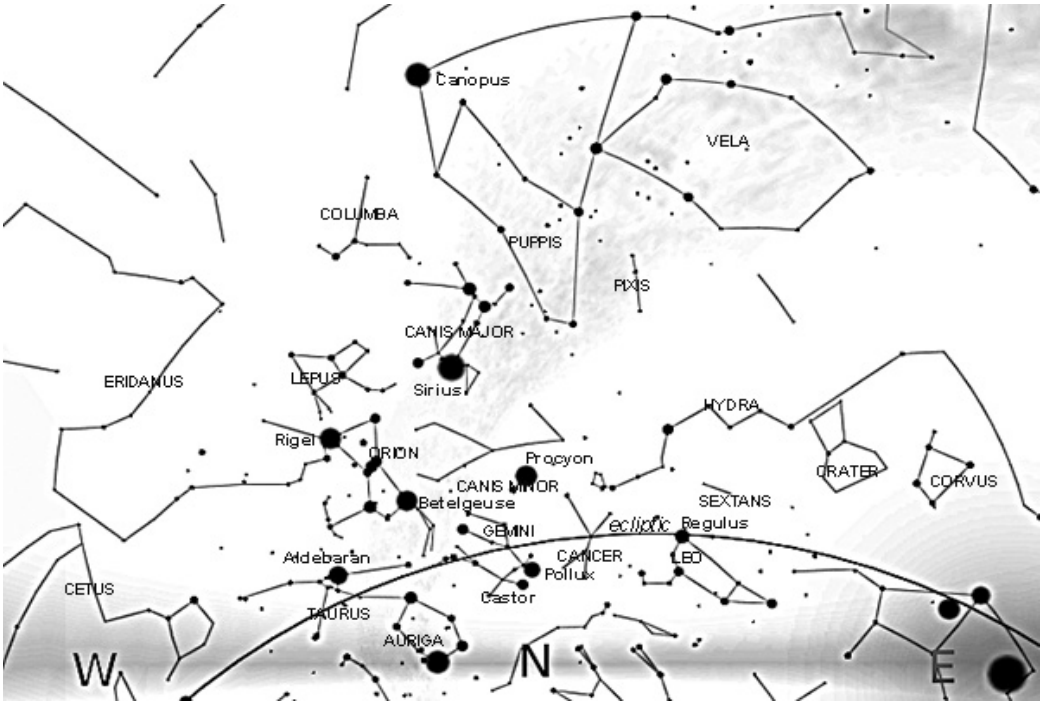
Hermanus
Astronomy Centre

Sky Maps

MARCH 2017

1. SKY MAPS

EVENING SKY MID MARCH at 21h00 (NORTH DOWN)



EVENING SKY MID MARCH at 21h00 (SOUTH DOWN)

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

2. THE SOLAR SYSTEM

PLANET VISIBILITY

Sun & Planets	*MARCH 2017*		*1st*	*31st*
Sun		Rises:	06h31	06h55
Constellation	Aquarius to Pisces	Transits:	12h56	12h47
Length of day	12h 49m to 11h44m	Sets:	19h20	18h39
Mercury	ϕ 5" to 7"	Rises:	06h06	08h29
phase	99% to 44%	Transits:	12h41	13h54
Constellation	Aquarius to Aries	Sets:	19h14	19h19
Magnitude	-1.3 to -0.1			
Venus	ϕ 47" to 58"	Rises:	09h11	06h19
phase	16% to 2%	Transits:	14h43	12h00
Constellation	Pisces	Sets:	20h14	17h41
Magnitude	-4.6 to -4.1			
Mars	ϕ 5" to 4"	Rises:	09h56	09h43
phase	95% to 96%	Transits:	15h33	14h58
Constellation	Pisces to Aries	Sets:	21h10	22h13
Magnitude	+1.3 to +1.5			
Jupiter	ϕ 42" to 44"	Rises:	21h06	19h00
Constellation	Virgo	Transits:	03h32	01h23
Magnitude	-2.3 to -2.5	Sets:	09h53	07h41
Saturn	ϕ 16" to 17"	Rises:	00h46	22h49
Constellation	Sagittarius	Transits:	07h52	05h59
Magnitude	+0.5 to +0.4	Sets:	14h58	13h05
Uranus	ϕ 3"	Rises:	09h48	07h57
Constellation	Pisces	Transits:	15h28	13h36
Magnitude	+5.9	Sets:	21h07	19h14
Neptune	ϕ 2"	Rises:	06h36	04h43
Constellation	Aquarius	Transits:	12h59	11h05
Magnitude	+8.0	Sets:	15h23	17h28
Pluto		Rises:	02h24	00h28
Constellation	Sagittarius	Transits:	09h27	07h31
Magnitude	+ 14.3 to 14.2	Sets:	16h30	14h34

Mercury	Initially too close to the sun to observe becoming visible low in the west after sunset
Venus	the "Evening Star" becomes the "Morning Star" as the month progresses
Mars	Visible in the evening
Jupiter	Visible throughout the night
Saturn	Visible in the morning
Uranus	Visible in the evening low in the west after sunset
Neptune	Initially too close to the sun becoming visible in the east before sunrise
Pluto	Visible before sunrise

'Beginner's guide' to the table above

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** (ϕ) is given in arc seconds (“). This is the apparent size of the object as we see it from Earth. To illustrate this point, consider the average binoculars through which we see about 7º of sky. Therefore, for example, Mars at 19” on 1st March would cover approximately 1/1300th of the field of view.

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 magnitude -1.9. 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 to the horizon directly south.

THE MOON

Lunar Highlight (information from the 2017 *Sky Guide Africa South):*

MARE NECTARIS (Sea of Nectar)

Type: a dark, basaltic plain

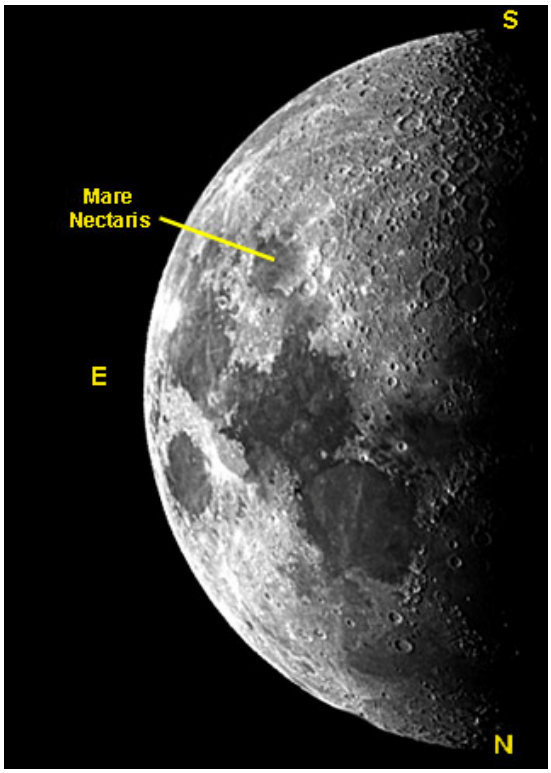
Notes: Another mare named by the Italian astronomer Giovanni Riccioli (1651). Contains prominent crater Rosse, named after William Parsons, 3rd Earl of Rosse.

Diameter: 360 km

Location: towards the east-south-eastern limb

Age: over 3.8 billion years
.

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



Eclipses (visible from Southern Africa):

There are no eclipses, lunar or solar, visible from southern Africa in March 2017.

METEOR SHOWERS

Name	*Date & Time of Max*	*Duration*	*Radiant*	*ZHR*	*velocity*	*Observing Prospect*
δ Pavonids	6th April 02h00 to 04h30	11th March To 16th April	In Pavo about 6º south of **α Pav**	5	59	Favourable

Key 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

3. MARCH HIGHLIGHTS FROM THE SKY GUIDE

Date	*Time*	*Item*
1	12h00	**Venus** near **Moon**
		Moon near **Mars** and **Uranus**
		Comet 93P/Lovas at perihelion
2		**Venus** stationary. **Neptune** in conjunction with **Sun**
3		**Moon** at perigee (369 063 Km)
4		**Mercury** and **Neptune** in conjunction (62' apart, elongation 3º west)
5	13h32	**First quarter Moon**
7		**Moon** furthest north
		Mercury in superior conjunction
		Vesta stationary
10		**Comet 2P/Enke** at perihelion (0.34 AU, period 3.3 years)
11	00h30	**Moon** occults **Regulus** [1] (visible from southern tip of Africa)
12	16h54	**Full Moon**
		Comet 176P/LINEAR at perihelion (2.5 AU, period 5.7 years)
13		**Comet 172P/Yeung** at perihelion (3.34 AU, period 8.6 years)
14		**Venus** greatest latitude north.
		Moon near **Jupiter**
15		**Pallas** in conjunction with **Sun**
16		**Comet 73P/Schwassmann-Wachmann** perihelion (0.97 AU, period 5.4 years)
18		**Moon** at apogee (404 650 Km)
20	12h29	Autumnal equinox
	17h58	**Last quarter Moon** near **Saturn**
21		**Moon** furthest south (-18.9º)
22		**Moon** near **Pluto**
23		**Mercury** at perihelion
25		***Earth Hour*** [2] (No moon**.** A perfect evening for stargazing!)
		Venus inferior conjunction
26		**Mercury** near **Uranus**
28	04h57	**New Moon**
29		**Moon** near **Uranus**
30		**Moon** near **Mars,** perigee (363 854 Km)

[1] although a dark-limb event, a tough one to see. The moon will be 99% illuminated.

[2] **Earth Hour** is a worldwide movement for the planet organized by the World Wide Fund for Nature (WWF). The event is held worldwide annually encouraging individuals, communities, households and businesses to turn off their non-essential lights for one hour, from 8:30 to 9:30 p.m. towards the end of March, as a symbol for their commitment to the planet. It was famously started as a lights-off event in Sydney, Australia, in 2007. Since then, it has grown to engage more than 7000 cities and towns worldwide. Today, Earth Hour engages a massive mainstream community on a broad range of environmental issues. The one-hour event continues to remain the key driver of the now larger movements.

4. STARGAZING

SUGGESTED BEST OBSERVATION DAYS FOR MARCH:

Unless specifically targeting the moon, *my* suggestion for the most convenient dates to plan *evening* stargazing in March: ***18th*** (moonrise 22h39) to **30*th*** (moonset 20h34).

The next stargazing evening may possibly coincide with Earth-hour (see above). Pencil-in your diary for Gearing's Point Saturday 25th March from 20h15, weather permitting of course.

More information will be published closer to the time.

5. DEEP SKY

Warm evenings

from ***Cosmic Pursuits***

The constellation Canis Majoris, the 'Big Dog', is home to many fine open clusters of blue-white stars along the stubby Orion Arm of the Milky Way. There are some real gems here, including the modest but delightful open star cluster NGC 2362, a group that hosts some of the youngest-known stars. Centred on the bright star **τ** (tau) **Canis Majoris**, this cluster, in a telescope, looks like a large diamond set among many smaller blue-white gems.

Here's how to find and enjoy this little star cluster, along with a fine double star just to the north that too few stargazers seem to know about...http://cosmicpursuits.com/1516/ngc-2362-and-winter-albireo/

The annual *Fundamentals of Stargazing* course is now available to new students. This course, which is offered just once a year, is designed to help you understand the night sky, choose and use telescopes and binoculars, and guide you to the most beautiful and fascinating sights in the heavens. Learn more about this highly detailed yet easy-to-understand astronomy course at this link...

From Ian Ridpath's *"Star Tales"*

Canis Major
The greater dog

Genitive: Canis Majoris
Abbreviation: CMa
Size ranking: 43rd
Origin: One of the 48 Greek constellations listed by Ptolemy in the *Almagest*
Greek name: Κύων (Kyon)

Four dogs are to be found among the constellations: Canis Major, Canis Minor and the two hunting dogs, Canes Venatici, but Canis Major is undoubtedly the top dog. Indeed, Ptolemy in the Almagest called it simply Κύων (Kyon), the Dog. Canis Major is dominated by Sirius, popularly termed the Dog Star, the most brilliant star in the entire night sky; almost certainly the constellation originated with this star alone.

Aratus referred to Canis Major as the guard-dog of Orion, following on the heels of its master and standing on its hind legs with Sirius carried in its jaws. Manilius called it 'the dog with the blazing face'. Canis Major seems to cross the sky in pursuit of the hare, represented by the constellation Lepus under Orion's feet. To the north of it scampers Canis Minor, the smaller dog, either having lost the scent or sniffing out different prey.

Mythologists such as Eratosthenes and Hyginus said that the constellation represented Laelaps, a dog so swift that no prey could outrun it. This dog had a long list of owners, one of them being Procris, daughter of King Erechtheus of Athens and wife of Cephalus, but accounts differ about how she came by it. In one version the dog was given to her by Artemis, goddess of hunting; but a more likely account says that it is the dog given by Zeus to Europa, whose son Minos, King of Crete, passed it on to Procris. The dog was presented to her along with a javelin that could never miss; this turned out to be an unlucky gift, for her husband Cephalus accidentally killed her with it while out hunting.

Cephalus inherited the dog, and took it with him to Thebes (not Thebes in Egypt but a town in Boeotia, north of Athens) where a vicious fox was ravaging the countryside. The fox was so swift of foot that it was destined never to be caught – yet Laelaps the hound was destined to catch whatever it pursued. Off they went, almost faster than the eye could follow, the inescapable dog in pursuit of the uncatchable fox. At one moment the dog would seem to have its prey within grasp, but could only close its jaws on thin air as the fox raced ahead of it again. There could be no resolution of such a paradox, so Zeus turned them both to stone, and the dog he placed in the sky as Canis Major, without the fox.

Sirius, the dazzling dog star

The name of the star Sirius comes from the Greek word seirios (Σείριος) meaning 'searing' or 'scorching', highly appropriate for something so brilliant. In Greek times its rising at dawn just before the Sun marked the start of the hottest part of the summer, a time that hence became known as the Dog Days. 'It barks forth flame and doubles the burning heat of the Sun', said Manilius, expressing a belief held by the Greeks and Romans that the star had a heating effect. The Roman writer Pliny the Elder considered it common knowledge. 'Who is not aware that the heat of the Sun increases at the rising of the Lesser Dog-star,' he asked in his Natural History of AD 79. The ancient Greek writer

Hesiod wrote of ‘heads and limbs drained dry by Sirius’, and Virgil in the Georgics said that ‘the torrid Dog Star cracks the fields’.

Even though the name Sirius was known as far back as the time of Hesiod, Ptolemy in the Almagest called it Κύων, ‘the Dog’, the same name as for the whole constellation. He described it as ‘the star in the mouth’. However, Johann Bayer in his Uranometria star atlas placed it not in the mouth but on the dog’s snout. Bayer was followed in this by Bode in Uranographia, although not by Hevelius or the classically correct Flamsteed.

Germanicus Caesar specified the effects that the rising of Sirius with the Sun was supposed to have. Healthy crops it strengthens, but those with shrivelled leaves or feeble roots it kills. ‘There is no star the farmer likes more or hates more’, according to Germanicus.

‘Hardly is it inferior to the Sun, save that its abode is far away’, wrote Manilius, anticipating the modern view that stars are bodies like the Sun only vastly more distant. Yet, in contradiction of the supposed heating effects of Sirius, Manilius continued: ‘The beams it launches from its sky-blue face are cold’. That description of the colour of Sirius is in contrast to Ptolemy’s surprising reference to it as reddish, which has caused all manner of arguments.

In fact, Manilius was nearly correct, for Sirius is a blue-white star, even larger and brighter than the Sun. It lies 8.6 light years away, making it one of the Sun’s closest neighbours. It has a white dwarf companion star, visible only through telescopes, that orbits it every 50 years.

In 14th-century Europe, Sirius was also known as Alhabor or Alabor, an Arabic name that can be found on astrolabes of the time. Geoffrey Chaucer used the name Alhabor for Sirius in his celebrated Treatise on the Astrolabe written in or around 1391. He based his description on astrolabes such as this English example which had a dog’s head to indicate the position of the star. However, astronomers eventually settled on the original Greek name in preference to the Arabic alternative.

Beta Canis Majoris, which precedes Sirius across the sky, is known as Mirzam, from the Arabic al-Mirzam. According to the Arabic astronomer al-Sūfī, the Arabs gave this name to any star that preceded a bright star. Hence it was also applied to Beta Canis Minoris, which precedes Procyon, and Gamma Orionis, which precedes Betelgeuse, but it is the attribution to Beta Canis Majoris which has stuck.

Ptolemy listed 11 stars as lying around the constellation but not forming part of it. Of these, nine were later used by Petrus Plancius to create a new constellation, Columba, the dove; one was transferred to Monoceros; and one was eventually incorporated in Canis Major.

Chinese associations

Chinese astronomers knew Sirius as Tianlang, ’celestial wolf’, or simply Lang, ‘wolf’; it was said to symbolize invasion and plunder. Other stars of Canis Major provide a good illustration of how Chinese constellations could be remodelled by different astrologer/astronomers. Take Junshi, for example, representing a market for soldiers to buy provisions and barter goods. In one version, this was a ring of 13 stars, including Nu and Xi Canis Majoris, extending into present-day Lepus. At its centre was Yeji, a pheasant, represented by Beta Canis Majoris (Mirzam). But an alternative interpretation identifies the pheasant as Nu-2 Canis Majoris, with Beta one of a ring of 6 stars (rather than 13) making up Junshi.

Similar malleability can be seen in the case of Hushi, the bow and arrow. In one depiction the bow, Hu, was represented by the arc of stars from Kappa via Epsilon, Sigma, Delta, and Tau Canis Majoris to Xi Puppis. A line from Eta via Delta to Omicron-2 Canis Majoris was Shi, an arrow, pointing at Lang in a show of defiance against thieves and raiders. But another version sees the bow as an altogether larger figure, extending well into Puppis and with Delta Canis Majoris as the tip of the arrow. The whole bow-and-arrow figure was sometimes known simply as Hu.

HOW TO READ A STARCHART [adapted to southern African conditions from Brian Ventrudo's "One Minute Astronomer"]

When you're just starting out you need a good basic star chart that shows you where to find the bright stars and main constellations at a particular time and place. At first, star charts are a little confusing. So here's how to read a star chart:

On page 1 above there is a basic star chart showing the sky on 15th of the month at 21.00 from 34.4º south and 19.2º east (Hermanus).

The chart tries to represent a hemispherical sky on a flat surface. The edge of the chart represents the horizon, and the centre of the chart is supposed to represent the zenith (the point directly overhead) at 34º south. East and west are reversed compared to a map of the Earth but they will point in the right directions when you raise the map over your head.

To learn the night sky, you will need star charts.

• Find a location that's isolated from street and house lights. Stray light will make it harder for you to see fainter stars. Also, for the same reason, try to avoid nights with a full moon or too much haze.

• Once you go outside, give your eyes 5 or 10 minutes to become adapted to the dark. And to see the star charts, use a red LED flashlight or a white flashlight covered with red plastic. The red light will preserve the sensitivity of your eye for night viewing.

• Pick a direction to face, say, South, and rotate the chart so South is at the bottom. Now raise the chart overhead. The directions on the chart will now correspond to the directions in the sky.

• Don't try to take in the whole sky at once. Choose a quarter of the map, preferably one with several bright stars or a large well-known constellation like Orion or Crux (Southern Cross). Now, look up at the quarter of the sky that corresponds to the quarter of the map. Make a connection with what you see in the sky with what you see on the map. Take your time… it's a little strange and overwhelming at first.

• Learn a few more stars at a time… don't rush. Once you've identified a few bright stars and constellations, move from what you know to what you don't know. Once you've learned most of a quarter of the sky, move to another quarter.

• While the charts are set for 21.00 (9 p.m.) local time, they are still useful for an hour or two on either side. The stars will appear in about the same position, except for the stars near the horizon. After 3 hours, the stars will have turned 1/8 of the way around the sky. And after 6 hours, they will have turned 1/4 of the way around the sky.

• If you see an out-of-place star near the ecliptic (and in one of the constellations of the zodiac), it's almost certainly a planet. Since the planets move around in the sky almost daily, you will need to consult an almanac or website to figure out which planet you are seeing. We also review the positions of the planets each month in the SKY THIS MONTH.

That's all there is to it. Well, that and a whole lot of practice. Be patient, and savour your personal discovery of each new star and constellation.

Please keep in touch...

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

Also...

ASSA Deep-Sky Section

Whatsapp chat group: [074 100 7237]
Official Big 5 of the African Sky web page
Official Big 5 Facebook group
ASSA Deep-Sky Section mailing list

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!

You can also find us on Facebook, Twitter, the ASSA_Info mailing list and the ASSA_Discussion mailing list.

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ASSA
Brian Ventrudo (Cosmic Pursuits)
Ian Ridpath
Sky Guide Africa South 2017
Stellarium

Compiled by Peter Harvey
e-mail: petermh@hermanus.co.za
Tel: 081 212 9481