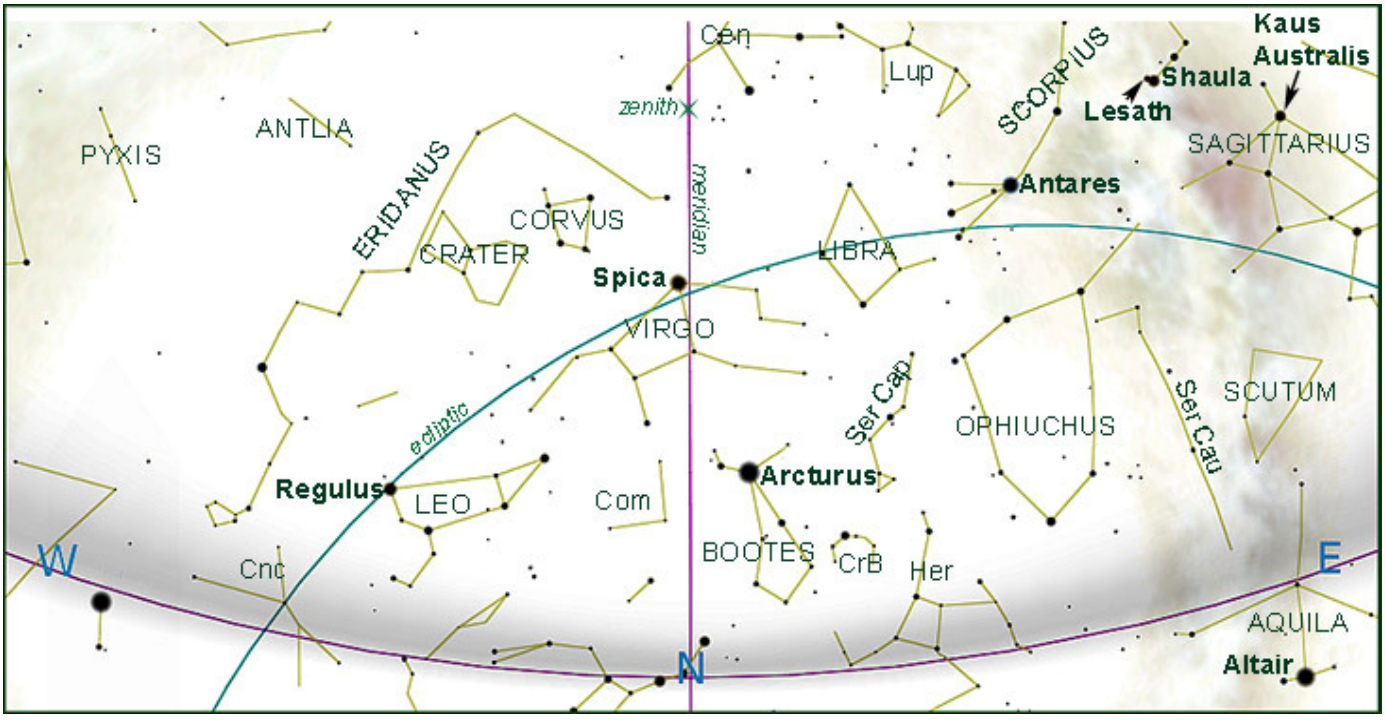
SKYNOTES from Hermanus

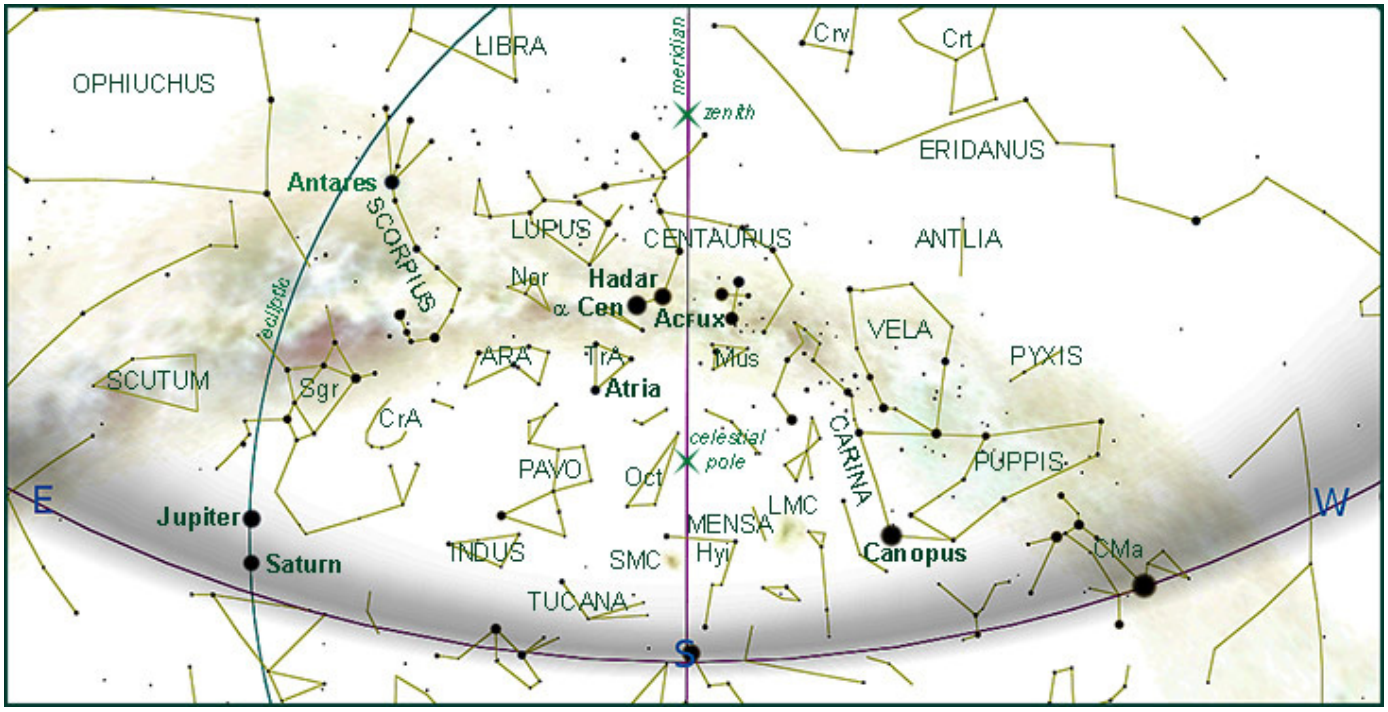
JUNE 2020

1. SKY CHARTS

EVENING SKY 17th JUNE at 20h30 (NORTH DOWN)



EVENING SKY 17th JUNE at 20h30 (SOUTH DOWN)



2. HIGHLIGHTS FROM THE SKY GUIDE

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 these objects are visible with binoculars and, in most cases, to the naked eye.

Date	Time	Item
3	05h36	**Moon** at perigee (364 400 Km)
	19h42	**Venus** in inferior conjunction
4	14h59	**Mercury** at greatest elongation (23.6º)
5	21h12	**Full Moon** with **lunar eclipse** (see p. 4 below)
7	18h22	**Moon** furthest south (-24.1º)
10		**Callisto** more than 10' from **Jupiter**
	21h00	**Titan** over 0º 3' from **Saturn**
13	08h24	**Last quarter Moon**
	01h40	**Moon**, **Mars** and **Neptune** grouped within 4.2º
	20h00 – 05h30	**θ Ophiuchid meteor** shower at maximum (see METEOR SHOWERS p. 4)
15	02h56	**Moon** at apogee (404 600 Km)
17	04h40	**Moon** (15%) passes 3.4º south of **Uranus** (magnitude 6) [1]
		Mercury stationary
18		**Callisto** more than 10' from **Jupiter**
	19h30	**Moon** (4%) passes 4.3º north of **Aldebaran** in a 5º grouping with **Venus** [2]
19-21		*7TH FREESTATE STAR PARTY* [3]
20	23h44	SOLSTICE
21	08H41	**New Moon**
		Annular solar eclipse (see p. 4)
	05h56	**Moon** furthest north (+24.1º)
23		**Mercury** at aphelion
		Neptune stationary
24		**Venus** stationary
25	20h49	**Moon** passes 4.5º north of **Regulus**
26		**Callisto** more than 10' from **Jupiter**
		Titan over 0º 3' from **Saturn**
28	10h16	**First quarter Moon**
30	04h09	**Moon** at perigee (369 000 Km)
		Jupiter near **Pluto**
		ASSA FINANCIAL YEAR END and SECTION REPORTS due
		INTERNATIONAL ASTEROID DAY [4]

[1] a good opportunity for a really impressive photo.

[2] another nice photo?

[3] *7th FREESTATE STAR PARTY* is planned for 19th to 21st June on the farm **Gansvlei**, near Brandfort, about 50Km from Bloemfontein. Contact: assabfn@gmail.com . http://assabfn.co.za .

[4] *INTERNATIONAL ASTEROID DAY* - **Asteroid Day** (also known as International Asteroid Day) is an annual global event which is held on the anniversary of the Siberian Tunguska event that took place on June 30, 1908, the most harmful known asteroid-related event on Earth in recent history. https://en.wikipedia.org/wiki/Asteroid_Day

3. THE SOLAR SYSTEM

JUNE 2020			*1st June*	*1st July*	*Visibility*
Sun Length of day	Aries to Gemini 10h42 to 9h54	Rises: Transit: Sets:	07h19 12h40 18h01	07h50 12h47 17h44	***Never look at the sun without SUITABLE EYE PROTECTION!***
Mercury Magnitude Phase Diameter	Aries to Gemini -1.8 to +5.0 99% to 1% 5" to 12"	Rises: Transit: Sets:	06h58 12h25 17h51	07h35 12h43 17h52	**Too close to the Sun**
Venus Magnitude Phase Diameter	Taurus -4.5 25% to 19% 39" 43"	Rises: Transit: Sets:	10h37 15h15 19h54	05h10 10h23 15h36	**Morning**
Mars Magnitude Phase Diameter	Capricornus to Pisces +0.4 to -0.5 86% to 84% 8" to 11"	Rises: Transit: Sets:	00h56 07h43 14h30	00h08 06h16 12h24	**Morning**
Jupiter Magnitude Diameter	Sagittarius -2.3 to -2.7 41" to 47"	Rises: Transit: Sets:	22h55 06h01 13h04	18h40 01h49 08h54	**All night**
Saturn Magnitude Diameter	Capricornus +0.6 to +0.2 17" to 18"	Rises: Transit: Sets:	23h18 06h21 13h21	19h09 02h14 09h15	**All night**
Uranus Magnitude Diameter	Aries +5.9 to +5.8 3"	Rises: Transit: Sets:	06h58 12h23 17h47	03h13 08h34 13h56	**Morning**
Neptune Magnitude Diameter	Aquarius +7.9 2"	Rises: Transit: Sets:	03h15 09h30 15h54	23h15 05h33 11h47	**Morning**
Pluto Magnitude	Sagittarius +14.3	Rises: Transit: Sets:	22h43 05h53 12h59	18h39 01h50 08h57	**All night**

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.

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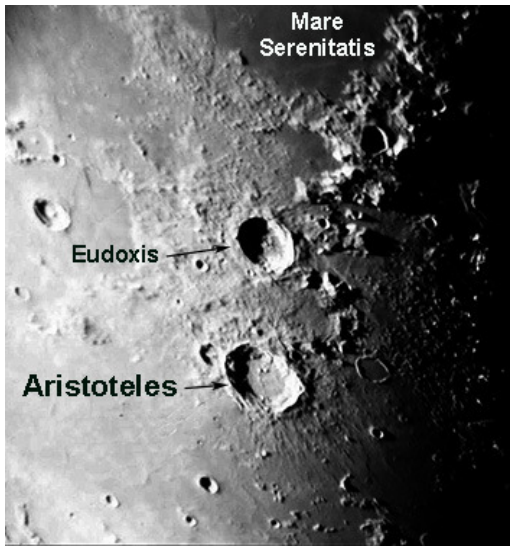
THE MOON *(Sky Guide lunar highlight)*

ARISTOTELES



Type	Impact crater
Location	Near the moon's northern limb, north of Mare Serenitatis, on the south-western border of Mare Frigoris
Size	Diameter 90 Km
Best seen	Six days after New Moon and five days after Full Moon
Naming	Officially named in 1935 after the ancient Greek philosopher Aristotle by the International Astronomical Union, using the classical form of his name.
Notes	Observers have noted the crater wall of Aristoteles is slightly distorted into a rounded hexagon shape. The inner walls are wide and finely terraced. The outer ramparts display a generally radial structure of hillocks through the extensive blanket of ejecta. The crater floor is uneven and covered in hilly ripples. Aristoteles does possess small central peaks but they are somewhat offset to the south. The interior floor appears to have been filled with a layer of material partially burying these projections.

Lunar eclipse 5th June (penumbral)	Commences Maximum Ends	19h46 21h25 23h04	Please note: penumbral lunar eclipses are hard to distinguish from a normal Full Moon.

Solar eclipse 21st June (partial)	This eclipse will not be visible from Hermanus. The northern regions, from Gauteng to Limpopo will see a very small bite out of the sun.

Meteor Showers

	Max Date/Time	*Observing Prospects*	*Duration*	*Radiant*	*ZHR*	*Vel.*
θ Ophiuchids	13/14 June 20h00 – 05h30	Good, moon at 50% rises 00h17	8 – 16 June	*See chart below*	5	27
June Lyrids	16/17 June 23h30 – 02h00	Fair, very low above Western Cape horizon	11 – 21 Jun	16º above the northern horizon	5	31

ZHR – the zenithal hourly rate (ZHR) of a meteor shower is the number of meteors a single observer would see in an hour of peak activity, assuming the conditions are excellent (stars visible up to magnitude 6.5). The rate that can effectively be seen is nearly always lower and *decreases the closer the radiant is to the horizon.*

velocity - velocity in Km per second.

For more details regarding meteor watching, please see the Sky Guide Africa South (SGAS), pages 86- 87

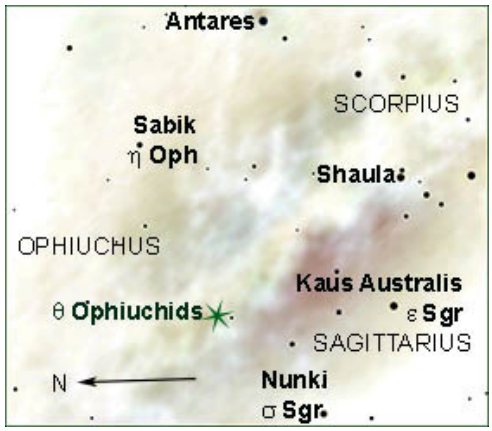


Chart timed Sunday 14th June 00h15

4. STARGAZING

SUGGESTED OBSERVATION DAYS

Unless *specifically* targeting the moon, may I suggest the most convenient dates to plan evening stargazing are from 11th (moonrise 23h21) to 23rd **June** (moonset 19h51, 5%).

STARGAZING . With regret, we have had to suspend all our functions owing to the current situation. Please consult our website for updates: http://www.hermanusastronomy.co.za.

DEEP SKY HIGHLIGHTS

SMALL MAGELLANIC CLOUD
NGC 292, Nubecula Minor, SMC

Description	Dwarf irregular galaxy		Visibility on **20th June**	
Distance	191 - 209 Kly, 61 Kpc	Rise:	Transit:	Set:
Magnitude	+2.74	No	07h 52m	No
Apparent size	300 x 180 arcmin			
Actual size	17.4 Kly, 5.3 Kpc	Naked eye	Yes	
Alt/Azimuth	51º 26' / 184º 26'	Binoculars	Yes	
J2000 lat/long	-72º 50' / 0h 53m 48s	Telescopes	Yes	
Location	Tucana			

Discovery and History

The Magellanic Clouds have long been included in the lore of native southerners, including pacific islanders and indigenous Australians. Like its larger apparent neighbour, the Large Magellanic Cloud, the SMC was probably mentioned by **Amerigo Vespucci** in a letter written about the third voyage during 1503-4.

European sailors may first have noticed the clouds during the middle ages but their existence only became widely known to the west after **Ferdinand Magellan's** circumnavigation of the earth in 1519-22. **Johan Bayer's** 1603 Celestial Atlas *Uranometria* named the smaller cloud *Nubecula Minor* , Latin for "Little Cloud". Between 1834 and 1838, John Herschel observed the southern skies from the Cape of Good Hope. He described Nubecula Minor as a cloudy mass of light with an oval shape and a bright centre, cataloguing 37 clusters and nebulae within it. Many of these clusters and nebulae were given their own NGC numbers in Dreyer's catalog and the main body of the SMC was assigned NGC 292.

It was in the SMC where Henrietta Swan Leavitt discovered the period-luminosity relation of Cepheid Variables in 1908. Since then, this has been the most reliable method available for determining large cosmic distances.

Observing

Like the LMC, the SMC is a member of the Local Group and highly probably is a former satellite of the Large Magellanic Cloud and a current satellite of the Milky Way, though the HST observations make this arguable (see below).

To the naked eye, the SMC appears as a detached piece of the Milky Way, a hazy patch covering about 280 by 160 arcminutes with a total visual magnitude of +2.3, making it the second brightest external galaxy (after the LMC). With a very low surface brightness, this galaxy is best viewed from a dark site away from city lights.

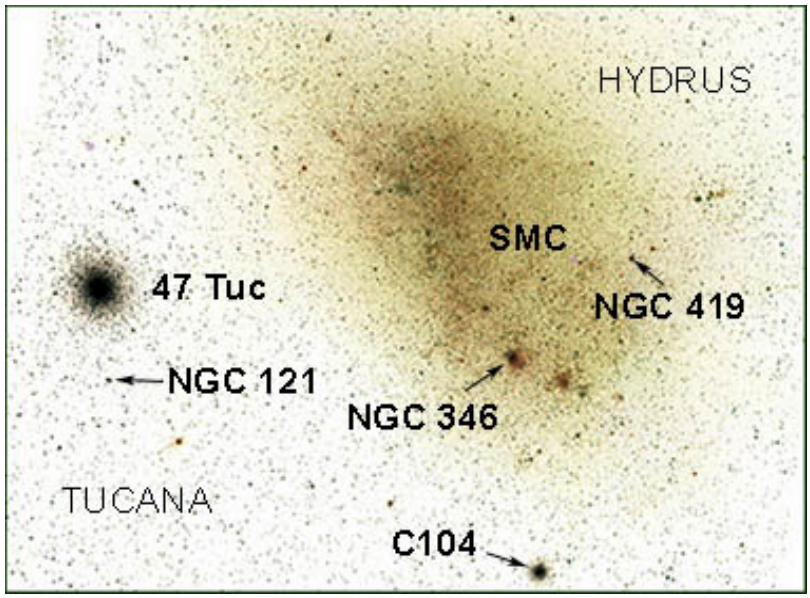


Chart angle timed for 17th June 2020 at 20h30

The SMC contains several nebulae and star clusters which can be seen through telescopes. Our small neighbour contains the same kinds of objects as the Milky Way: open clusters, diffuse nebulae, supernova remnants, planetary nebulae and globular clusters.

Associated with SMC

OBJECT	*DESCRIPTION*	*MAGNITUDE*	*DISTANCE*
NGC 121	globular cluster	+11.2	199 Kly
NGC 419	open cluster	+11.0	199 Kly

Not associated with SMC

47 Tucanae (NGC 104)	globular cluster	+3.95	15 Kly
NGC 346	cluster associated with nebulosity	+10.3	282 Kly
C104 (NGC 362)	globular cluster	+6.4	28 Kly

Physical Properties

At a distance of about 200 Kly, the SMC is the Milky Way's fourth nearest neighbour after the Sagittarius Dwarf Elliptical discovered in 1994, the Canis Major Dwarf Galaxy and the LMC. The SMC has a diameter of about 7 000 ly and contains several hundred million stars with a solar mass of approximately 7 billion.

Some speculate that the SMC was once a barred spiral disrupted by the Milky Way, becoming somewhat irregular. It still contains a central bar structure.

Moving too fast ...

HST observations released in 2007 showed that both the LMC and SMC are moving too fast to be gravitationally bound to the Milky Way but are simply passing through our galactic neighbourhood.

Please keep in touch...

Please have a look at our excellent website, edited by Derek Duckitt.
http://www.hermanusastronomy.co.za/

Also...

ASSA website http://assa.saao.ac.za
ASSA Deep-Sky Section
Whatsappchat group: [074 100 7237]
MNASSAhttp://assa.saao.ac.za/about/publications/mnassa/
Nightfall https://assa.saao.ac.za/?s=Nightfall
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Grateful thanks to the following:

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Sky Safari
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