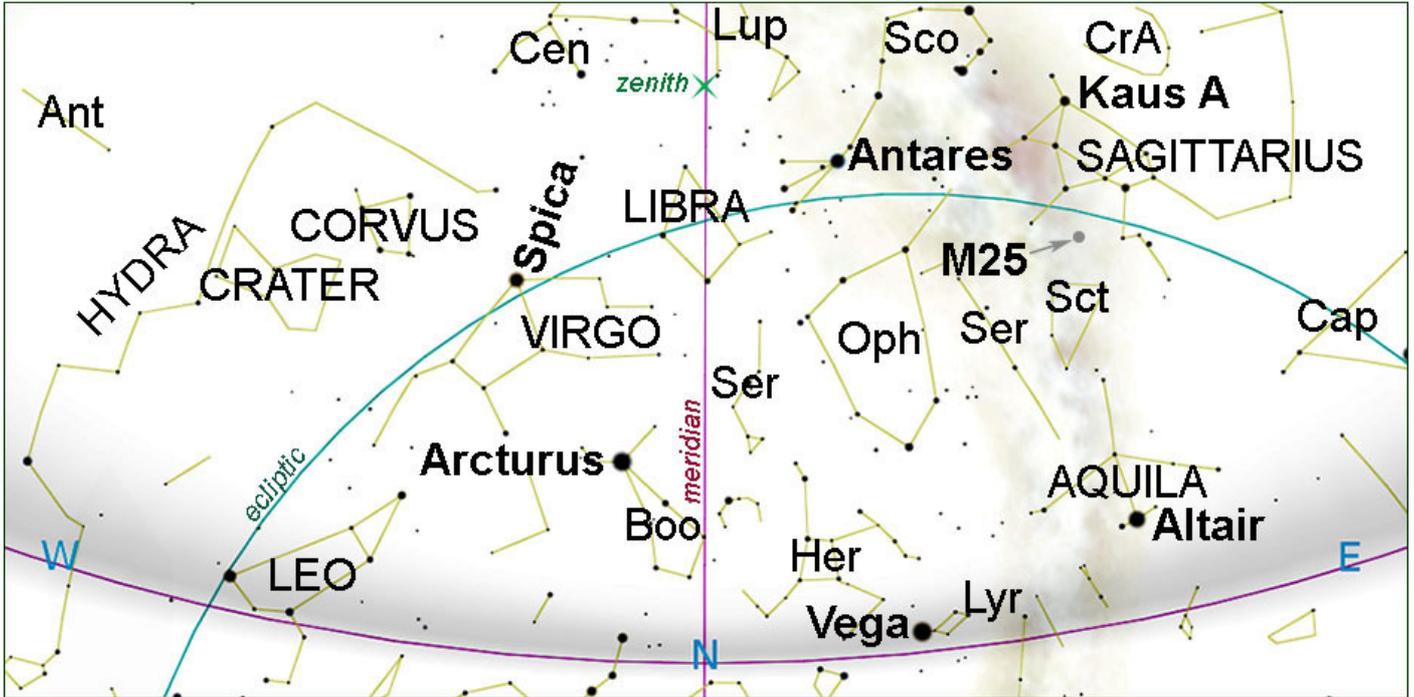
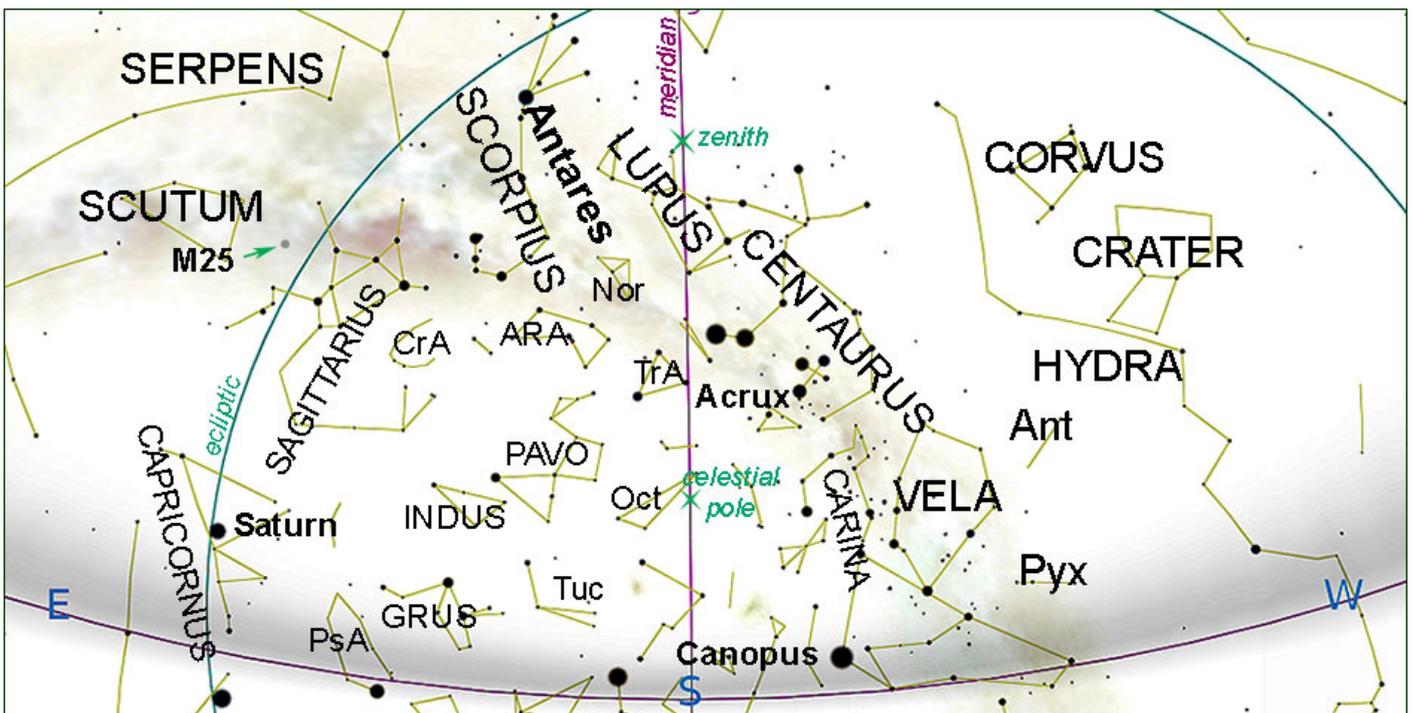


1. SKY CHARTS

EVENING SKY 6th JULY at 21h00 (NORTH DOWN)



EVENING SKY 6th JULY at 21h00 (SOUTH DOWN)



2. 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). *Also please note:* with the exception of **Pluto** (magnitude +14.4), all events predicted are visible to the naked eye.

HIGHLIGHTS FROM THE SKY GUIDE

<i>Date</i>	<i>Time</i>	<i>Item</i>
1	23h11	Last quarter Moon
3	04h45	Venus within the Beehive (M44)
4	21h59	Mercury at greatest western elongation (21.6°)
5	16h49	Moon at apogee (405 341 Km)
6	00h59	Earth at aphelion (1.0167 AU)
7		Moon near Aldebaran (not visible from southern Africa)
	00h41	Moon at ascending node
		Mercury near Crab Nebula (M1) (not visible from southern Africa)
8		Moon near Mercury (not visible from southern Africa)
9	12h05	Moon northernmost (+25.6°)
10	03h16	New Moon
		Moon near Pollux (not visible from southern Africa)
12	18h40	Moon, Venus and Mars within 4.3° *
13		Moon near Regulus
17	12h11	First quarter Moon
		Moon near Spica
		Pluto at opposition
20		Moon near Antares
	15h22	Moon at descending node
21	12h31	Moon at perigee (364 519 Km)
		Venus near Regulus after sunset
22	17h12	Moon southernmost (-25.6°)
24	04h37	Full Moon
	18h42	Moon rises 3.4° south of Saturn
26		Moon near Jupiter
29		Mars near Regulus
31	15h16	Last quarter Moon

* **NOTABLE EVENT:** This will make a pretty triplet in the early evening western sky.

JULY 2021			1st July	1st August	Visibility
Sun Length of day	Gemini to Cancer 9:54 to 10:56	Rises:	07h50	07h36	Never look at the sun without SUITABLE EYE PROTECTION!
		Transit:	12h47	12h49	
		Sets:	17h44	18h03	
Mercury Magnitude Phase Diameter	Taurus to Cancer +0.9 to +2.0 29% to 100% 9" to 5"	Rises:	06h10	07h43	Low in the west after sunset then moving too close to the Sun
		Transit:	11h18	12h51	
		Sets:	16h25	17h59	
Venus Magnitude Phase Diameter	Cancer to Leo -3.9 to -4.0 90% to 82% 11" to 13"	Rises:	09h32	09h19	Evening
		Transit:	14h36	14h59	
		Sets:	19h40	20h40	
Mars Magnitude Phase Diameter	Cancer to Leo +1.8 97% to 99% 4"	Rises:	09h54	08h49	Evening to low in the west after sunset
		Transit:	15h05	14h18	
		Sets:	20h15	19h48	
Jupiter Magnitude Diameter	Aquarius -2.6 to -2.8 45" to 48"	Rises:	21h45	19h31	Morning to throughout the night
		Transit:	04h23	02h12	
		Sets:	10h57	08h48	
Saturn Magnitude Diameter	Capricornus +0.4 to +0.2 18" to 19"	Rises:	20h09	17h57	Morning to throughout the night
		Transit:	03h06	00h56	
		Sets:	09h59	07h50	
Uranus Magnitude Diameter	Aries +5.8 3" to 4"	Rises:	03h33	01h35	Morning
		Transit:	08h51	06h52	
		Sets:	14h09	12h09	
Neptune Magnitude Diameter	Aquarius +7.9 to 7.8 2"	Rises:	23h26	21h23	Morning to throughout the night
		Transit:	05h42	03h39	
		Sets:	11h54	09h52	
Pluto Magnitude	Sagittarius +14.3	Rises:	18h47	16h42	Throughout the night
		Transit:	01h59	23h50	
		Sets:	09h07	07h02	

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.

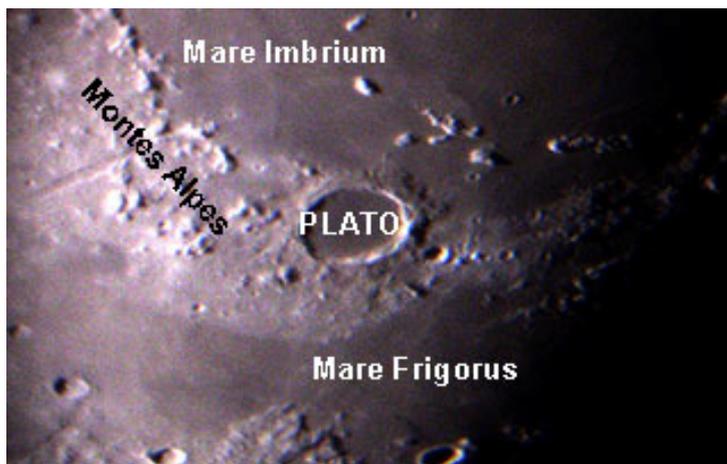
THE MOON

CRATER PLATO

Plato, named after the 5th/4th century Athenian philosopher Plato, is a conspicuous lava-filled lunar impact crater.

Located on the north-eastern shore of the **Mare Imbrium** at the western extremity of the **Montes Alpes** mountain range. Its diameter is 101 Km, depth 1468 m.

In the mare to the south are several rises collectively named the **Montes Teneriffe**. To the north lies the wide stretch of the **Mare Frigoris**. East of the crater, among the Montes Alpes, are several rilles collectively named the **Rimae Plato**.



The age of Plato is about 3.84 billion years, only slightly younger than the **Mare Imbrium** to the south. The rim is irregular with 2-km-tall jagged peaks that project prominent shadows across the crater floor when the Sun is at a low angle. Sections of the inner wall display signs of past slumping, most notably a large triangular slide along the western side. The rim of Plato is circular, but from the Earth it appears oval due to foreshortening.

The flat floor of Plato has a relatively low albedo, making it appear dark in comparison to the surrounding rugged terrain. The floor is free of significant impact craters and lacks a central peak. However, there are a few small craterlets scattered across the floor.

Plato has developed a reputation for transient lunar phenomena, including flashes of light, unusual colour patterns, and areas of hazy visibility. These anomalies are likely a result of seeing conditions, combined with the effects of different illumination angles of the Sun.

Lunar and Solar eclipses

None visible from southern Africa predicted for this month

<u>Meteor Showers</u>	<i>Max Date/Time</i>	<i>Observing Prospects</i>	<i>Duration</i>	<i>Radiant</i>	<i>ZHR</i>	<i>Velocity Km/sec</i>
July Phoenicids	13 July 23h00 – 05h00	Favourable ¹ Moonset 21h13	10 – 16 July	9° SE of Achernar 14° above horizon ¹	<5	47
Piscis Australids	28 July 21h00 – 05h00	Poor after Moonrise at 22h40	19 July – 17 August	3° west of Fomalhaut (α PsA)	5	35
Southern δ Aquariids	29 July 22h00 – 05h00	Poor after moonrise at 23h38	21 July – 29 August	14° north of Fomalhaut	25	42

¹ the July Phoenicids' low elevation and low hourly rate does not promise success.

ZHR - zenithal hourly rate: the number of meteors a single observer would see in an hour of peak activity, assuming the conditions are excellent and the radiant is not too close to the horizon.

***For more details regarding meteor watching,
please see the 2021 Sky Guide Africa South, pages 86- 87.***

1. LOOKING UP

SUGGESTED OBSERVATION WINDOW for JULY

(Lunar observations notwithstanding)

Date	dusk end	Moon
30 th June	19h09	<i>rises</i> 23h54 (60%)
12 th July	19h18	<i>sets</i> 20h10 (4%)



CLUB STARGAZING – sorry, still no organised physical club gatherings. However, we do encourage our members to dig out a good coat and observe from home or your favourite darkest, rural, cloudless spots.

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

DEEP SKY HIGHLIGHTS

Messier 25 IC 4725

<i>Description</i>	Open cluster			
<i>Constellation</i>	Sagittarius			
<i>Distance</i>	2000 ly, 620 pc	<i>Rise</i>	<i>Transit</i>	<i>Set</i>
<i>Magnitude</i>	4.59	17h19	00h20	07h17
<i>Absolute mag</i>	-4.37			
<i>Apparent size</i>	29.0 arcmin	<i>Naked Eye</i>	In optimal conditions	
<i>Actual size</i>	17.1 ly, 5.2 pc	<i>Binoculars</i>	Yes	
<i>Altitude/Azimuth</i>	+44°04'47"/083°37'27"	<i>Telescope</i>	Yes	
<i>J2000 coordinates</i>	-19°15'00"/18h31m36s			

Discovery

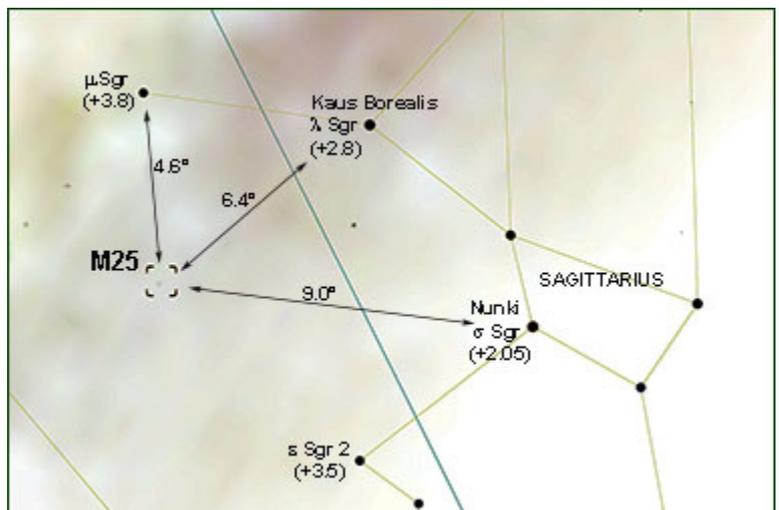
M 25 was discovered by Philippe Loys de Cheseaux in 1746 and re-observed by Messier in 1764. However, for unknown reasons William Herschel failed to include it in his General Catalog. Thus, M 25 was never added to the NGC, and thus only has an Index Catalog (IC) number.

Description

Messier 25 (IC 4725) is one of the more remarkable open clusters in the constellation Sagittarius.

Visible to the naked eye under dark skies as a blurry spot of magnitude +4.6, Messier 25 is a fine open cluster for binoculars and small telescopes. It contains three dozen bright stars irregularly scattered over a 32 arcmin area, and may actually contain up to 600 members. Its more prominent stars form two east-to-west streams, divided by a starless lane. The outlying stars are brighter to the north and south of the cluster's core than to the east and west.

Sources agree that this cluster's distance is about 2,000 light-years with a physical diameter of about 20 light years. M 25 has an absolute magnitude of -6.5, corresponding to a luminosity of 33,000 suns. It is also notable for containing a Cepheid variable, U Sagittarii,



which varies between magnitudes 6.3 and 7.0 over a period of 6.75 days. U Sagittarii's cluster membership is confirmed by its common radial velocity, shared with the other cluster members (they are all receding at 4 km/sec), and helps provide an accurate distance measurement.

Two giants of spectral type M and G can be seen in this cluster; the G-type giants appear to be actual members (the M's are not). These well-evolved giant stars provide evidence that M 25 is not a very young cluster; it probably has an age of about 90 million years.

4° NNW of M25 is the **Omega** or **Swan Nebula** (M17). And the **Eagle Nebula** (M16) is just 2° 21' NNE of M17.

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!](#)

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