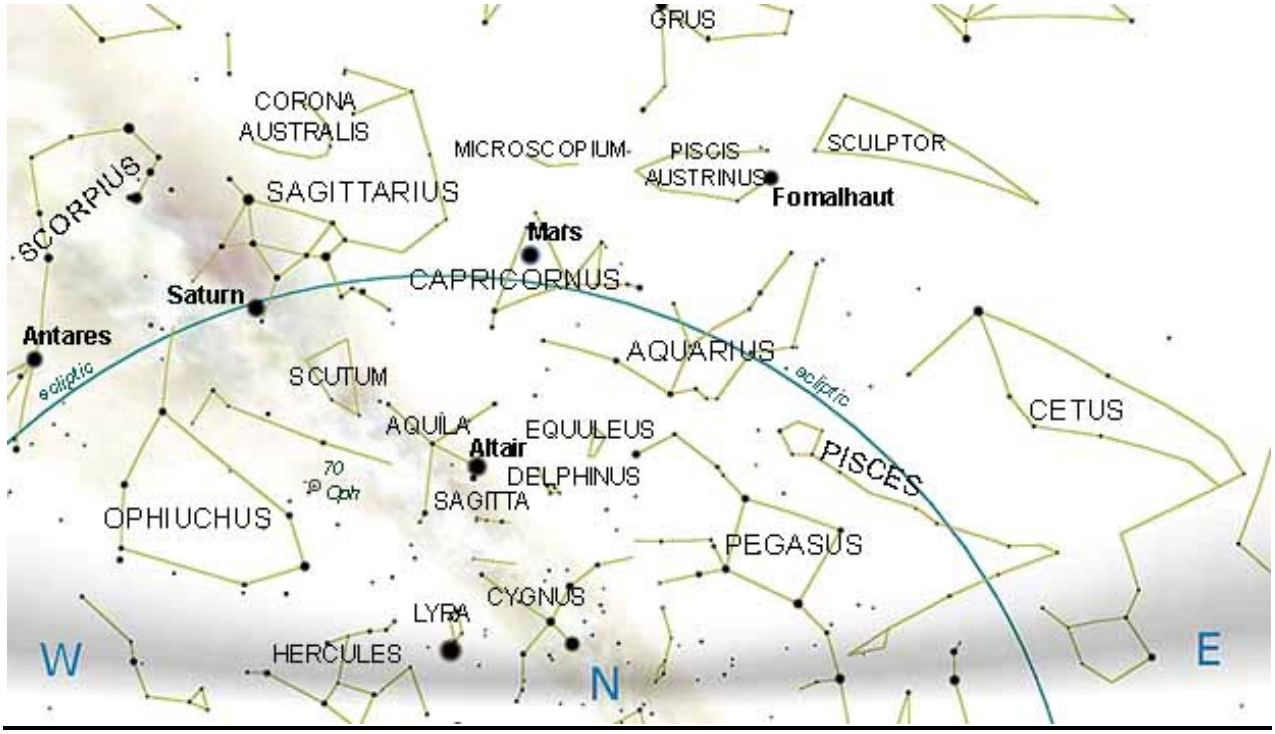
Hermanus
Astronomy Centre

Sky Maps

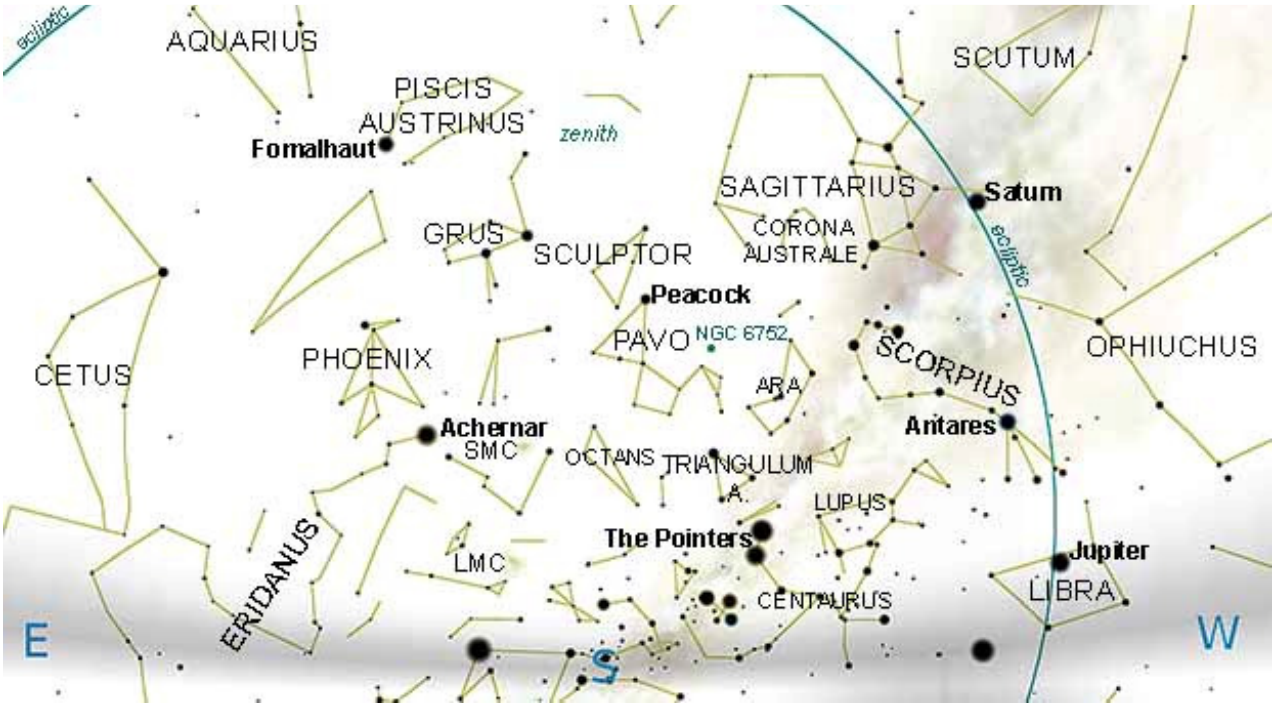
OCTOBER 2018

1. SKY CHARTS

EVENING SKY 6TH OCTOBER at 21h00 (NORTH DOWN)



EVENING SKY 6TH OCTOBER at 21h00 (SOUTH DOWN)



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

2. THE SOLAR SYSTEM

OCTOBER 2018			*1st*	*31st*	*Visibility*
Sun	Virgo to Libra	Rises:	06h20	05h43	***Never look directly at the sun without suitable eye protection!***
		Transit:	12h33	12h27	
Length of day	12h26 – 13h27	Sets:	18h46	19h11	
Mercury Magnitude Phase Diameter	Virgo to Scorpius -0.8 to -0.2 97% - 74% 5" – 6"	Rises:	06h44	06h45	**Too close to the Sun**
		Transit:	13h03	13h55	
		Sets:	19h23	21h05	
Venus Magnitude Phase Diameter	Libra to Virgo -4.5 to -4.1 17% to 1% 47" – 61"	Rises:	07h22	05h01	**Evening then low before sunrise later in the month**
		Transit:	14h26	11h49	
		Sets:	21h30	18h37	
Mars Magnitude Phase Diameter	Capricornus -1.3 to -0.6 88% - 86% 15" - 12"	Rises:	13h32	12h50	**Evening**
		Transit:	20h40	19h40	
		Sets:	03h50	02h32	
Jupiter Magnitude Diameter	Libra -1.8 to -1.7 33" to 31"	Rises:	08h30	06h53	**Evening**
		Transit:	15h22	13h49	
		Sets:	22h14	20h46	
Saturn Magnitude Diameter	Sagittarius +0.5 to +0.6 16"	Rises:	11h07	09h17	**Evening**
		Transit:	18h15	16h25	
		Sets:	01h27	23h33	
Uranus Magnitude Diameter	Aries 5.7 4"	Rises:	20h28	18h25	**All night**
		Transit:	02h03	23h56	
		Sets:	07h33	05h31	
Neptune Magnitude Diameter	Aquarius +7.8 2"	Rises:	16h44	14h44	**All night to evening later in the month**
		Transit:	23h05	21h05	
		Sets:	05h30	03h31	
Pluto Magnitude	Sagittarius +14.3	Rises:	12h17	10h20	**Evening**
		Transit:	19h23	17h26	
		Sets:	02h33	00h36	

Notes to the table above ....

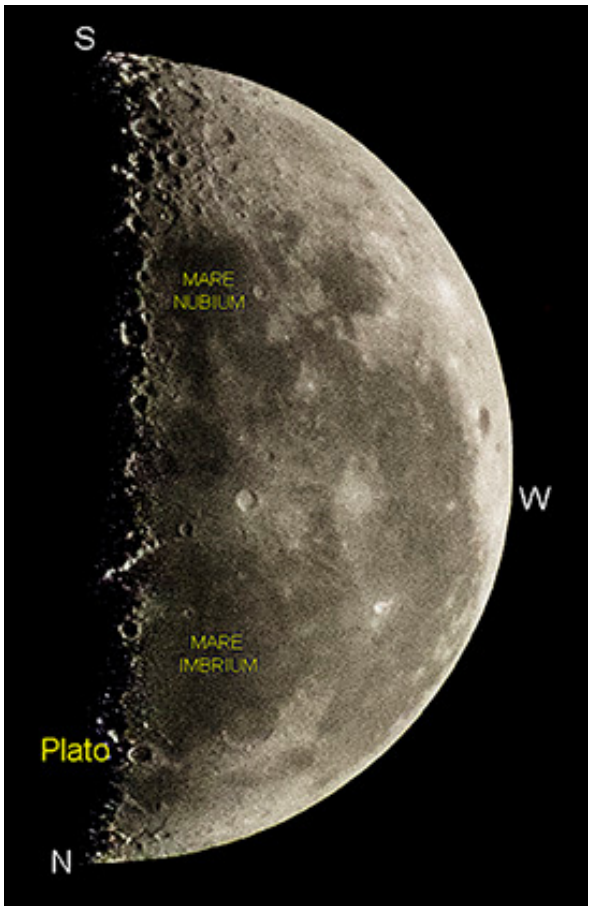
Phase: In a telescope, the inner planets (Mercury, Venus and Mars) appear to us in phases, depending on the angle of the Sun's illumination, as does the Moon. The **angular diameter** is given in arc seconds (“). This is the apparent size of the object as we see it from Earth.

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 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 SOUTH DOWN chart on page 1) to the horizon directly south.

THE MOON

Lunar Highlight (information from the 2018 *Sky Guide Africa South):*



Plato

Type: Crater with a dark floor

Diameter: 104 km.

Notes: Five small craters are scattered across Plato's floor; all traces of its original central elevations have been wiped out by later laver flows. Transient lunar phenomena have been reported within Plato.

Best seen: one day after first quarter and at last quarter.

Age: about 3.6 billion years

Location: near the moon's northern limb, sunk about 2 km deep into the western heights of the Lunar Alps.

ECLIPSES

No eclipses, solar or lunar, are predicted for the month.

METEOR SHOWERS

Name	*Date & Time of Max*	*Duration*	*Radiant*	*ZHR*	*velocity*	*Observing Prospect*
Orionids	21st October 00h00 to 04h00	2nd October - 7th November	Between Betelgeuse and γ Geminorum	30	68	Poor

3. HIGHLIGHTS FROM THE SKY GUIDE
(observed from Hermanus)

Date	Time	Item
1		**Comet 26P/Grigg-Skjellerup** at perihelion (5.2 years)
2	11h45	**Last quarter Moon**
		Moon furthest north (+21.0º)
4		**Comet P/2001 R6** (LINNEAR-Skiff) at perihelion (8.6 years)
4-10		*WORLD SPACE WEEK*[1]
5		**Venus** stationary
6	00h31	**Moon** at perigee (366 395 km)
		Regulus near **Moon**
		Moon passes about 2.3º SW of **Regulus**
		Mercury near **Spica**
7		**Ceres** at conjunction
9	05h47	**New Moon**
10		**Moon** near **Mercury**
12		**Moon** near **Jupiter**
15		**Moon** near **Saturn**
		Moon furthest south (-21.2º)
16	20h02	**First quarter Moon**
		Luna-X visible
		Juno stationary
		Mercury at aphelion
		Moon near **Pluto**
17	21h18	**Moon** at apogee (404 225 km)
		Start of southern hemisphere summer on **Mars** (duration 89.1 days)
18		**Moon** near **Mars**
21		**Moon** near **Neptune**
24	18h45	**Full Moon**
		Uranus at opposition
		Moon 4.3º passes south of **Uranus**
26		**Venus** at inferior conjunction
27		**Moon** passes within 2º of **Aldebaran**
29		**Moon** furthest north (+21.3º)
		Mercury near **Jupiter**
31		*DARK MATTER DAY*[2]
	18h40	**Last quarter Moon**
	21h06	**Moon** at perigee (370 200 km)

[1] *WORLD SPACE WEEK* is an international celebration of science and technology and their contribution to the betterment of the human condition. The United Nations General Assembly declared in 1999 that World Space Week will be held each year from 4-10 October. www.worldspaceweek.org/

[2] *DARK MATTER DAY* On or around 31 October, 2018, the world will celebrate the historic hunt for the unseen—something that scientists refer to as dark matter. More than 110 global, regional, and local events were held on and around October 31, 2017 by institutions and individuals looking to engage the public in discussions about what we already know about dark matter and the many present as well as planned experiments seeking to solve its mysteries. https://www.darkmatterday.com/

4. STARGAZING

SUGGESTED OBSERVATION DAYS FOR OCTOBER 2018: Unless *specifically* targeting the moon, may I suggest the most convenient dates to plan evening stargazing in **October** are between **1st** (no evening moon) and **11th** (moonset 21h23). On **27th** the moon rises at 22h05, offering another opportunity for evening stargazing each evening to month end.

The next club stargazing evening is yet to be planned. Members will receive information by e-mail (and, remember, it's always weather dependant!). Please check our website calendar on http://www.hermanusastronomy.co.za

NO 'SCOPE REQUIRED

I'd like to quote from *"Astronomy Within Reach"* by Neville Young (and I have his permission!)
"Astronomy is often perceived as a hobby requiring special knowledge and equipment. This book shows that, with a spark of curiosity, a little understanding to fuel our brains and using our eyes as optical instruments, we can knowledgeably observe and comprehend events in the heavens."

And from Socrates (2 ½ millennia ago!):
"Man must rise above the earth – to top of the atmosphere and beyond – for only thus will he fully understand the world in which he lives."

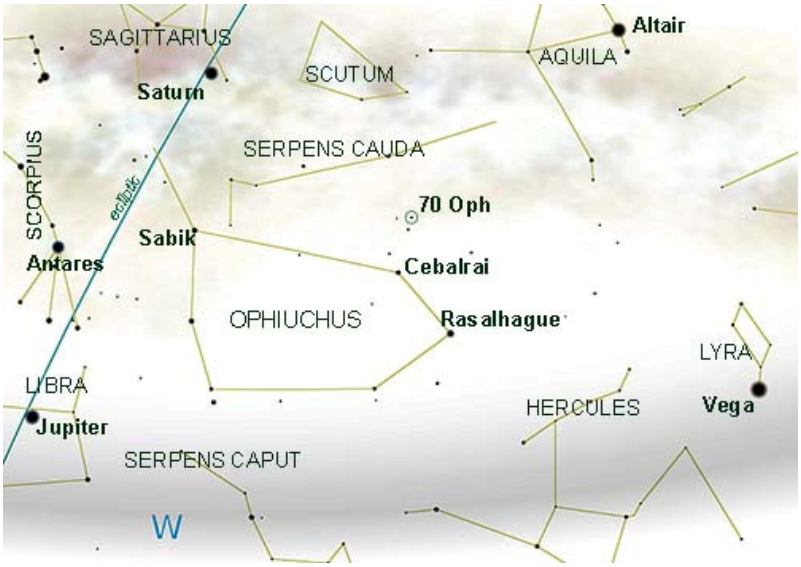
On the lawn, toes just north of west this time!

As one of the deep sky targets below is **70 Oph,** let's have a naked-eye look at the Ophiuchus area *(Ian Ridpath, page 7 below, says it is pronounced off-ee-YOO-cuss).*

Ophiuchus is a man holding a snake.

This constellation is bounded by **Scorpius**, **Sagittarius** (the archer), **Scutum** (the shield), **Serpens Cauda** (the snake's tail), **Aquila** (the eagle), **Lyra** (the lyre), **Hercules**, **Serpens Caput** (the snake's head) and **Libra** (the scales).

The man's head is represented by **Rasalhague** (α Oph, magnitude +2.05). **Cebalrai** (β Oph at +2.75) is his right shoulder and **Sabik** (η Oph, +2.45 magnitude) represents his right knee.



5. TWO DEEP SKY HIGHLIGHTS

	from SGAS	*from Cosmic Pursuits*
	The Cartwheel Globular Cluster (NGC 6752, C93)	**70 Ophiuchi** (V2391 Oph, HIP 88601)
Description	Globular cluster	Variable, double star
Distance	13 000 LY	16.6 LY
Age	about 13 bn years	
Location	in Pavo, the peacock (see SOUTH DOWN chart on page 1)	In Ophiuchus (see NORTH DOWN chart on page 1)
J2000 coordinates	RA 19h 10m 54s, DEC -59º 59' 00"	RA 18h 5m 27s, DEC +2º 29m 41s
Guide star	**Peacock** (α Pav), move 10.3º SW	
Visibility	5.4 magnitude	4.1 magnitude
Binoculars	one of the gems of the sky, an impressive blaze of light	Should be
Small telescope	individual stars	Yes
Modest telescope	crooked lines of stars radiating from the centre, inspiring Magda Streicher to liken it to a cartwheel	Yes
Further comment	Curiously, the cluster's stars appear to be of two distinct magnitudes, with the fainter stars near the centre, creating an illusion of an object within an object	Close enough to show considerable motion in just a year or two, and it's one of the few stars to make a complete revolution during the span of a human lifetime. It's a pretty little star, too, one that's easy to find and see with nearly any small telescope.

Ian Ridpath's STAR TALES

Ophiuchus
The serpent holder

Genitive: Ophiuchi
Abbreviation: Oph
Size ranking: 11th
Origin: One of the 48 Greek constellations listed by Ptolemy in the Almagest
Greek name: Ὀφιοῦχος (Ophiouchos)

Ophiuchus (pronounced off-ee-YOO-cuss) represents a man with a snake coiled around his waist. He holds the head of the snake in his left hand and its tail in his right hand. The snake is represented by a separate constellation, Serpents. The Greek spelling of the name was Ὀφιοῦχος (Ophiouchos). The Greeks identified him as Asclepius, the god of medicine (Aesculapius in Latin). Asclepius was the son of Apollo and Coronis (although some say that his mother was Arsinoë). The story goes that Coronis two-timed Apollo by sleeping with a mortal, Ischys, while she was pregnant by Apollo. A crow brought Apollo the unwelcome news, but instead of the expected reward the crow, which until then had been snow-white, was cursed by Apollo and turned black.

In a rage of jealousy, Apollo shot Coronis with an arrow. Rather than see his child perish with her, Apollo snatched the unborn baby from its mother's womb as the flames of the funeral pyre engulfed her, and took the infant to Chiron, the wise centaur (represented in the sky by the constellation Centaurus).

Chiron raised Asclepius as his own son, teaching him the arts of healing and hunting. Asclepius became so skilled in medicine that not only could he save lives, he could also raise the dead.

Asclepius and the snake

On one occasion in Crete, Glaucus, the young son of King Minos, fell into a jar of honey while playing and drowned. As Asclepius contemplated the body of Glaucus, a snake slithered towards it. He killed the snake with his staff; then another snake came along with a herb in its mouth and placed it on the body of the dead snake, which magically returned to life. Asclepius took the same herb and laid it on the body of Glaucus, who too was magically resurrected. (Robert Graves suggests that the herb was mistletoe, which the ancients thought had great regenerative properties, but perhaps it was actually willow bark, the source of salicylic acid, the active ingredient in aspirin.) Because of this incident, says Hyginus, Ophiuchus is shown in the sky holding a snake, which became the symbol of healing from the fact that snakes shed their skin every year and are thus seemingly reborn.

Others, though, say that Asclepius received from the goddess Athene the blood of Medusa the Gorgon. The blood that flowed from the veins on her left side was a poison, but the blood from the right side could raise the dead. Someone else supposedly resurrected by Asclepius was Hippolytus, son of Theseus, who died when he was thrown from his chariot (some identify him with the constellation Auriga, the Charioteer). Reaching for his healing herbs, Asclepius touched the youth's chest three times, uttering healing words, and Hippolytus raised his head.

Hades, god of the Underworld, began to realize that the flow of dead souls into his domain would soon dry up if this technique became widely known. He complained to his brother god Zeus who struck down Asclepius with a thunderbolt. Apollo was outraged at this harsh treatment of his son and retaliated by killing the three Cyclopes who forged Zeus' thunderbolts. To mollify Apollo, Zeus made Asclepius immortal (in the circumstances he could hardly bring him back to life again) and set him among the stars as the constellation Ophiuchus.

Ophiuchus and the zodiac

Although Ophiuchus is not one of the official 12 constellations of the zodiac, the Sun passes through its southern regions in the first half of December. The Sun's path, the ecliptic, is the black-and-white curved line crossing the feet of Ophiuchus in the star chart above. According to the modern constellation boundaries, the Sun spends more time in Ophiuchus than it does in neighbouring Scorpius. Hence Ophiuchus is sometimes referred to as the 13th sign of the zodiac.

Stars of Ophiuchus

The head of Ophiuchus is marked by its brightest star, second-magnitude Alpha Ophiuchi, called Rasalhague from the Arabic meaning 'the head of the serpent collector'. Beta Ophiuchi is called Cebalrai from the Arabic for 'the shepherd's dog'; the Arabs visualized a shepherd (the star Alpha Ophiuchi) along with his dog and some sheep in this area. Ptolemy in the Almagest located Beta Ophiuchi in the serpent holder's right shoulder, along with Gamma; the left shoulder is marked by Iota and Kappa Ophiuchi.

Delta and Epsilon Ophiuchi are called Yed Prior and Yed Posterior. These are compound names, formed from the Arabic al-yad, meaning 'hand', with the Latin words Prior and Posterior added to give names meaning the 'leading' and 'following' parts of the hand, where Ptolemy had located them. The hand in question is the left one; the right hand, according to Ptolemy, was marked by the stars we now know as Nu and Tau Ophiuchi, but these have no proper names.

Zeta and Eta Ophiuchi are his left and right knees, while Rho and Theta Ophiuchi are in his feet. Scorpius, the scorpion, lies beneath his feet. Aratus said that Ophiuchus 'tramples' the scorpion with both feet, but in reality it is only the left foot that stands on the scorpion; the right foot remains well clear of it.

In the Almagest, Ptolemy listed a scattering of five stars between the right shoulder of Ophiuchus and the tail of the serpent which he regarded as being outside the main figure of Ophiuchus. These stars were later incorporated into the short-lived constellation Taurus Poniatovii. They are now officially part of Ophiuchus and are known as 66, 67, 68, 70, and 72 Ophiuchi. Barnard's Star, the second-closest star to the Sun at a distance of 5.9 light years, lies in this same area, near 66 Ophiuchi.

Ophiuchus was the site of the last supernova seen in our Galaxy. This appeared in 1604 near Xi Ophiuchi and reached an estimated maximum magnitude of –3. It is known as Kepler's Star after Johannes Kepler who described it in a book called De Stella Nova (1606).

Please keep in touch...

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

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