



NEWSLETTER AUGUST 2023

NEXT MEETING

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

Date and time: Wednesday 23 August at 19h15.

Programme:

- “What’s up in August?” by Michael Poll.
- Main talk: “Days, nights and seasons on Uranus” by Pierre Lourens.
- Socializing over tea/coffee and biscuits.

The chairperson at the meeting will be Bosman Olivier.

NEXT OBSERVING EVENING

Friday 18 August 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.

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Astronomy related articles on the Internet

Astronomers have no idea what this is.

[Mysterious Light Blinks in Space Every 21 Minutes: What Is It? \(popularmechanics.com\)](https://popularmechanics.com)

A postgraduate student has developed models that represent the radio frequency power that extraterrestrial societies would receive as the Earth rotates and the towers rise and set. [Can Aliens Detect Us? New Study Explains \(scitechdaily.com\)](https://scitechdaily.com)

Something huge and opaque caused a star in our galaxy to dim. What was it?

[Mystery object blotted out a giant star for 200 days \(nationalgeographic.com\)](https://nationalgeographic.com)

Visible in the evening sky in September.

[Meet Shaula and Lesath, Scorpion's Stinger stars \(earthsky.org\)](https://earthsky.org)

R136a1 is the most massive and luminous star ever discovered in the Universe. It is also one of the hottest stars, and it is located in the LMC. It is a Wolf-Rayet-Hypergiant star.

[R136a1 | Facts, Information, History & Definition \(nineplanets.org\)](https://nineplanets.org)

Astronomers are now seeking to pinpoint the origins of an exciting new form of gravitational waves that was announced earlier this year.

[A Background 'Hum' Pervades the Universe. Scientists Are Racing to Find Its Source - Scientific American](https://scientificamerican.com)

Scientists disagree about what life on other planets even means. Would we know it when we saw it? [The Tantalizing, Lonely Search for Alien Life | The New Republic](https://thenewrepublic.com)

This asteroid was spotted for the first time 2 days after it had passed close to Earth.

[Airplane-sized asteroid found 2 days after brush by Earth \(earthsky.org\)](https://earthsky.org)

A potentially dangerous space rock was discovered for the first time by an AI algorithm.

[AI algorithm discovers 'potentially hazardous' asteroid 600 feet wide in a 1st for astronomy | Space](https://space.com)

One side of the star is composed of hydrogen and the other side of helium. It is the first known white dwarf of its kind.

[2-faced white dwarf star surprises astronomers \(earthsky.org\)](https://earthsky.org)

The Scorpion's Crown and its stellar neighbourhood are visible in the evening sky in September. [The Scorpion's Crown and its stellar neighborhood \(earthsky.org\)](https://earthsky.org)

Boulders were ejected from Dimorphos, a moon of asteroid Didymos, after NASA's DART spacecraft smashed into the moon.

[Boulders from asteroid Dimorphos, after spacecraft impact \(earthsky.org\)](https://earthsky.org)

Megastorms on Saturn are much larger than hurricanes on Earth and can last for hundreds of years at a time.

[The centuries-long effects of Saturn storms \(earthsky.org\)](https://earthsky.org)

61 Cygni aka the Flying Star, is a double star with a high proper motion. Visible in the evening sky in September.

[61 Cygni – a double star – is nicknamed Flying Star \(earthsky.org\)](https://earthsky.org)

Powerful stellar winds from cool stars can threaten exoplanets.

[Powerful winds from cool stars can threaten exoplanets \(earthsky.org\)](https://earthsky.org)

Supermoons – by Michael Poll

The two “Supermoons” in August 2023 prompted this discussion. In the report of the observing evening for March 18th 2011, I wrote: *“The almost-Full Moon was in Leo, and there was some discussion about the Full Moon on March 19th occurring at perigee. This writer did not realize that there had been such a hoo-ha about this until he went home and read about it on-line and saw it on TV the next day. The Full Moon occurred more or less at the point in its orbit that is closest to Earth (perigee) and would therefore appear “bigger” than usual. Well, a lot of on-line comments were seen from people who had marveled at how big the Moon looked on March 19th. Talk about brainwashing? – people had been told that the Moon would look extra big that night and, by golly, so it did! However, there would have been little difference from February 19th, when the Moon was 0.5% further away than on March 19th, giving a difference in apparent size that would be totally indistinguishable to the naked eye, but nobody had been told to look at it on February 19th. Some sources, including Sky News, said that, on March 19th, the Moon would be “14% bigger”, but they did not say what the 14% was compared with. (In fact “14%” is the difference in apparent size of a Full Moon at perigee compared with one that occurs at apogee (furthest position from the Earth). Can it be that, when Full Moon next occurs at apogee, that the media will tell people to go out and see how much smaller than usual the Moon looks? Still, if it were not for events such as these, people might not go out and look at the sky at all.”*

Commentary

The expression “Supermoon” is not an official astronomical term, but it has crept into our vocabulary in recent years. The term was first coined by an astrologer, Richard Nolle, in 1979. He defined it as “a New or a Full Moon that occurs when the Moon is at or near (within 90% of) its closest approach to Earth in its orbit”. Nolle did not explain where he obtained the 90% cut off in his definition.

There are no official rules as to how close or far the Moon must be to qualify as a Supermoon or (yes!) a Micromoon. Different outlets use different definitions. Due to this, a Full Moon classified as a Supermoon by one source may not qualify as a Supermoon by another.

The following definitions are used at timeanddate.com:

- **Supermoon:** A Full or New Moon that occurs when the centre of the Moon is less than 360 000 kilometres from the centre of Earth.
- **Micromoon:** A Full Moon or New Moon that takes place when the centre of the Moon is farther than 405 000 kilometres from the centre of Earth.

Bruce McClure and Deborah Byrd in **HUMAN WORLD | SPACE** | gave these figures for 2019: “This year, the Moon at its closest point to Earth will be 356 761 km away. At this juncture, the Moon is said to be at 100 percent of its closest approach for the year. In 2019, the Moon at its farthest point swings out to 406 555 km from Earth. At that time, the Moon is said to be at 0 percent of its closest approach for the year. If you do the maths, for 2019, 90 percent of the Moon’s closest approach is 361 740 km”.

Although the expression “Supermoon” was coined in 1979, it wasn't until the last few years that the term received more attention. A [search on Google Trends](#) reveals that, starting from 2004, the word "supermoon" was not often used until at least 2011. (*Which is when I first heard about it – see Observing Report above MP*).

In 2016 Cincinnati Observatory outreach astronomer Dean Regas told Space.com that recent astronomical terms such as "Supermoon" or "Black Moon" (the latter a recent arrival in the lunar lexicon) could create a perception of (Continued on next page.)

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"false events" among the public. But Regas added that the "Supermoon" term is a great public outreach term for astronomy that could have other benefits beyond the event itself. "It's a great way to get the public interested," he said of the Supermoon. "It's something that they can relate to and they can go out and actually see."

References:

<https://earthsky.org/>

[Space.com: NASA, Space Exploration and Astronomy News](#)

Wikipedia talks about **Black Moons** thus:

Black moon is a name recently (2016) given to various New Moons, or absences of them, within a year. It is not a term used in astronomy and there is no single accepted definition of it. Among the meanings ascribed to it are these: (1) a second New Moon occurring in the same month; (2) the third New Moon in a quarter year that has four New Moons; (3) the absence of a New Moon in February; or (4) the absence of a Full Moon in February. Ω

Report for the observing evening on July 21st 2023 – by Michael Poll

Sky = Cloud: 100% cover. (eight eighths – see below) Attendees : One (1).
 Johan Smit had an online discussion with Doug Sharpe in the UK

How we measure cloud amount

At any time different types of cloud at different heights above the ground may be visible from an observing station. To cater for such variability both the total cloud amount and partial cloud amounts are reported. Total cloud amount is the fraction of the sky covered by cloud of any type or height above the ground. Partial cloud amount is the fraction of the sky covered by each type or layer of cloud as if it was the only type or layer of cloud in the sky. If a number of different layers of cloud are present the partial amount of each one will be reported. The sum of partial cloud amounts may exceed the total cloud amount or indeed exceed 100% of the sky.

Cloud amount is reported in oktas or eighths with the additional convention that:

- 0 oktas represent the complete absence of cloud
- 1 okta represents a cloud amount of 1 eighth or less, but not zero
- 7 oktas represent a cloud amount of 7 eighths or more, but not full cloud cover
- 8 oktas represent full cloud cover with no breaks
- 9 oktas represent sky obscured by fog or other meteorological phenomena

A laser cloud base recorder is used to estimate partial cloud amount. For each layer of cloud identified by the instrument a time weighted average is used to derive the average amount.

Such measurements are by their nature only representative of the cloud that has passed directly above the instrument, not of the total sky that is on view from the station. Total cloud amount is only reported from stations where the human observer is present.

Reference:

<https://www.metoffice.gov.uk/weather/guides/observations/how-we-measure-cloud> Ω

Summary for “What’s up in September” to be presented on August 23rd 2023 - by Michael Poll

These and other selected events will be highlighted:

Evening

August 30th Moon near Saturn

Full Moon

August 31st Full Moon 03h35. Blue Moon - 2nd Full Moon in a calendar month

Super Moon: 9 hours after perigee.

Morning

September 5th Moon between Jupiter and Pleiades

September 6th Moon nearest Pleiades

September 11th Moon and Venus

Evening

September 21st Moon near Antares

September 29th Full Moon 11h58. Super Moon: 1.37 days after perigee

There will be a discussion about Supermoons, about when and how the expression originated and what are the various definitions. (Also see the article on the subject elsewhere in this newsletter). The subject of Blue Moons will be presented as a Main Topic in September 2023.

The (southern) Spring Equinox occurs on September 23rd. The spring equinox can occur on September 21st, 22nd, 23rd, or 24th. The frequency of it occurring on these dates will be shown and the reason for the variation in dates will be explained, and why the insertion of a leap year stops the equinox from getting out of synchronisation with the calendar. Also to be discussed are the fears in KZN of very high tides at the 2007 September equinox after the exceptionally high tides at the March equinox earlier that year. The reasons for the fears being groundless will be given.

Selected constellations that can be seen in September are: **South:** Centaurus, Ara, Scorpius, Sagittarius, Pavo, Grus (the Crane), Capricornus, Piscis Austrinus. **North:** Lyra, Aquila, Cygnus. The constellations of **Lyra** and **Ara** will be highlighted – mentioning double stars, details of deep sky objects and the mythology of the two constellations. **Ω**

NOTICE BOARD

Blobs and blurs. In this project, volunteers will search for extremely faint and spread out galaxies (blurs) and isolated, blue, star-forming clouds (blobs). To identify these objects, volunteers will search bite-sized optical and UV images covering the nearby Fornax Galaxy Cluster.

[Blobs and Blurs: Extreme Galaxies in Clusters — Zooniverse](#)

Roswell flying saucer theory debunked. The “crashed flying saucer” at Roswell was actually a weather balloon - carrying a radar target - that burst and fell.

[Roswell incident – Wikipedia](#)

There is a movement in the USA to introduce legislation that will force government bodies to declassify government records about UAP’s.

[Will the proposed UAP Disclosure Act reveal UFO secrets? \(earthsky.org\)](#)

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.

Feature of the month: LIGO

The LIGO gravity wave detector opened a whole new window to the Universe.

[The Dark Universe Comes Into Focus - Scientific American](#)

Astronomy related images, video clips and documentaries on the Internet

Images from BepiColombo’s 3rd flyby of Mercury on June 19, 2023.

[Images from the 3rd Mercury flyby of BepiColombo! \(earthsky.org\)](#)

Images of the full supermoon on August 1, 2023.

[August 1 supermoon: Fav photos from our community \(earthsky.org\)](#)

Astronomy basics: The life and death of stars

[The Life and Death of Stars: White Dwarfs, Supernovae, Neutron Stars, and Black Holes - YouTube](#)

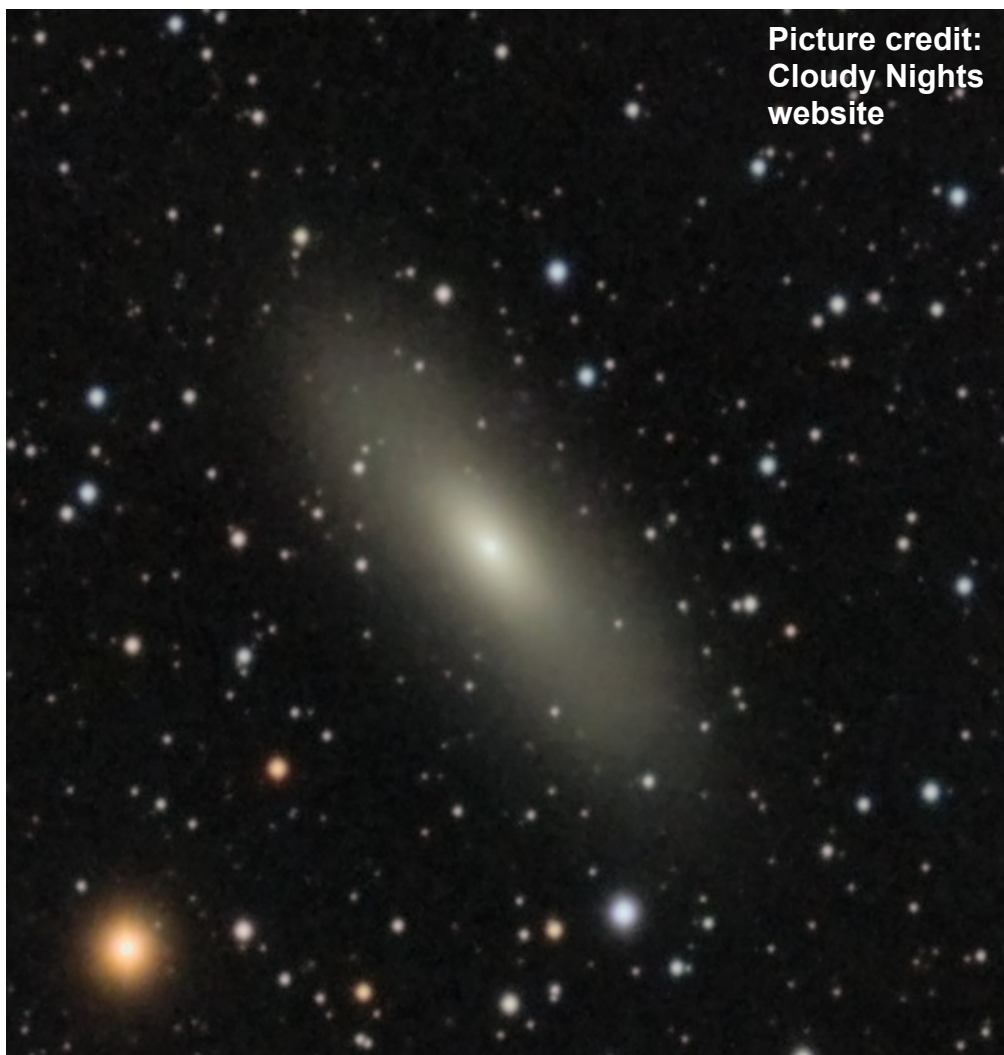
Observing: NGC 5102 - by Magda Streicher

Objects located near a relatively bright star have always fascinated me. Not only do they offer a special kind of observation, they also sometimes present a challenge as a result of the brightness of the nearby star.

NGC 404 is situated in the northern constellation Andromeda and only 6' north from Iota Andromedae (Mirach), a beautiful magnitude 2 orange-coloured star. It is a circular shaped galaxy with a fuzzy, slightly brighter nucleus. We do not have to envy the northern guys, because the southern starry skies are home to a similar scene, namely that of the galaxy NGC 5102, which is situated only 18' east of the magnitude 2.7 super white coloured Iota Centauri. Notwithstanding the fact that they are similar, the two galaxies differ in many respects. NGC 5102 appears as an elongated spindle galaxy in a north east to south west direction, with a very outstanding bright, dense nucleus. The edges seem slightly hazy, yet are well defined against a rather bare star field. The Hubble Space Telescope photometry indicates a large mass of recently formed stars and the blue colours of the bulge suggest that the current starburst, which is now fading, may have made a significant contribution towards building the bulge of NGC 5102. Ω

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

OBJECT	TYPE	RA	DEC	MAG	SIZE
NGC 5102	Galaxy	13h 21.3'	- 36° 38.1'	8.8	9.8' x 4'



Locked in a cosmic embrace, two large galaxies are merging at the center of this sharp telescopic field of view. The interacting system catalogued as Arp 93 is some 200 million light-years distant toward the constellation Aquarius. Individually the galaxies are identified as NGC 7285 (right) and NGC 7284. Their bright cores are still separated by about 20 000 light-years or so, but a massive tidal stream, a result of their ongoing gravitational interaction, extends over 200 000 light-years toward the bottom of the frame. Interacting galaxies do look peculiar, but are now understood to be common in the Universe.



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

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