



NEWSLETTER JUNE 2022

NEXT MEETING

Internet meeting. *

Date and time: Wednesday 22 June 2022 at 19h00.

Programme: “Madala Dark Matter in the Coma and Virgo Galaxy Clusters.”

by Tessa Collins **

Chairman: Michael Poll.

* You will receive an e-mail invite from Johan Smit around 18:30 to join the meeting. Please join as quickly as possible.

** This talk provides an overview of her study of the dark matter candidate from the South African proposed Madala boson. Tessa Collins is an MSc candidate at the school of physics at the University of the Witwatersrand.

Virtual observing evening chat

Date: Friday 17 June 2022. Time: 18h30. Johan Smit will open the meeting at around 18h15 and anyone who wishes to join the chat is welcome to join in the fun. Be seated in front of your computer at 18h15 with a glass of wine/beer/coffee.

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Astronomy related articles on the Internet

[EarthSky | Can binary-star planets support life?](#)

[Astronomers Find Hidden Trove of Primordial Black Holes in Dwarf Galaxies - The Daily Galaxy](#)

[EarthSky | New black hole image: 4 things we know](#)

[EarthSky | A new message to the stars? Beacon in the Galaxy](#)

Scientists are proposing a new message to the stars. Like others before them, they'd send a message in radio waves and binary code of mathematics, physics, our DNA, solar system and more.

[A newfound, slow pulsar shouldn't emit radio waves — yet it does | Science News](#)

[EarthSky | Black hole – a lone 'phantom' – spotted via Hubble](#)

For the first time, astronomers have discovered an isolated stellar-mass black hole, moving like a phantom among the stars of the Milky Way.

[Discovery of Two of the Largest Galaxies in the Universe - The Daily Galaxy](#)

This discovery was made by the MeerKAT radio telescope.

[EarthSky | Circumpolar stars never rise or set](#)

The closer you are to either of Earth's poles, the more circumpolar stars you see.

[EarthSky | Gaia 3rd data release: Starquakes, star DNA, more](#)

Gaia is a space observatory of ESA. It has gathered huge masses of data of two billion stars in the Galaxy – and is still doing so.

Astronomy related images, video clips and documentaries on the Internet

[EarthSky | See the best Milky Way photos of 2022](#)

[The Solar Orbiter spacecraft spotted a 'hedgehog' on the sun | Science News](#)

New images are from the ESA-NASA mission's closest flyby yet of our star.

[EarthSky | Video: Perpetual Ocean will wow you](#)

See the movement of the liquid water ocean on the third planet from the Sun.

Astronomy basics: Our closest tars

[\(595\) Our Closest Stars. What Lies beyond the Solar System? - YouTube](#)

What's up in July 2022? - by Michael Poll

This month is the middle month of the winter of 2022. July promises clear winter skies and the humidity should be low, providing excellent possibilities to spot difficult deep-sky targets.

The Delta Aquariids meteor shower peaks between 26 and 28 July and can provide up to 20 meteors per hour in a dark sky – New Moon is on 28 July and provides an ideal opportunity to view this meteor shower.

The Moon phases for July 2022

First quarter Thursday 7 July
 Full Moon Wednesday 13 March
 Last Quarter Wednesday 20 July
 New Moon Thursday 28 July

The full Moon on 13 July is also known as the Meerkat Moon and will be the largest full Moon of 2022. The Moon will be 353 850 km from Earth at perigee.

The Centre for Astronomical Heritage reports on their website about the Meerkat Moon (<https://cfah.org.za/fullmoon/meerkat-moon/>): "In San mythology the meerkat features prominently. One rendition of how the meerkat came into existence describes an event that befell a group of people. They were attacked by lions and all the adults of the family were eaten. The children managed to escape into holes in the ground where they had to hide for so long that they began to transform. Those wearing karosses (cloaks) of jackal skins became ground-squirrels but those wearing karosses of other game animals became meerkats." On the website, it is also mentioned that the MeerKAT (KAT: **K**aroo **A**rray **T**elescope) near the Karoo town Carnarvon in the Northern Cape province, was inaugurated on 13 July 2018. It consists of 64 radio dishes and is a precursor to the SKA project.

The Planets

Four of the 5 naked-eye planets are visible at dawn during the whole month. Venus rises round about 05h00, but the other 3 are all visible since much earlier. Mercury will be prominent just after sunset during the last week of the month. Uranus and Neptune will also be visible in the pre-dawn sky.

Mercurius: Visible at dawn just after sunset rising ever higher during the last week of the month. The planet is also visible in the morning sky during the first week of the month.

Venus: Rises at about 04h55 on 1 July and is visible low on the horizon for the whole month.

Mars: Rises at about 01h55 on 1 July and steadily earlier in the morning sky during the whole month.

Jupiter: Rises around midnight on 1 July and steadily earlier in the morning sky during the month.

Saturn: Rising at about 21h00 on 1 July and later every day. Visible in the morning sky during the whole month after midnight

Neptune: Visible near Jupiter during the whole month, rising about midnight on 1 July

Uranus: Rises around 03h00 in the morning on 1 July and steadily earlier during the rest of the month.

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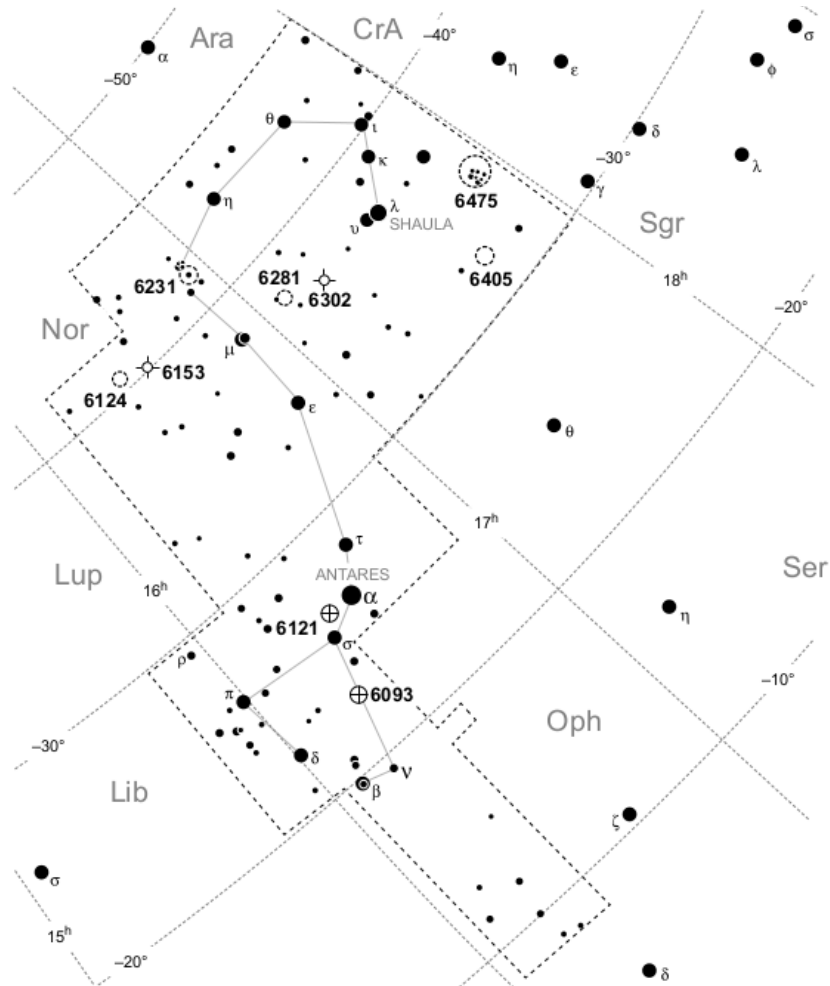
The Moon forms interesting pairings with the planets during the month: on 16 July the Moon is near Saturn; on 18 July the Moon is near Neptune; on 19 July near Jupiter; on 21 and 22 July the Moon is near Mars. On 24 to 26 July the nearly New Moon is near Venus.

Constellations

The winter constellation, Scorpius is prominent during the month, as is its companion, Sagittarius, providing good viewing of its magnificent deep sky objects during the month. It is a good time to view Sculptor and its famous Sculptor galaxy or Silver Dollar galaxy aka NGC253. Crux and Centaurus also provides good viewing and the Virgo-Coma galaxy fields are also visible earlier in the evening.

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.



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NGC 6093 or M80

Object description Globular Cluster
 R.A. Position 16h 17m 2.5s
 Dec. Position $- 22^{\circ} 58' 30.39''$
 Distance 8.7 kiloparsecs (28 000 light-years)
 Dimensions The image is 3 arcminutes on the vertical side
 Magnitude 7.3

NGC 6121 or M4

Object description Globular Cluster
 Right ascension 16h 23m 35.22s
 Declination $- 26^{\circ} 31' 32.7''$
 Distance 7.2 kly (2.2 kpc) [citation needed]
 Magnitude 5.6

NGC 6124 or Caldwell 74

Object description Open Cluster
 Right ascension 16h 25m 36s
 Declination $- 40^{\circ} 40' 00''$
 Distance 1860 ly (512 parsec)
 Magnitude 5.8

NGC 6153

Object description Planetary Nebula
 Right ascension 16h 31m 30.6s
 Declination $- 40^{\circ} 15' 12''$
 Distance 4400 ± 400 ly (1400 ± 120 parsec)
 Magnitude +9.9

NGC 6231 or Caldwell 76

Object description Open Cluster
 Right ascension 16h 54m
 Declination $- 41^{\circ} 48'$
 Distance 5600 ± 400 ly (1700 ± 130 parsec)
 Magnitude 2.6

NGC 6281

Object description Open Cluster
 Right ascension 17h 04.7m
 Declination $- 37^{\circ} 59'$
 Distance 1611 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 $- 37^{\circ} 06' 15.94''$
 Distance 3.4 ± 0.5 kly (1.04 ± 0.16 kiloparsec)
 Magnitude 7.1

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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

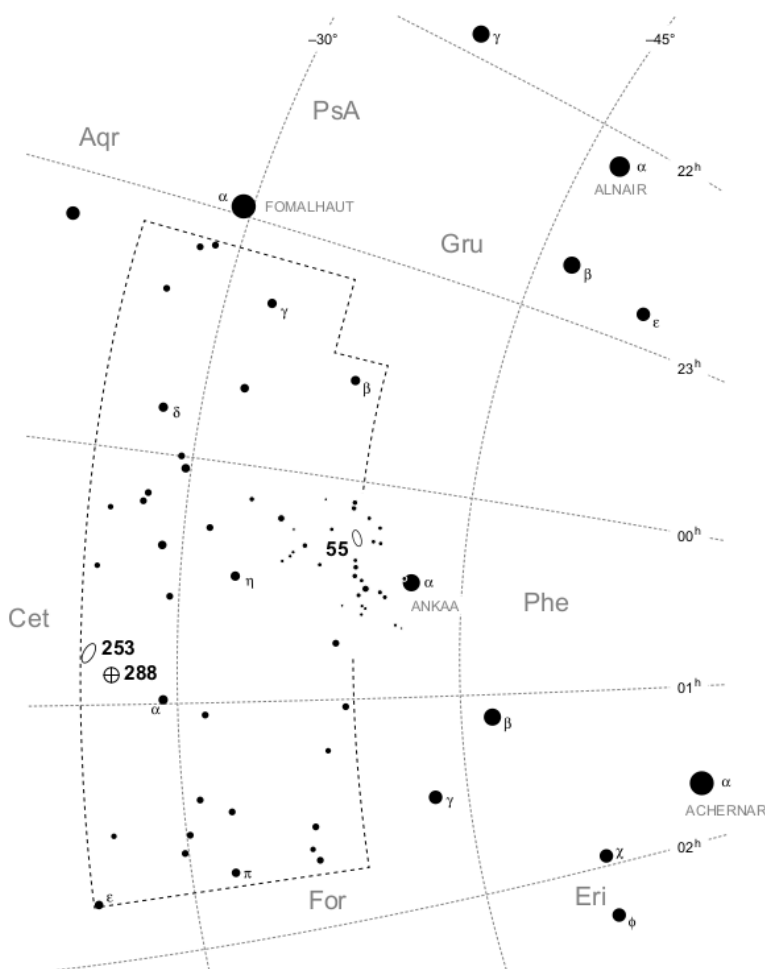
Object Description Open Cluster
 Right ascension 17h 53m 51.2s
 Declination - 34° 47' 34"
 Distance 980 ± 33 ly (300 ± 10 parsec)
 Magnitude 3.3

Sculptor

Sculptor is a faint constellation with no stars brighter than magnitude 4. The brightest star is Alpha Sculptoris with a visual magnitude of only 4.3. This is a blue-white giant star located 780 light years from Earth. The second brightest star is Beta Sculptoris with a magnitude of 4.38. It is a blue-white subgiant star approximately 178 light years distant. The third brightest star is Gamma Sculptoris with a magnitude of 4.41. It is an orange giant star that lies approximately 179 light years from our solar system.

NGC 55 or the Whale Galaxy

Object description Spiral Galaxy
 Right ascension 00h 14m 53.6s[2]
 Declination - 39° 11' 48"[2]
 Redshift 129 ± 2 km/s[2]
 Distance 6.5 ± 0.65 Mly (2.00 ± 0.2 Megaparsec)
 Magnitude 7.87



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NGC 253 also known as the Silver Coin, Silver Dollar Galaxy or Caldwell 65

Object description	Spiral Galaxy
Right ascension	00h 47m 33s[1]
Declination	- 25° 17' 18"[1]
Redshift	0.000811
Distance	11.4 ± 0.7 Mly (3.5 ± 0.2 Megaparsec)
Magnitude	8.0

NGC 288

Object description	Open Cluster
Right ascension	00h 52m 45.24s[2]
Declination	- 26° 34' 57.4"[2]
Distance	29.22 ± 0.16 kly (8.96 ± 0.05 kpc)[3]
Magnitude	9.37 Ω

Feature of the month: Asteroid deflection

Many countries spend large sums of money to build up huge armies and arsenals of weapons, but don't spend any money on the development of asteroid deflection technology. But the ball has started rolling. In a test of planetary defense, scientists used a recent close approach of asteroid Apophis as a trial run to determine how they could quickly track and identify a hazardous space rock. Ω

[EarthSky | Planetary defense exercise: This was only a test](#)

NOTICE BOARD

For your diary: 11th National Karoo Star Party at the Kambro Guest Farm 21 km north of Britstown, next to the N12 national road. It will take place from 27 to 31 July 2022. For accommodation, see [Kambro Accommodation and Farm Stall, 21 km north of Britstown](#) or phone Wilma Strauss at 083 305 6668.

When is the June solstice? The June solstice – summer solstice for the Northern Hemisphere, winter solstice for the Southern Hemisphere – will be at 11h14 SAST on Tuesday, June 21, 2022. The Sun moves (apparently) eastward along the ecliptic as Earth moves around the Sun. At this moment, the position of the Sun will reach its northernmost point at declination +23.44°. From then on, the Sun will start moving southwards in the sky, slowly at first, then more rapidly. The path of the Sun will correspondingly move southwards in the sky.

UFOs. NASA is putting together an independent team of researchers to study sightings of unidentified aerial phenomena, or UAPs, the updated term now used to refer to UFOs. NASA plans to study these sightings from a scientific perspective but also stressed that "*there is no evidence UAPs are extra-terrestrial in origin.*" (The Pentagon's new UAP task force now has collected approximately 400 reports of unexplained cases.) [NASA is putting together a research team to study UFOs - The Verge](#)

See the video clip at

[NASA Zooms in on UFOs to Is Life the Result of Entropy? \(Planet Earth Report\) - The Daily Galaxy](#)

Small 4¼ inch Newtonian telescope for sale. This was advertised in the newsletter for April 2021. The price has now been reduced to R1 000.

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.

Data base: Members are reminded that a data base of the books in our library is to be found on our website.

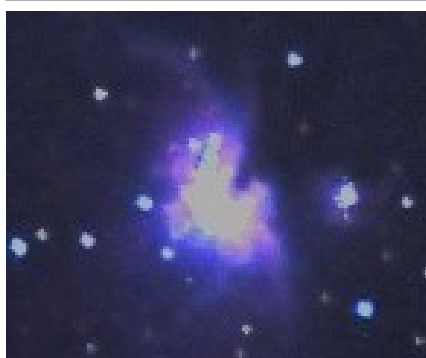
Observing: The famous Orion Nebula - by Magda Streicher

The well-known Orion Nebula, also known as Messier 42 glows mistily toward the waist of the great Orion Hunter and highlights his sword in a special way. Most amateurs enjoy the great celestial scene many times and never get tired of this spectacular object. In the heart of the Orion nebula are also the stars in the Trapezium shining between 5 and 8 magnitude. The Trapezium A and Trapezium C stars each has a fainter companion to be spotted. The nebula, almost 40 light-years in diameter, bathes in the light of these stars and in combination is known as Theta Orionis. Many fainter stars mingle with the nebulosity in this large emission nebula that spreads out its flimsy swirls of gas.

A challenge is to study the many variable stars sprinkled across the whole lit-up area of the nebula. NGC 1982 or better known as M43 is the comma-shape bright nebula surrounding a 7 magnitude star bordering the northern edge of NGC 1976 aka M42. Not to be overlooked, M43 harbours a wealth of interesting features and together with M42, it is a sight to behold for young and old. Stephen O'Meara noted this wonderful object as an emerging embryo cradled in a soft womb of nebulosity.

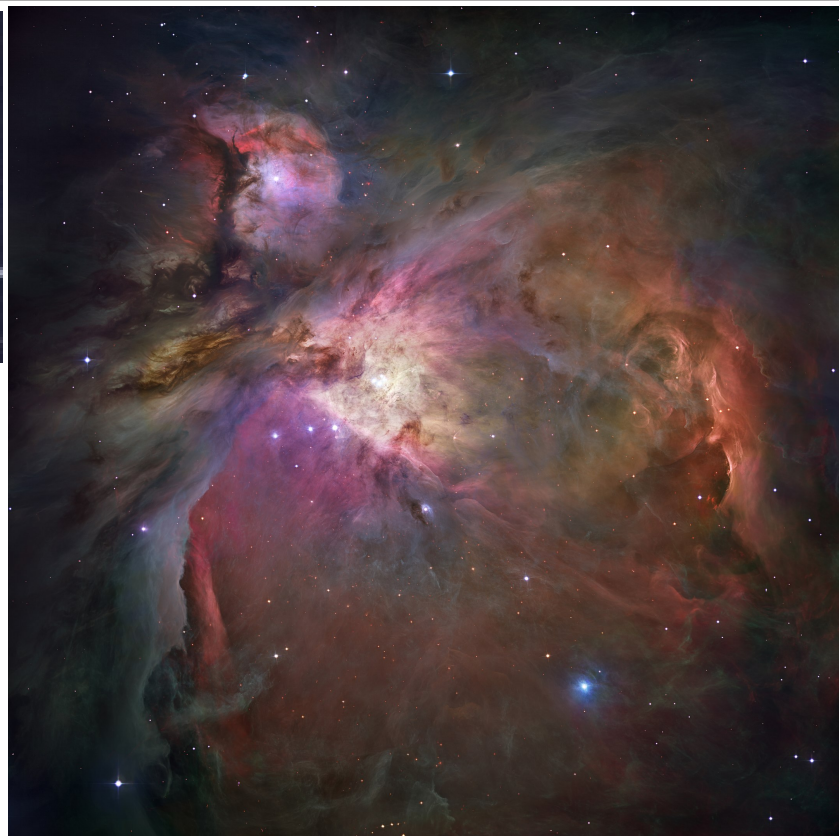
Motivation can also be a challenge for the young at heart as is shown in the photograph below taken by young Liam Nel (who is just 13 years old) with his father's cell phone. I do not doubt that this young lad started the first of many observations to give him a lifelong enjoyment of deep sky objects, which will enrich his life. The Orion Nebula has so much to offer and will always be one of the best to admire against our starry skies. (Magda Streicher's e-mail address: [magdalena@mweb.co.za](mailto:magdalenamweb@co.za)) Ω

OBJECT	TYPE	RA	DEC	MAG	SIZE
NGC 1976 aka M42 NGC 1982 aka M43	Galactic Nebula	05 h 35.4 m	- 05° 27.2'	5	36'



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Top: photograph taken by Liam Nel.

Right: The entire Orion Nebula in a composite image of visible and infrared light, taken by the HST.



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*, 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>
- ◆ **More web links can be found on page 118 of “2022 Sky Guide Africa South”. Ω**

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