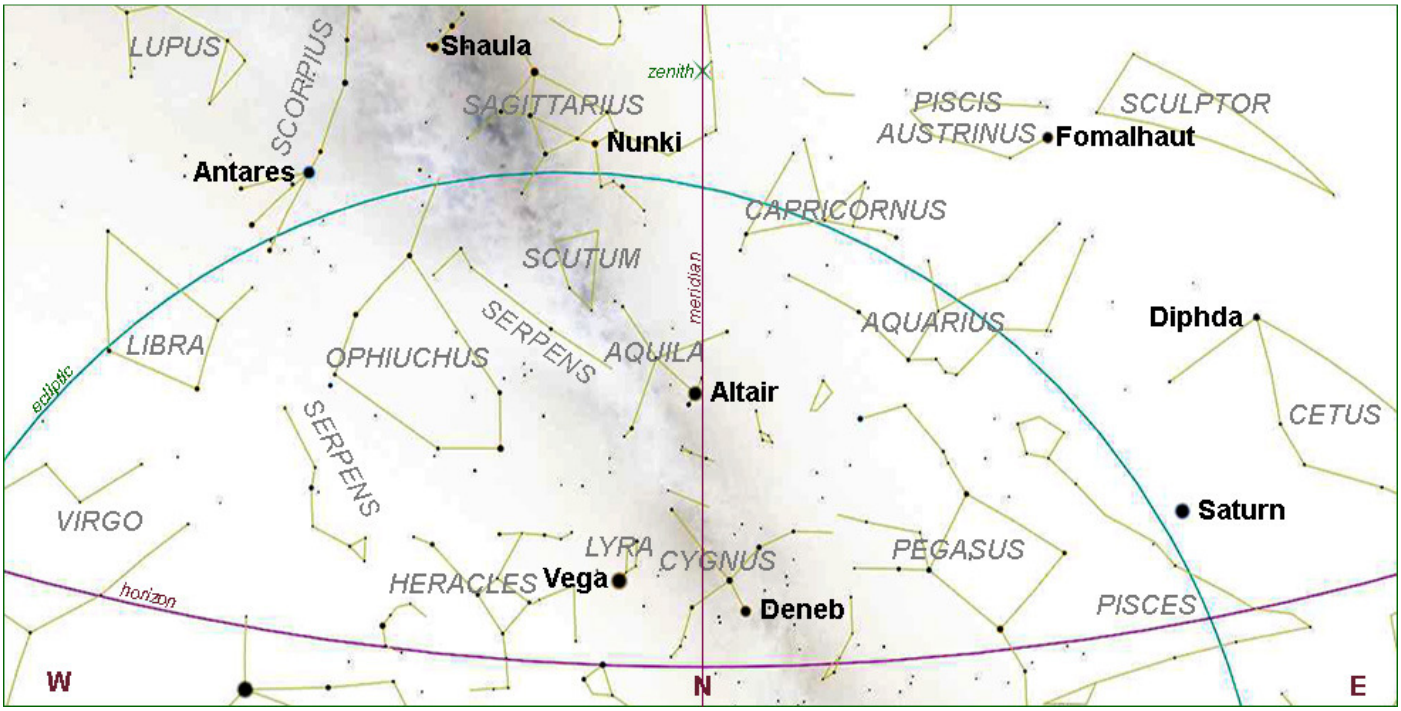
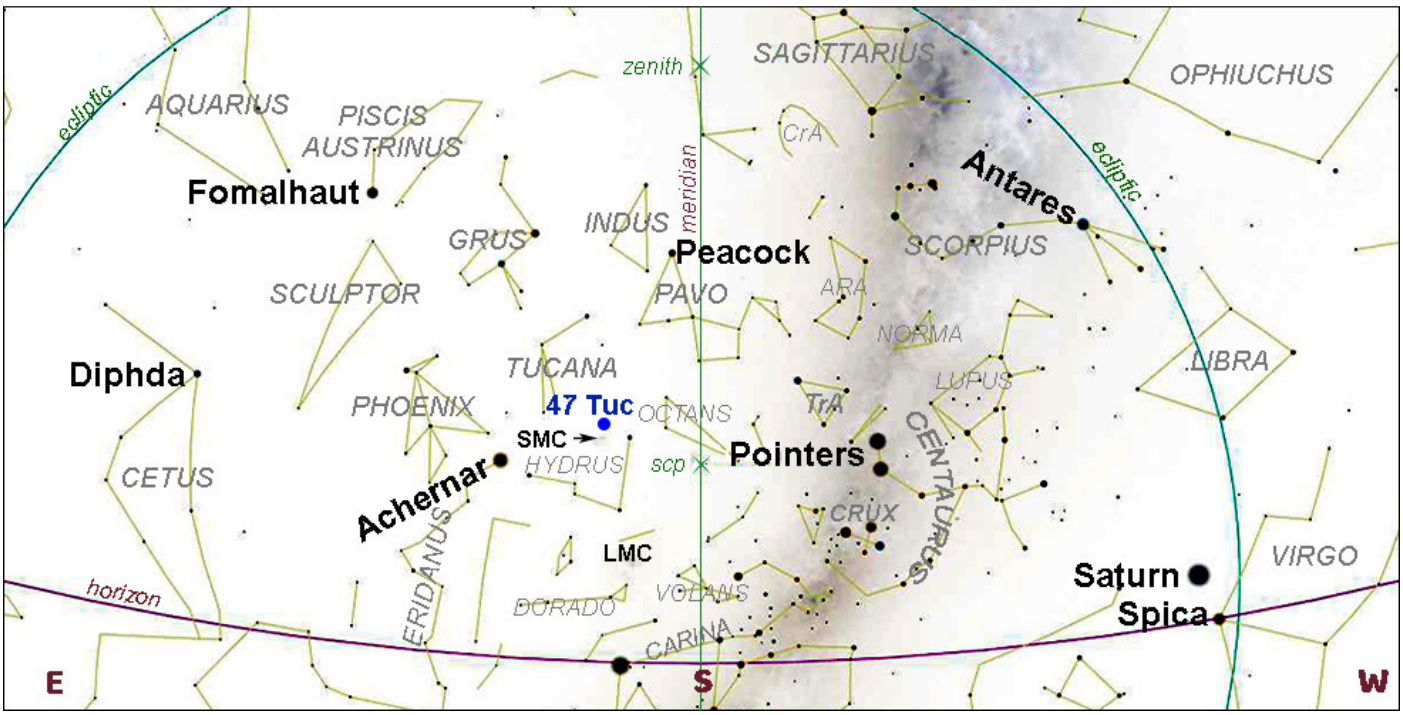
SKYNOTES

HERMANUS SEPTEMBER 2026

EVENING SKY – SEPTEMBER 8th at 21h30 (NORTH DOWN)



EVENING SKY – SEPTEMBER 8th at 21h30 (SOUTH DOWN)



SUGGESTED EVENING OBSERVATION WINDOW

(Lunar observations notwithstanding)

Date		*Moon*	*Dusk end*
September 2 to	**Rise**	**23h01 (80%)**	**19h54**
September 14	**Set**	**22h12 (10%)**	

THE SOLAR SYSTEM

SEPTEMBER HIGHLIGHTSbased onthe2026SKY GUIDE

Allevents are as observed from **HERMANUS**, Western Cape, South Africa

ALMANAC

Day	*Time*	*Item*
2		**Titan**2.8' from **Saturn**
3	21h50	55% **Moon** 5.6° north of **Uranus**
4	09h51	**Last Quarter Moon**
6		**Callisto**7.0' from **Jupiter**
10		**Titan**2.8' from **Saturn**
11	05h27	**New Moon**
13	21h00	7.5% **Moon** sets 2.4° south of**Spica**
14	21h51	**Venus** sets 16 mins before 14% **Moon**
		Callisto7.1' from **Jupiter**
18	22h44	**First Quarter Moon**
	19h30	**Lunar X** and **Lunar V** visible
		Titan2.9' from **Saturn**
19		**Venus**at most brilliant (mag. -4.5)
		Callisto7.2' from **Jupiter**
26	18h49	**Full Moon**
	20h19	**Mercury**1° north of**Spica** set together
		Titan 3.0' from **Saturn**

EPHEMERIS

Day	*Time*	*Item*
2	23h38	**Mercury** furthest from **Earth** (1378 au)
5	06h12	**Moon** northernmost (+28°06')
6	22h26	**Moon** at perigee (368255km)
9	21h17	**Moon** at descending node
10	20h19	**Uranus** stationary
18	18h54	**Moon** southernmost (–28°04')
19	05h00	**Moon** at apogee (404217km)
23	02h05	**September** equinox
24	04h40	**Moon** at ascending node
25	06h38	**Neptune** closest to Earth (28 876 au)
26	03h36	**Neptune** at opposition
30	10h37	Spring equinox on **Mars**

COMETS, ASTEROIDS AND METEORS

The link to the latest Comet, Asteroid and Meteor Section from **Tim Cooper**:

https://assa.saao.ac.za/wp-content/uploads/sites/23/2026/06/ASSA-CAMNotes-2026-Number-3.pdf

The latest Deep and Shallow Sky Bulletin by the Director, **Colin Steyn**, is now available to download from the webpage

https://assa.saao.ac.za/publications/deep-sky/

SOLAR SYSTEM VISIBILITY

2026 SEPTEMBER 8

Sun	Leo	Rise:	06h52	**Never look at the sun without *SUITABLE EYE PROTECTION!***
Length of day	11 hours 37 mins	Transit:	12h41	
		Set:	18h30	
Mercury	Virgo	Rise:	07h24	Low in the west after sunset
Magnitude	-0.8	Transit:	13h21	
Phase	95%	Set:	19h18	
Diameter	5”			
Venus	Virgo	Rise:	08h28	Evening
Magnitude	-4.5	Transit:	15h13	
Phase	33%	Set:	21h59	
Diameter	34”			
Mars	Gemini	Rise:	03h56	Morning
Magnitude	+1.2	Transit:	08h52	
Phase	92%	Set:	13h48	
Diameter	5”			
Jupiter	Cancer	Rise:	05h30	Morning
Magnitude	-1.8	Transit:	10h45	
Diameter	32”	Set:	15h59	
Saturn	Cetus	Rise:	20h29	All night
Magnitude	+0.4	Transit:	02h28	
Diameter	19”	Set:	08h22	
Uranus	Taurus	Rises:	00h48	Morning
Magnitude	+5.7	Transit:	05h49	
Diameter	4”	Set:	10h50	
Neptune	Pisces	Rise:	19h44	All night
Magnitude	+7.8	Transit:	01h50	
Diameter	2”	Set:	07h51	
Pluto	Capricornus	Rise:	14h47	All night
Magnitude	+14.5	Transit:	21h59	
		Set:	05h14	

Phases: 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.

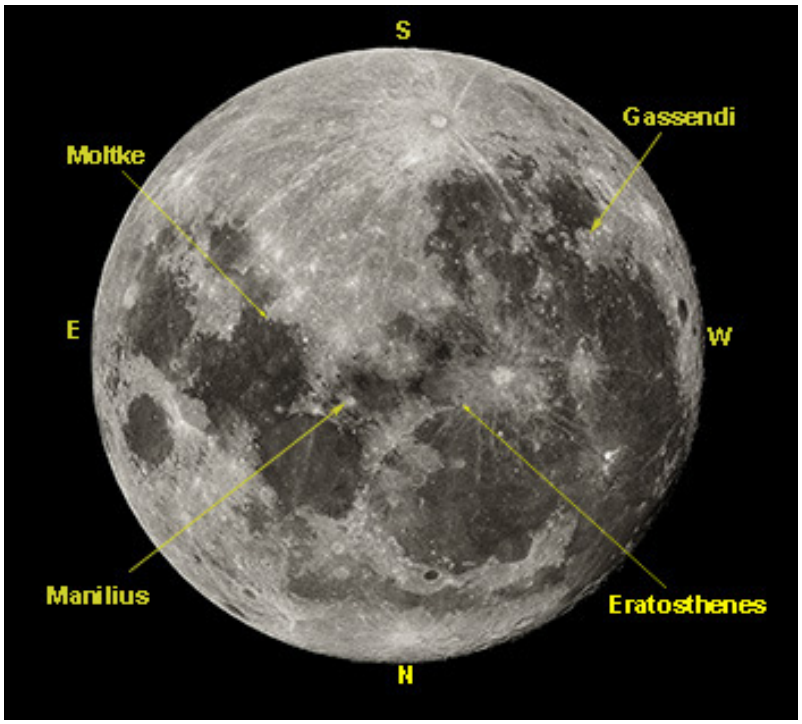
Transit: When an object crosses the **local meridian**, it is said to ‘transit’. The local meridian is an imaginary line from the horizon directly north passing overhead through *zenith* to the horizon directly south.

Magnitudes: We are accustomed to hearing the brightness of stars described in terms of ‘magnitude’. But, for example, the star Siriusat magnitude -1.4 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 a star down to a magnitude of about +6.

The History of Craters

Lunar craters are impact craters on Earth's Moon. The Moon's surface has many craters, all of which were formed by impacts. The International Astronomical Union currently recognizes 9 137 craters, of which 1 675 have been dated.

The word *crater* was adopted from the Greek word for "vessel" (Κρατήρ, a Greek vessel used to mix wine and water). Galileo built his first telescope in late 1609, and turned it to the Moon for the first time on November 30, 1609. He discovered that, contrary to general opinion at that time, the Moon was not a perfect sphere, but had both mountains and cup-like depressions. These were named craters by Johann Hieronymus Schröter (1791), extending its previous use with volcanoes.



Robert Hooke in *Micrographia* (1665) proposed two hypotheses for lunar crater formation: one, that the craters were caused by projectile bombardment from space, the other, that they were the products of subterranean lunar volcanism.Scientific opinion as to the origin of craters swung back and forth over the ensuing centuries. The competing theories were:

1. volcanic eruptions blasting holes in the Moon
2. meteoric impact
3. a theory known as the Welteislehre developed in Germany between the two world wars which suggested glacial motion creating the craters.

Grove Karl Gilbert suggested in 1893 that the Moon's craters were formed by large asteroid impacts. Ralph Baldwin in 1949 wrote that the Moon's craters were mostly of impact origin. Around 1960, Gene Shoemaker revived the idea. According to David H. Levy, Shoemaker "saw the craters on the Moon as logical impact sites that were formed not gradually, in eons, but explosively, in seconds."

Evidence collected during the Apollo Project and from uncrewed spacecraft of the same period proved conclusively that meteoric impact, or impact by asteroids for larger craters, was the origin of almost all lunar craters, and by implication, most craters on other bodies as well.

The formation of new craters is studied in the lunar impact monitoring program at NASA. The biggest recorded crater was caused by an impact recorded on March 17, 2013. Visible to the naked eye, the impact is believed to be from an approximately 40 kg meteoroid striking the surface at a speed of 90 000 km/h.

In March 2018, the discovery of around 7 000 formerly unidentified lunar craters via convolutional neural network developed at the University of Toronto Scarborough in Canada was announced. A similar study in December 2020 identified around 109 000 new craters.

Characteristics

Because of the Moon's lack of water, atmosphere, and tectonic plates, there is little erosion, and craters are found that exceed two billion years in age. The age of large craters is determined by the number of smaller craters contained within it, older craters generally accumulating more small contained craters.

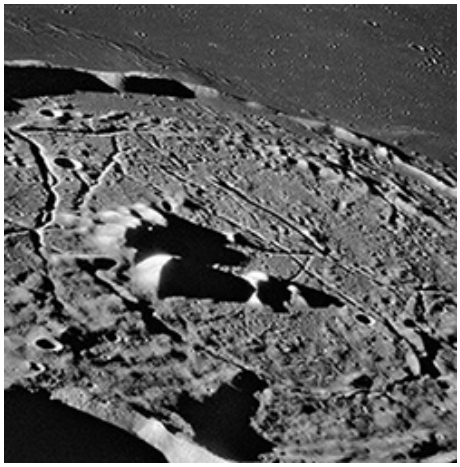
The smallest craters found have been microscopic in size, found in rocks returned to Earth from the Moon. The largest crater called such is about 290 km across in diameter, located near the lunar south pole.

However, it is believed that many of the lunar maria were formed by giant impacts with the resulting depression filled by upwelling lava.

Craters typically will have some or all of the following features:

- a surrounding area with materials splashed out of the ground when the crater was formed; this is typically lighter in shade than older materials due to exposure to solar radiation for a lesser time
- raised rim, consisting of materials ejected but landing very close by
- crater wall, the downward-sloping portion of the crater
- crater floor, a more or less smooth, flat area which, as it ages, accumulates small craters of its own
- central peak, found only in some craters with a diameter exceeding 26 km; this is generally a splash effect caused by the kinetic energy of the impacting object being turned to heat and melting some lunar material.

GASSENDI



By NASA - Public Domain

Gassendi is a large lunarimpact crater feature located at the northern edge of Mare Humorum. It was named after French astronomer Pierre Gassendi. The formation has been inundated by lava during the formation of the mare, so only the rim and the multiple central peaks remain above the surface. The outer rim is worn and eroded, although it retains a generally circular form.

A smaller crater – Gassendi A – intrudes into the northern rim, and joins a rough uplift at the northwest part of the floor. The crater pair bears a curious resemblance to a diamond ring. In the southern part of the crater floor is a semi-circular ridge-like formation that is concentric with the outer rim. It is in the southern part where the rim dips down to its lowest portion, and a gap appears at the most southern point. The rim varies in height from as little as 200 meters to as high as 2.5 km above the surface. The floor has numerous hummocks and rough spots. There is also a system of rilles that criss-crosses the floor, named the Rimae Gassendi.

MOLTKE

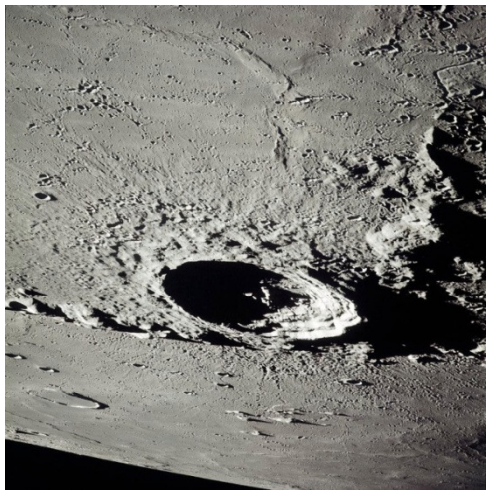
*Side view taken from **Apollo 10***

Moltke is a lunarimpact crater near the southern edge of the Mare Tranquillitatis. It is a small, bowl-shaped crater surrounded by a bright halo of higher-albedo material. Just to the south lies the rille system named Rimae Hypatia. These follow a course running roughly east-southeast to west-northwest, and have a length of approximately 180 kilometres.

About 50 kilometres to the northwest of this crater is Tranquillity Base, the 1969 landing site of Apollo 11.

The crater is named after German army general and author Helmuth von Moltke the Elder (1800–1891). Its designation was formally adopted by the International Astronomical Union in 1935.

ERATOSTHENES



Apollo 12 image

Eratosthenes crater is a relatively deep lunarimpact crater that lies on the boundary between the Mare Imbrium and Sinus Aestuummare regions. T. W. Webb describes it as having "a widely-terraced wall of very irregular height; the surrounding ground is also very uneven". It forms the western terminus of the Montes Apenninus mountain range. It is named after ancient Greek astronomer Eratosthenes of Cyrene, who estimated the circumference of the Earth, and the distance from the Earth to the Sun.

Description

The crater has a well-defined circular rim, terraced inner wall, central mountain peaks, an irregular floor, and an outer rampart of ejecta. The infrared spectrum of pure crystalline plagioclase has been identified on the central peak. This crater lacks a ray system of its own, but is overlain by rays from the prominent crater Copernicus to the south-west.

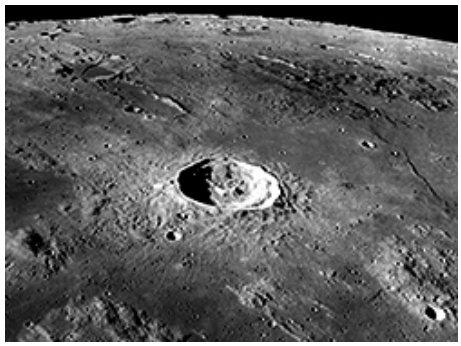
The Eratosthenian period in the lunar geological timescale is named after this crater, though it does not define the start of this time period. The crater is believed to have been formed about 3.2 billion years ago.

At low Sun-angles, this crater is prominent due to the shadow cast by the rim. When the Sun is directly overhead, however, Eratosthenes visually blends into the surroundings, and it becomes more difficult for an observer to locate it. The rays from Copernicus lie across this area, and their higher albedo serves as a form of camouflage.

In 1851, Shropshire astronomer Henry Blunt constructed a model of the Moon's surface showing Eratosthenes. The model is based on observations made by Blunt with a reflecting telescope from his home in Shrewsbury and was displayed in the same year at the Great Exhibition, London.

From 1910 to the 1920s, William H. Pickering noted dark patches in the crater that varied in a regular manner over each lunar day. He first put forward the speculative idea that these patches appeared to migrate across the surface, suggestive of vegetation. Pickering believed that the Moon had a thicker atmosphere and reported seeing climatic variations such as frost and snow, leading him to refer to the crater as the "Gardens of Eratosthenes". Later his views would change, and he would come to believe that the vegetation was instead "swarms of animal life", which he often referred to as swarms of insects, or "lunar insects". The scientific community did not share his enthusiasm for these ideas, but they received a degree of attention in the popular press of the time primarily due to Pickering's reputation.

MANILIUS



Apollo 17 image

Manilius is a lunarimpact crater on the northeast edge of Mare Vaporum. T. W. Webb described it as "a beautiful cavity" that "has a broad luminous terraced crater- and peak-bespeckled ring". Its diameter is 38 km.

Description

Manilius has a well-defined rim with a sloping inner surface that runs directly down to the ring-shaped mound of scree along the base, and a small outer rampart. The small crater interior has a higher albedo than the surroundings, and it appears bright when the sun is overhead. Within the crater is a central peak formation near the midpoint. The infrared spectrum of pure crystalline plagioclase has been identified along the northern walls.The crater possesses a ray system that extends

for a distance of over 300 kilometres. Despite the presence of these rays, which generally indicate the age of the crater as Copernican, the crater is currently mapped as Eratosthenian age.

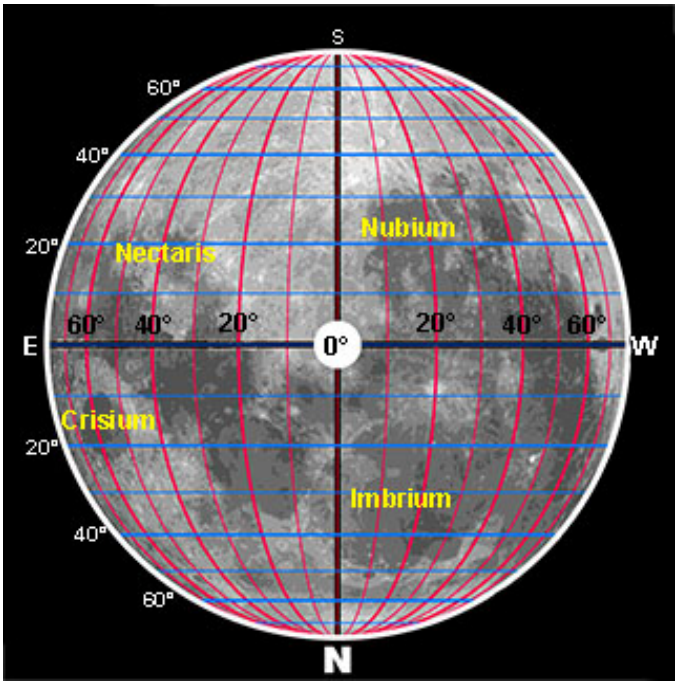
Names

Manilius is named after the Roman astronomer Marcus Manilius. Its designation was adopted by the International Astronomical Union in 1935. Like many of the craters on the Moon's near side, it was given its name by Giovanni Riccioli, whose 1651 nomenclature system has become standardized. Earlier lunar cartographers had given the feature different names. Michael van Langren's 1645 map calls it "Isabellae Reg. Hisp." (Isabella, Queen of Spain)whileJohannes Hevelius called it "Insula Besbicus" after the island in Turkey now known as İmralı.

THE SELENOGRAPHIC COORDINATE SYSTEM

Selenographic coordinates are used to refer to locations on the surface of Earth's moon.

Any position on the lunar surface can be referenced by specifying two numerical values, which are comparable to the **latitude** and **longitude** on Earth. The latitude gives a position north or south of the lunar equator while longitude indicates a position east or west of the Moon's prime meridian, the line passing from the lunar north pole through the point on the lunar surface directly facing Earth to the lunar south pole. This can be thought of as the midpoint of the visible Moon as seen from the Earth. Both of these coordinates are given in degrees.



Astronomers defined the fundamental location in the selenographic coordinate system by the small, bowl-shaped satellite crater 'Mösting A' the coordinates of which are defined as:

South 3° 12' 43.2" West 5° 12' 39.6"

The coordinate system has become precisely defined by the *Lunar Laser Ranging Experiment.*

Anything past 90°E or 90°W would not be seen from Earth, except for **libration**, which makes 59% of the Moon visible

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

ESO VISTA IMAGE

This bright cluster of stars is **47 Tucanae** (NGC 104), shown here in an image taken by ESO's VISTA (Visible and Infrared Survey Telescope for Astronomy) from the Paranal Observatory in Chile. The image was taken as part of the VISTA Magellanic Cloud survey, a project that is scanning the region of the Magellanic Clouds, two small galaxies that are very close to our Milky Way. *Credit: ESO/M.-R. Cioni/VISTA Magellanic Cloud survey. Acknowledgment: Cambridge Astronomical Survey Unit*

47 Tucanae
NGC 104, C 106

Description	Globular cluster
Constellation	Tucana
Distance	15 kly, 4.5 kpc
Magnitude	+4.00
Apparent size	50 arcmin
Diameter	213.5 ly, 65.4 pc
J2000 Dec/RA	-72º04'45" / 08h24m09s
Alt/Az (Hermanus)	+44º51'28" / 160º43'09"

Visibility2026 September8

Rises	*Transits*	*Sets*
Does not rise	00h49	Does not set

Naked Eye	Yes, in good conditions
Binoculars	Yes
Telescope	Yes

DISCOVERY AND HISTORY

A conspicuous naked-eye object, 47 Tuc lies very far south at declination -72° (18º from the South Celestial Pole).It was not discovered by European observers until 1751 when **Nicholas de Lacaille** catalogued it in his list of southern nebulous objects.He initially suspected it was the nucleus of a bright comet.Next to observe and catalogue it were **James Dunlop** in 1826 and **John Herschel** in 1834.

DESCRIPTION

47 Tucanae, a Flamsteeddesignation, is the second brightest and largest globular cluster in the sky after **Omega Centauri**. It is included in the Caldwell catalogue as C 106.The clusteris about 13400 light years away and is approaching us at roughly 19 km/sec.Spread over a diameter of nearly 120 light years, it is home to a number of exotic x-ray binary star systems. The cluster may contain an intermediate-mass black hole.A search for Jupiter-sized planets in 47 Tuc, carried out by a team of astronomers using the **Hubble Space Telescope**, came up empty-handed. The work involved checking 34000 stars in the cluster for signs of large transiting planets. *The absence of any positive results strengthens the argument that planets are rare or non-existent in globular clusters because of their very low concentration of heavy elements.* Though it appears adjacent to the Small Magellanic Cloud, the latter is some 60 kpc (200 000 ly) distant,being over fifteen times further than 47 Tuc.

AMATEUR OBSERVATION

At magnitude +4.1, this cluster looks like a misty star to the unaided eye. Under ideal conditions, the cluster appears 30' across in the sky - roughly the size of the full Moon. Binoculars clearly show an increase in brightness toward the centre. A telescope of at least 100 mm aperture resolves some of its roughly one million starswith a very bright and dense core.

For more detailssee
https://en.wikipedia.org/wiki/47_Tucanae
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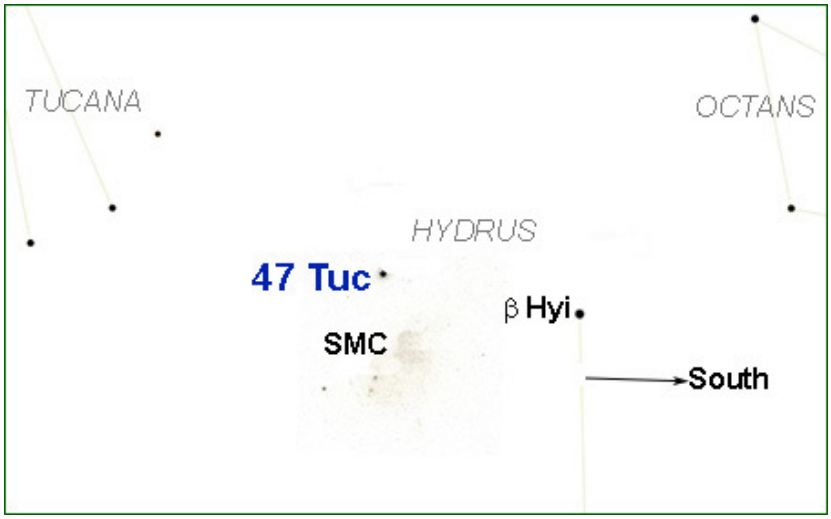

Ian Ridpath's
STAR TALES

Tucana
The toucan

Genitive: Tucanae
Abbreviation: Tuc
Size ranking: 48th
Origin: The 12 Southern Constellations of Keyser and de Houtman

One of the 12 southern constellations devised by the Dutch navigators Pieter Dirkszoon Keyser and Frederick de Houtman at the end of the 16th century. It represents the South American bird with a huge bill.

The Dutchman Petrus Plancius gave it the name Toucan when he first depicted it on a globe in 1598, and Johann Bayer followed suit on his atlas of 1603. But de Houtman, in his catalogue of 1603, called it Den IndiaenschenExster, op Indies Lang ghenaemt ('the Indian magpie, named Lang in the Indies', the word

'lang' referring to the bird's long beak). De Houtman was apparently describing not a toucan but the hornbill, a similarly endowed bird that is native to the East Indies and Malaysia. This suggests that the original inventor of Tucana was in fact Keyser, who had visited South America before his voyage to the East Indies and could have seen the bird there. In some depictions which used de Houtman's catalogue as a source, such as Willem Janszoon Blaeu's globe of 1603, the bird was shown as a hornbill rather than a toucan, complete with casque above its bill, but the original identification as a toucan won out.

Tucana's brightest star, Alpha Tucanae, marking the tip of the bird's beak, is of only third magnitude, but the constellation is distinguished by two features of particular interest: firstly, the globular star cluster 47 Tucanae, rated the second-best such object in the entire sky, so bright that it was labelled in the same way as a star; and the Small Magellanic Cloud, the smaller and fainter of the two companion galaxies of our Milky Way. These features were originally part of Hydrus but were transferred to Tucana when the French astronomer Nicolas Louis de Lacaille reorganized this part of the southern heavens in the 1750s.

Incidentally, 47 Tucanae is not a Flamsteed number; it comes from its listing in Johann Bode's catalogue called Allgemeine Beschreibung und Nachweisung der Gestirne, published in 1801 to accompany his Uranographia star atlas. It was first recorded as a star by Keyser and de Houtman. Bayer showed it on his southern star chart of 1603 within one of the coils of Hydrus, beneath the claw of the toucan, but its nebulous nature was first noted by Lacaille a century and a half later. None of the stars of Tucana is named, and there are no legends associated with it.

Please keep in touch...

Have a look at our excellent website, edited by Derek Duckitt–https://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!

https://www.mnassa.org.za/

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