Callisto making a neat little isosceles triangle to its east, and Ganymede in splendid isolation towards the west of the planet. We looked at the double star Castor and noted that it was not possible to split the pair for most of the last half of the 1900s. We picked out a few of our favourite clusters – NGC 2516, off the long axis of the False Cross, and IC 2602, centred on Theta Carinae, in the Diamond Cross. We also saw NGC 3114 (or was it NGC 3255?), and then we looked at M41 in Canis Major. Although not expected to be successful, our final attempt did prove to be fruitless – optimistically trying to see Rigel's companion!

Our quick tour over, we left at about 7.15 p.m. – still only the two of us there! **Ω**

Astronomy basics

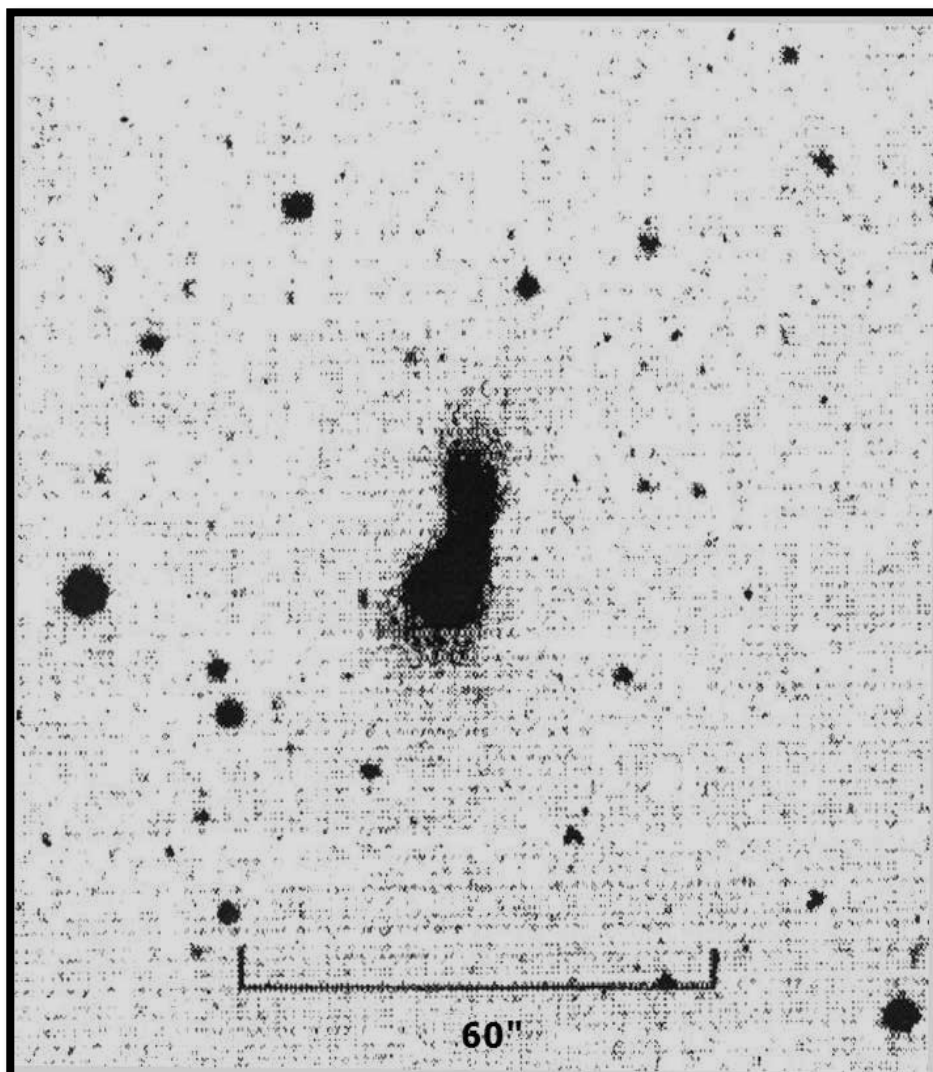
[Cosmology: A Big Bang and the Beginning of the Universe](#)

Observing. ESO 172-7: In the cold – by Magda Streicher

A strange object catalogued as ESO 172-7, was indicated “peculiar”, as at the time astronomers were not aware of the object’s obscure nature. It has since been identified to be one of the coldest objects in the visible universe. This unusual object is situated in the constellation Centaurus just north of the constellation Crux. Ian Glass and G. Werner were the first to note this unusual nebula as butterfly or bow-tie in shape, during an inspection of print number 172 from the ESO Quick Blue Survey on the 16th August 1978. ESO 172-7 appears to belong to the class of bipolar nebulae, and is just visible on the Franklin-Adams Atlas Plate of the region, taken in 1910. The central star, near spectral Type-G0 III, is surrounded by a dust shell. This object was named the Boomerang Nebula in 1979. The nebula resembles two diffuse double-lobed extensions closely on top of one another. It appears even in brightness, except for a small broken middle, but only with the use of very high magnification through larger telescopes.

Ian Glass provided me with the information and the 1978 Franklin-Adams photograph of the object.

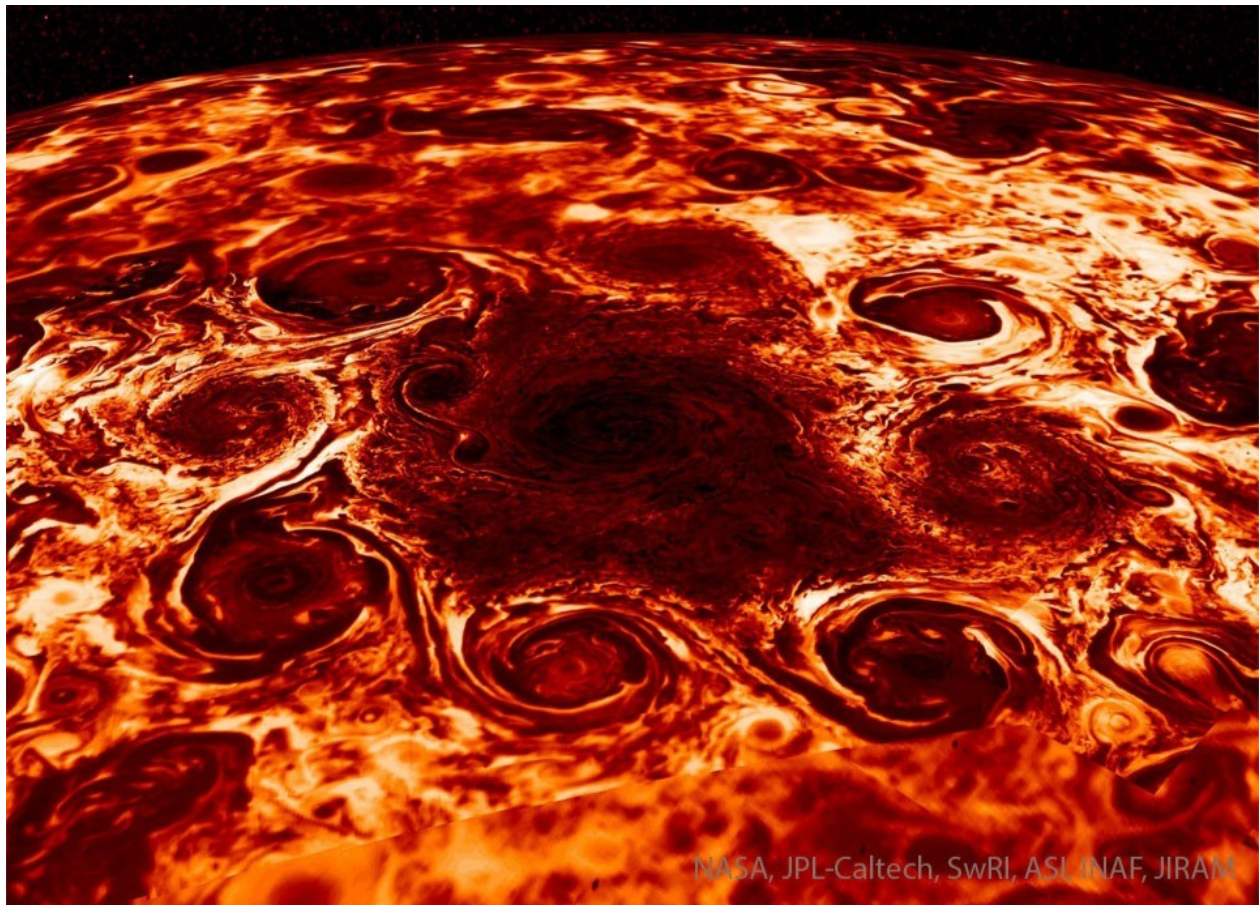
OBJECT	TYPE	RA	DEC	MAG	SIZE
ESO 172-7	Bipolar Nebula	12h44m.7	-54°31'.2	12+	60"





TOP: An Eta Aquariid fireball lights up the sky above Mount Bromo in Indonesia, on May 5, 2013 (Image credit: Justin Ng). The Eta Aquariid meteor shower results when Earth moves through a trail of debris left behind by Halley's comet as it passes through the inner solar system once every 76 years.

BOTTOM: North pole of Jupiter, captured in infrared light by the Juno spacecraft in 2018.



NASA, JPL-Caltech, SwRI, ASI, INAF, JIRAM

Chairperson's report: Pretoria Centre ASSA meeting of 23 April 2025 - by Michelle Ferreira

The meeting started around 19:15 by welcoming the 19 online members and visitors present. In view of some electricity challenges experienced, "What's Up in May 2025" by Michelle Ferreira ended up being a joint venture with assistance from Johan Smit with the presentation and the pointer.

Johan Jordaan was the main speaker for the evening and his presentation* was titled "Awe". His discussion took us through the concepts, awe in our personal life, approaches to introduce awe, the hurdle and the answer to experience awe, religious cosmology, nature on earth, music and astronomy with a conclusion to end.

He invited us to read about the many definitions of awe on the internet and find the one that will entice you to change your life. He defined awe as being "Your realisation that you experience a vastness that is indeed beyond your comprehension with an element of wonder, respect, bordering on fear."

James Doty, Neurosurgeon at Stanford, founder of Stanford Centre for Compassion and Altruism Research and Education states:

- Awe's power lies in its ability to make us feel connected to something larger than ourselves.
- At the end of the day, we are all one, not only with each other but with living being and in fact, with the Universe.
- Creates this deep sense of purpose and connection.
- And in some ways, happiness.

This is but a short extract from the presentation given by Johan Jordaan. I surely found that it gave me thought to pause and observe more. Do join us for the next online meeting as the talks certainly have more dimension than what can be conveyed in the Chairman's report afterwards.

After thanking Johan for his interesting talk, as always there was the opportunity to have some discussions and thereafter the meeting adjourned. **Ω**

* Johan Jordaan's complete presentation is to be found elsewhere in this newsletter.

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
 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 \(ufs.ac.za\)](http://www.ufs.ac.za/planetarium/)
 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**

Pretoria Centre committee

Chairman:	Johan Smit	072 806 2939	johanchsmit@gmail.com
Vice Chairman:	Neville Young	083 303 2840	nevyoung@gmail.com
Secretary:	Michael Poll	074 473 4785	pollmnj@icon.co.za
Treasurer and			
Membership Secretary:	Michelle Ferreira	073 173 0168	michellem.ferreira@standardbank.co.za
Newsletter Editor:	Pierre Lourens	072 207 1403	pierre.lourens@vodamail.co.za
Webmaster	Danie Barnardo	084 588 6668	daniebar403@gmail.com
and Social Media:	& Johan Smit	072 806 2939	johanchsmit@gmail.com
Curators of Instruments:	Johan Jordaan	082 373 3395	jjordaan121@gmail.com
	& Johan Smit	072 806 2939	johanchsmit@gmail.com
Centre Representative:	Johan Smit	072 806 2939	johanchsmit@gmail.com
Telescope making:	Johan Smit	072 806 2939	johanchsmit@gmail.com
Observing Coordinator:	Neville Young	083 303 2840	nevyoung@gmail.com