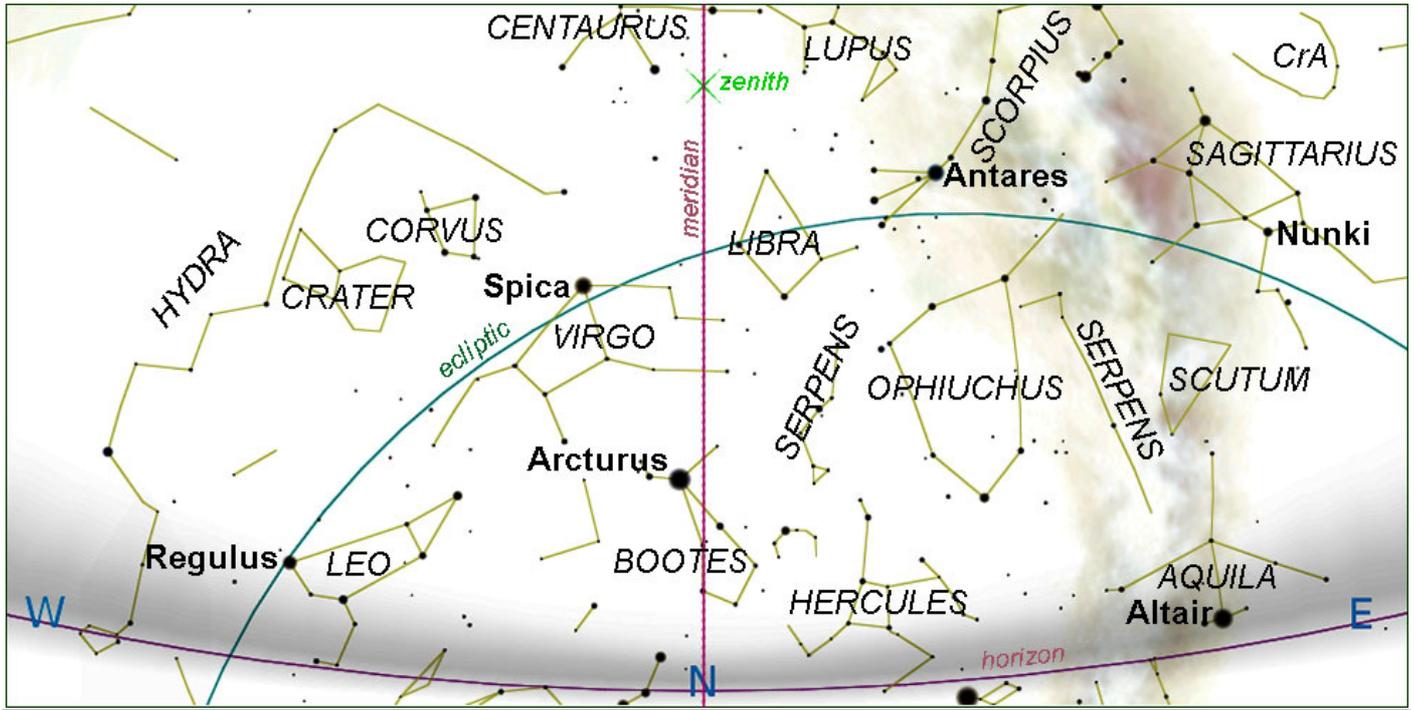
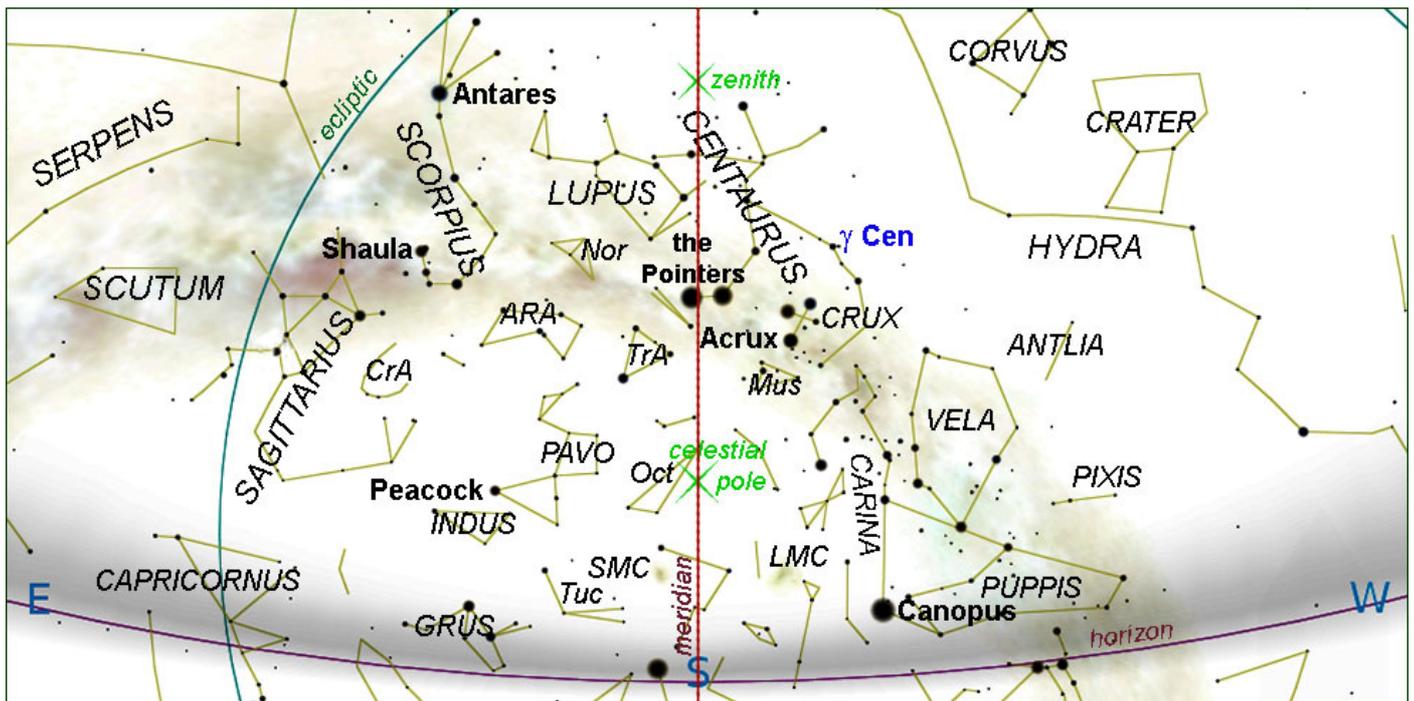


SKY CHARTS

EVENING SKY 25th JUNE at 21h00 (NORTH DOWN)



EVENING SKY 25th JUNE at 21h00 (SOUTH DOWN)



THE SOLAR SYSTEM

PLEASE NOTE: All events predicted are as observed from **Hermanus, Western Cape, South Africa**. Times are **South African Standard Time (UTC +2)**.

HIGHLIGHTS FROM THE SKY GUIDE

June 2022

<i>Date</i>	<i>Time</i>	<i>Item</i>
1	00h30	Moon northernmost (+26.9°)
2	03h15	Moon at apogee (406 190 km)
3		Moon (14%) near Pollux (α Gem), visible above western horizon after sunset
	02h27	Mercury stationary
5	16h01	Saturn stationary
6		Venus southernmost for the year
	19h10	Moon (40%) 7.2° north-east of Regulus (α Leo)
7	16h48	First quarter Moon
9	08h44	Moon crosses equator
10	19h10	Moon 6.2° north-east of Spica (α Vir)
12	01h51	Moon (94%) passes 0.4° north of Zubenelgenubi (α Lib, mag +5.15)
13	19h10	Moon 4.1° east of Antares (α Sco)
14	13h51	Full Moon (distance 360 720 km, diameter 33.1')
15	01h23	Moon at perigee (357 433 km)
	13h02	Moon southernmost (-26.9°)
16		Mercury at western elongation (23° 12')
17		Mercury southernmost
18	22h06	Saturn rises 11 minutes before the Moon (81%)
21	05h10	Last quarter Moon
	11h13	<i>WINTER SOLSTICE</i>
	20h52	Moon crosses equator
	15h06	Mars at perihelion (1.381 au)
22	20h25	Moon (40%) passes 0.5° south of Mars
29	01h05	Neptune stationary
	04h52	New Moon
	06h04	Moon northernmost (+26.9°)
	08h10	Moon at apogee (406 580 km)

SUGGESTED EVENING OBSERVATION WINDOWS (*Lunar observations notwithstanding*)

<i>Date</i>	<i>Moon</i>	<i>Dusk end</i>
1st June to	<i>Sets</i> 19h05 (4%)	19h10
3rd June	<i>Sets</i> 20h53 (14%)	19h10
18th June	<i>Rises</i> 23h17 (1%)	19h10
to 2nd July	<i>Sets</i> 20h44 (8%)	19h10

SOLAR SYSTEM VISIBILITY

JUNE 2022			1st June	1st July	Visibility
Sun Length of day	Taurus to Gemini 10.00 hours to 9.53	Rises:	07h41	07h50	Never look at the sun without <i>SUITABLE</i> EYE PROTECTION!
		Transit:	12h41	12h47	
		Sets:	17h41	17h44	
Mercury Magnitude Phase Diameter	Taurus +2.6 to -0.8 10% to 74% 11" to 6"	Rises:	06h26	06h35	Morning
		Transit:	11h43	11h34	
		Sets:	17h00	16h33	
Venus Magnitude Phase Diameter	Aries to Taurus -4.1 to -4.0 78% to 86% 14" to 12"	Rises:	04h43	05h36	Morning
		Transit:	10h15	10h40	
		Sets:	15h47	15h43	
Mars Magnitude Phase Diameter	Pisces +0.7 to +0.5 87% to 86% 6" to 7"	Rises:	02h26	02h11	Morning
		Transit:	08h27	07h50	
		Sets:	14h28	13h28	
Jupiter Magnitude Diameter	Pisces to Cetus -3.9 to -2.4 37" to 41"	Rises:	02h19	00h39	Morning
		Transit:	08h20	06h36	
		Sets:	14h21	12h33	
Saturn Magnitude Diameter	Capricornus +0.7 to +0.6 17" to 18"	Rises:	23h11	12h10	All night
		Transit:	05h56	03h56	
		Sets:	12h38	10h39	
Uranus Magnitude Diameter	Aries +5.8 3"	Rises:	05h44	03h53	Morning
		Transit:	11h00	09h07	
		Sets:	16h15	14h22	
Neptune Magnitude Diameter	Pisces +7.9 2"	Rises:	01h39	23h38	Morning
		Transit:	07h49	05h51	
		Sets:	13h59	12h01	
Pluto Magnitude	Sagittarius +14.4 to +14.3	Rises:	20h57	18h56	All night
		Transit:	04h09	02h08	
		Sets:	11h16	09h17	

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 ("). This is the apparent size of the object as we see it from Earth.

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.

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.

THE MOON

The Selenographic Coordinate System

(from Wikipedia)

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.

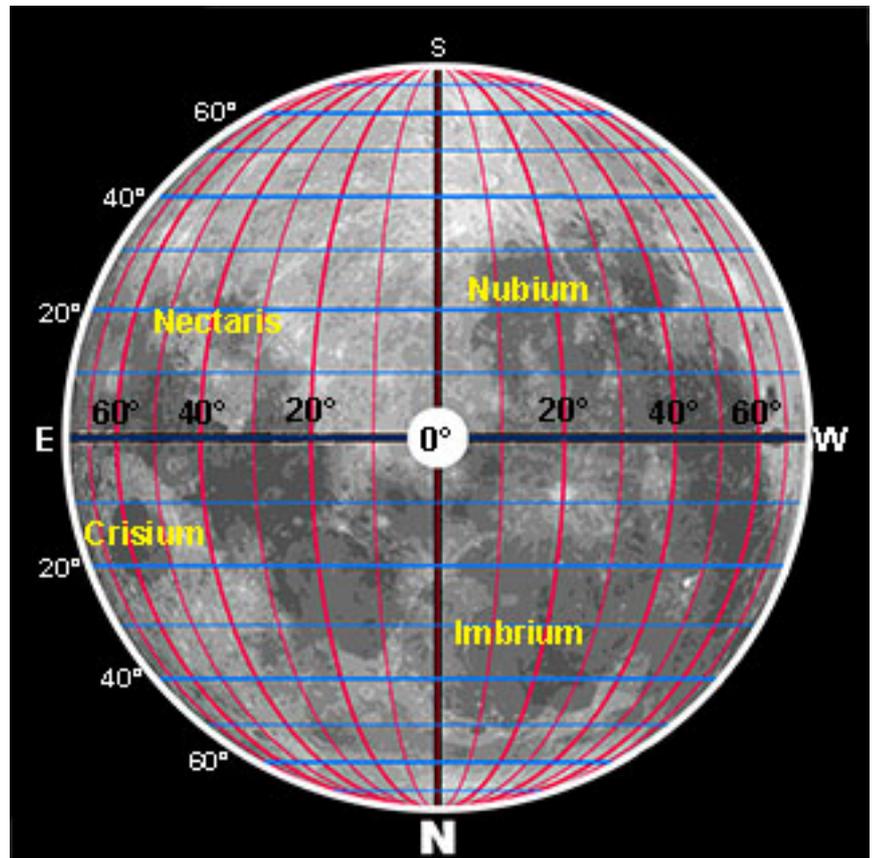
Astronomers defined the fundamental location in the selenographic coordinate system by the small, bowl-shaped satellite crater 'Mösting A'. The coordinates of this crater are defined as:

South 3° 12' 43.2"

West 5° 12' 39.6"

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

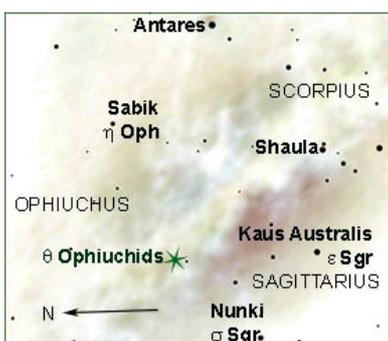
Anything past 90°E or 90°W would not be seen from Earth, except for **libration**, which makes 59% of the Moon visible.



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

METEOR SHOWERS

From SGAS 2022	<i>Maximum Date/Time</i>	<i>Duration</i>	<i>Observing Prospects</i>	<i>Radiant</i>	<i>ZHR¹</i>	<i>Velocity Km/sec</i>
θ Ophiuchids	13 th June 20h00 – 05h30	8 – 16 June	Poor, 88% Moon	see chart below	5	27



¹A 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.

LOOKING UP

CLUB STARGAZING – the possibility of Stargazing is now back thanks to the relaxation of the COVID restrictions.

The calendar on the front page of our website indicates our planned events.

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

MUHLIFAIN (γ Cen)

In a double-bill for this month, we take a look at the double star Muhlifain (γ Cen) and use it as a guide star to the spiral galaxy C 83.

<i>Description</i>	Double star			
<i>Spectral type</i>	A1IV + A0IV		Visibility	
<i>Constellation</i>	Centaurus	<i>Rise</i>	<i>Transit</i>	<i>Set</i>
<i>Distance</i>	130 ly, 39.9 pc	09h36	19h11	04h49
<i>Magnitude visual</i>	+2.18 and +2.88			
<i>Absolute mag</i>	-0.83, total -1.08			
<i>Actual size</i>	5.52 Suns	<i>Naked Eye</i>	Yes, a single object	
<i>Altitude/Azimuth *</i>	65° 02' 20" / +225h 39m 18s	<i>Binoculars</i>	Yes	
<i>J2000 coordinates</i>	-48° 57' 34.1" / 12h 41m 30.7s	<i>Telescope</i>	Yes	

Gamma Centauri (Latinised from γ Centauri) is the third brightest star in Centaurus. The name **Muhlifain** refers to "two things" and to the "swearing of an oath" and was taken from γ CMa, Muliphein. Such name-transference is rather common. Both names derive from the same Arabic root.

Properties

Telescopes show Muhlifain to be a pair of identical white class A1 giants. Their positions have been observed since 1897, long enough to estimate their orbital period. They share a semimajor axis of 0.93 arcseconds. This system is located at a distance of 130 light years (40 parsecs) based on parallax. In 2000, the pair had an angular separation of 1.217 arcseconds with a position angle of 351.9°. Though close together, their mutual orbit has been well-mapped. An elliptical path takes them as close as 8 AU and as far apart as 67 AU, circling each other every 84.5 years at an average distance of 37 AU. The stars are so similar that they are evolving at the same rate. They will produce a pair of giants and maybe even a unique double planetary nebula as they expel their outer envelopes into space before turning into identical white dwarfs.

Classification

The combined stellar classification of the pair is A1IV+; when they are separated out they have individual classes of A1IV and A0IV, suggesting they are A-type subgiant stars in the process of becoming giants. The star Tau Centauri is relatively close to Gamma Centauri, with an estimated separation of 1.72 light-years (0.53 parsecs). There is a 98% chance that they are co-moving stars.

Visibility

The system is visible to the naked eye as a single point of light with a combined apparent visual magnitude of +2.17; individually they are third-magnitude stars, each shining with a luminosity of 95 suns from surfaces at about 9 300 K. Their luminosity and temperature indicate masses of 2.8 times solar.

C83 (NGC 4945)

<i>Description</i>	Spiral galaxy		Visibility	
<i>Constellation</i>	Centaurus		<i>Transit</i>	<i>Set</i>
<i>Distance</i>	11 Mly, 3.5 Mpc	<i>Rise</i>	19h35	05h19
<i>Magnitude visual</i>	+9.00	09h54		
<i>Apparent size</i>	23.3 x 4.0 arcmin			
<i>Actual size</i>	76.8 kly, 23.5 kpc	<i>Naked Eye</i>	No	
<i>Altitude/Azimuth</i>	+68 10' 30" / 219° 29' 55"	<i>Binoculars</i>	Unlikely	
<i>J2000 coordinates</i>	-49° 28' 00" / 13h 05m 24s	<i>Telescope</i>	Yes	

C83 is an edge-on spiral galaxy in the constellation Centaurus. It was discovered by James Dunlop in 1826.

This object is about 13 million light years distant - only six times farther away than the prominent Andromeda Galaxy. For such a nearby galaxy, C83 is easy to miss due to its low galactic latitude. The thin disc of this galaxy is oriented nearly edge-on and shrouded in dark dust. Its yellowish-red appearance is caused by about 1 magnitude of interstellar dust absorption.

C83 is one of the brightest galaxies within the Centaurus A/M83 Group - a large, nearby group of galaxies. The galaxy is the second brightest within the group, after Centaurus A (NGC 5128). It is almost the size of our own Milky Way Galaxy and thought to be quite similar. X-ray observations show that C83 has an unusual, energetic, Seyfert 2 nucleus that might house a large black hole. X-ray and infrared observations reveal even more high energy emission and star formation in the core.

NGC 4945A is an unrelated magnitude 13 spiral galaxy, partly obscured by a mag 8 star. The other prominent galaxy in the field, NGC 4976, is an elliptical galaxy much farther away at a distance of about 35 million light-years and not physically associated with C83.



Please keep in touch...

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

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

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

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Grateful thanks to the following:

ASSA
Sky Guide Africa South 2022
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