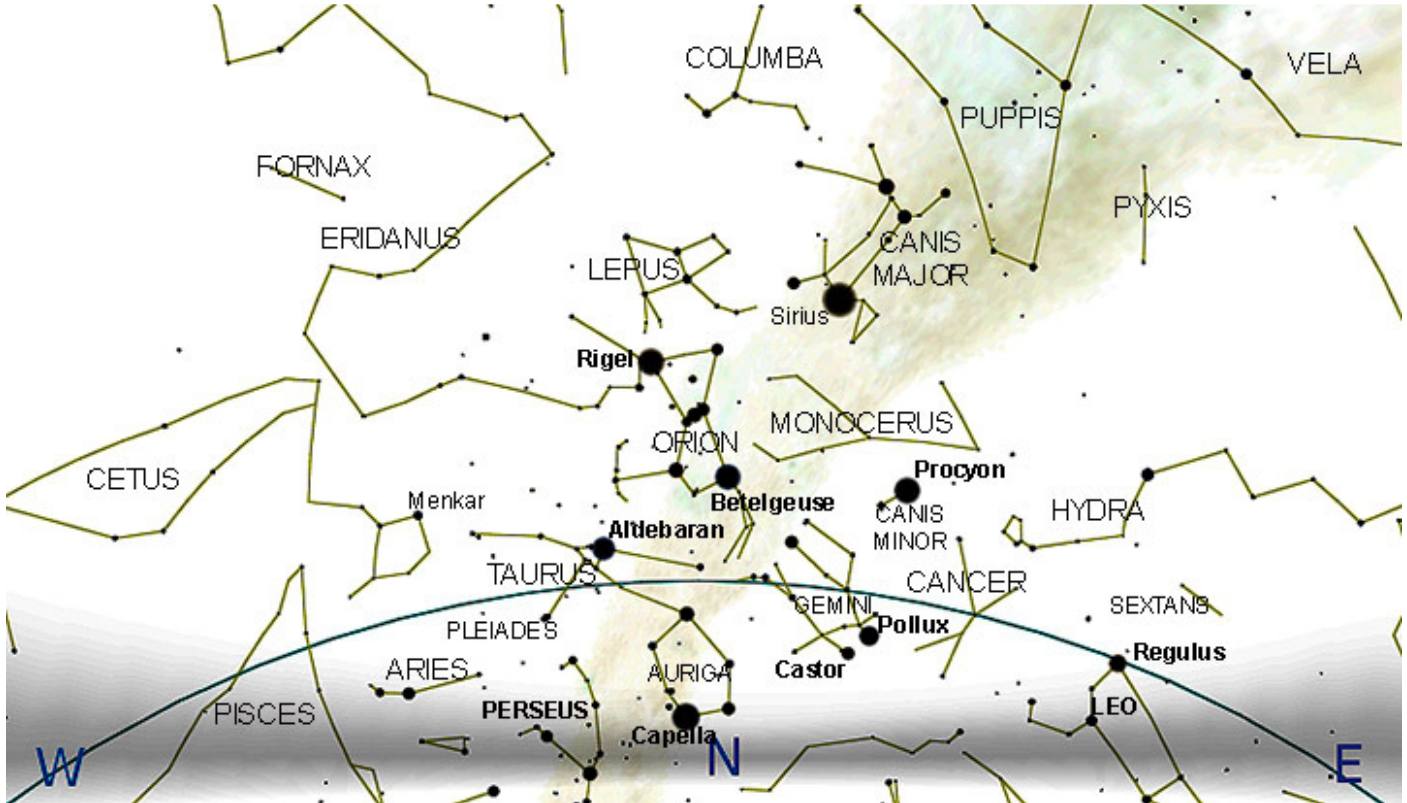


FEBRUARY 2018

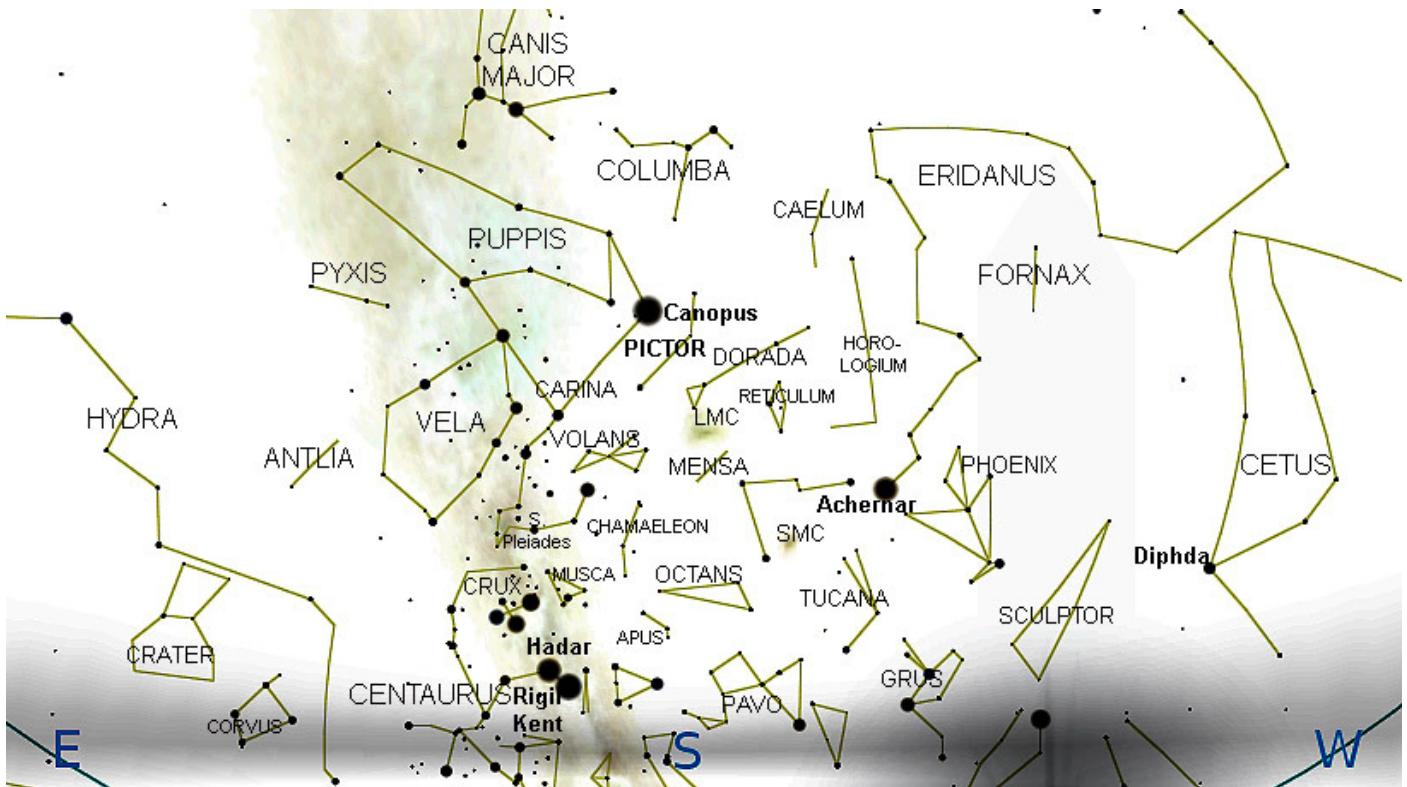


1. SKY CHARTS

EVENING SKY MID FEBRUARY at 21^h00 (NORTH DOWN)



EVENING SKY MID FEBRUARY at 21^h00 (SOUTH DOWN)



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

2. THE SOLAR SYSTEM

PLANET VISIBILITY

Mercury	Low in the east before sunrise becoming low in the west before sunset
Venus	Too close to the sun. Later becoming the "Evening Star"
Mars	Before sunrise
Jupiter	Morning
Saturn	Morning
Uranus	Visible in the evening
Neptune	Visible in the evening; later moving too close to the Sun
Pluto	Low in the east before sunrise

<i>Sun & Planets</i>	<i>FEBRUARY 2018</i>		<i>1st</i>	<i>28th</i>
Sun Constellation Length of day	Capricornus to Aquarius 12h45 to 12h51	Rises:	06h04	06h30
		Transits:	12h57	12h56
		Sets:	19h49	19h21
Mercury phase Constellation Magnitude	Φ 5" 96% to 93% Capricornus to Aquarius -0.6 to -1.3	Rises:	05h07	07h14
		Transits:	12h13	13h32
		Sets:	19h19	19h49
Venus phase Constellation Magnitude	Φ 10" 100% to 98% Capricornus to Aquarius -3.9	Rises:	06h30	07h27
		Transits:	13h21	13h43
		Sets:	20h11	19h57
Mars phase Constellation Magnitude	Φ 6" to 7" 91% to 89% Scorpius to Ophiuchus +1.2 to +0.8	Rises:	01h04	00h18
		Transits:	08h04	07h27
		Sets:	15h05	14h26
Jupiter Constellation Magnitude	Φ 36" to 39" Libra -2.0 to -2.2	Rises:	00h24	22h41
		Transits:	07h14	05h36
		Sets:	14h04	12h27
Saturn Constellation Magnitude	Φ 15" to 16" Sagittarius +0.6	Rises:	03h11	01h36
		Transits:	10h18	08h42
		Sets:	17h26	15h49
Uranus Constellation Magnitude	3" Pisces +5.8 to +5.9	Rises:	11h53	10h11
		Transits:	17h29	15h47
		Sets:	23h06	21h23
Neptune Constellation Magnitude	Φ 2" Aquarius +8.0	Rises:	08h32	06h50
		Transits:	14h54	13h12
		Sets:	21h17	19h33
Pluto Constellation Magnitude	Sagittarius + 14.3"	Rises:	04h18	02h36
		Transits:	11h23	09h40
		Sets:	18h27	16h44

Notes to the table above on the following page ...

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 7° of sky. Therefore, for example, Mars at 19" on 1st May 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 2018 *Sky Guide Africa South*):

Mare Crisium (Sea of Crises)

Type: Dark basaltic plain formed by volcanic eruptions.

Diameter: 638 km.

Notes: Like most lunar maria, it was named by the Italian astronomer Giovanni Riccioli, pioneer lunar scholar who first named features on the moon for scientists. He published one of the earliest books on astronomy, *Almagestum Novum*, in 1651. Nearly circular, it is notably the only "land-locked" mare on the moon.

Best seen: three days after **New Moon** and two days after **Full Moon**.

Age: about 3.8 billion years

Location: near the east-north-eastern limb



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
α Centaurids	7 th February 22h00 to 03h30	28 th January to 21 st February	Close to Hadar (β Centauri)	5	60	Poor

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

<i>Date</i>	<i>Time</i>	<i>Item</i>
1		ASSA Scholarships application deadline
		Moon near Regulus
7	17h54	Last quarter Moon
		Moon near Jupiter
11	16h17	Moon at apogee (405 700 km)
		Moon near Saturn
12		Moon furthest south (-20.0°)
		Mars near Antares
		Moon near Pluto
14		Venus at greatest latitude south
		Mercury at greatest latitude south
		Juno at conjunction
15	23h05	New Moon
17		Moon near Neptune
		Mercury at superior conjunction
20		Moon near Uranus
21	19h20	Venus near Neptune (magnitude +7.78) ($0^{\circ} 32.3'$ east)
22		Luna X visible in binoculars ¹
23	10h09	First quarter Moon
		Moon 1.5° north of Aldebaran (α Tau)
24		SKY GUIDE COMPETITION CLOSSES ²
25		Moon furthest north ($+20.1^{\circ}$)
	14h09	Mercury near Neptune ($0^{\circ} 25.7'$)
27	16h50	Moon at perigee (363 936 km)

¹ for more details, please see page 27 of the **Sky Guide 2018**

² for more details, please see page 130 of the **Sky Guide 2018**

4. STARGAZING

SUGGESTED OBSERVATION DAYS FOR FEBRUARY:

Unless specifically targeting the moon, I suggest the most convenient dates to plan evening stargazing in **February** are **5th** (moonrise 23h10) to **18th** (moonset 21h13).



The next club stargazing evening is yet to be planned.

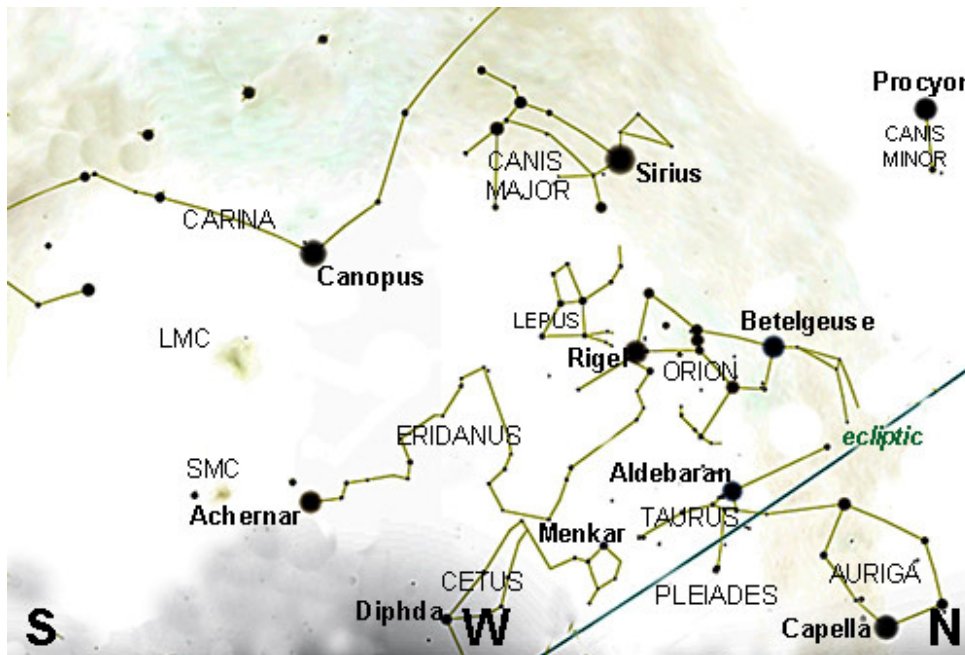
More information regarding venue, etc., will be posted in due course to members' e-mail addresses and on our website

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

NO 'SCOPE REQUIRED (or Getting to Know The Constellations)

I offer here some more tips for the less experienced enthusiast on getting started with recognising constellations and identifying some of the lesser-known features of the night sky.

The chart below depicts the western sky at about 21h00 in mid-February.



Lying on the lawn or on a well-reclined deck chair allows a sweeping view of the sky without tiring the neck muscles.

With toes west this time, we see Orion the hunter with his big dog and little dog:

Moving clockwise from **Betelgeuse** (Orion), our eyes move through **Rigel**, **Canopus** (Carina), **Sirius** (Canis Major) and **Procyon**

(Canis Minor).

Low on the horizon are: **Capella** (Auriga) and **Diphda** (Cetus), though these will be setting as the month progresses. Higher up are **Achernar** (the end-point of Eridanus the river) with the **Small Magellanic Cloud** just to its left, **Menkar** (in the tail of the whale) and red **Aldebaran** (Taurus).

Follow the meandering Eridanis, the river, from its source at **Rigel** to the end at **Achernar**.

From Ian Ridpath's "Star Tales"



Genitive: Eridani

Abbreviation: Eri

Size ranking: 6th

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

Greek name: Ποταμός (Potamos)

Aratus applied the mythical name Ἐριδανός (Eridanos) to this constellation although many other authorities, including Ptolemy in the *Almagest*, simply called it Ποταμός (Potamos), meaning river. Eratosthenes had another identification: he said that the constellation represented the Nile, 'the only river which runs from south to north'. Hyginus agreed, claiming that the star Canopus lay at the end of the celestial river, in the same way that the island Canopus lies at the mouth of the Nile. However, in this he was wrong, for Canopus marks a steering oar of the ship Argo and is not part

of the river. Hyginus had evidently misunderstood a comment by Eratosthenes, who had simply said that Canopus lay 'beneath' the river, meaning that it was at a more southerly declination.

Both Eratosthenes and Hyginus overlooked the fact that the celestial river is visualized as flowing from north to south, opposite to the direction of the real Nile. Adding to the confusion, later Greek and Latin writers identified the Eridanus with the river Po which flows from west to east across northern Italy.

In mythology, the river Eridanus features in the story of Phaethon, son of the Sun-god Helios, who begged to be allowed to drive his father's chariot across the sky. Reluctantly Helios agreed to the request, but warned Phaethon of the dangers he was facing. 'Follow the track across the heavens where you will see my wheel marks', Helios advised.

As Dawn threw open her doors in the east, Phaethon enthusiastically mounted the Sun-god's golden chariot studded with glittering jewels, little knowing what he was letting himself in for. The four horses immediately sensed the lightness of the chariot with its different driver and they bolted upwards into the sky, off the beaten track, with the chariot bobbing around like a poorly ballasted ship behind them. Even had Phaethon known where the true path lay, he lacked the skill and the strength to control the reins.

The team galloped northwards, so that for the first time the stars of the Plough grew hot and Draco, the dragon, which until then had been sluggish with the cold, sweltered in the heat and snarled furiously. Looking down on Earth from the dizzying heights, the panic-stricken Phaethon grew pale and his knees trembled in fear. Finally, he saw the menacing sight of the Scorpion with its huge claws outstretched and its poisonous tail raised to strike. The swooning Phaethon let the reins slip from his grasp and the horses galloped out of control.

Ovid graphically describes Phaethon's crazy ride in Book II of his *Metamorphoses*. The chariot plunged so low that the Earth caught fire. Enveloped in hot smoke, Phaethon was swept along by the horses, not knowing where he was. It was then, the mythologists say, that Libya became a desert, the Ethiopians acquired their dark skins and the seas dried up.

To bring the catastrophic events to an end, Zeus struck Phaethon down with a thunderbolt. With his hair streaming fire, the youth plunged like a shooting star into the Eridanus. Some time later, when the Argonauts sailed up the river, they found his body still smouldering, sending up clouds of foul-smelling steam in which birds choked and died. Aratus referred to the 'poor remains' of Eridanus, implying that much of the river's flow was evaporated by the heat of Phaethon's fall.

Eridanus in the sky

Eridanus is a long constellation, the sixth-largest in the sky, meandering from the foot of Orion far into the southern hemisphere, ending near Tucana, the toucan. The present-day Eridanus has the greatest north-to-south span of any constellation, nearly 60°. Its brightest star, first-magnitude Alpha Eridani, is called Achernar, from the Arabic akhir al-nahr meaning 'the river's end'; at declination $-57^{\circ}.2$, it does indeed mark the southern end of Eridanus.

In Ptolemy's day, though, the river dried up 17° farther north, at the star to which Johann Bayer assigned the Greek letter Theta (θ). The name Achernar was transferred from this star to its present position when Eridanus was extended south in the late 16th century. Theta Eridani was then renamed Acamar, a name that comes from the same Arabic original as Achernar. The present-day Achernar is the only first-magnitude star not listed in Ptolemy's *Almagest*, because it was too far south for him to see.

Eridanus was first shown flowing southwards to the present-day Alpha Eridani on a globe of 1598 compiled by Petrus Plancius. Plancius got his information on the southern stars from observations made by the navigator Pieter Dirkszoon Keyser during the first Dutch voyage to the East Indies (the 'Eerste Schipvaart') in 1595–97. Whether the idea of extending Eridanus was due to Plancius, Keyser, or even some earlier navigators who had previously seen this star is not known.

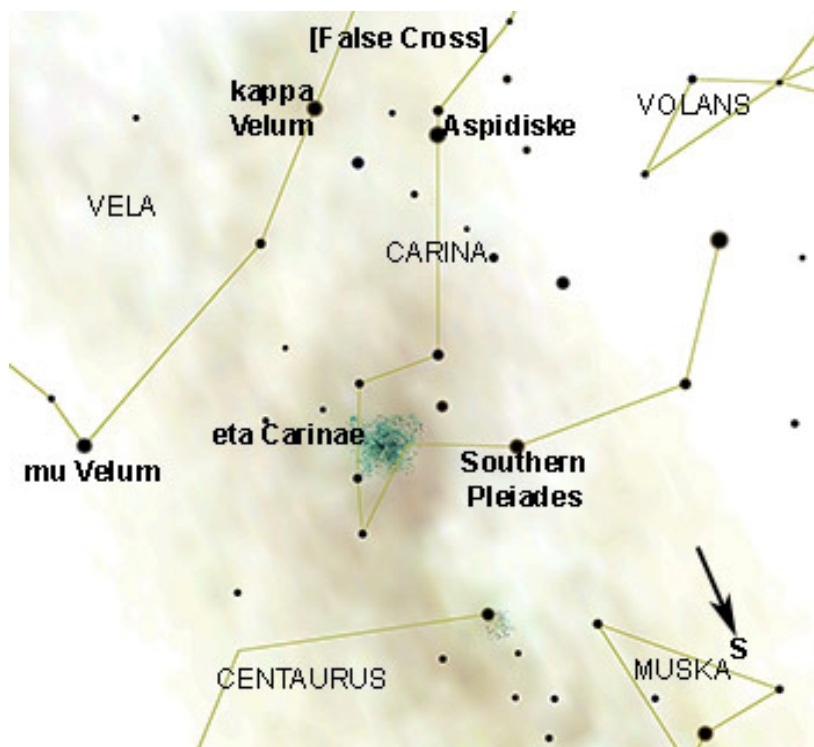
The southern extension of the river to Achernar consisted of five stars in all, and is clearly seen on the chart of Eridanus in Bayer's Uranometria of 1603. Bayer included these five new stars in the catalogue that accompanied the chart, labelling them in order of increasing southerly declination with the Greek letters Iota (ι), Kappa (κ), Phi (φ), Chi (χ), and Alpha (α), which they still bear today. These same five stars can also be seen in the lower left of Bayer's chart of the twelve new southern constellations invented by the Dutch navigators.

According to the Arab star name expert Paul Kunitzsch, Bedouin Arabs visualized present-day Achernar and Fomalhaut (in Piscis Austrinus) as a pair of ostriches.

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DEEP SKY HIGHLIGHT (from the Sky Guide Africa South 2018)

The **eta Carinae Nebula** (NGC 3372)



*This glorious nebula can be seen with the naked eye as the brightest patch along the southern Milky Way, mid-way between the Southern Cross and the False Cross. Binoculars show two large fans of nebulosity separated by a dark gap. The brightest star, located in the northern part of the nebula, is the mysterious **eta Carinae**, one of the most massive and luminous stella systems known in the galaxy.*

*Eta Carinae is currently about 5th magnitude but, when observed by La Caille in the 1750s, it was shining at 2.3 magnitude. In 1837 it erupted and was briefly the second-brightest star visible in the night sky. Immediately to the west of η Car is a keyhole-shaped dark nebula, the **Keyhole Nebula**, the remnants of a molecular cloud from which some of the surrounding stars were formed.*

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 website <http://assa.saa.ac.za>
[ASSA Deep-Sky Section](#)
Whatsapp chat group: [074 100 7237]
[Official Big 5 of the African Sky web page](#)
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Grateful thanks to the following, without whom this publication just would not be the same:

ASSA
Sky Guide Africa South 2018
Stellarium
Ian Ridpath

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