

Hermanus  
Astronomy Centre

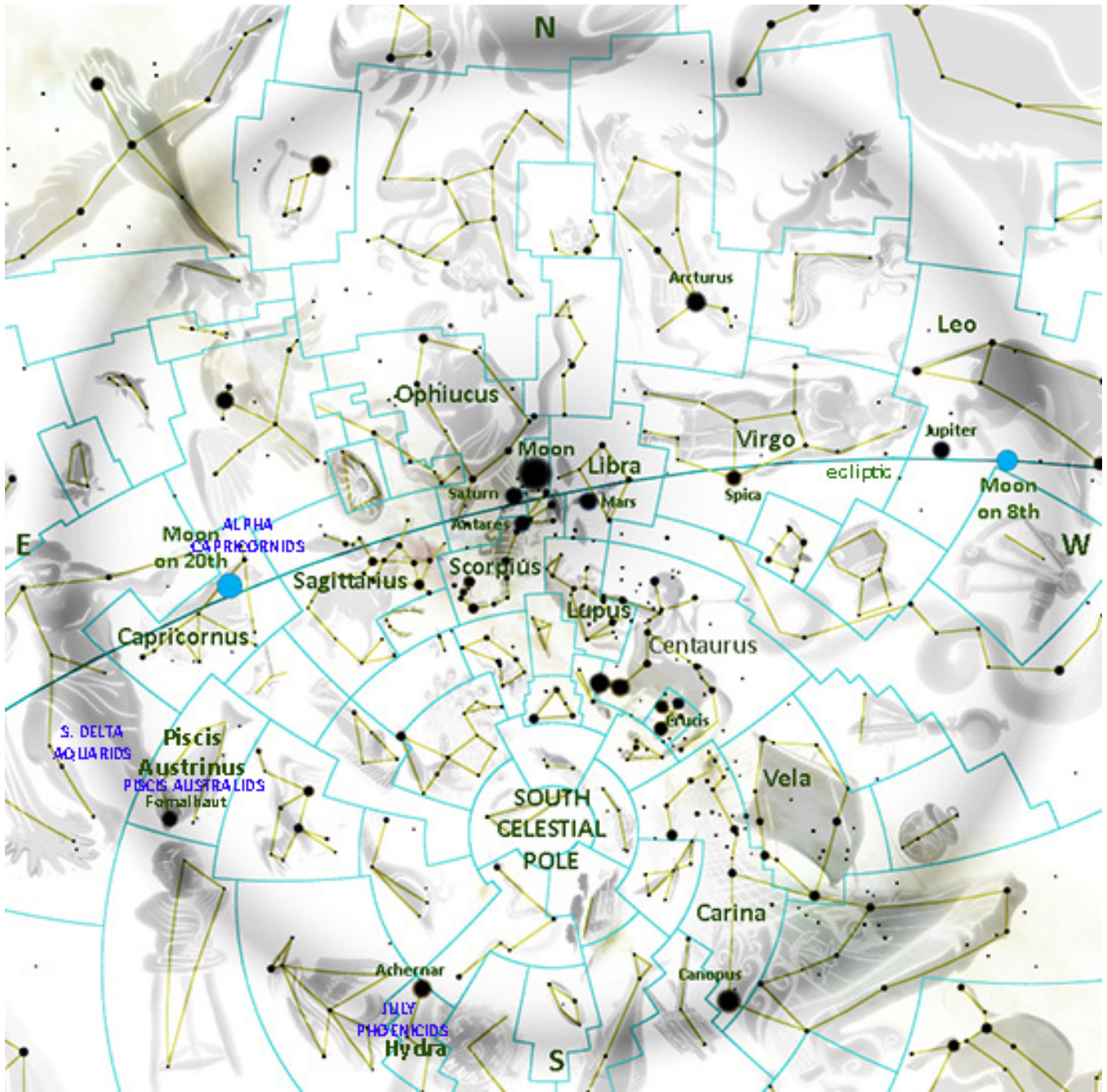
Sky Maps



# JULY 2016

## 1. SKY MAPS

EVENING SKY MID JULY at 21<sup>h</sup>00



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

## 2. THE SOLAR SYSTEM

Sun & Planets	JULY 2016		1 <sup>st</sup>	31 <sup>st</sup>
<b>Sun</b> Constellation: Gemini to Cancer Length of day 09h54 to 10h25	Rises:		07h51	07h37
	Transits:		12h47	12h50
	Sets:		17h44	18h03
<b>Mercury</b> phase 95% to 73%, $\phi$ 5" to 6" Constellation Gemini to Leo Magnitude: -1.6 to -0.2	Rises:		07h24	08h49
	Transits:		12h17	14h19
	Sets:		17h11	19h50
<b>Venus</b> phase 99% to 97%, $\phi$ 10" Constellation: Gemini to Leo Magnitude: -3.9	Rises:		08h22	08h31
	Transits:		13h17	13h51
	Sets:		18h12	19h12
<b>Mars</b> phase 93% to 88%, $\phi$ 16" to 13" Constellation: Libra Magnitude -1.4 to -0.8	Rises:		14h19	12h41
	Transits:		21h22	19h50
	Sets:		04h29	03h01
<b>Jupiter</b> $\phi$ 34" to 32" Constellation: Leo Magnitude: -1.9 to -1.7	Rises:		11h33	09h47
	Transits:		17h18	15h37
	Sets:		23h03	21h28
<b>Saturn</b> $\phi$ 18" to 17" Constellation: Ophiuchus Magnitude: 0.2 to +0.3	Rises:		15h41	13h38
	Transits:		22h42	20h38
	Sets:		05h46	03h43
<b>Uranus</b> $\phi$ 3" to 4" Constellation: Pisces Magnitude: +5.8	Rises:		01h58	00h01
	Transits:		07h35	05h38
	Sets:		13h13	11h16
<b>Neptune</b> $\phi$ 2" Constellation: Aquarius Magnitude: +7.8	Rises:		22h32	20h32
	Transits:		05h00	03h00
	Sets:		11h23	09h24
<b>Pluto</b> Constellation: Sagittarius Magnitude +14.1	Rises:		08h09	06h18
	Transits:		01h16	23h11
	Sets:		08h19	06h18

### '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** ( $\phi$ ) 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 1<sup>st</sup> July, would cover approximately 1/1300<sup>th</sup> 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. The planet **Jupiter**, at magnitude -1.9, 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.

## PLANET VISIBILITY

<b>Mercury</b>	Initially too close to the Sun to be observed, becoming visible low in the west after sunset
<b>Venus</b>	Initially too close to the Sun to be observed, becoming visible low in the west after sunset
<b>Mars</b>	Visible in the evening sky
<b>Jupiter</b>	Visible in the evening sky
<b>Saturn</b>	Initially well placed for observation throughout the night becoming visible in the evening sky
<b>Uranus</b>	Visible in the morning sky
<b>Neptune</b>	Initially visible in the morning sky becoming visible throughout the night
<b>Pluto</b>	Visible throughout the night

Those of us fortunate enough to have attended the 'Stars and Soup' event last month were treated to some wonderful views of **Mars**, **Jupiter** and **Saturn**. All are still available this month, with Jupiter setting at about 21h30 at month end. **Mercury** and **Venus** appear later in the month after sunset in the western sky.

## THE MOON.

From the *Sky Guide Africa South*.

### Plato

**Location:** On the northern "shore" of **Mare Imbrium**, sunk deep into the western heights of the lunar Alps.  
**Type:** crater with dark floor.  
**Age:** about 3.6 bn years.  
**Size:** 104 km.  
**Best seen:** one day after first quarter and at last quarter.

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

## ECLIPSES

No eclipses, solar or lunar, are visible from Hermanus in JULY 2016.

## METEOR SHOWERS



Name	Date & Time of Max	Duration	Radiant	ZHR vel.		Observing Prospect
<b>July Phoenicids</b>	13 <sup>th</sup> July 23h00 to 05h00	10 to 16 July	About 10° NNE of <b>Achernar</b> (α Hydri)	<5	47	Good
<b>Piscis Australids</b>	28 <sup>th</sup> July 21h30 to 05h00	19 July to 17 August	About 3° W of <b>Fomalhaut</b> (α PsA)	5	35	Good
<b>Southern δ Aquarids</b>	29 <sup>th</sup> July 22h00 to 05h00	21 July to 21 August	About 13° NNW of <b>Fomalhaut</b> (α PsA)	25	42	Good
<b>α Capricornids</b>	30 <sup>th</sup> July 20h00 to 04h00	15 July to 25 August	In Capricorn 33° E of <b>Antares</b> (α Sco)	5	25	Good

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), pp 86- 87

## COMETS

Comet C/2013 X1 PanStarrs visible between Ara and Centaurus

Comet 252 Linear visible in Ophiuchus

### 3. JULY HIGHLIGHTS FROM THE SKY GUIDE

<i>Date</i>	<i>Time</i>	<i>Item</i>
1	08h45	<b>Moon</b> at perigee (336 000 km)
2	05h58	<b>Moon</b> to <b>Aldebaran</b> 0.4° south
3	22h06	<b>Moon</b> furthest north (+18.6°)
4	13h01	<b>New Moon</b>
	17h59	<b>Earth</b> at aphelion (1.0168 AU)
		<b>Moon</b> to <b>Mercury</b> 5.6° north
5		<b>Moon</b> to <b>Venus</b> 5.1° north
6		<b>Venus</b> to <b>Pollux</b> 5.6° south
7	05h12	<b>Mercury</b> at superior conjunction
8	01h33	<b>Moon</b> to <b>Regulus</b> 1.9° north. <b>Pluto</b> at opposition.
9	12h08	<b>Moon</b> to <b>Jupiter</b> 0.9° north
10		<b>Mercury</b> to <b>Pollux</b> 5.0° south
12	02h52	<b>First quarter Moon. Moon</b> to <b>Spica</b> 5.3° south
13	07h24	<b>Moon</b> at apogee (404 300 km)
		<b>July Phoenicid</b> meteor shower
16	07h11	<b>Moon</b> to <b>Saturn</b> 3.8° south
17		<b>Mercury</b> and <b>Venus</b> 30.7' apart 11° east of the <b>Sun</b>
18	05h41	<b>Moon</b> furthest south (-18.6°)
19		<b>Moon</b> to <b>Pluto</b> 3.0° south
20	00h57	<b>Full Moon</b>
		Comet <b>81P/Wild</b> at perihelion
23	07h55	<b>Moon</b> to <b>Neptune</b> 1.0° south
26		<b>Moon</b> to <b>Uranus</b> 2.8° north
27	01h00	<b>Last quarter Moon</b>
	13h25	<b>Moon</b> at perigee (369 700 km)
		<b>Delta Aquariid</b> meteor shower
28		<b>Pisces Australid</b> meteor shower
29	12h53	<b>Moon</b> to <b>Aldebaran</b> 0.3° south
		<b>Southern delta Aquariid</b> meteor shower
30	17h55	<b>Mercury</b> to <b>Regulus</b> 0.3° north
		<b>Alpha Capricornid</b> meteor shower
		<b>Uranus</b> stationary
31	06h52	<b>Moon</b> furthest north +18.5°



#### 4. STARGAZING

On the **last Friday of each month** the centre hosts a stargazing evening.



Initiated by Karin de Bruin, this is intended not only to offer the opportunity of a group stargazing evening but to guide interested members in the use of binoculars and telescopes. In addition, there will be instruction on the preparation of observation reports which may be submitted to ASSA, thereby making a significant contribution to national amateur astronomy in Southern Africa. Observation challenges will be set each month for beginners, intermediate and advanced stargazers.

*The July stargazing evening will be on Friday 29th July.*

The venue NGK, Onrus

Time 18h00 (6 pm)

Join us for another fun-filled and instructive evening. Please book (for catering purposes) by Wednesday 27<sup>th</sup> July.



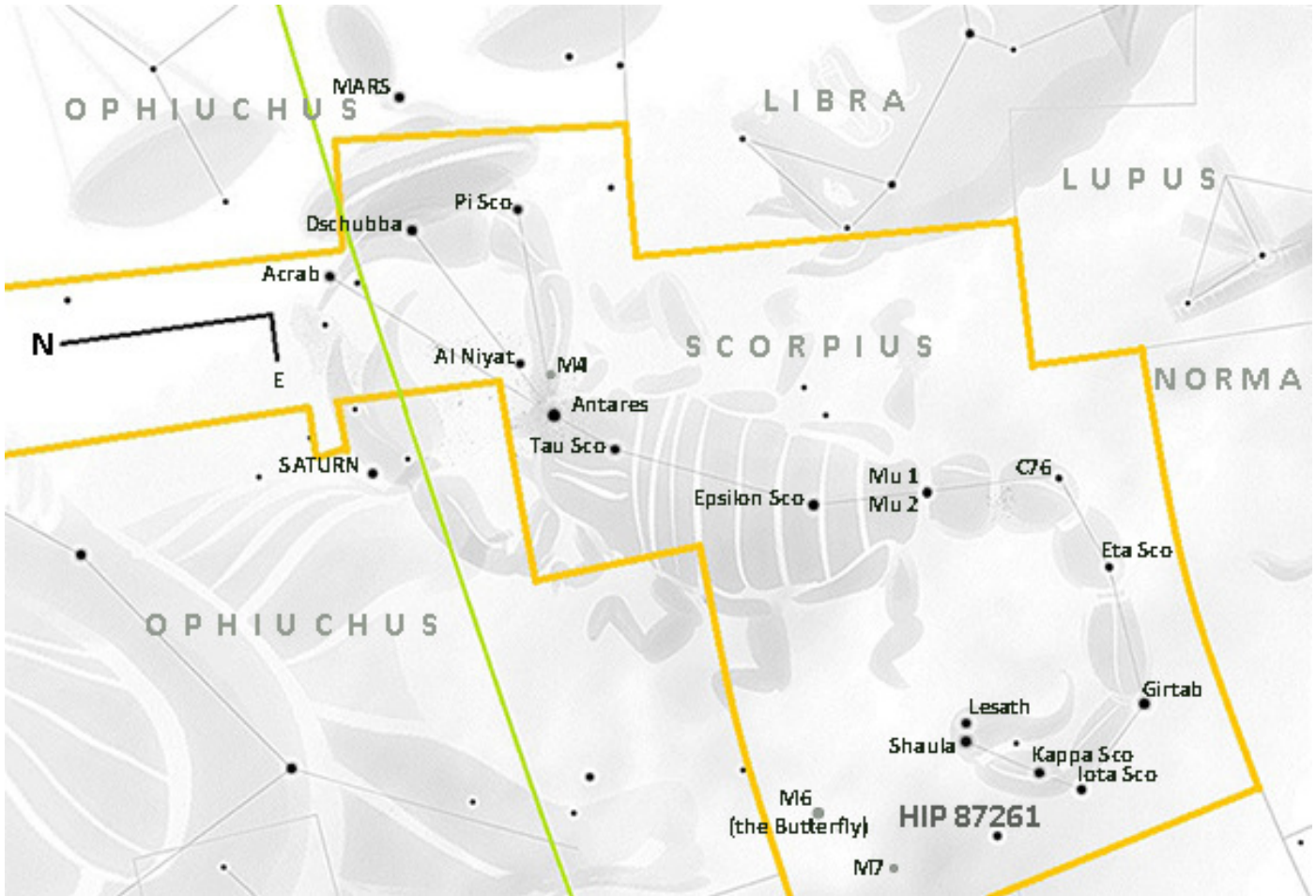
#### **BEST OBSERVATION DAYS**

The nights for best general observation will be those avoiding the glare of the moon (unless, of course, one is specifically targeting the moon!). I offer you, therefore, *my* opinion of the most suitable evenings to plan your stargazing for the month:

**1st to 6th JULY** (moonset 20h11)   **24th** (moonrise 21h50) **to 31<sup>st</sup> JULY**

## 5. DEEP SKY

### Scorpius



Suggested targets are:

**Mu1** at 3.0 magnitude and 501 light years distant and **Mu2** at 3.6 magnitude and 474 light years. So, although they appear to be a binary (double star), they are in fact some 27 light years apart, hardly close relatives!

**M4**, globular cluster magnitude 5.9

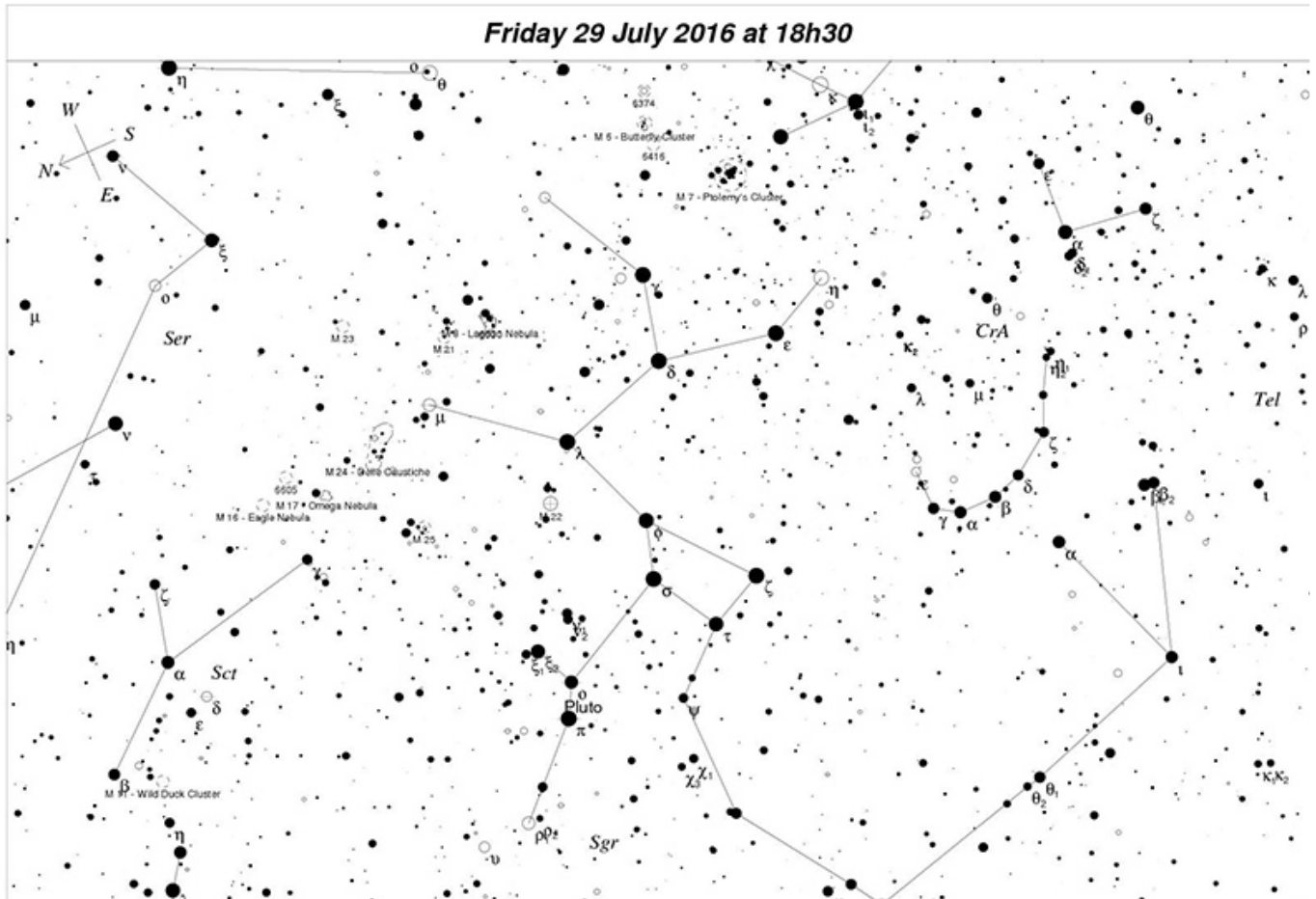
**M6** (the **Butterfly** cluster) 4.2 magnitude

**M7** open cluster 3.3 magnitude



Whilst **Scorpius** is well suited to telescopic inspection, **Antares** being about  $60^\circ$  above the horizon, **Sagittarius** will be a more comfortable area for binocular users, its elevation being about  $30^\circ$  above the eastern horizon.

This chart of the **Sagittarius** region is per kind favour of Johan Retief.



From Johan:

*I add some pages from Stephen Tonkin's book "Binocular Astronomy". These are self explanatory but please note that the pages 142 and 143 are for 50mm binocs, while pages 180 and 229 are for 100mm binocs. All these DSOs are within range of a 100mm telescope.*

*[Please see the attached files for target details]*

May we suggest a close examination of these objects, both in Scorpius and Sagittarius, during the month? We meet again on **Friday 29th July** for 'Stars and Soup'. We could compare notes about our viewing experiences!

## **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](#).

*Grateful thanks to the following, without whom this publication could not have materialised:*

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