



SKY CHARTS

EVENING SKY NOVEMBER 8th at 22h00 (NORTH DOWN)



EVENING SKY NOVEMBER 8th at 22h00 (SOUTH DOWN)



THE SOLAR SYSTEM

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

HIGHLIGHTS for NOVEMBER FROM THE SKY GUIDE 2023

Time	Item				
23h04	Jupiter nearest Earth (3.982 au)				
	Moon northernmost (+28.3°)				
	Jupiter at opposition				
01h11	Moon (60%) rises 8 minutes after Pollux, separated by 3°				
	Saturn stationary				
	Last quarter Moon				
21h30	Meteors – Southern Taurids (see page 4)				
19h41	Mercury at aphelion (0.467 au)				
	Moon at apogee (404 568 km)				
	Mars crosses ecliptic				
21h30	Meteors – Northern Taurids (see page 4)				
11h27	New Moon				
13h46	Uranus at opposition and nearest Earth (18.631 au)				
20h46	Moon (2%) sets 13 minutes before Antares				
	Moon southernmost (-28.3°)				
	Meteors – Leonids (see page 4)				
	Mars at conjunction				
	First quarter Moon near Saturn				
23h04	Moon at perigee (369 823 km)				
	Moon (72%) near Neptune				
	Meteors - α Monocerotids (see page 4)				
	Moon (95%) near Jupiter				
	Moon (99%) near Uranus				
04h00	Moon amongst the Pleiades				
11h17	Full Moon				
14h31	Venus at perihelion (0.718 au)				
	Moon northernmost (+28.2°)				
	Venus near Spica				
	<i>Time</i> 23h04 01h11 21h30 19h41 21h30 11h27 13h46 20h46 20h46 23h04 04h00 11h17 14h31				

SUGGESTED EVENING OBSERVATION WINDOW

(Lunar observations notwithstanding)

Date	Moon		Dusk end	
1 st November	Rises	23h26 (82%)	20h44	
15 th November	Sets	21h57 (5%)	21h02	

SOLAR SYSTEM VISIBILITY

2023 NOVEMBER 8

When and Where visible?

Sun Length of day	Libra 13 hours 43 minutes	Rise: Transit: Set:	05h40 12h31 19h22	Never look at the sun without SUITABLE EYE PROTECTION!
Mercury Magnitude Phase Diameter	Libra -0.5 95% 5"	Rise: Transit: Set:	06h13 13h16 20h21	Low in the west after sunset
Venus Magnitude Phase Diameter	Virgo -4.3 58% 21"	Rise: Transit: Set:	03h40 09h40 15h40	"The Morning Star"
Mars Magnitude Phase Diameter	Libra +1.5 100% 4"	Rise: Transit: Set:	05h51 12h43 19h35	Too close to the sun
Jupiter Magnitude Diameter	Aries -2.9 49"	Rise: Transit: Set:	18h43 00h11 05h36	All night
Saturn Magnitude Diameter	Aquarius +0.7 17"	Rise: Transit: Set:	13h11 19h49 02h31	Evening
Uranus Magnitude Diameter	Aries 5.6 4"	Rises: Transit: Set:	19h40 00h55 06h07	All night
Neptune Magnitude Diameter	Pisces +7.8 2"	Rise: Transit: Set:	15h10 21h20 03h34	Evening
Pluto Magnitude	Sagittarius +14.4	Rise: Transit: Set:	10h30 17h40 00h54	Evening

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

THE MOON

Theophilus

Location On the north-western border of Mare Nectaris

Description This impact crater is 4 200 metres deep with massive terraced inner walls and indications of landslips. The floor is relatively flat and contains an imposing triple-peaked central mountain rising 1 400 metres above the crater floor. The western peak is designated Psi (ψ), the eastern Phi (ϕ), and the northern peak is Alpha (α).

Theophilus partially intrudes into the comparably sized crater Cyrillus to the south-west. Together, they form a trio with Catharina. To the east is the smaller crater Mädler and further to the south-east is Beaumont.

Size Diameter 104 Km

Age Created during the Eratosthenian period from 3.2 to 1.1 billion years ago.

Human activity The <u>Apollo 16</u> mission collected several pieces of basalt that are believed to be ejecta from the formation of Theophilus

Naming Named after the 4th century Coptic Pope Theophilus I of Alexandria.

Best Seen 4 days after **Full Moon**, Wednesday November 1st.

5 days after New Moon, Saturday November 18th





Oblique view of Theophilus from Lunar Orbiter 3

No eclipses, lunar or solar, will be visible from southern Africa in November 2023

METEOR ACTIVITY

<u>From SGAS</u> <u>2023</u>	Maximum Date/Time	Moon on max Date/Time	Duration	Radiant	ZHR *	Velocity Km/sec
Southern Taurids	Nov 5 21h30 to 03h30	Last Quarter rises 01h44	Sep 20 to Nov 20	15° west of Aldebaran	7	27
Northern Taurids	Nov 12 21h30 to 03h30	1% Moon rises 04h48	Oct 20 to Dec 10	3° east of Pleiades (M45)	5	29
Orionids	Nov 18 03h00 to 04h00	28% Moon sets 00h42	Nov 6 to 30	3° north-west of γ Leo	10	70
a Monocerotids	Nov 22 23h00 to 04h00	72% Moon sets 02h53	Nov 15 to 25	6° north of Procyon (α CMi)	<5	65

*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 can seriously diminish the observation of meteor activity.

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

MEMBERS' IMAGES



Derek Duckitt's image of the Sculptor Galaxy (NGC 253)

Derek's processing notes:

NGC 253 Sculptor Galaxy imaging details:

Equipment - Fujifilm XT-30 mirrorless camera, Sigma 150/500mm zoom lens used at 400mm FL; Aperture F8, ISO 1600, exposure 2minutes per frame; tracking mount HEQ 5; 120mm William Optics guide scope, autoguiding software PHD2.

25x 2minute light frames (50 minutes total), 15 ea dark, bias and flat frames; stacked in Deep Sky Stacker, saved as 32 bit tiff file.

Processing: artificial intelligence background removal by GraXpert AI, basic processing in Siril utilising Starnet to process stars and galaxy separately. Final processing in Photoshop utilising Topaz Denoise, various Photoshop processes and Nik Viveza.

LOOKING UP

Stargazing events are notoriously subject to the vagaries of the weather and are necessarily scheduled at short notice.

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

SCULPTOR GALAXY NGC 253. Silver Coin Galaxy, C65

Description	Spiral galaxy	Visibility on November 8 th 2023		
Constellation	Sculptor			
Distance	12 Mly, 3.7Mpc	Rises	Transits	Sets
Magnitude	+8.0	15h04	22h51	05h42
Apparent size	26.8 x 4.6 arcmin			
Actual size	93.9 kly, 28.8 kpc	Naked Eye		No
J2000 Dec/RA	-25° 17' 20" / 0h 47m 33s	Binoculars		Yes
Alt/Az	+79° 42 41" / +27° 21' 39"	Telescopes		Yes

Description

NGC 253 is the brightest member of the Sculptor Group of galaxies. It is often referred to as the **Sculptor Galaxy** but the RASC Observer's Handbook gives the common name **Silver Coin Galaxy**. The Sculptor group is perhaps the nearest to our Local Group of galaxies. It is grouped around the South Galactic Pole (and, therefore, also sometimes named "South Polar Group"). The companion galaxies NGC 247, PGC 2881, PGC 2933, Sculptor-dE1 and UGCA 15 form a gravitationally bound core near the centre of the group. NGC 253 itself lies some 10 million light years distant.

NGC 253's true size is estimated to be 94 000 light years, comparable to the 100 000 ly of the Milky Way. But NGC 253 has a luminosity considerably less than that of the Milky Way. The Sculptor Galaxy is a starburst galaxy, which means that it is currently undergoing a period of intense star formation. One supernova has been discovered in NGC 253 to date: SN 1940E, which was discovered by Fritz Zwicky, and became as bright as magnitude 14.0.

Observation

As one of the brightest galaxies in the sky (visual magnitude 7.0), the Sculptor Galaxy is viewable through binoculars. It is a good target for observation with a telescope with a 300 mm diameter or larger. As seen through such telescopes, it appears as a galaxy with a long, oval bulge and a mottled disc.

Visually, NGC 253 is an impressive sight in larger instruments. Its huge envelope is an elongated 25' x 7', and its disc shows complex dust lanes north of the core. In 1961, Allan Sandage wrote in the Hubble Atlas of Galaxies that the Sculptor Galaxy is "the prototype example of a special subgroup of Sc systems... galaxies of the group are dominated by the dust



pattern. Dust lanes and patches of great complexity..."

Discovery history

NGC 253 was one of the major discoveries of **Caroline Herschel**, the sister of William Herschel. She discovered this object on **September 23, 1783** with "an excellent small Newtonian Sweeper of 27 inches (686 mm) focal length and a power of 30" (William Herschel's description), and added it to her list as No. 10. William Herschel later included it in his catalog as No. V.1.

Ian Ridpath's STAR TALES



Genitive: Sculptoris Abbreviation: Scl Size ranking: 36th

Origin: The 14 southern constellations of Nicolas Louis de Lacaille

This faint constellation south of Cetus and Aquarius was invented by the French astronomer Nicolas Louis de Lacaille during his mapping of the southern skies in 1751–52. His original name for it, given on his planisphere of 1756, was l'Atelier du Sculpteur, the sculptor's studio, although in <u>the accompanying star</u> catalogue he spelled (or mis-spelled) the first part of the name as 'attelier'. As <u>described by Lacaille</u>, it consisted of a carved head on a three-legged table, with the artist's mallet and a chisel on a block of marble next to it (although his illustration actually showed two chisels). On Lacaille's 1763 planisphere the title was Latinized to Apparatus Sculptoris.



Johann Bode in 1801 dispensed with the block of marble and moved the sculptor's tools to the top of the table along with the carved bust, as seen on the illustration to left. In place of the marble block he created the constellation <u>Machina Electrica</u>, but that figure never achieved wide currency.

In 1844 the English astronomer John Herschel proposed shortening the name to Sculptor. This suggestion was adopted by Francis Baily in his <u>British Association Catalogue</u> of 1845 and the constellation has been known simply as Sculptor ever since.

Sculptor is the largest of Lacaille's 14 inventions, as defined by the modern constellation boundaries, but its stars are only of fourth magnitude and fainter; none of them is named.

The Sculptor (left), shown under the name Apparatus Sculptoris on Chart XVII of the Uranographia of Johann Bode (1801).

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

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

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Official Big 5 of the African Sky web page Official Big 5 Facebook group ASSA Deep-Sky Section mailing list Edited by Peter Harvey - petermh@hermanus.co.za

Grateful thanks to the following:

Derek Duckitt Ian Ridpath Sky Guide Africa South 2023 Sky Safari Stellarium Wikipedia