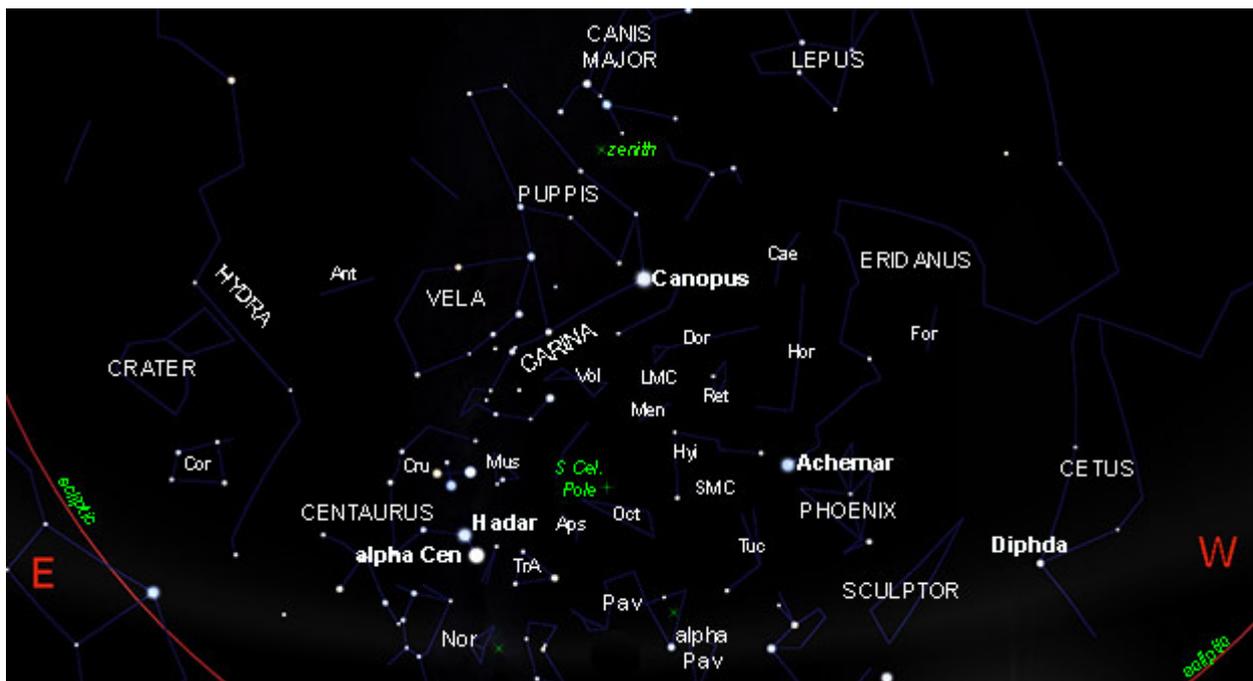


1. SKY CHARTS

EVENING SKY 1st MARCH at 21^h00 (NORTH DOWN)



EVENING SKY 1st MARCH at 21^h00 (SOUTH DOWN)



2. HIGHLIGHTS FROM THE SKY GUIDE

PLEASE NOTE: All events predicted are as observed from **Hermanus, Western Cape, South Africa**.

Date	Time	Item
1		Moon near Saturn
		Moon furthest south (-21.6°)
2		Moon near Pluto
3		Moon near Venus
4	13h27	Moon at apogee (406 390 Km)
		Titan at maximum separation from Saturn
5		Mercury stationary
		Titan at maximum separation from Saturn
		Pallas stationary
6	18h04	New Moon
		Moon near Neptune
		Callisto at maximum separation from Jupiter
7		Mercury at greatest latitude north
		Titan at maximum separation from Saturn
		Neptune and Vesta at conjunction
8		Callisto at maximum separation from Jupiter
10		Moon near Uranus
11		Moon near Mars
13		Moon near Aldebaran
		Luna X feature forms ¹ [footnotes on page 3]
		Titan at maximum separation from Saturn
		γ Normid meteor shower at maximum
14	12h27	First quarter Moon
		Callisto at maximum separation from Jupiter
		Titan at maximum separation from Saturn
15		Moon furthest north (+21.8°)
		Mercury at inferior conjunction
16		Callisto at maximum separation from Jupiter
19	21h48	Moon at perigee (359 380 Km)
		Moon near Regulus
20	23h58	Equinox
21	03h43	Full Moon
		Titan at maximum separation from Saturn
23		<i>WORLD METEOROLOGICAL DAY</i> ²
		Callisto at maximum separation from Jupiter
24		<i>EARTH HOUR</i> ³
		Callisto at maximum separation from Jupiter
25		Mercury near Neptune
27		Moon near Jupiter
		Mercury stationary
28	06h10	Last quarter Moon
		Titan at maximum separation from Saturn
29	07h15	Moon occults Saturn after sunrise in South Africa [see SGAS 2019, p. 19]
		Moon near Pluto
		Titan at maximum separation from Saturn
31		Callisto at maximum separation from Jupiter

¹ With the sun setting at 19h00 and **Luna X** theoretically visible up to 19h26, this looks like a good opportunity for observation.

² **WORLD METEOROLOGICAL DAY** https://en.wikipedia.org/wiki/World_Meteorological_day

Significance support for environmental protection

³ **EARTH HOUR** https://en.wikipedia.org/wiki/Earth_Hour **Earth Hour** is a worldwide movement organized by the **World Wide Fund for Nature** (WWF).

3. THE SOLAR SYSTEM

MARCH 2019			1st March	1st April	Visibility
Sun Length of day	Aquarius to Pisces 11h 43m	Rises:	06H30	06h55	Never look directly at the sun without suitable eye protection!
		Transit:	12H55	12h47	
		Sets:	19H20	18h38	
Mercury Magnitude Phase Diameter	Pisces to Aquarius +0.0 to +0.9 30% 9"	Rises:	07H58	05h00	Too close to sun then low in east before sunrise
		Transit:	11H57	11h17	
		Sets:	19H56	17h34	
Venus Magnitude Phase Diameter	Sagittarius to Aquarius -4.1 to -4.0 72% to %81 16" to 13"	Rises:	03H14	04h10	Morning
		Transit:	10H14	10h40	
		Sets:	17H13	17h11	
Mars Magnitude Phase Diameter	Aries to Taurus +1.2 to +1.4 91% to 81% 5" to 13"	Rises:	11H18	10h57	Evening
		Transit:	16H37	15h59	
		Sets:	21H56	21h00	
Jupiter Magnitude Diameter	Ophiuchus -2.0 to - 2.2 36" to 40"	Rises:	00h25	22h29	Morning
		Transit:	07h33	05h41	
		Sets:	14h41	12h50	
Saturn Magnitude Diameter	Sagittarius +0.6 16"	Rises:	02h19	00h27	Morning
		Transit:	09h25	07h32	
		Sets:	16h30	14h36	
Uranus Magnitude Diameter	Pisces to Aries +5.8 to +5.9 3"	Rises:	10h27	08h32	Evening
		Transit:	15h58	14h02	
		Sets:	21h30	19h32	
Neptune Magnitude Diameter	Aquarius +8.0 2" to 3"	Rises:	06h57	05h01	Too close to sun then low in east before sunrise
		Transit:	13h17	11h19	
		Sets:	19h36	17h38	
Pluto Magnitude	Sagittarius +14.3	Rises:	02h39	00h400	Morning
		Transit:	09h45	07h45	
		Sets:	16h50	14h51	

Notes to the table above on page 4 ...

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 Antares (in Scorpius) at +1.05 and the planet Jupiter, at (say) magnitude -1.8. The latter is considerably brighter than Antares as 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

Lunar Highlight (information from the 2019 *Sky Guide Africa South*):

MARE NECTARIS (Sea of Nectar)

Type: Dark basaltic plain formed by volcanic eruptions.

Diameter: 360 Km

Age: about 3.8 billion years

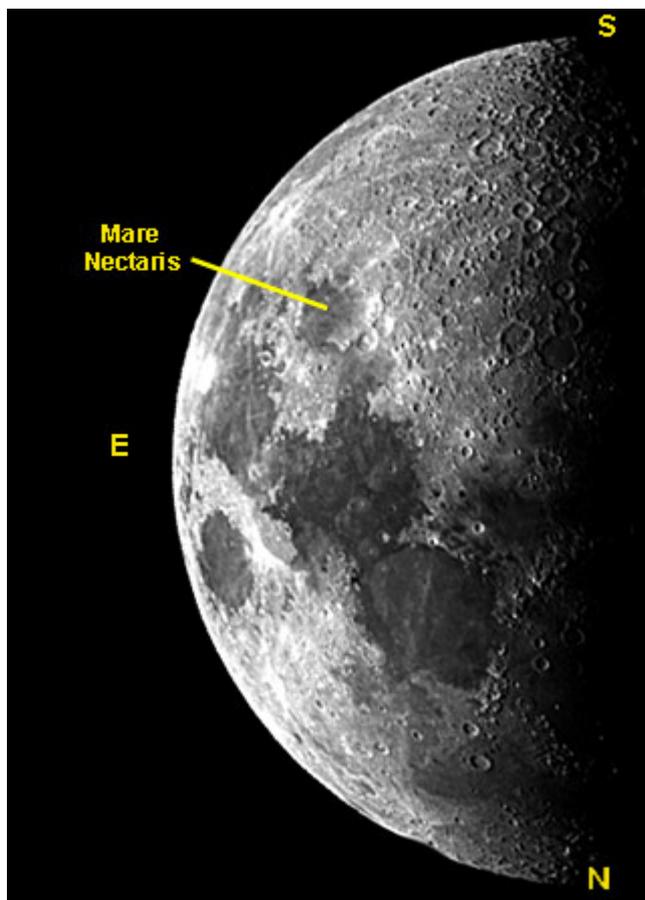
Notes: Named by Italian astronomer Giovanni Riccioli (1651). Contains prominent crater Rosse, named after William Parsons, 3rd earl of Rosse.

Best seen: five days after New Moon and four days after Full Moon.

Location: eastward of the centre of the Moon.

ECLIPSES

Eclipses (visible from Southern Africa):
No eclipses, solar or lunar, are predicted for this month



METEOR SHOWERS

Name	Date & Time of Max	Duration	Radiant	ZHR velocity		Observing Prospect
				ZHR	velocity	
γ Normids	13 th March 00h00 to 04h30	25 th February to 22 nd March	Constellation Norma, very close to s. horizon	8	56	Good
δ Pavonids	6 th April 02h00 to 04h30	11 th March to 16 th April	Constellation Pavo, close to s. horizon	5	59	Favourable

Guide to the table above:

ZHR – zenithal hourly rate
vel. - velocity in km per second

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

4. STARGAZING

SUGGESTED OBSERVATION DAYS

Unless *specifically* targeting the moon, may I suggest the most convenient dates to plan evening stargazing are from **24th February** (moonrise 22h54) to **9th March** (moonset 20h57), then from **25th March** (moonrise 22h06) to **8th April** (moonset 20h39).



The next club stargazing evening is provisionally scheduled for 1st March 2019 with a Moonwatch planned for 8th March. Members will receive updated information by e-mail (and, remember, it's always weather dependant!). Please check our website calendar (<http://www.hermanusastronomy.co.za>) closer to the date for confirmation of the event and venue.

DEEP SKY HIGHLIGHTS

The Hyades

<u>Description</u>	Star cluster	<u>Visibility</u>	
<u>Distance</u>	Average 150 LY	<u>Naked eye</u>	About 10 stars
<u>Location</u>	The nose of the bull in Taurus	<u>Binoculars</u>	At least 20 stars
<u>J2000 coordinates</u>	RA 4h26m Dec +17°02'	<u>Small telescope</u>	Plenty, see Ian Ridpath's "Star Tales" below
<u>Guide star</u>	Aldebaran, 0.85 mag., is co-located but not associated with the Hyades, its distance is 66 LY.	<u>Modest telescope</u>	Plenty more



Further Comment

The area circled in green on the chart, just west of Aldebaran, makes a fine triangle of six stars easily visible in binoculars. The **Crab Nebula**, 1.15° north-west of **ζ Tau**, lies 6000 light years away and appears as a misty patch through moderate-sized telescopes.

The Hyades – the face of the bull

The face of Taurus is marked by the V-shaped group of stars called the Hyades (Ἰάδεις in Greek). Ovid in his *Fasti* asserts that the name comes from the old Greek word *hyein*, meaning 'to rain', so that Hyades means 'rainy ones', because their rising at certain times of year was said to be a sign of rain. In mythology the Hyades were the daughters of Atlas and Aethra the Oceanid. Their eldest brother was Hyas, a bold hunter who one day was killed by a lioness. His sisters wept inconsolably – Hyginus says they died of grief – and for this they were placed in the sky. Hence it seems equally likely that their name comes from their brother Hyas. In another story, the Hyades were nymphs who nursed the infant Dionysus in their cave on Mount Nysa, feeding him on milk and honey. The Romans had a different name: they called the Hyades *suculae* meaning 'piglets'.

The mythographers were massively confused about the names and even the number of the Hyades. They are variously described as being five or seven in number. Ptolemy listed five Hyades in his star catalogue. Hyginus alone gives four different lists of their names, none of which agrees completely with the list of five originally given by Hesiod, viz: Phaesyale, Coronis, Cleia, Phaeo and Eudore. Astronomers have avoided the problem by not naming any of the stars of the Hyades.

Binoculars and small telescopes show many more members of the Hyades than are visible to the naked eye. In all, astronomers now estimate that several hundred stars belong to the cluster, which lies 150 light years away.

The eye, the horns – and a nebula named the Crab

The bull's glinting red eye is marked by the brightest star in Taurus, Aldebaran, a name that comes from the Arabic *al-dabarān* meaning 'the follower'; according to the 10th-century Arabic astronomer al-Ṣūfī, this name arose because it follows the Pleiades across the sky. Surprisingly for such a prominent star, Greek astronomers had no name for it (although Ptolemy called it Torch in his *Tetrabiblos*, a book about astrology). Aldebaran appears to be a member of the Hyades but in fact is a foreground object at less than half the distance, and so is superimposed on the Hyades by chance. It is a red giant star about 40 times the diameter of the Sun. Aldebaran marks the right eye of the bull; the left eye is represented by Epsilon Tauri, with Gamma Tauri on the nose.

At the tip of the bull's left horn is Beta Tauri, or Elnath, a name that comes from the Arabic meaning 'the butting one'. Ptolemy described this star as being common with the right foot of Auriga, the Charioteer, but since the introduction of rigorously defined constellation boundaries in 1930 it is now the exclusive property of Taurus. Hence the bull has kept the tip of his horn, but the charioteer has lost his right foot.

Near the tip of the bull's right horn, which is marked by Zeta Tauri, lies the remarkable Crab Nebula, the result of one of the most celebrated events in the history of astronomy – a stellar explosion, seen from Earth in AD 1054, that was bright enough to be visible in daylight for three weeks. We now know that this event was a supernova, the violent death of a massive star, and the Crab Nebula is the shattered remnant of the star that blew up, now visible only through telescopes.

The nebula was discovered in 1731 by the English astronomer John Bevis (1695–1771) and was first shown on his Uranographia Britannica star atlas of 1850 which, sadly, remained unpublished because his printer went bankrupt. It was rediscovered 27 years later by the Frenchman Charles Messier who made it the first entry in his famous list of nebulous objects. The Irish astronomer Lord Rosse (1800–67) gave the nebula its name in 1848 because he thought its shape as seen through his 72-inch telescope resembled a crab.

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Don't forget to have a look at our excellent website, edited by Derek Duckitt.
<http://www.hermanusastronomy.co.za/>

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