



## NEWSLETTER MAY 2023

### NEXT MEETING

**Venue:** Christian Brothers College (CBC), Mount Edmund, Pretoria Road, Silverton, Pretoria.

**Date and time:** Wednesday 24 May at 19h15.

**Programme:**

- “What’s up in June?” by Johan Smit.
- Main talk: “Impacts re-visited part 2” by Michael Poll. \*
- Socializing over tea/coffee and biscuits.

The chairperson at the meeting will be Johan Jordaan.

\* A summary of this coming talk is on page 7 of this newsletter.

### NEXT OBSERVING EVENING

Friday 19 May from sunset onwards at the Pretoria Centre Observatory, which is also situated at CBC. Turn left immediately after entering the main gate and turn left at the first opportunity onto the road leading away from the parking lot. **Please note that we have been instructed that no one is to drive on to the sports field because of possible damage to the irrigation system there.**

### TABLE OF CONTENTS

Astronomy related articles on the Internet	2
Image of NGC 2419	3
Astronomy basics: neutron stars	3
Image of M57	4
Astronomy related images, video clips and documentaries on the Internet	4
Feature of the month: Bizarre star bridge	5
NOTICE BOARD	5
Observing: A close relationship	6
Summary of main talk “Impacts re-visited part 2” to be presented on May 24 <sup>th</sup> 2023	7
Observing evening report April 21 <sup>st</sup> 2023	8
Web links for the astronomy enthusiast	9
Pretoria Centre committee	9

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

[An Aspherical “Cow” – Weird Explosion the Size of Our Solar System Baffles Astronomers \(scitechdaily.com\)](#)

The idea that our Universe is just part of a much vaster cosmos has a long history - and it's still very much with us. And it is a mind-boggling idea.

[Long Live the Multiverse! - Scientific American Blog Network](#)

[Giant exoplanet has 2 suns and swirling sand \(earthsky.org\)](#)

TOLIMAN will conduct a search for exoplanets orbiting Alpha Centauri A and B.

[Alpha Centauri planets? TOLIMAN will search \(earthsky.org\)](#)

This behemoth has a mass of 30 billion  $M_{\odot}$ .

[Light-bending gravity reveals one of the biggest black holes ever found | The Royal Astronomical Society \(ras.ac.uk\)](#)

Some exoplanets keep the same face turned towards the star that they orbit. The regions around the terminator of such a planet might be able to support life. (The terminator is the line around a planet that divides the night side from the day side.)

[Terminator zones and the search for life \(earthsky.org\)](#)

Why it's so hard to look for evidence of aliens.

[The latest evidence in the hunt for alien life | The Week](#)

[SETI Institute expands search for aliens with VLA \(earthsky.org\)](#)

[The Universe sucks: The mysterious Great Attractor that's pulling us in | Ars Technica](#)

Arcturus is a red giant star located only 36.7 light-years away and is the fourth brightest star in the night sky. It is visible in May in constellation Boötes (“The Herdsman”).

[Arcturus, the brightest star of the northern sky \(earthsky.org\)](#)

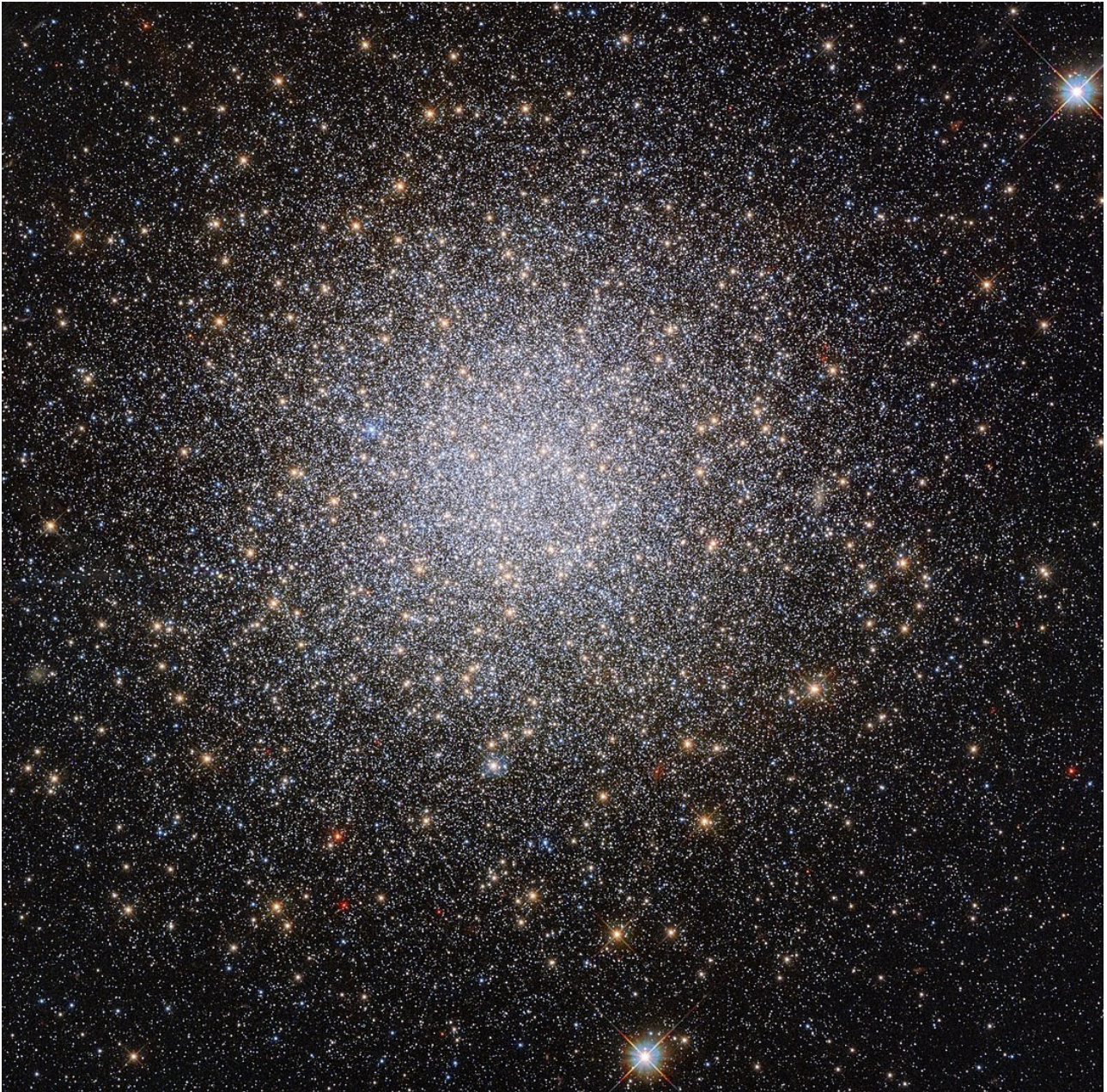
[Brightest gamma-ray burst of ‘all time’ \(earthsky.org\)](#)

Astronomers witnessed a dying star swell up and absorb a Jupiter-sized planet.

[A 1st! Star destroys its planet, previewing Earth's future \(earthsky.org\)](#)

[The first radiation belt outside the solar system has been spotted \(sciencenews.org\)](#)

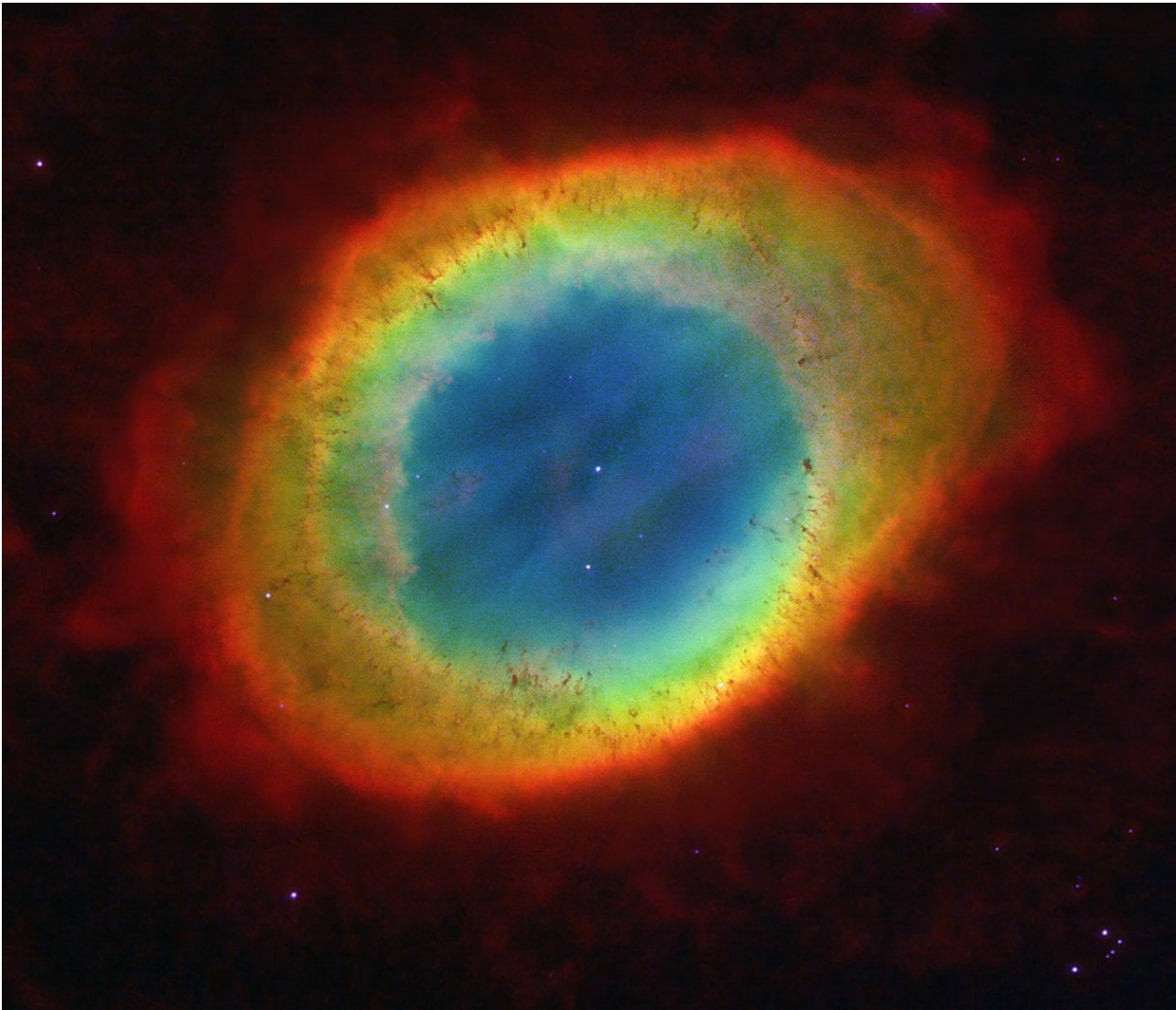
**Below:** Image of NGC 2419 (aka Caldwell 25), made by the HST. It is a globular cluster in the constellation Lynx. It is 275 000 light-years away and roams the halo of the Milky Way. It is sometimes called "The Intergalactic Wanderer".



### **Astronomy basics: neutron stars**

[What is a neutron star? How do they form? \(earthsky.org\)](http://earthsky.org)

**Below:** The Ring Nebula (aka M57 and “Eye of God”) in constellation Lyra, imaged by the HST. It is about one light-year across and 2 500 light-years away.



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

A simulation of the future collision of the Andromeda galaxy with the Milky Way.

[Milky Way Versus Andromeda As Seen from Earth – YouTube](#)

[Journey to the Andromeda Galaxy Faster Than the Speed of Light! \(4K\) - YouTube](#)

[1st image of a black hole ... now new and improved! \(earthsky.org\)](#)

[The Murray Lab - Global CTX Mosaic of Mars \(powered by Esri\) \(caltech.edu\)](#)

See an animation of a black hole swallowing a star, an event that actually occurred.

[NASA captures black hole ripping and swallowing star the size of our sun - CBS News](#)

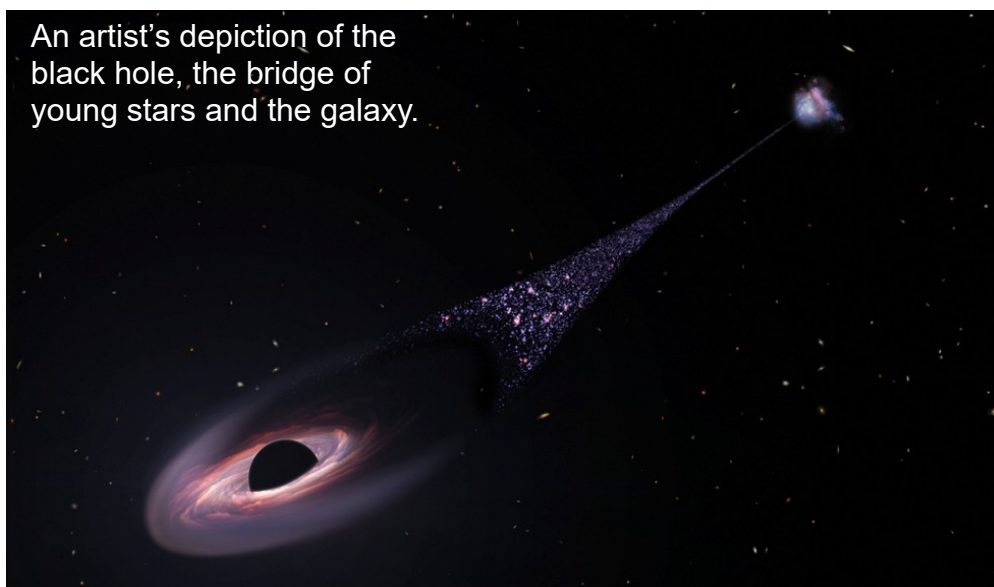
A link to part 1 was given in the February newsletter. On the website with the following link, other parts can be viewed.

[The Whole History of the Earth and Life - the official full version - - Bing video](#)

## Feature of the month: Bizarre star bridge

Astronomers have identified a 200 000 light-years long bridge of young, hot, blue stars. It stretches between a runaway super massive black hole and the galaxy it is running from. It compressed gas in its wake to leave a long trail of young blue stars. The process is not fully understood. Nothing like this has ever been seen before.

['Runaway' black hole the size of 20 million suns found speeding through space with a trail of newborn stars behind it | Live Science](#)



An artist's depiction of the black hole, the bridge of young stars and the galaxy.

## NOTICE BOARD

**Galactic collisions.** Generate simulations of collisions of galaxies on your PC. Download the program for doing this free from the Internet at:

[Colliding Galaxies - Wolfram Demonstrations Project](#)

You will need Wolfram Player to run the program. This can also be downloaded free from the Internet. See also the article mentioned on the website with the above link: **M. C. Schroeder and N. F. Comins, "Galactic Collisions on Your Computer", *Astronomy*, 16(12), 1988 pp. 90–96.** I sent the article to you after this newsletter.

**Our website.** Members who visit our website are requested to contact Danie Barnardo, who is our webmaster, if they spot something that needs editing or revising. His contact details are 084 588 6668 and [daniebar403@gmail.com](mailto:daniebar403@gmail.com)

**NASA Astrophoto Challenge.** The only equipment you need is a PC. Use data from multi-wavelength space telescope missions (Webb, Hubble, Chandra, Spitzer, and XMM-Newton). Read instructions on how to turn the data into beautiful composite images with a simple and free web-based image processing tool used by professional astronomers. You also have the opportunity to capture your own real-time telescope image using a robotic telescope. The target is the Phantom Galaxy M74 in constellation Pisces.

[NASA's Astrophoto Challenge for summer 2023 \(earthsky.org\)](https://earthsky.org)

**UFOs - Investigating the unknown.** This series will be broadcast on the National Geographic channel (channel number 181) of DSTV, starting 26 May.

**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.

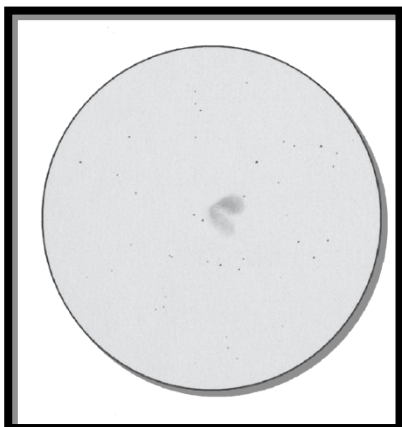
### Observing: A close relationship - by Magda Streicher

The constellation Corvus (The Crow) can rightfully be proud of being home to the colliding galaxies **NGC 4038** and **NGC 4039**, one of the most distinctive objects in the sky. The well known and much loved object forms a triangle to the west with magnitude 2.5 Gamma Corvi and magnitude 2.9 Epsilon Corvi. This splendid object is approximately 45 million light-years distant from us and one of the closest examples of colliding galaxies. It is formed in the shape of two soft ovals, distinctly connected to the east. The northern galaxy is slightly more defined and a tad bigger than NGC 4039. However, both galaxies display a soft spread of light with a slight brightening towards their nuclei.

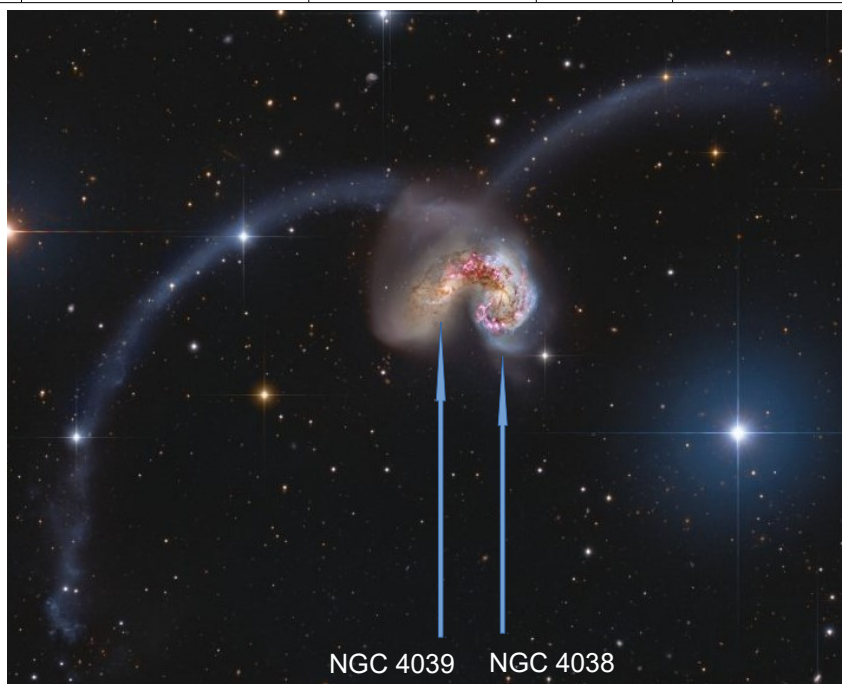
With higher magnification parts of the surfaces appear somewhat patchy with dark knots and a few faint star points. The two galaxies are known as the "**Antennae Galaxies**" because of their tidal tails extending away from the galaxies. When the cold starts hitting us at the beginning of the southern winter, this wondrous object - that roughly resembles a heart shape - floods the heart with a warm feeling.  $\Omega$

(Magda Streicher's e-mail address: [magdalena@mweb.co.za](mailto:magdalena@mweb.co.za))

OBJECT	TYPE	RA	DEC	MAG	SIZE
NGC 4038	Galaxy	12 h 01.7 m	-18°51'.8	10.5	5.4' x 3.9'
NGC 4039	Galaxy	12 h 01.9 m	-18°53'.7	10.3	5.4' x 2.5'



Sketch by Magda Streicher



Hubble Space Telescope image of the Antennae Galaxies.

See the first item on the **NOTICE BOARD** as well as the first item in the **Astronomy related images, video clips and documentaries on the Internet** in this newsletter.

## Summary of main talk “Impacts re-visited part 2” to be presented on May 24<sup>th</sup> 2023 - by Michael Poll

In the southern African countries of Namibia, Botswana and South Africa there are seven known impact craters, and one iron meteorite (the Hoba meteorite) with no crater. This presentation first briefly discusses the perhaps lesser known craters Kgagodi in Botswana, and Morokweng and Setlagole in South Africa. The main part of the talk concentrates on the Tswaing Crater near Pretoria and the Hoba meteorite in Namibia. (The three other craters are Roter Kamm in Namibia, and Vredefort and Kaalkop in South Africa)

The early modern history, starting in the 1800s, of the Tswaing crater is discussed – from when it was “mined” for soda and also when the area was an experimental farm. A visit I made to the crater in 1989 while it was still an experimental farm and had no infrastructure, and before its true nature was determined, is described. (The experimental farm only closed down at the end of 1992). There follows an overview of the crater and an analysis of the borehole drill core. The borehole that provided the definite proof that the crater was the result of an impact was drilled by Prof Tim Partridge in 1998-1999.

Although it was discovered in 1920, the existence of the Hoba meteorite was not generally known for nearly a decade. This part of the presentation is based on a series of articles written by Prof Peter Spargo in MNASSA in 2008. We follow the history of the discovery of the meteorite in 1920, the subsequent early visits of geologists and the way in which this remote object became known to the “outside world” via newspaper articles in Die Volksblad and the New York Times, and two international conferences held in Cape Town in 1929. The Hoba meteorite was declared a National Monument in 1955. Ω



**The Hoba meteorite**

### Observing evening report April 21<sup>st</sup> 2023 – by Michael Poll and Johan Smit

A disappointing turnout from the membership – Michael and Johan hosted 7 or 8 very enthusiastic visitors, including Michelle who also brought a telescope, Yolanda, and Shaun and Erica. Also there were Barend, who also came to the Wednesday meeting, and Tayamba Mwanza and his two children and Carlo.

Johan re-located us to the cricket pitch (on the right by the sight screen - halfway down to the playing fields) and it was much more satisfactory. We were shielded from the N1/N4 interchange and we did not have to put up with the spotlight on the pavilion tuck shop. The horizon was also very good. Nevertheless, light pollution is still a problem – the sky is very bright, and we are more or less restricted to looking at the bright splashy objects and double stars. (There should be a National “No-Outside-Lights-Week”. It would help Eskom, and those whose blanket claim that “crime increases” during power cuts could actually produce figures to justify the statement.)

The open clusters IC 2602 (Southern Pleiades), NG 4755 (Jewel Box), NGC 2516 (Southern Beehive) were noted, and the multiple stars Alpha Centauri and Alpha Crucis. The Orion Nebula (M42) was the example of nebulosity shown. We also managed to tease Omega Centauri out of the background.

The only planets visible in the evening at the time were bright Venus in the north west, and Mars in the north. At magnitude 1.2 Mars is the same brightness as Pollux and would look like any other star to the casual observer. On this evening it was in Gemini and made a neat isosceles triangle with Castor and Pollux.

Johan showed the open cluster NGC 3293 in Carina. Visitors agreed that it may be prettier than the Jewel Box. Also the Wishing Well (NGC 3532) was received very well by the viewers. Everyone was very impressed with the multitude of stars in the cluster.

The open cluster NGC 2547 in Vela was well placed. Johan calls it the Heart Cluster but cannot find a mention of that name in serious scientific literature. It does look like a heart if one uses some imagination to “connect the dots”. It is always a favourite with the ladies in the group.

The Jewel Box is a short hop away from Mimosa (Beta Crucis) and just 2 arc minutes away from Mimosa is the carbon star Ruby Crucis (DU Crucis). It is a red supergiant and slow irregular variable star and is nearly the reddest star in the sky. There are redder stars, but this one is the easiest to find. A very dim, deep red star. Very nice to see in contrast to the bright Mimosa. It was visible in Johan’s 6 inch telescope. Ω



An image of the open cluster NGC 4755, aka Kappa Crucis Cluster or Jewel Box Cluster. DU Crucis is the big red dot above the centre. Image by the VLT of ESO.

## 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](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 “2023 SKY GUIDE Southern Africa”. Ω**

### Pretoria Centre committee

Chairman	Johan Smit	072 806 2939	<a href="mailto:johanchsmit@gmail.com">johanchsmit@gmail.com</a>
Vice Chairman	Bosman Olivier	082 883 1869	<a href="mailto:bosman.olivier@gmail.com">bosman.olivier@gmail.com</a>
Secretary	Michael Poll	074 473 4785	<a href="mailto:pollmnj@icon.co.za">pollmnj@icon.co.za</a>
Newsletter Editor	Pierre Lourens	072 207 1403	<a href="mailto:pierre.lourens@vodamail.co.za">pierre.lourens@vodamail.co.za</a>
Librarian and			
Webmaster	Danie Barnardo	084 588 6668	<a href="mailto:daniebar403@gmail.com">daniebar403@gmail.com</a>
Public Relations Officer	Bosman Olivier	082 883 1869	<a href="mailto:bosman.olivier@gmail.com">bosman.olivier@gmail.com</a>
Observing Coordinator	Neville Young	083 303 2840	<a href="mailto:nevyoung@gmail.com">nevyoung@gmail.com</a>
Treasurer and			
Membership Secretary	Michelle Ferreira	073 173 0168	<a href="mailto:michellem.ferreira@standardbank.co.za">michellem.ferreira@standardbank.co.za</a>
Curator of Instruments	Johan Jordaan	082 373 3395	<a href="mailto:jjordaan121@gmail.com">jjordaan121@gmail.com</a>
Additional member:	Neville Young	083 303 2840	<a href="mailto:nevyoung@gmail.com">nevyoung@gmail.com</a>