

# NOVEMBER 2018

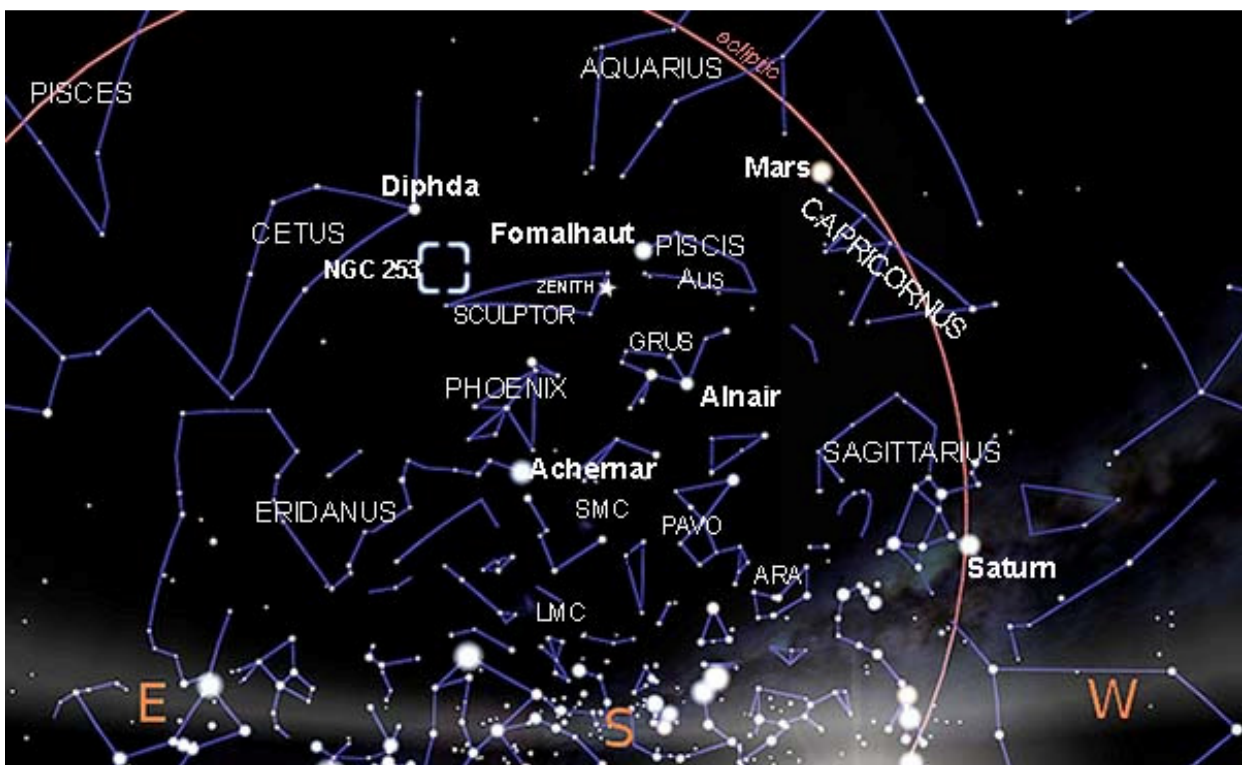


## 1. SKY CHARTS

### EVENING SKY 5<sup>TH</sup> NOVEMBER at 21<sup>h</sup>00 (NORTH DOWN)



### EVENING SKY 5<sup>TH</sup> NOVEMBER at 21<sup>h</sup>00 (SOUTH DOWN)



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

## 2. THE SOLAR SYSTEM

NOVEMBER 2018			1 <sup>st</sup>	30 <sup>th</sup>	Visibility
<b>Sun</b> Length of day	Libra to Ophiuchus	Rises:	05h42	05h25	<i>Never look directly at the sun without suitable eye protection!</i>
	13h29 – 14h15	Transit:	12h27	12h32	
		Sets:	19h12	19h39	
<b>Mercury</b> Magnitude Phase Diameter	Scorpius to Libra -0.2 to +0.31 73% - 4% 6" – 10"	Rises:	06h46	05h10	<b>Low in the west after sunset</b>
		Transit:	13h56	12h04	
		Sets:	21h07	18h57	
<b>Venus</b> Magnitude Phase Diameter	Virgo -4.2 to -4.7 2% to 25% 60" – 41"	Rises:	04h57	03h26	<b>Low in the east before sunrise</b>
		Transit:	11h44	09h55	
		Sets:	18h30	16h25	
<b>Mars</b> Magnitude Phase Diameter	Capricornus to Aquarius -0.6 to 0 86% - 86% 12" - 9"	Rises:	12h49	12h23	<b>Evening</b>
		Transit:	19h38	18h50	
		Sets:	02h29	01h20	
<b>Jupiter</b> Magnitude Diameter	Libra to Scorpius -1.7 31"	Rises:	06h49	05h18	<b>Low in the west after sunset</b>
		Transit:	13h46	12h18	
		Sets:	20h43	19h19	
<b>Saturn</b> Magnitude Diameter	Sagittarius +0.6 16" to 15"	Rises:	09h13	07h32	<b>Evening</b>
		Transit:	16h22	14h40	
		Sets:	23h30	21h48	
<b>Uranus</b> Magnitude Diameter	Aries 5.7 4"	Rises:	18h20	16h21	<b>All night</b>
		Transit:	23h52	21h54	
		Sets:	05h27	03h30	
<b>Neptune</b> Magnitude Diameter	Aquarius +7.8 +7.9 2"	Rises:	14h40	12h45	<b>Evening</b>
		Transit:	21h01	19h07	
		Sets:	03h27	01h32	
<b>Pluto</b> Magnitude	Sagittarius +14.3	Rises:	10h16	08h25	<b>Evening</b>
		Transit:	17h22	15h31	
		Sets:	00h32	22h37	

### **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 -1.7. 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*):

### **Copernicus**

**Type:** Crater with three central mountains rising 1.2 km above the crater floor.

**Diameter:** 95 km.

**Notes:** Young and isolated formation with a large so-called “starburst” ray system (some of which are up to 800 km long) which can be seen with the naked eye.

**Best seen:** Two days after first quarter and one day after last quarter.

**Age:** about 3.6 billion years

**Location:** North-west quadrant.

## ECLIPSES

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



## METEOR SHOWERS

<i>Name</i>	<i>Date &amp; Time of Max</i>	<i>Duration</i>	<i>Radiant</i>	<i>ZHR velocity</i>		<i>Observing Prospect</i>
				ZHR	velocity	
<b>Orionids</b>	21 November 00h00 to 04h00	2 October – 7 November	Between Betelgeuse and $\gamma$ Geminorum	30	68	Poor
<b>Southern Taurids</b>	5 November 21h30 – 03h30	1 October – 25 November	15° west of <b>Aldebaran</b>	10	29	Favourable
<b>Northern Taurids</b>	12 November 21h30 – 03h30	1 October – 25 November	3° east of <b>Pleiades</b>	5	31	Favourable
<b>Leonids</b>	17 November 03h00 – 04h00	12 - 21 November	3° north-west of <b>Algieba (<math>\gamma</math> Leo)</b>	5-10	70	Favourable

### 3. HIGHLIGHTS FROM THE SKY GUIDE

(observed from Hermanus)

<i>Date</i>	<i>Time</i>	<i>Item</i>
2		<b>Moon</b> near <b>Regulus</b>
3		<b>Comet 64P/Swift-Gehrels</b> at perihelion (9.4 years)
5		<b>Mercury</b> at greatest latitude south
		<b>Southern Taurid</b> meteor shower at maximum (see table above)
6		<b>Mercury</b> at greatest eastern elongation (23°)
7	18h02	<b>New Moon</b>
8		<b>Moon</b> near <b>Jupiter</b>
9		<b>Mercury</b> near <b>Antares</b>
10		<b>Comet 38P/Stephan-Oterma</b> at perihelion (38.0 years)
11		<b>Moon</b> passes 1.7° north-west of <b>Saturn</b>
12		<b>Moon</b> furthest south (-21.4°)
		<b>Moon</b> passes 1.4° west of <b>Pluto</b>
		<b>Northern Taurid</b> meteor shower at maximum (see table above)
14	17h58	<b>Moon</b> at apogee (404 340 Km)
		<b>Venus</b> stationary
15	16h54	<b>First quarter Moon</b>
16	06h37	<b>Moon</b> passes just 0° 3' south of <b>Mars</b>
17		<b>Moon</b> near <b>Neptune</b>
		<b>Mercury</b> stationary
		<b>Juno</b> at opposition
		<b>Leonid</b> meteor shower at maximum (see table above)
21		<b>Moon</b> 3.8° south-west of <b>Uranus</b>
23	07h39	<b>Full Moon</b>
		<b>Moon</b> 2.2° north of <b>Aldebaran</b>
		<b>Mercury</b> near <b>Antares</b>
25		<b>Neptune</b> stationary
26	14h11	<b>Moon</b> at perigee (366 622 Km)
		<b>Moon</b> furthest north (+21.5°)
		<b>Jupiter</b> at conjunction
27		<b>Mercury</b> at inferior conjunction
		<b>Mercury</b> near <b>Jupiter</b>
29		<b>Moon</b> near <b>Regulus</b>
		<b>Mercury</b> at perihelion
30	02h19	<b>Last quarter Moon</b>

## 4. STARGAZING

**SUGGESTED OBSERVATION DAYS FOR NOVEMBER 2018:** Unless *specifically* targeting the moon, may I suggest the most convenient dates to plan evening stargazing in **November** are from **1<sup>st</sup>** (no evening moon) to **9<sup>th</sup>** (moonset 21h08). Then from **25<sup>th</sup>** (moonrise 22h01) to **month end**.



The next club stargazing evening is planned for **Friday 2<sup>nd</sup>** or **Saturday 3<sup>rd</sup> November**. Members will receive information by e-mail (and, remember, it's always weather dependant!). Please check our website calendar (<http://www.hermanusastronomy.co.za>) on Friday 2<sup>nd</sup> after 16h00 for confirmation or cancellation info.

### NO 'SCOPE REQUIRED

None this month I fear. Please accept my apologies!

## 5. DEEP SKY HIGHLIGHT



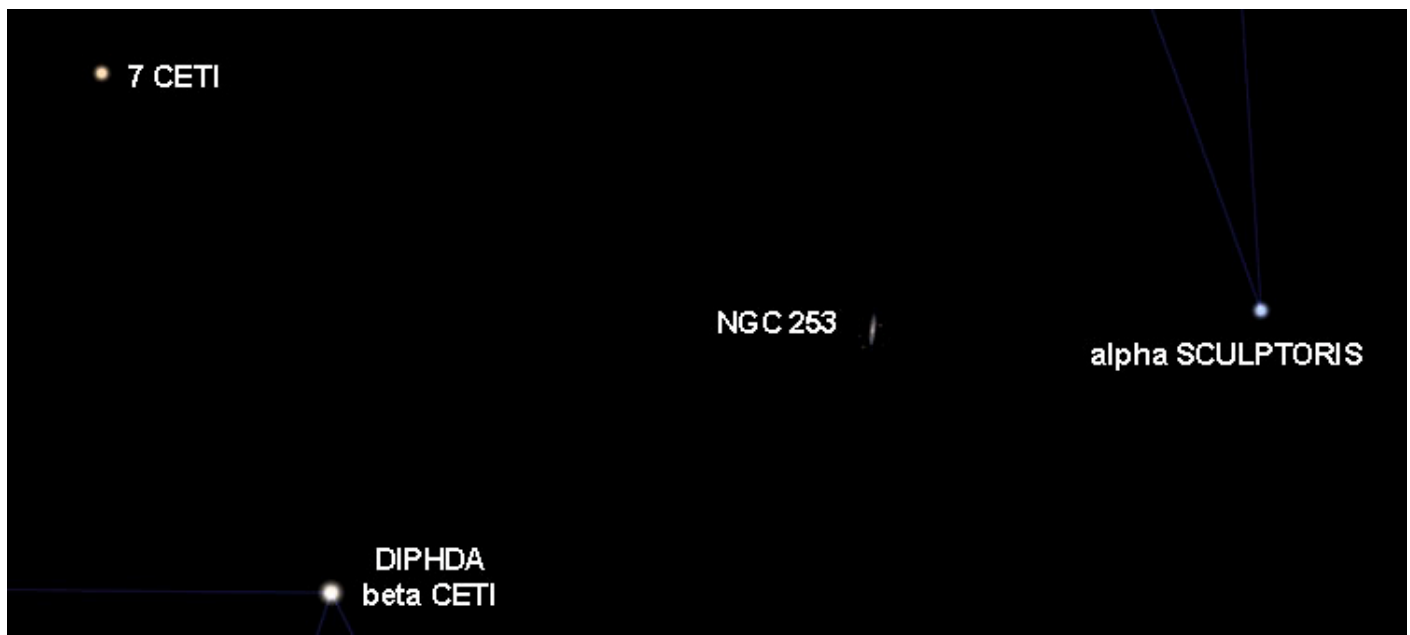
### **Caroline's Galaxy** (NGC 253)

<u>Description</u>	Edge-on Galaxy
<u>Distance</u>	A weighted average of the most reliable distance estimates gives a distance of $11.4 \pm 0.7$ Mly
<u>Location</u>	Constellation <b>Sculptor</b>
<u>J2000 coordinates</u>	RA 0h 47m 36s, DEC -25° 17' 0"
<u>Guide star</u>	7.4 <sup>o</sup> south of <b>Diphda</b> ( $\beta$ Ceti) (see SOUTH DOWN chart on page 1)
<u>Visibility</u>	magnitude 7.1
<u>Binoculars</u>	yes
<u>Small telescope</u>	yes
<u>Modest telescope</u>	Extends for at least half a degree (the angular diameter of the moon)

### Further comment

The galaxy was discovered by Caroline Herschel in 1783 during one of her systematic comet searches. About half a century later, John Herschel observed it using his 18-inch metallic mirror reflector at the Cape of Good Hope. He wrote "very bright and large (24' in length); a superb object.... Its light is somewhat streaky, but I see no stars in it except 4 large and one very small one, and these seem not to belong to it, there being many near..."

see chart on page 6 ...



*Cetus*  
*The sea monster*

Genitive: Ceti

Abbreviation: Cet

Size ranking: 4th

Origin: One of the 48 Greek constellations listed by Ptolemy in the [Almagest](#)

Greek name: Κήτος (Ketos)

When Cassiopeia, wife of King Cepheus of Ethiopia, boasted that she was more beautiful than the sea nymphs called the Nereids she set in motion one of the most celebrated stories in mythology, the main characters of which are commemorated among the constellations. In retribution for the insult to the Nereids, the sea god Poseidon sent a fearsome monster to ravage the coast of Cepheus's territory. That monster, a dragon of the sea, is represented by the constellation Cetus.

To rid himself of the monster, Cepheus was instructed by the Oracle of Ammon to offer up his daughter Andromeda as a sacrifice to the monster. Andromeda was chained to the cliffs at Joppa (the modern Tel-Aviv) to await her terrible fate.

Cetus was visualized by the Greeks as a hybrid creature, with enormous gaping jaws and the forefeet of a land animal, attached to a scaly body with huge coils like a sea serpent. Hence Cetus is drawn on star maps as a most unlikely looking creature, more comical than frightening, nothing like a whale although it is sometimes identified as one.

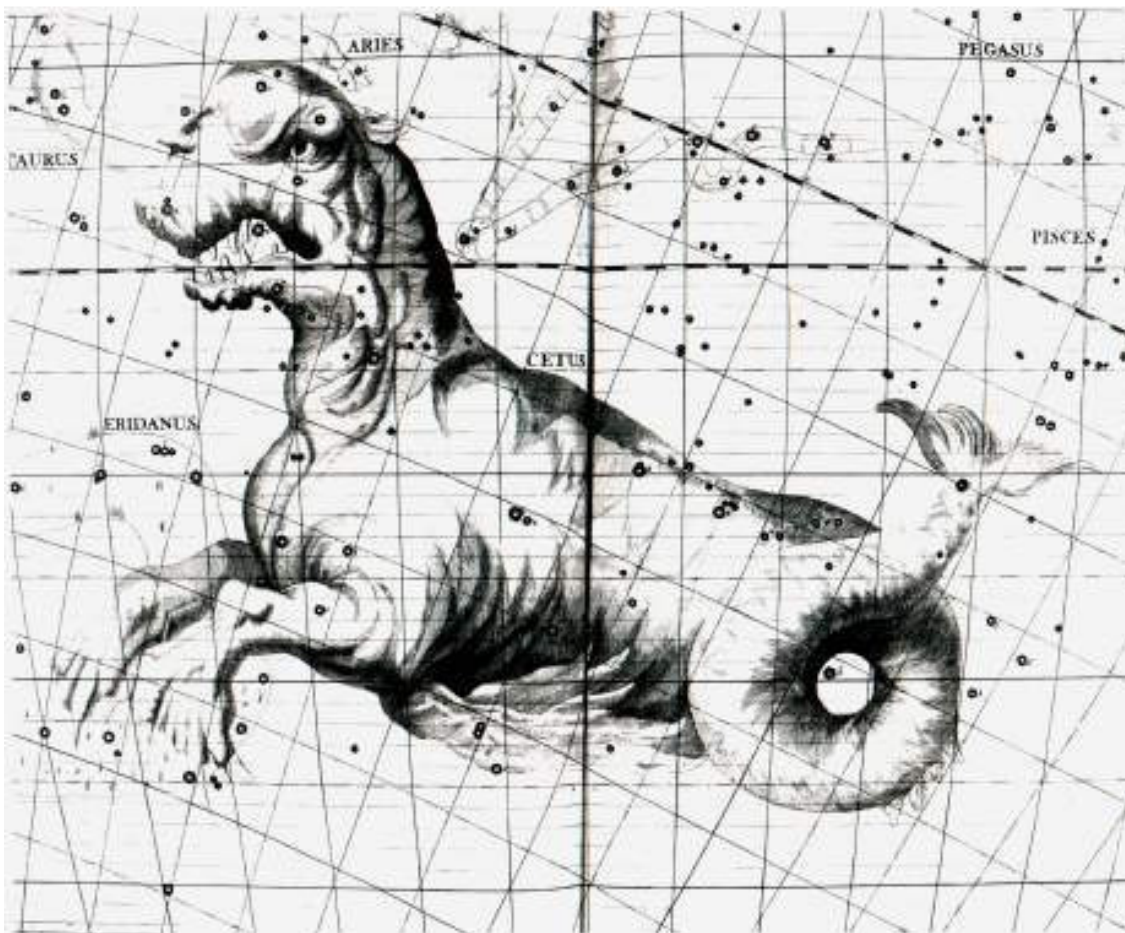
Andromeda trembled as the B-movie monster made towards her, cleaving through the waves like a huge ship. Fortunately, at this moment the hero Perseus happened by and sized up the situation. Swooping down like an eagle onto the creature's back, Perseus drove his diamond-hard sword deep into its right shoulder. Agonized and enraged, the wounded monster reared up on its coils and twisted around, its cruel jaws snapping at its attacker. Again and again Perseus plunged his sword into the beast – through its ribs, its barnacle-encrusted back and at the root of its tail. Spouting blood, the monster finally collapsed into the sea and lay there like a waterlogged hulk. Its corpse was hauled on shore by the appreciative locals who skinned it and put its bones on display.

## Amazing Mira and the stars of Cetus

Cetus (Κῆτος in Greek) is the fourth-largest constellation, as befits such a monster, but none of its stars is particularly bright. The brightest of them is second-magnitude Beta Ceti, officially named Diphda by the IAU but once also known as Deneb Kaitos from the Arabic meaning sea monster's tail. Ptolemy in the *Almagest* described this star as lying on the end of the southern tail fin; the northern fin was marked by the star we now know as Iota Ceti. Alpha Ceti is called Menkar from the Arabic meaning 'nostrils', a misnomer since this star lies on the beast's jaw (in Ptolemy's description, the star on the nostrils was actually the one to the north we know as Lambda Ceti).

The most celebrated star in the constellation is Mira, a Latin name meaning 'the amazing one', given on account of its variability in brightness. At times it can easily be seen with the naked eye, but for most of the time it is so faint that it cannot be seen without binoculars or a telescope. Mira is a red giant star whose brightness variations are caused by changes in size. The star was first recorded in 1596 by the Dutch astronomer David Fabricius, but the cyclic nature of the changes was not recognized until 1638. The name Mira was given to the star by the Polish astronomer Johannes Hevelius in 1662, when it was the only variable star known.

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<http://www.hermanusastronomy.co.za/>

Also...

ASSA website <http://assa.saa0.ac.za>  
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ASSA  
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Edited by Peter Harvey  
e-mail: [petermh@hermanus.co.za](mailto:petermh@hermanus.co.za)  
Tel: 081 212 9481