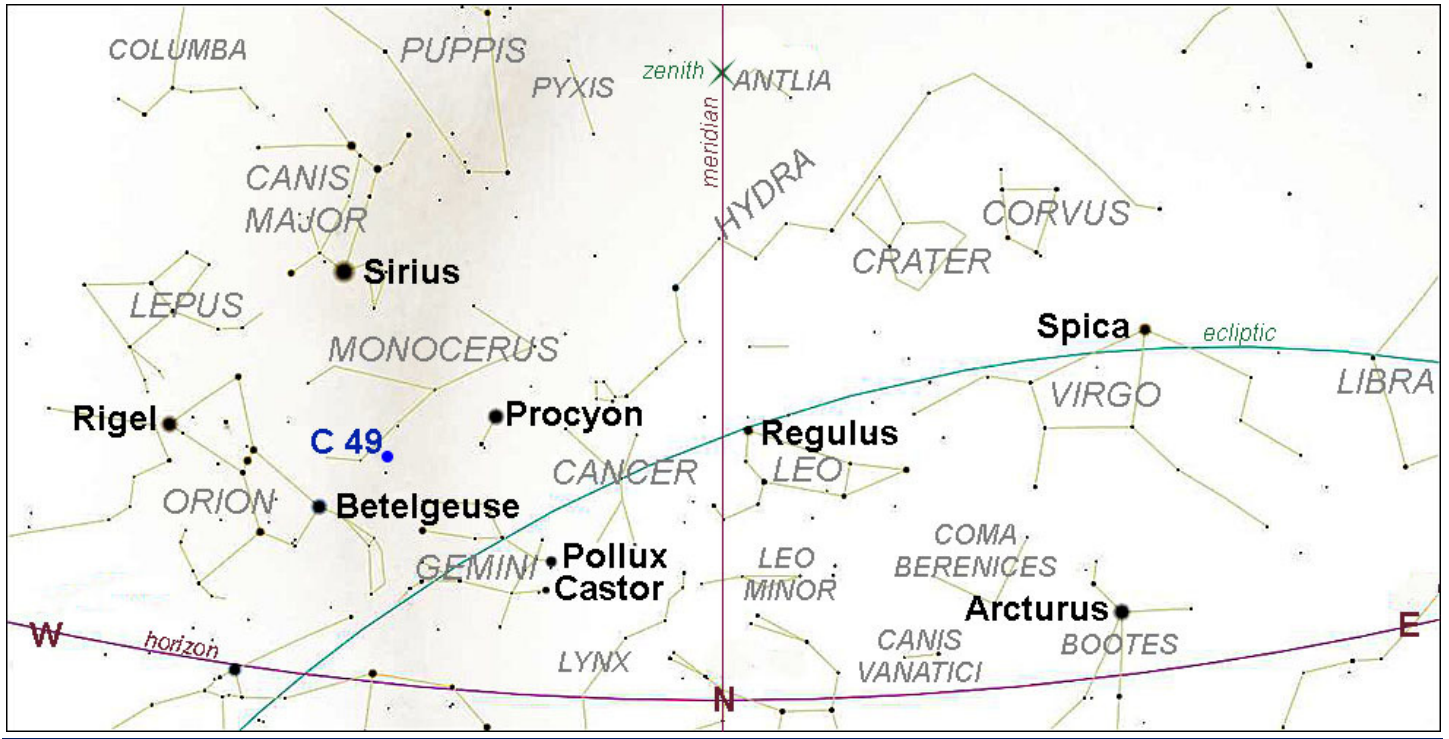
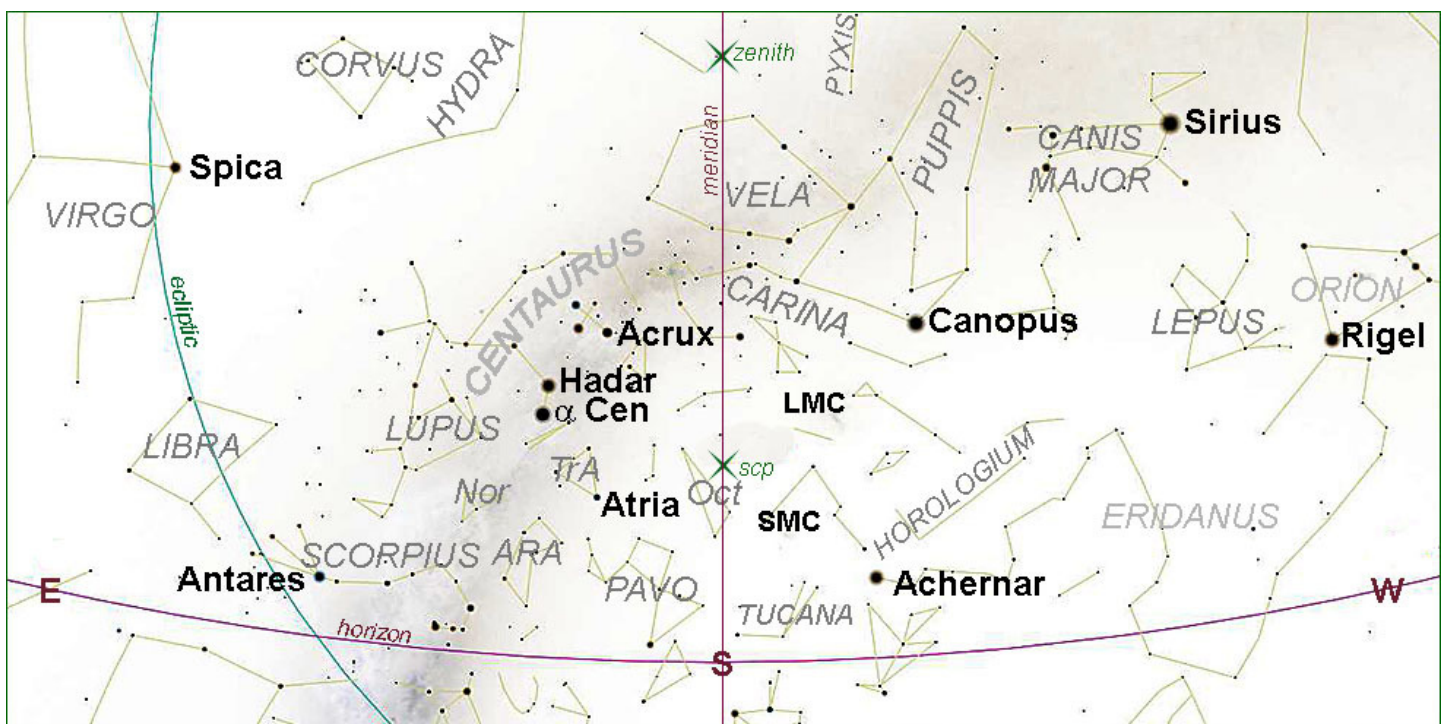


SKY CHARTS

EVENING SKY APRIL 7th at 21h30 (NORTH DOWN)



EVENING SKY APRIL 7th at 21h30 (SOUTH DOWN)



SUGGESTED EVENING OBSERVATION WINDOW
(Lunar observations notwithstanding)

<i>Date</i>	<i>Moon</i>	<i>Dusk end</i>
2 nd April to 13 th April	<i>Rises</i> 23h17 (50%) <i>Sets</i> 20h07 (12%)	19h59 19h47

THE SOLAR SYSTEM

PLEASE NOTE: all events are as predicted from **HERMANUS**, Western Cape, South Africa.

HIGHLIGHTS for APRIL FROM THE SKY GUIDE 2024

<i>Date</i>	<i>Time (SAST)</i>	<i>Item</i>
1		Mercury stationary
	10h58	Moon (61%) southernmost (-28.57°)
2	05h15	Last quarter Moon , passes 1.8° south of Nunki (σ Sgr)
7	19h53	Moon at perigee (358 850 km) (532) Herculina (mag. +9.1) at opposition ¹
8		New Moon , total solar eclipse ²
	14h20	Moon at ascending node
11	19h57	Moon (12%) and Pleiades (M45) set together (dusk end 19h47)
12		Mercury at inferior conjunction
13	00h36	Moon (22%) northernmost (+28.57°)
15	21h13	First quarter Moon , passes 1.1° east of Pollux
18		Moon passes 4.3° north-east of Regulus (α Leo)
20	04h09	Moon (86%) at apogee (405 624 km)
22	12h45	Moon (96%) at descending node (6) Hebe at opposition (mag. +9.9, 1.93 au) ¹
24	01h49	Full Moon Mercury stationary
26	21h30	Moon (96%) 0.9° east of Antares (α Sco)
27	23h43	Dwarf planet Ceres rises ¹
28	16h28	Moon (80%) southernmost (-28.52°)

¹ **(532) Herculina** (asteroid mag. +9) is currently in **Boötes**. https://en.wikipedia.org/wiki/532_Herculina
(6) Hebe (asteroid mag. +8.3) is currently in **Virgo**. https://en.wikipedia.org/wiki/6_Hebe
(1) Ceres (minor-planet), currently in **Sagittarius**. [https://en.wikipedia.org/wiki/Ceres_\(dwarf_planet\)](https://en.wikipedia.org/wiki/Ceres_(dwarf_planet))

² On **Monday April 8**, a [total solar eclipse](#) will be visible from northern Mexico, parts of 15 U.S. states and south-eastern Canada. Johan Retief advises this event will be available on YouTube.

SOLAR SYSTEM VISIBILITY

2024 APRIL 7		<i>When visible?</i>		
Sun	Pisces	Rise:	07h00	Never look at the sun without SUITABLE EYE PROTECTION!
Length of day	11 hours 29 minutes	Transit:	12h45	
		Set:	18h29	
Mercury	Pisces	Rise:	07h43	Too close to the Sun
Magnitude	+3.9	Transit:	11h37	
Phase	3%	Set:	17h49	
Diameter	11"			
Venus	Pisces	Rise:	05h47	"The Morning Star"
Magnitude	-3.9	Transit:	11h51	
Phase	97%	Set:	17h54	
Diameter	10"			
Mars	Aquarius	Rise:	04h09	Morning
Magnitude	+1.2	Transit:	10h34	
Phase	95%	Set:	16h59	
Diameter	5"			
Jupiter	Aries	Rise:	09h29	Early evening
Magnitude	-2.0	Transit:	14h44	
Diameter	34"	Set:	19h59	
Saturn	Aquarius	Rise:	04h20	Morning
Magnitude	+1.1	Transit:	10h43	
Diameter	16"	Set:	17h07	
Uranus	Aries	Rises:	09h42	Early evening
Magnitude	+5.8	Transit:	14h53	
Diameter	3"	Set:	20h04	
Neptune	Pisces	Rise:	05h27	Low in the east before sunrise
Magnitude	+8.0	Transit:	11h34	
Diameter	2"	Set:	17h40	
Pluto	Capricornus	Rise:	00h50	Morning
Magnitude	+14.4	Transit:	07h59	
		Set:	15h07	

Phase: In a telescope, the inner planets (Mercury, Venus and Mars) appear to us in phases depending on the angle of the Sun's illumination, as does the Moon. The observed **angular diameter** is given in arc seconds.

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 the *zenith* 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 value. A 'good' human eye on a clear night can see down to a magnitude of about +6.

THE MOON

MONTES CAUCASUS

Location: north-west corner of Mare Serenitatis.

Type: mountain range.

Length: estimated 445 to 550 km.

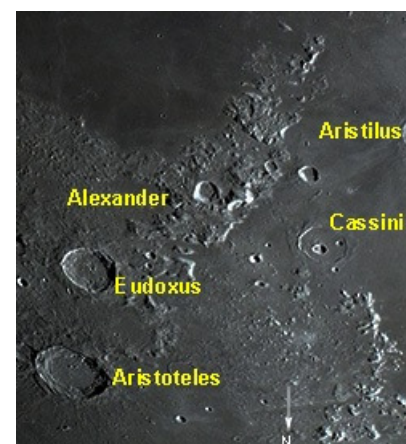
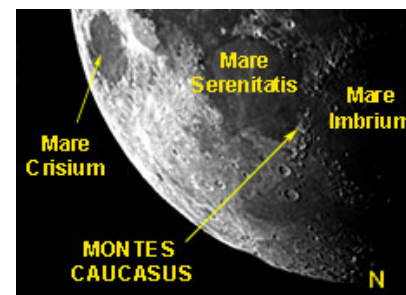
Best seen: around first or last quarter.

Notes: The range begins at a gap of level surface that joins the **Mare Imbrium** to the west with the **Mare Serenitatis** to the east and extends in an irregular band from the north-northeast to the western side of the prominent crater **Eudoxus**. It forms a continuation of the **Montes Apenninus** range to the southwest.

There are several breaks in the range where nearby lunar mare has intruded into the formation, particularly near the southern tip. Along the eastern flank to the south of Eudoxus are the remnants of the crater **Alexander**. To the west is the much shallower ring of **Cassini** with two smaller but prominent craters on its floor.

Montes Caucasus's northern peak rises 2400m +/- 300m while the southern reaches 1400 +/- 300m. The highest peak measures 2900 +/- 600m.

The range was named after the Caucasus Mountains on the Earth by the **Naming:** German selenographer **Johann H. Mädler**. However none of the peaks in this range has been assigned an individual name. At least officially.



No eclipses, lunar or solar, will be visible from southern Africa in April 2024

METEOR ACTIVITY

<u>From SGAS</u> <u>2023</u>	<i>Maximum</i> <i>Date/Time</i>	<i>Moon on max</i> <i>Date/Time</i>	<i>Duration</i>	<i>Radiant</i>	<i>ZHR*</i>	<i>Velocity</i> <i>Km/sec</i>
April Lyrids	April 22 02h00 – 05h00	Full Moon ¹	April 14 - 30	10° south-west of Vega (α Lyr)	18	49

* A word of caution regarding predicted Zenithal Hourly Rates:

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. Also, the presence of a bright moon and the shower's proximity to the horizon can seriously diminish the observation of meteor activity.

¹ April 17 may be worth a try as the Moon sets at 01h50 and the ZHR is reasonable at 18 quoted. But the radiant is close to the northern horizon!

For more meteor watching details, please see SGSA 2023, pages 86- 87.

MEMBERS' IMAGES



THE ROSETTE NEBULA IN MONOCEROS

Another fine image with the compliments of Derek Duckitt

For the technicalities of this image, please click on the following link:

https://telescopus.com/pictures/view/183051/deep_sky/rosette-nebula/cluster-with-nebulosity/caldwell-49-the-rosette-nebula/by-derekd_hermanus?gallery_user_id=18443&gallery_order=is_featured

ROSETTE NEBULA

NGC 2237, Caldwell 49.

<i>Description</i>	Emission nebula	<i>Visibility on April 7th 2024</i>		
<i>Constellation</i>	Monoceros			
<i>Distance</i>	5.5 kly, 1.7 kpc	<i>Rises</i>	<i>Transits</i>	<i>Sets</i>
<i>Magnitude</i>	+5.5	12h23	18h11	00h03
<i>Apparent size</i>	80 x 60 arcmin			
<i>Actual size</i>	128 ly, 39.3 pc	<i>Naked Eye</i>	No	
<i>J2000 Dec/RA</i>	+4°58'50" / 6h30m36s	<i>Binoculars</i>	Yes	
<i>Alt/Az</i>	28°43'07" / 299°49'21"	<i>Telescopes</i>	Yes	

DISCOVERY AND HISTORY

Today, the following NGC numbers are used to describe the various parts of the nebula. But note that their descriptions in the original NGC (in quotes) are quite different:

NGC 2237 - Usually used to denote the whole nebula, "pretty bright, very large, diffuse"

Open cluster NGC 2244 was discovered by John Flamsteed around 1690 and also found by William Herschel. The nebula, however, was not seen by Herschel; its different parts were discovered by his son, John Herschel, Marth and Swift.

NGC 2238 - Part of the nebulous region (GC 5361 = Marth 99, discovered by Marth and Swift), "small [faint] star in nebulosity"

NGC 2239 - Part of the nebulous region (GC 1420 = h 392, discovered by John Herschel), "star of mag 8 in large, poor, bright cluster"

NGC 2244 - The open cluster within the nebula (Discovered by John Flamsteed in 1690)

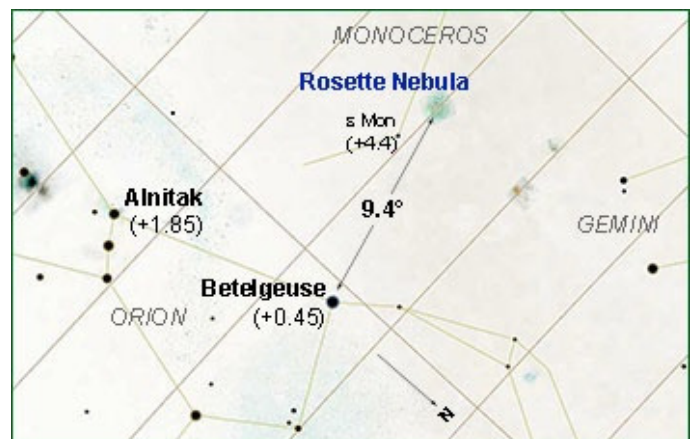
NGC 2246 - Part of the nebulous region (Discovered by Swift), "extremely faint, large, irregularly round, extremely difficult"

AMATEUR OBSERVATION

The Rosetta Nebula is a vast cloud of dust and gas extending over 1° across, and covers an area about 5 times that of the full moon. With a total magnitude of 4.8, the star cluster NGC 2244 is visible in binoculars, and seen quite well in small telescopes. The cluster appears about 24' across; the brightest star, at its southeast corner, is 12 Monocerotis. The nebula itself is more difficult to spot visually, and requires a telescope with low magnification at a dark site. Good sky transparency, and a wide-field eyepiece, will show a faint circular glow around 80' x 60' in diameter, with a central "hole" containing NGC 2244.

Once identified, high power may be used to see brightness variations and dark material along the nebula's edge. Telescopes in the 8 to 12 inch range reveal dark lanes snaking across the faint glow. Two dark globules are easily seen in the western and northern sections of the nebulosity.

The Rosette Nebula is easier to observe photographically; this is the only way to record its red colour, which is not seen visually.



PHYSICAL PROPERTIES

The Rosette Nebula is a large, circular emission nebula in the constellation Monoceros. It surrounds a cluster of hot, young stars known as the Rosette Cluster (NGC 2244). The brightest parts of the nebula have their own NGC catalog numbers.

The Rosette is an H II region at a distance of some 5,200 light years, near one end of a large molecular cloud in Monoceros (though distance estimates vary considerably). Its diameter is about 130 light years, and the central hole is about 30 light years across. The nebula is estimated to contain around 10,000 solar masses.

The open cluster NGC 2244 is closely associated with the nebulosity, having recently formed from the nebula itself. Ultraviolet radiation from its hot O-type stars energizes the nebula, causing it to fluoresce. They heat the surrounding gas to a temperature around 6 million K, generating large amounts of X-ray emission seen by the Chandra X-ray Observatory in 2001.

Stellar winds from this group of stars have swept out the hollow at the center of the Rosette. These stellar winds exert pressure on the interstellar cloud, and compress it. This leads to star formation, which is currently still ongoing in this vast cloud of interstellar matter; astronomers announced the finding of a very young star with a Herbig-Haro jet in 2004.

Jan Ridpath's STAR TALES

Monoceros

The unicorn

Genitive: Monocerotis

Abbreviation: Mon

Size ranking: 35th

Origin: [Petrus Plancius](#)

The mythical single-horned beast, the unicorn, is represented by this constellation which was unknown to the ancient Greeks. Monoceros was introduced in 1612 under the name Monoceros Unicornis on a globe by the Dutch theologian and cartographer Petrus Plancius. This was the same globe on which [Camelopardalis](#), another of his inventions, first appeared.

In 1624 the German astronomer Jacob Bartsch depicted it under the name Unicornu (sic) [on a star chart](#) in his book *Usus Astronomicus Planisphaerii Stellati* and as a result he was sometimes wrongly credited with its invention. In his book, Bartsch pointed to [several passages in the Bible](#) that supposedly mention unicorns, although these are now regarded as mistranslations. It is not clear whether Plancius introduced the constellation because of these Biblical references, but the unicorn has long been regarded as a Christian symbol of purity. The Polish astronomer Johannes Hevelius adopted Monoceros in his influential star atlas and catalogue published in 1690 which ensured its acceptance by other astronomers.

Its six brightest stars were allocated Greek letters by the American astronomer Benjamin Apthorp Gould in his [Uranometria Argentina](#) catalogue of 1879. However, by modern measurements, Beta Monocerotis is brighter than Alpha, so this is another constellation in which Alpha is not the brightest star. (An earlier attempt at lettering by the English astronomer Francis Baily in his [British Association Catalogue](#) of 1845 was a failure; through an oversight, he missed out the letters Alpha and Beta, and gave the letter Gamma to the star that became Gould's Alpha.)

Monoceros fills a large area between Hydra and Orion where there was no Greek constellation. It is not

prominent (its brightest stars are of fourth magnitude) but it lies in the Milky Way and contains a host of fascinating objects, most notably the Rosette Nebula, a wreath-shaped mass of glowing gas with embedded stars.

There are no legends associated with the constellation, as it is a modern figure, and none of its stars has a name.

Plancius had already shown the unicorn and giraffe together in one corner of his world map of 1594 (detail below) which depicted animals from Asia; they appear with some elephants, plus what appears to be a fat-tailed sheep, and, further to the right, some dromedaries.

The posture of the unicorn, dipping its horn into a stream to purify it for the other animals, is reminiscent of a scene from the [Hunt of the Unicorn](#) tapestries, woven in the southern Netherlands around a century earlier, which Plancius could well have seen. However, in the sky, the unicorn is imagined not bending but with head and horn held high. Perhaps the presence of Canis Minor and Canis Major in the sky reminded Plancius of the dogs surrounding the unicorn in this [attack scene](#) from the Hunt tapestries. In addition, he might have seen further connections between sky and tapestry with the proximity of a hunter (Orion) and a river (Eridanus).

Chinese associations

Chinese astronomers were adept at creating constellations from faint stars, but even they struggled in Monoceros. A chain of four stars consisting of 8, 13 and 17 Monocerotis plus one in southern Gemini formed Sidu, representing the four major rivers of China (Yangtze, Yellow, Huai and Si). Delta Monocerotis and one other star, probably 18 Mon, formed Queqiu, representing two hillocks either side of a gateway to the palace. According to Sun and Kistemaker (1997), Alpha Monocerotis was part of Tiangou, a guard dog, most of which lay in northern Puppis; other sources, though, place Tiangou farther south. Beta and Gamma Monocerotis seem not to have featured in any Chinese constellation.

© Ian Ridpath. All rights reserved

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!](#)

With Grateful thanks to the following:

Ian Ridpath
Derek Duckitt
Sky Guide Southern Africa 2024
Sky Safari
Stellarium
Wikipedia

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