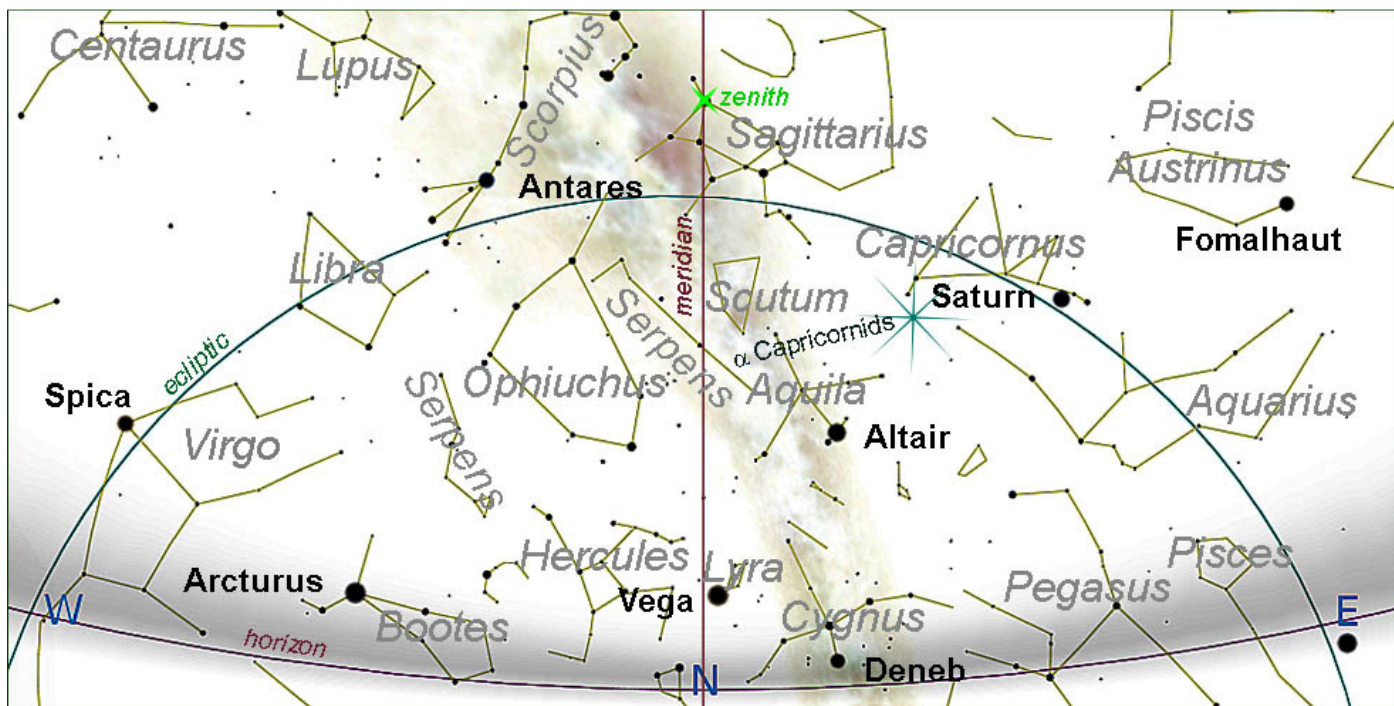
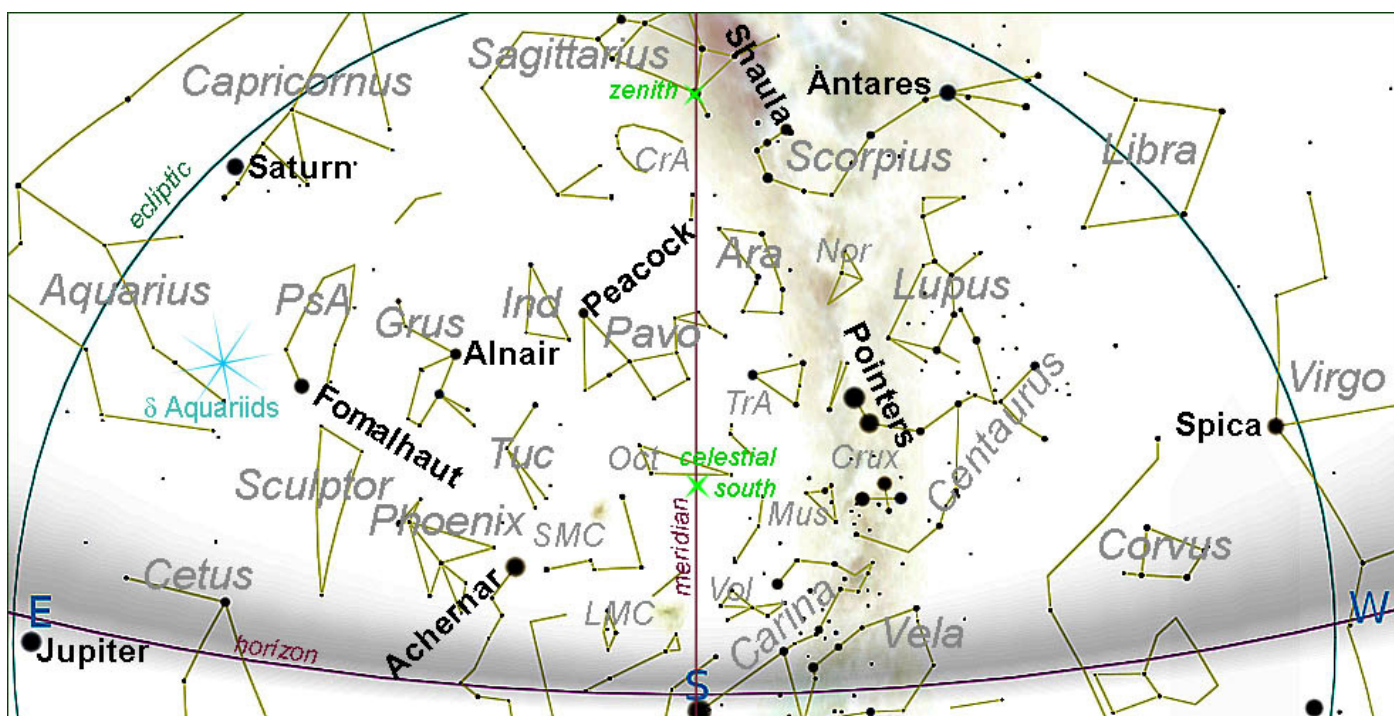


SKY CHARTS

EVENING SKY 23rd AUGUST at 21h00 (NORTH DOWN)



EVENING SKY 23rd AUGUST at 21h00 (SOUTH DOWN)



THE SOLAR SYSTEM

PLEASE NOTE: All events predicted are as observed from **Hermanus, Western Cape, South Africa.**

HIGHLIGHTS FROM THE SKY GUIDE

<i>Date</i>	<i>Time (SAST)</i>	<i>Item</i>
2	20h29	Moon crosses Earth's equator southbound
		Venus crosses the ecliptic
4	After sunset	Mercury within 1° of Regulus as they set
5	13h06	First quarter Moon
7		Moon (72%) near Antares in the east
9	08h34	Moon southernmost (-27.0°)
10		Moon (94%) passes south of Pluto
	19h16	Moon at perigee (329 829 km)
12	03h35	Full Moon
		Moon passes south-west of Saturn
13		Mercury crosses the ecliptic
14		Moon (94%) passes south-west of Neptune
	19h11	Saturn at opposition *
15		Moon (88%) passes south-west of Jupiter
	11h40	Moon crosses the equator northbound
18		Moon (60%) passes north-east of Uranus
19	06h36	Last quarter Moon
22	17h08	Moon northernmost (+27.1°)
	23h54	Moon at apogee (405 418 km)
23	23h21	Mercury at aphelion (0.467 au)
24	01h24	Moon (8%) passes 1.8° south of Pollux
	17h13	Uranus stationary
26	01h00	Moon (1%) passes 4.4° north-west of Venus
27	02h38	Moon passes 4.8° north-west of Regulus (α Leo)
	10h17	New Moon
		Mercury at eastern elongation (27° 19')
29	19h40	Moon (4%) passes 6.1° north of Mercury
30	01h21	Moon crosses the equator southbound

* Note the relative brightness of Saturn's rings compared to its disc. Over the preceding few evenings, the rings will slowly brighten to a peak at opposition on **14th August**. But the bright Moon (94% waning gibbous) rises at 21h03 on 14th which suggests an earlier observation time. Officially, dusk ends at 19h37 so any time from 20h00 to 21h00 should be fine. *If the weather be good!*

SUGGESTED EVENING OBSERVATION WINDOWS (*Lunar observations notwithstanding*)

<i>Date</i>		<i>Moon</i>	<i>Dusk end</i>
18th August	<i>Rises</i>	00h13 (60%)	19h40
to 29th August	<i>Sets</i>	20h30 (4%)	19h46

SOLAR SYSTEM VISIBILITY

AUGUST 2022			23 rd August	Visibility
Sun Length of day	Leo 11h05	Rises:	05h14	Never look at the sun without SUITABLE EYE PROTECTION!
		Transit:	10h46	
		Sets:	19h18	
Mercury Magnitude Phase Diameter	Virgo +0.2 59% 7"	Rises:	06h20	Low in the west after sunset
		Transit:	12h24	
		Sets:	18h28	
Venus Magnitude Phase Diameter	Cancer -3.9 96% 10"	Rises:	04h31	Low in the east before sunrise
		Transit:	09h44	
		Sets:	14h58	
Mars Magnitude Phase Diameter	Taurus 0.0 85% 9"	Rises:	23h28	Morning
		Transit:	04h37	
		Sets:	0944	
Jupiter Magnitude Diameter	Cetus -2.8 48"	Rises:	19h07	All night
		Transit:	01h09	
		Sets:	07h06	
Saturn Magnitude Diameter	Capricornus +0.3 19"	Rises:	15h24	All night
		Transit:	22h10	
		Sets:	05h01	
Uranus Magnitude Diameter	Aries +5.7 4"	Rises:	22h26	Morning
		Transit:	03h44	
		Sets:	08h57	
Neptune Magnitude Diameter	Aquarius +7.8 2"	Rises:	18h06	All night
		Transit:	00h20	
		Sets:	06h31	
Pluto Magnitude	Sagittarius +14.3	Rises:	13h21	All night
		Transit:	20h31	
		Sets:	03h44	

Phase: In a telescope, the inner planets (Mercury, Venus and Mars) appear to us in phases as does the Moon, depending on the angle of the Sun's illumination. The **angular diameter** is given in arc seconds ("). This is the apparent size of the object as we see it from Earth. **Transit:** When an object crosses the **local meridian** it is said to **'transit'**. The local meridian is an imaginary line from the horizon directly north passing overhead (through *zenith*, see charts on page 1) to the horizon directly south.

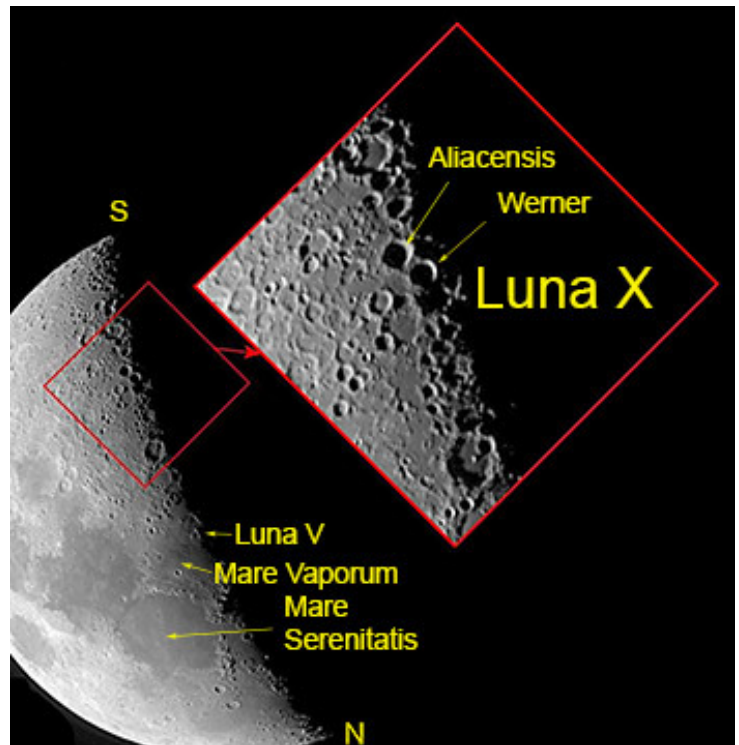
Magnitude: we are accustomed to hearing stars described in terms of 'magnitude'. For example the planet Jupiter at magnitude -1.8 is considerably brighter than the star Antares (in Scorpius) at +1.05. The scale is 'inverse'; the brighter the object, the lower the number. A 'good' human eye on a clear night can see down to a magnitude of about +6.

THE MOON

Thursday 4 August: The clair-obscur effects known as the Lunar X and V will be visible on the terminator of the Moon (the line between light and dark). The lighting effects are visible for over an hour, reaching a peak at around 20h20 SAST.

Herewith a link to a video on the subject. https://youtu.be/ai_XJLKoV6A. But be aware that this is as observed from the northern hemisphere so the “V” is more of a “kappie” to us!

These features are depicted on the Moon pages in SGAS 2022; pp. 68 and 69.



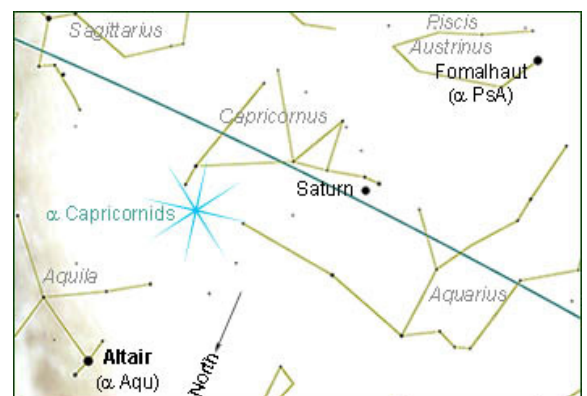
No lunar or solar eclipses will be visible from southern Africa this month.

METEOR SHOWERS

<u>From SGAS 2022</u>	<i>Maximum Date/Time</i>	<i>Observing Prospects</i>	<i>Duration</i>	<i>Radiant</i>	<i>ZHR*</i>	<i>Velocity Km/sec</i>
Southern δ Aquariids	1 August 22h00 – 05h00	15% Moon sets 21h36 On 1 st August	21 July – 29 August	14° north of Fomalhaut (α PsA)	25	42
α Capricornids	1 August 20h00 – 04h00		15 July – 25 August	The chart below is timed at 1 Aug 24h00	5 - 10	25

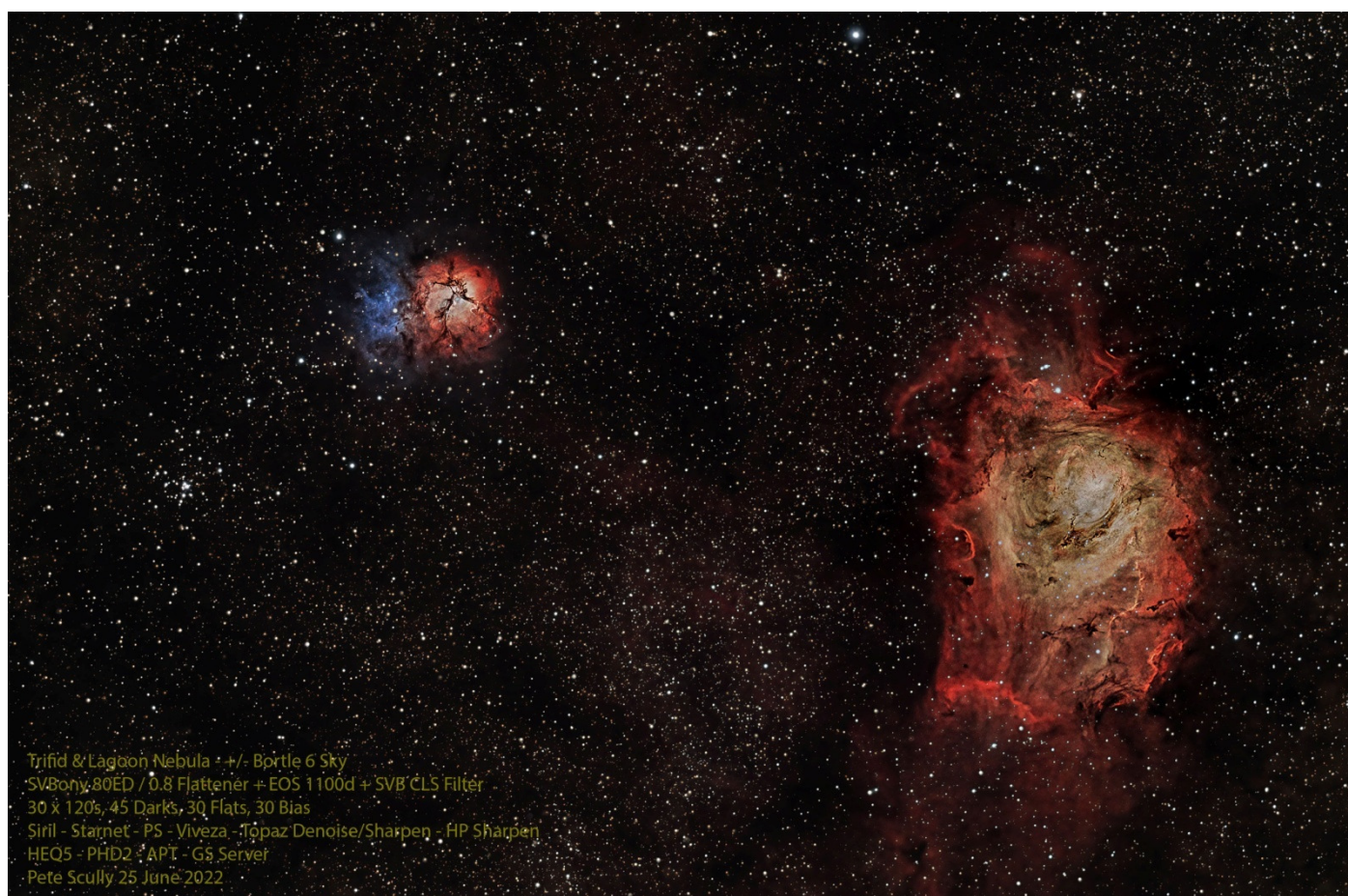
**A word of caution regarding predicted Zenithal Hourly Rate (ZHR):*

A meteor shower's activity is gauged by its zenithal hourly rate. This value is often quoted in the press and astronomy publications and has sometimes been the source of misunderstanding and disappointment. ZHR is an ideal value; it is by definition the number of meteors a single observer could possibly see during a shower's peak with the radiant directly overhead on a clear, dark night. Most observers, however, will not see as many meteors as the ZHR suggests.



For more details regarding meteor watching, please see SGAS 2022, pages 86 - 87.

OUR MEMBERS' IMAGES



*The Trifid Nebula (M20, NGC 6514) and The Lagoon Nebula (M8, NGC 6523).
 Image courtesy of Pete Scully.*

LOOKING OUT



CLUB STARGAZING – the possibility of Stargazing is now back thanks to the relaxation of the COVID restrictions although we have none currently planned.

Please consult our website for updates:
<http://www.hermanusastronomy.co.za>

THE TRIFID NEBULA M20, NGC 6514

<i>Description</i>	Bright nebula	Visibility on 23rd August 2022 at 21^h00		
<i>Constellation</i>	Sagittarius	<i>Rises</i>	<i>Transits</i>	<i>Sets</i>
<i>Distance</i>	5.2 kly, 1.6 kpc	13h29	20h39	03h53
<i>Magnitude</i>	+6.3			
<i>Apparent size</i>	29.0 x 27.0 arcmin	<i>Naked Eye</i>	No	
<i>Actual size</i>	43.9 ly, 13.5 pc	<i>Binoculars</i>	Ellipse of haze	
<i>Alt/Az</i>	+77° 43' 50" / 336° 39' 43"	<i>Telescopes</i>	Yes	
<i>J2000 lat/long</i>	-23° 02' 00" / 18h 2m 18s			

DISCOVERY AND HISTORY

Messier 20's discovery is attributed to Le Gentil "before 1750" as well as to **Charles Messier** on 5th June 1764, who added it as the 20th entry in his catalogue, describing it as "a cluster of stars of 8th to 9th magnitude, enveloped in nebulosity". Messier's remark on nebulosity also includes the nearly open cluster **M 21** (central left in Pete Scully's image above).

NAMING

This is one of the most famous objects in the sky. William Herschel assigned four different numbers to parts of this nebula: H IV.41, H V.10, H V.11, H V.12. Herschel, who normally avoided numbering Messier's objects in his own catalog, may have done so because Messier merely described it as "Cluster of Stars." The name "Trifid" (meaning "three-lobe") was first used by John Herschel, who assigned only one catalog number to the whole object (h 1991, h 3718, GC 4355) which became NGC 6514 in J.L.E. Dreyer's New General Catalog. The dark nebulae which give the Trifid its appearance were catalogued by E. E. Barnard as B 85.

DESCRIPTION

The object is an unusual combination of an open cluster of stars, an emission nebula (the relatively dense, reddish-pink portion), a reflection nebula (the mainly blue portion) and a dark nebula (the apparent 'gaps' in the former that cause the trifurcated appearance, also designated **Barnard 85**) that divides the emission nebula into three parts. It is an H II region in the north-west of Sagittarius in a star-forming region in the Milky Way's [Scutum-Centaurus Arm](#).

AMATEUR OBSERVATION

M 20 is easily spotted in binoculars as an ellipse of haze. Viewed through a small telescope, the Trifid is a perennial favourite of amateur astronomers and photographers. M 20 is situated roughly 2 degrees northwest of the larger **Lagoon Nebula** (M 8) and even closer to the open cluster M 21.

The Trifid is nearly the size of the full moon, containing both reddish emission and bluish reflection nebulosity. The red emission nebula and young star cluster near its centre is surrounded by a blue reflection nebula which is particularly conspicuous at the northern end. The emission nebula spans a diameter of 15' around the central star. The fainter reflection nebula to the north, surrounding a yellowish magnitude 7.5 star, appears about half this size. Both sections of the nebula are enveloped by a faint outer haze that reaches a diameter of 30', and is more extensive to the east.

The relatively high surface brightness of M 20 provides a good contrast to its three dark, radial dust lanes. The three sections into which the dark lanes divide the nebula are unequal in area; the northern is largest, and the SW the smallest. The dark lanes themselves are unequal in length and width: the NE lane is longest and most distinct; the west lane is broad and short; and the south lane is thin and short. The lanes do not converge directly, but lead to a circular, mottled central area. High power reveals a short and very thin lane headed straight north from the inner half of the west lane.

The emission nebula's central star, HD 196692 or ADS 10991, is not located in the mottled area, but at the tip of the nebula's eastern segment. It is a multiple system of integrated magnitude 7. Its two brightest components (AC, 10.6" apart) each have two faint companions, making a sextuple system of individual magnitudes 7.6 (A), 10.7 (B), 8.7 (C), 10.7 (D), 12.6 (E), 14.0 (F), and 13.4 (G). The presence of these bright stars makes magnitude estimates for the nebula difficult; they vary widely, from 6.8 to 9.0.

Situated on M 20's northern edge is HD 164514. This supergiant, of visual magnitude 7.4 and spectral type A5 Ia, illuminates M 20's blue reflection nebulosity.

PROPERTIES AND EVOLUTION

M 20 is estimated to lie about 5 200 light years away on the far side of the same complex of nebulosity that includes the Lagoon Nebula, M 8. The Trifid's exact distance is rather uncertain, with estimates ranging from 2 200 to 9 000 light years. At the value of 5 200 light years adopted here, the Trifid spans a diameter about 10 light years across.

M 20 is only about 300 000 years old, making it among the youngest emission nebulae known. All of its bright central stars are extremely hot, of spectral type O5 to O7. They illuminate a dense pillar of gas and dust, producing a bright rim on the side facing them. Star formation is no longer occurring in the immediate vicinity of the central star cluster because its intense radiation has blown away the gas and dust from which new stars are made.

In 1997, the Hubble Space Telescope, using filters that isolate emission from [hydrogen atoms](#), [ionized sulfur](#) atoms and doubly ionized [oxygen](#) atoms, zoomed in on the stellar nursery in the Trifid being torn apart by radiation from its central stars. It observed evaporating gaseous globules (EGGs) similar to those seen in the Eagle Nebula's "Pillars of Creation" region, as well as stellar jets protruding from young stellar objects deep within the cloud. In 2005, the Spitzer Space Telescope, observing at near infrared wavelengths, discovered 30 embryonic stars and 120 newborn stars in the Trifid Nebula which are invisible in the optical part of the spectrum.

Images of the Trifid Nebula appear on the set of the star ship Enterprise in many episodes of the Star Trek television series.

Please keep in touch...

Have a look at our excellent website, edited by Derek Duckitt.

<http://www.hermanusastronomy.co.za/>

Contact ASSA - Get in touch with officers of the Society - we're real people with a passion for astronomy, **so contact us and let's talk!**

You can find us on [Facebook](#), [Twitter](#), the [ASSAInfo mailing list](#) and the [ASSADiscussion mailing list](#).

ASSA website <http://assa.saa.ac.za>
[ASSA Deep-Sky Section](#)

[Whatsappchat](#) group: [074 100 7237]

[MNASSAhttp://assa.saa.ac.za/about/publications/mnassa/](http://mnassa.saa.ac.za/about/publications/mnassa/)

[Nightfall https://assa.saa.ac.za/?s=Nightfall](https://assa.saa.ac.za/?s=Nightfall)

[Official Big 5 of the African Sky web page](#)

[Official Big 5 Facebook group](#)

[ASSA Deep-Sky Section mailing list](#)

Wikipedia

Edited by Peter Harvey -
petermh@hermanus.co.za–

Tel: +27(0) 81 212 9481

Grateful thanks to the following:

ASSA
BBC Sky at Night
Sky Guide Africa South2022
Sky Safari
Stellarium