The PRETORIA CENTRE

of the

Astronomical Society of Southern Africa

www.pretoria-astronomy.co.za

NEWSLETTER JUNE 2024

NEXT MEETING

Venue: Christian Brothers College (CBC), Mount Edmund, Pretoria Road, Silverton, Pretoria.
Date and time: Wednesday 26 June at 19h15.
Programme:

- "What's up in July 2024" by Danie Barnardo.
- Main talk: "How I completed the **ASSA Top-100 Challenge** photographically" by Thys Maree.
- Socializing over tea/coffee and biscuits.

The chairperson at the meeting will be Danie Barnardo.

NEXT OBSERVING EVENING

Friday 21 June from sunset onwards at 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.

TABLE OF CONTENTS

Astronomy related articles on the Internet

- The planned HWO.
The Habitable Worlds Observatory: Could It Reveal Alien Life? (popularmechanics.com)

- A star with 6 exoplanets orbiting it.
NASA's TESS telescope spots 6 exoplanets around 'misbehaving' toddler star | Space

- New developments in SETI.
How SETI is expanding its search for alien intelligence (exclusive) | Space

- The history of the Radcliffe Observatory. (In Afrikaans. Web link sent by Frik Broodryk.) Die storie agter die sterrewag op Waterkloofrif (bronberger.co.za)

- Hellish exoplanet.
This hellish exoplanet's skies rain iron and create a rainbow-like effect | Space

- Southern Ring Nebula's unexpected structure. Scientists reveal Southern Ring Nebula's unexpected structure: 'We were amazed' | Space

- Giant magnetar eruption.
Giant magnetar eruption is 1st seen in another galaxy (earthsky.org)

- UY Scuti is the 2nd largest known star, after Stephenson 2-18. It has an estimated radius of 909 $R_{\odot}$. It is a pulsating red supergiant. Scutum (The Shield) is visible above the eastern horizon in the early evening in July. UY Scuti – Wikipedia

- Highest observatory. The highest observatory on Earth sits atop Chile's Andes Mountains — and it's finally open | Space

- Weather on Wasp-43 b.
Exoplanet WASP-43 b weather is hot and wild (earthsky.org)

- Earth-orbiting satellites bad for astronomy.
How bad are satellite megaconstellations for astronomy? | Space

- Arcturus aka Alpha Boötes is the 4 th brightest star in the night sky. It is visible in the early evening in July. Arcturus – Wikipedia

- AI discovers asteroids.
AI discovers over 27,000 overlooked asteroids in old telescope images | Space

- The solar system. 25 dizzying facts about our solar system (msn.com)

- Crux is now visible in the early evening.
Meet Crux, the constellation of the Southern Cross (earthsky.org)

- Centaurus is near Crux.
Centaurus the Centaur contains nearby stars (earthsky.org)

- “Three blind mice, see how they run!” – From a nursery rhyme.
In the Milky Way, 3 intruder stars are ‘on the run’ — in the wrong direction | Space

- How SF predicted the future.
How '2001: A Space Odyssey' predicted the future over 50 years ago (msn.com)

- “New star” soon.
A 'new star' could appear in the sky any night now. Here's how to see the Blaze Star ignite. | Space

Report for the observing evening on May 17th 2024 – by Michael Poll

Quite a pleasant evening, not too cold for the time of year. We were about a dozen or so attendees, with six telescopes.

The 9½ day old Moon was the star of the show, so to speak. Again a crater hunt. (The **Lxx** numbers are the number labels from the Lunar 100 by Charles A Wood in Sky & Telescope for April 2004). The Alpine valley **(L19**) was seen, with Cassini, Aristillus and Autolycus in a row from north to south at the southern end of the Alps. Archimedes **(L27)**, which lies slightly to the west of Autolycus, was noted. Further south was Eratosthenes, which is to the east of Copernicus, and there was Copernicus **(L5)** itself.

The remaining craters seen were well into the Lunar southern hemisphere. Thebit is a smallish crater (57 km diameter), with an even smaller one (Thebit A – 20 km) superimposed on its wall. This pair lie just east of the Straight Wall **(L15)**.

Pitatus **(L84)** forms a distinct trio with Wurzelbauer and Gauricus – these three have diameters of 97 km, 88 km 79 km respectively. The way they lie reminded me of the top of a pile of cannon balls. Hell, with a diameter of 33 km, is just slightly east of Gauricus. The southernmost crater identified was Clavius **(L9)**, which is 225 km in diameter. The largish crater Rutherford (48 km x 54 km) intrudes on the southern wall of Clavius. From Rutherford a crescent of small craters, of decreasing size, crosses the floor of Clavius. They are unromantically labelled “Clavius D, C, N, J and JA”.

Pitatus was named after Pietro Pitati, a 16th Century Italian astronomer; Wurzelbauer was named after Johann Wurzelbauer (1651-1725) a German astronomer; Gauricus was named after Luca Gaurico (1476 – 1558) an Italian astronomer who translated Ptolemy’s Almagest; and Hell was named after Maximilian Hell (1720 – 1792) a Hungarian astronomer who founded the original Vienna Observatory.

With the bright Moon compromising the sky, there were not many naked eye bright stars to show but we looked at the double stars Castor and Alpha Centauri. Having closed up in the second half of the 1900s, for some years it was not possible to separate the Castor pair in amateur telescopes, but now it is quite an easy split, but Alpha Centauri is brighter and wider! Arcturus was high in the north, and we could just make out the stars of Scorpius, rising in the south east. Sirius and Canopus are heading down in the west. We noted the similar brightness of these two, but the fact is that Canopus is 40 times further away than Sirius.

We also reiterated the discussion about the diurnal movement of the stars – how they move westward during the evening and the ones in the far south seem to go in a circle around the Southern Celestial Pole. One would say that “tomorrow night”, after the Earth has turned once that they will be back in the same place again 24 hours later – but not quite: they get there four minutes earlier because the Earth has moved around the Sun a little. Four minutes per night is half an hour a week or two hours a month. This change is why we have a new star map each month. **Ω**

What's up in July 2024 - by Danie Barnardo

In July 2024, the phases of the Moon are as follows:

- New Moon: 6 July
- First Quarter: 14 July
- Full Moon: 21 July
- Last Quarter: 29 July

Danie Barnardo doing stargazing

The best time for viewing is the first 2 weeks of the month.

In the South African context, the Centre for Astronomical Heritage reports that the July full Moon is known as the Meerkat Moon in San mythology.

The Moon always provides good viewing opportunities (cloudy conditions permitting!), even in a light-polluted city-environment. A good source of what to view on the Moon is the Lunar 100 list, which is a list of Lunar highlights similar to the ASSA 100 list. A good source for Moon viewing is the following website, which also provides downloads of the Lunar 100 list and other useful information for Lunar observation: https://backyardstargazers.com/guide-to-the-lunar-100-including-free-downloads

In the northern hemisphere, the July full Moon is known as the Buck Moon: male deer, which shed their antlers every year, begin to regrow them in July, hence the Native American name for July's full moon. Some refer to this moon as the thunder moon, due to the summer storms in this month. Other names include the hay moon, after the July hay harvest.

The Moon is near the following objects during July:

1 July: Moon near Mars
2 July: Moon near the Pleiades and Uranus
3 July: Moon near Jupiter
4 July: Moon near Beta Tauri
7 July: Moon near Mercury
9 July: Moon near Regulus
12 July: Moon near Mu Virginis
17 July: Moon occults Antares, Sigma Scorpii and NGC 6144
23 July: Moon near Delta Capricorni
24 July: Moon near Saturn
25 July: Moon near Neptune and Regulus
29 July: Moon near Pleiades
30 July: Moon near Jupiter and Mars

Planets

During the month, Jupiter, Uranus and Mars are visible in the early morning hours and Neptune and Saturn in the period after about 20:30 up to 23:00. Mercury is prominent in the early evening after sunset during the major part of the month.

(Continued on next page.)

(Continued from previous page.)

Planets

During the month, Jupiter, Uranus and Mars are visible in the early morning hours and Neptune and Saturn in the period after about 20:30 up to 23:00. Mercury is prominent in the early evening after sunset during the major part of the month.

- Mercury is near the Beehive cluster (M44) on 7 July
- Jupiter is near Aldebaran on 8 and 10 July
- Mars is near Uranus on 15 July, providing an ideal opportunity to spot this difficult-to-see planet
- Mars is near the Pleiades on 20 July
- Mercury is near Regulus on 25 and 26 July

Constellations

The winter constellations are now reigning in the night sky in July, with the Scorpion and its close companion Saggitarius prominent, providing good viewing of its magnificent deep-sky objects. Towards the south Centaurus, Crux and Tucana provide good viewing and towards the north the constellations Virgo, Libra, Bootes, Hercules and Lyra provide similar good viewing opportunities. At a dark site, the Large and Small Magellanic sites are prominent near the southern horizon.
Especially Scorpius and Saggitarius are high in the sky and provides good viewing ot their magnificent deep-sky objects.

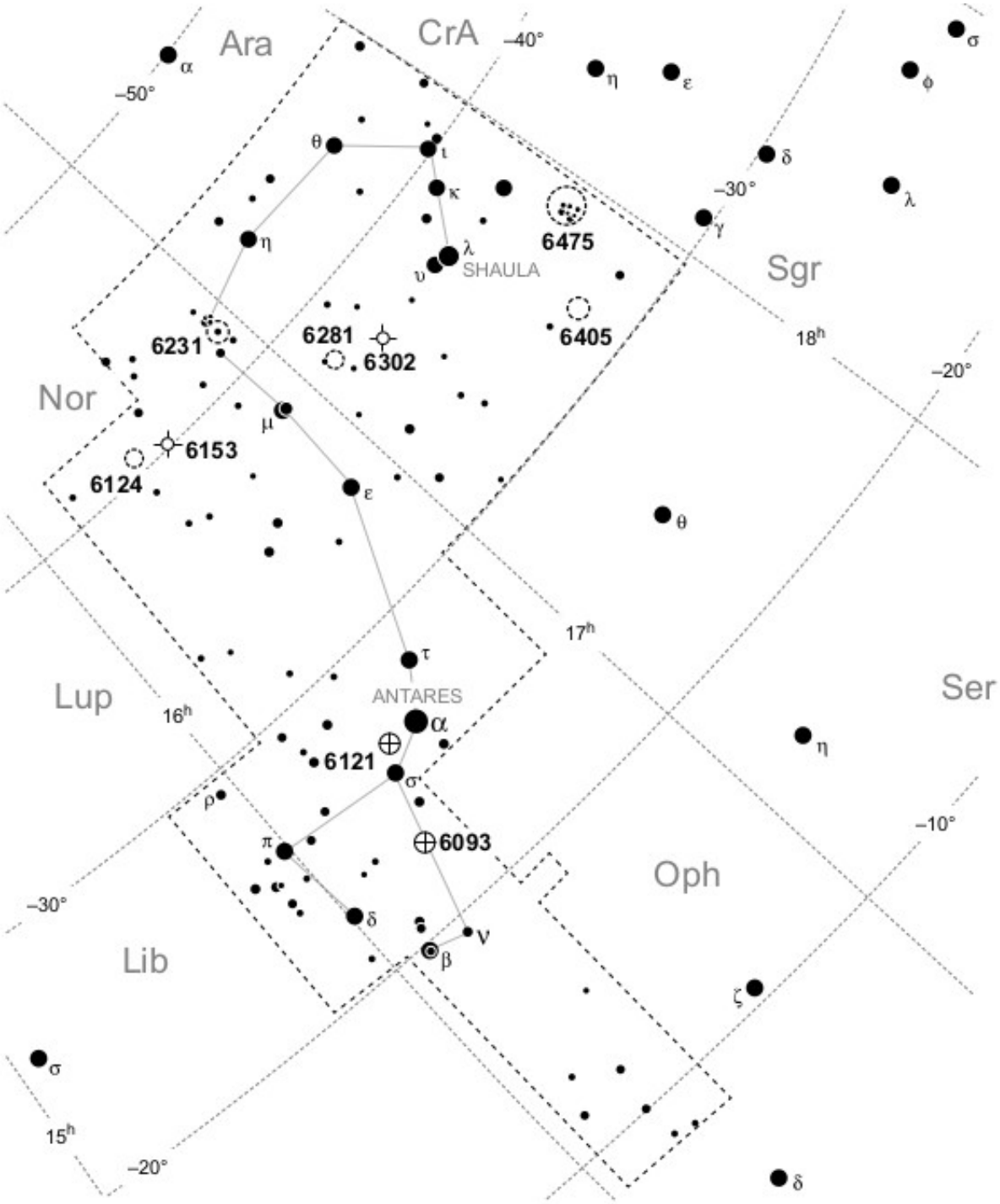
Lastly: some interesting objects in Scorpius

Scorpius is among the most distinctive of constellations in the zodiac. With a little imagination, you can see its stars tracing the shape of a Scorpion. The brilliant red star Antares lies at the Scorpion’s Heart. The constellation has the shape of the letter J, with the curved bottom of the J representing the Scorpion’s curved Tail. There’s even a Stinger, consisting of two stars – Shaula and Lesath – noticeable for their nearness to each other.

(Continued on next page.)

(Continued from previous page.)

The constellation map is from Auke Slotegraaf's "ConCards" publication. It can be downloaded from the following link in pdf format:
https://assa.saao.ac.za/how-to-observe/getting-started/star-charts/concards/



(Continued on next page.)

(Continued from previous page.)

NGC 6093 or M80

Object Description	Globular Cluster
R.A. Position	16h 17m 2.5s
Dec. Position	-22° 58' 30.39"
Distance	8.7 kiloparsecs (28,000 light-years)
Magnitide	7.3

NGC 6121 or M4

Object Description	Globular Cluster
Right ascension	16h 23m 35.22s
Declination	−26° 31′ 32.7″
Distance	7.2 kly (2.2 kpc)
Magnitude	5.6

NGC 6124 or Caldwell 74

Object Description	Open Cluster
Right ascension	16h 25m 36s
Declination	−40° 40′ 00″
Distance	1,860 ly (512 parsec)
Magnitude	5.8

NGC 6153

Object Description	Planetary Nebula
Right ascension	16h 31m 30.6s
Declination	–40° 15′ 12″
Distance	4400±400 ly (1400±120 parsec)
Magnitude	+9.9

NGC 6231 or Caldwell 76

Object Description	Open Cluster
Right ascension	16h 54m
Declination	−41° 48′
Distance	5,600±400 ly (1,700±130 parsec)
Magnitude	2.6

NGC 6281

Object Description	Open Cluster
Right ascension	17h 04.7m
Declination	−37° 59′
Distance	1,611 ly (494 parsec)
Magnitude	5.4

NGC 6302 also known as the Bug Nebula, Butterfly Nebula, or Caldwell 69

Object Description	Bipolar Planetary Nebula
Right ascension	17h 13m 44.211s
Declination	−37° 06′ 15.94″
Distance	3.4 ± 0.5 kly (1.04 ± 0.16 kiloparsec)
Magnitude	7.1

(Continued on next page.)

(Continued from previous page.)

NGC 6405 also known as The Butterfly Cluster or M6

Object Description	Open Cluster
Right ascension	17h 40.1m
Declination	−32° 13′
Distance	1.59 kly (0.487 kiloparsec)
Magnitude	4.2

NGC 6475 also known as the Ptolemy Cluster or M7

Object Description	Open Cluster
Right ascension	17h 53m 51.2s
Declination	−34° 47′ 34″
Distance	980 ± 33 ly (300 ± 10 parsec)
Magnitude	3.3

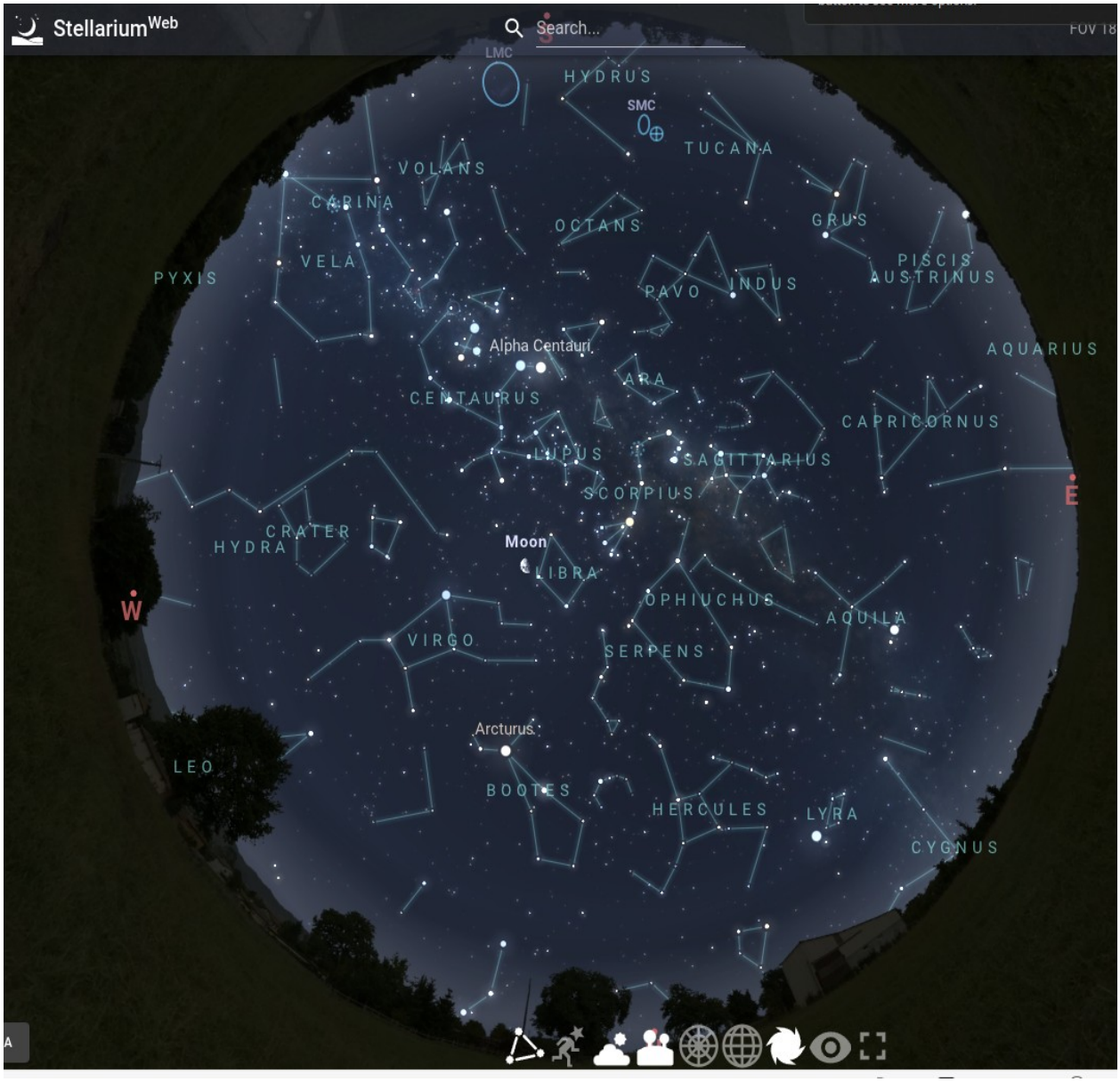
NGC 6144

A globular cluster, located almost exactly 1° away from its brighter counterpart globular cluster Messier 4. It is partially obscured by the Rho Ophiuchi cloud complex. The cluster has a very low core stellar density for a globular cluster and harbors a handful of X-ray radiation sources. It has a magnitude of 9.6. The cluster is about 33 000 ly from earth.

(Continued on next page.)

(Continued from previous page.)

The night sky at about 20:30 on 15 July. Note that this is the web version of Stellarium, which has more or less the same functionality than the downloaded version. No need to download and install the full version on your PC! The web version can be found at: https://stellarium-web.org **Ω**



NOTICE BOARD

Winter solstice. The winter solstice of the southern hemisphere will be on Thursday, 20 June 2024 at 22h50 SAST. The path of the Sun through the sky will start moving back south from then on, heralding a rise of temperatures in the southern hemisphere. Why not celebrate it?
2024 June solstice: All you need to know (earthsky.org)

ASSA Top-100 Observing List.

Only 5 people have observed all 100 objects on this list, and they all are (or were) members of the Pretoria of the ASSA. They are: Michael Poll, Percy Jacobs, Louis Kloke (present members), Michael Moller (was a member), George Dehlen (was a member, deceased).

Only 4 people have photographed all 100 objects in this list, and 3 of them are (or were) members of the Pretoria Centre. They are: Barbara Cunow (present member), Michael Moller (was a member), Thys Maree (present member). The latter will be the main speaker on 26 June, and will speak about how he did it.
ASSA Top-100 Observing List | ASSA (saao.ac.za)

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

✗ Solar Minimum versus Solar Maximum. See a video clip.
APOD: 2023 December 11 – Solar Minimum versus Solar Maximum (nasa.gov)

✗ "Hand of God".
'Hand of God' reaches out for the stars in breathtaking image (msn.com)

✗ Photographs of Mars.
Mesmerizing photos of Mars that will make you want to move there (msn.com)

✗ Rotating moon. See a video clip.
APOD: 2024 June 2 – Rotating Moon from LRO (nasa.gov)

✗ High resolution images of Europa. NASA's Juno probe captures fascinating high-resolution images of Jupiter's icy moon Europa | Space

✗ Astrophotos. Stunning photos of outer space you won't believe are real (msn.com)

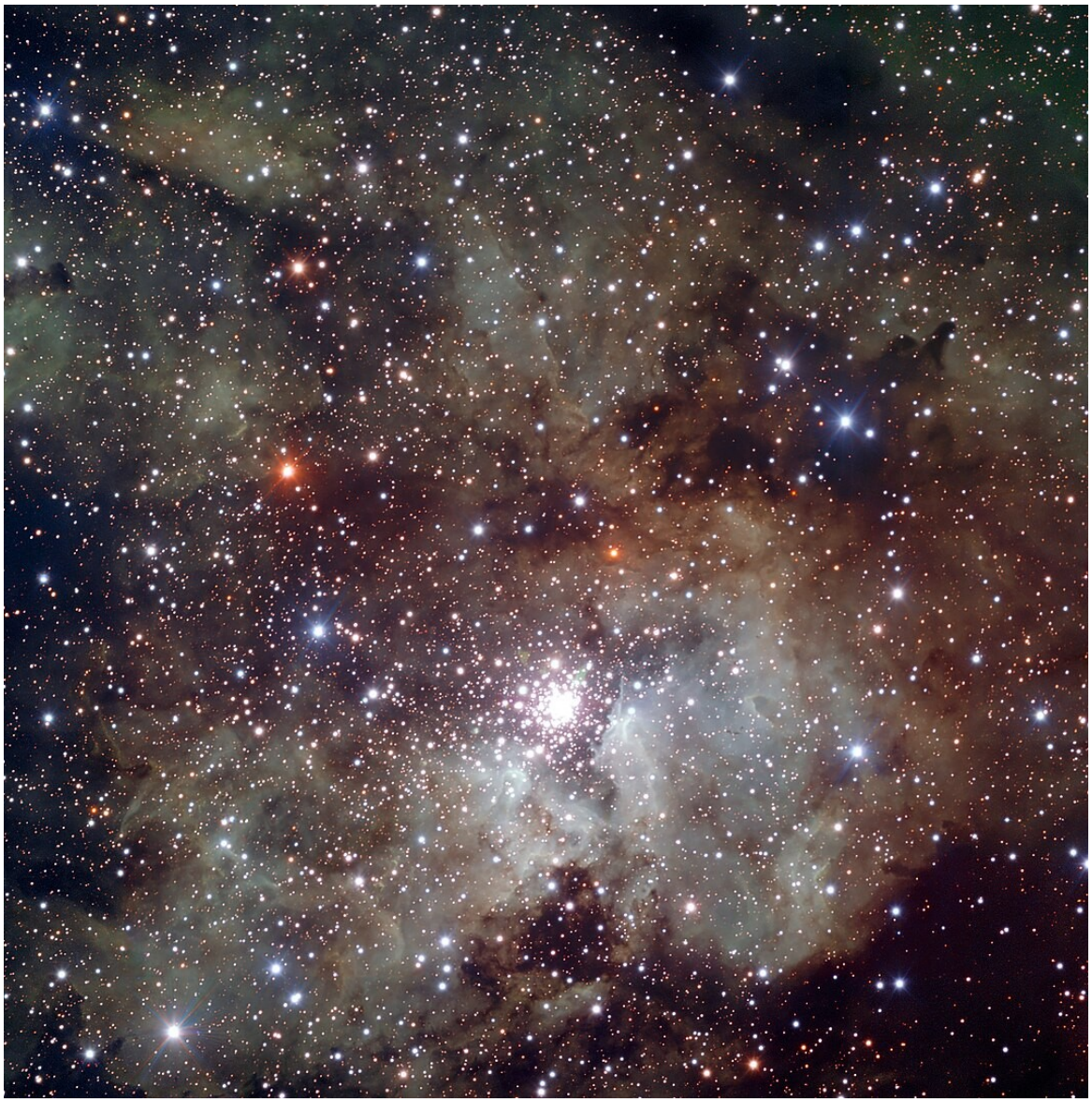
Observing. NGC 3603: More than gigantic - by Magda Streicher

The constellation Carina has some spectacular objects in its domain and of course one immediately thinks about the great Carina Nebula complex with its collection of brilliant stars engulfed in a misty veil. About 4 degrees east of Eta Carinae is the gigantic open cluster NGC 3603, young in age but sporting hundreds of O- and B-type stars. The heart of this cluster is a large collection of supergiant stars that are gravitationally bound to one another. The cocoon of bright stars is situated on the edge of the giant gas nebula catalogued as GN 11.14.0.01.

Almost half a degree further west, no fewer than seven nebulae with NGC numbers can be found, with several clusters further north. It's best to use filters when observing these flimsy nebulae situated in such a rich star field.

The constellation Carina brings a great sense of deep enchantment, as it is one of the greatest treasure troves of the Southern Hemisphere. **Ω**

OBJECT	TYPE	RA	DEC	MAG	SIZE
NGC 3603	Open cluster	11 h 15.2 m	- 61° 15.3'	9	4'



NGC 3603 in visible and near infrared light. Picture credit: Wikipedia

Notes about Magda Streicher - by Pierre Lourens

Magda Streicher is a very active and experienced observer of celestial objects. The image on the right is symbolic of one of the things she does: she writes articles about her astronomical observations. In this way she shows the wonders of the Universe to all who read her articles.

She is busy compiling a book containing about 180 articles on astronomical observing, written by herself. Some have been published in our newsletter since September 2014 and also in the newsletter of the Johannesburg Centre of the ASSA. The book is intended for use at the telescope. She expects it to be available by the second half of this year.

See the newsletter for November 2021 (on our website), page 9, to read about all her activities and achievements in astronomy.

Thank you for all the articles you have sent to me for the past ten years for publication in our newsletter, Magda! **Ω**

Top: Magda with her 12 inch Schmidt-Cassegrain Meade telescope in her observatory on their farm close to the Zimbabwe border.

Top: Magda's 16 inch Schmidt-Cassegrain Meade telescope. (Whisper: She had better guard such a treasure well, for I feel tempted to go and swipe it.)

Right: Caricature of Magda peering through her telescope, with Burnham's Celestial Handbook in her hand.

Astronomy basics: WorldWide Telescope – by Pierre Lourens

This is educational as well as entertaining. **WorldWide Telescope (WWT)** was discussed in previous issues of this newsletter. If you don't have it on your PC, or if you have an old version of it on your PC, download the latest version (version 6.1.2.0 of July 12, 2022) of **WWT** free from https://worldwidetelescope.org/about/ and install it on your PC.

Tip: For a start, double left click on the **WorldWide Telescope** icon on your desktop to open **WWT**. Left click on the **Guided Tours** menu, then on **Learning WWT** and then on **Educator's Tour** and so learn to use **WWT**. Then explore the Universe. with **WWT**. **Ω**

Feature of the month: Arp 271 - two interacting galaxies

Hubble Space Telescope spots a cosmic 'tug of war' between galaxies that could lead to a collision (image) | Space

NGC 5426 (bottom left)
and NGC 5427 (top right)

In this image, the central part of the Milky Way is rising beyond the La Silla Observatory, situated on a mountaintop in Chile. Seen toward constellation Sagittarius, our home galaxy's centre is flanked on the left by the New Technology Telescope of the **E**uropean **S**outhern **O**bservatory (ESO). To the right stands the 3.6 meter telescope of ESO. **Ω**

Sculpted by stellar winds and radiation, a magnificent interstellar dust cloud by chance has assumed this recognizable shape. Fittingly named the Horsehead Nebula, it is some 1 500 light-years distant, embedded in the vast Orion cloud complex. About 5 light-years "tall," the dark cloud is catalogued as Barnard 33 and is visible only because its obscuring dust is silhouetted against the glowing red emission nebula IC 434. Stars are forming within the dark cloud. Contrasting blue reflection nebula NGC 2023, surrounding a hot, young star, is at the lower left of the image. The featured gorgeous colour image combines both narrowband and broadband images recorded using several different telescopes. **Ω**

Web links for the astronomy enthusiast

- **The website for all information about the ASSA and the ASSA Centres:**
  https://assa.saao.ac.za/
- **ASSA Specialist Sections:**
  ASSA has various areas of interest. Join and participate!
  https://assa.saao.ac.za/sections/
- **ASSA Publications to download and enjoy:**
  MNASSA: https://www.mnassa.org.za/
  Nightfall: http://assa.saao.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.saao.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)
  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 "2024 SKY GUIDE Southern Africa". Ω**

Pretoria Centre committee

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