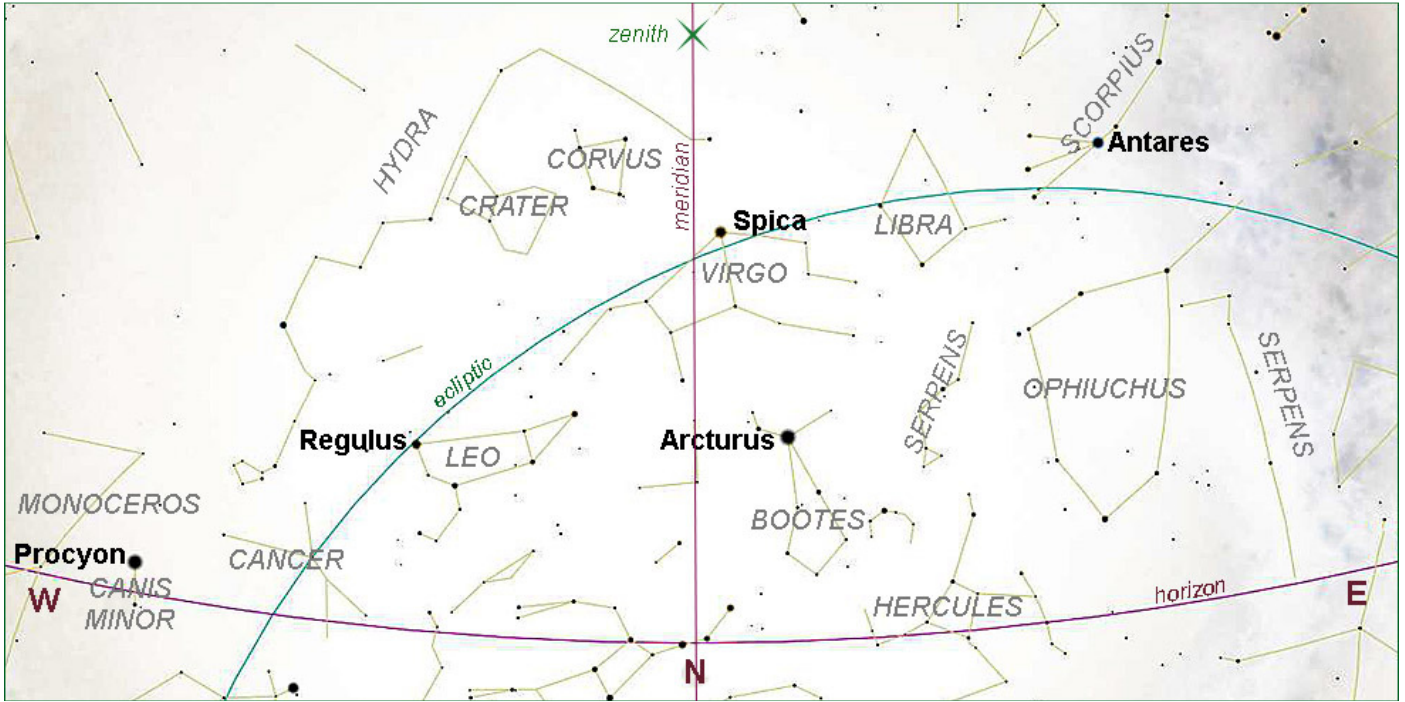
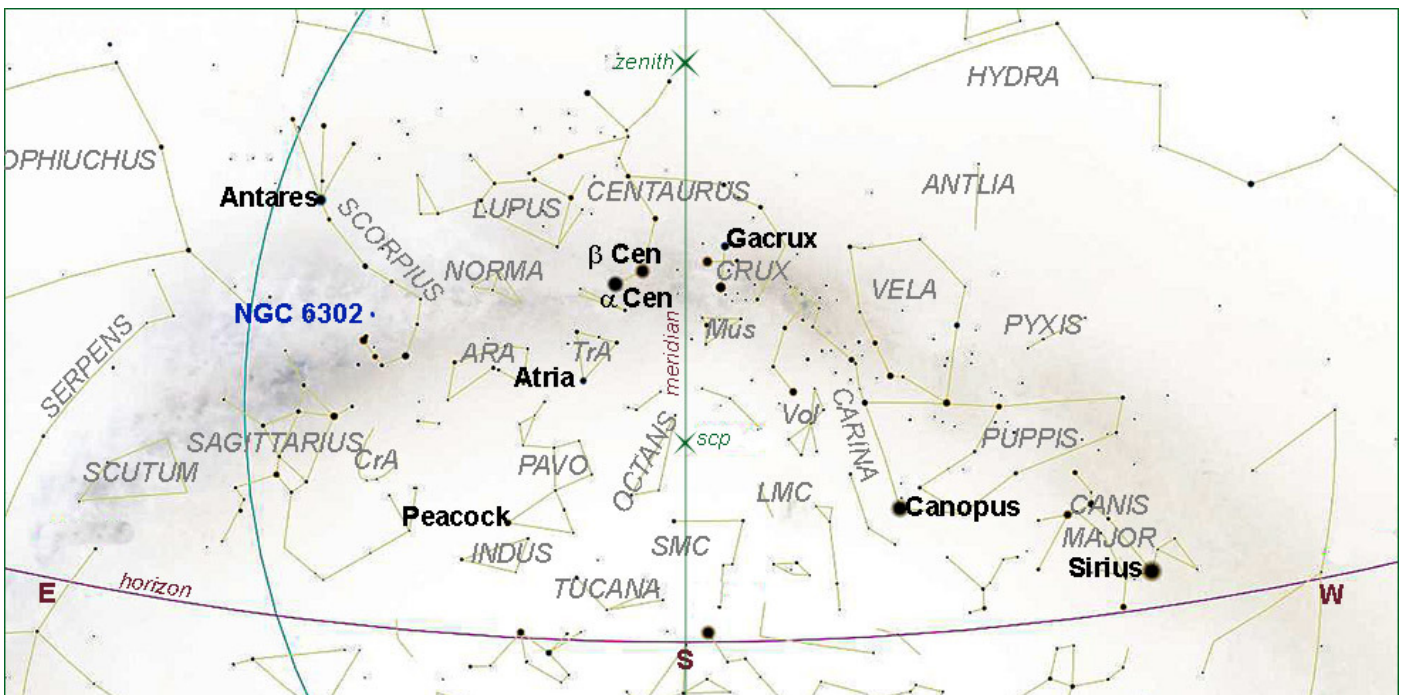


SKY CHARTS

EVENING SKY JUNE 4th at 21h00 (NORTH DOWN)



EVENING SKY JUNE 4th at 21h00 (SOUTH DOWN)



SUGGESTED EVENING OBSERVATION WINDOW

(Lunar observations notwithstanding)

<i>Date</i>	<i>Moon</i>		<i>Dusk end</i>
1 st June	<i>Rises</i>	01h51 (28%)	19h10
to 9 th June	<i>Sets</i>	20h25 (10%)	19h09

THE SOLAR SYSTEM

PLEASE NOTE: allevents are as predicted from **HERMANUS**, Western Cape, South Africa.

HIGHLIGHTS for JUNE FROM THE SKY GUIDE2024

<i>Date</i>	<i>Time</i> (SAST)	<i>Item</i>
2	05h08	Moon at ascending node
	09h23	Moon at perigee (368 108 km)
6	14h38	New Moon
6 th – 9 th		<i>FREE STATE STAR PARTY</i>
7	18h40	Moon northernmost (+23.4°)
		Equinox on Mars
9	19h49	Pollux sets followed 20 minutes after by Moon (10%)
13		Mercury at perihelion
14	07h18	First quarter Moon
		Moon at apogee (404 078 km)
		Mercury at superior conjunction
15	22h17	Moon at descending node
16		Moon (59%) near Spica
17	06h58	<i>Heliacal</i> rising of Sirius *
20	22h51	<i>JUNE SOLSTICE</i>
22	03h08	Full Moon
	04h41	Moon southernmost (-28.4°)
27	13h45	Moon at perigee (369 292 km)
28	23h53	Last quarter Moon
29	06h26	Moon at ascending node
30		Saturn stationary

* *Heliacal* rising: the annual first rising of a star or planet just before sunrise.

Historically, the most important of such risings is that of **Sirius**, an important feature of the Egyptian calendar and astronomical development. (*Wikipedia*)

SOLAR SYSTEM VISIBILITY

2024 JUNE 4

When visible?

Sun	Taurus	Rise:	07h43	Never look at the sun without SUITABLE EYE PROTECTION!
Length of day	9 hours 57 minutes	Transit:	12h41	
		Set:	17h40	
Mercury	Taurus	Rise:	06h44	Low in the east before sunrise
Magnitude	+1.1	Transit:	11h51	
Phase	88%	Set:	16h57	
Diameter	5"			
Venus	Taurus	Rise:	07h44	Too close to the Sun
Magnitude	-3.9	Transit:	12h41	
Phase	100%	Set:	17h39	
Diameter	10"			
Mars	Pisces	Rise:	03h52	Morning
Magnitude	+1.0	Transit:	09h30	
Phase	92%	Set:	15h07	
Diameter	5"			
Jupiter	Taurus	Rise:	06h46	Low in the east before sunrise
Magnitude	-2.0	Transit:	11h51	
Diameter	33"	Set:	16h56	
Saturn	Aquarius	Rise:	00h54	Morning
Magnitude	+1.1	Transit:	07h13	
Diameter	17"	Set:	13h31	
Uranus	Taurus	Rises:	06h09	Low in the east before sunrise
Magnitude	+5.8	Transit:	11h18	
Diameter	3"	Set:	16h27	
Neptune	Pisces	Rise:	01h46	Morning
Magnitude	+7.9	Transit:	07h51	
Diameter	2"	Set:	16h27	
Pluto	Capricornus	Rise:	20h58	Morning
Magnitude	+14.4	Transit:	04h11	
		Set:	11h19	

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 observed **angular diameter** is given in arc seconds.

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 the *zenith* to the horizon directly south.

Magnitude: we are accustomed to hearing stars described in terms of 'magnitude'. For example, the planet Jupiter at magnitude -1.8 is considerably brighter than the star Antares (in Scorpius) at +1.05. The scale is 'inverse'; the brighter the object, the lower the value. A 'good' human eye on a clear night can see down to a magnitude of about +6.

THE MOON

MARE CRISIUM

(the Sea of Crises)

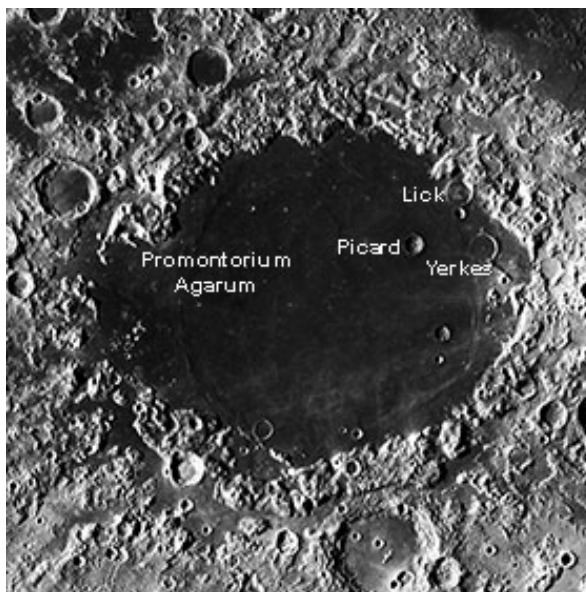
Location: east-north-east of **Mare Tranquilitatis**

Best seen: Three days after **New Moon** (June 11) to two days after **Full Moon** (June 24)

Age: The basin is of the Pre-Imbrian period, 4,55 to 3,85 billion years ago

Size: Diameter 556 km, area 176 000 square kilometres

Description: A small mare, easily identified. The floor is very flat with a ring of wrinkle ridges toward its outer boundaries. On the western rim of the mare is the palimpsest* **Yerkes**. **Lick** is to the southeast and similar. A mass concentration (mascon), or gravitational high, was identified in the centre of Mare Crisium from Doppler tracking of the five **Lunar Orbiter** spacecraft in 1968. The mascon was confirmed and mapped at higher resolution with later orbiters such as **Lunar**



The image above is north down

Prospector and **GRAIL**. Binoculars will show the ray system of the crater **Proclus** overlying the north-western mare.

Naming: by **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.

* a geographical feature comprising superimposed structures created at different times. The term "Palimpsest" is beginning to be used by glaciologists to describe contradicting glacial flow indicators usually consisting of smaller indicators overprinted upon larger features. The name arises by analogy to a medieval palimpsest, a reused parchment manuscript page in which the previous text can sometimes be deciphered.

No eclipses, lunar or solar, will be visible from southern Africa in June 2024

METEOR ACTIVITY

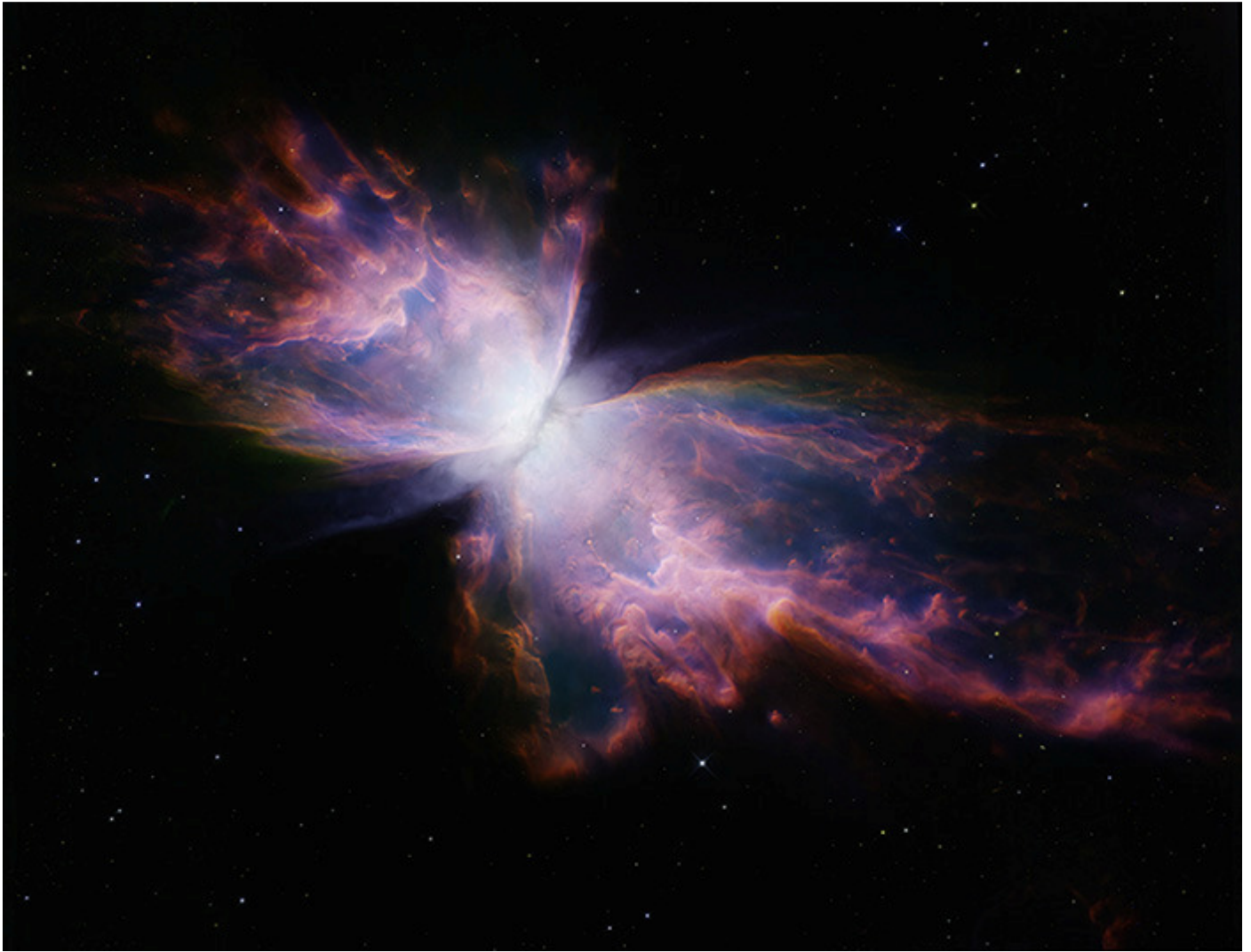
<u>From SGSA 2024</u>	<i>Maximum Date/Time</i>	<i>Moon on max Date/Time</i>	<i>Duration</i>	<i>Radiant</i>	<i>ZHR*</i>	<i>Velocity Km/sec</i>
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No significant meteor activity is predicted for June 2024.

* A word of caution regarding predicted Zenithal Hourly Rates:

ZHR is an ideal value. It is by definition the number of meteors a single observer could possibly see during a shower's peak with the radiant directly overhead on a clear, dark night. Most observers, however, will not see as many meteors as the ZHR suggests. Also, the presence of a bright moon, atmospheric conditions and the shower's proximity to the horizon can seriously diminish the observation of meteor activity.

LOOKING UP

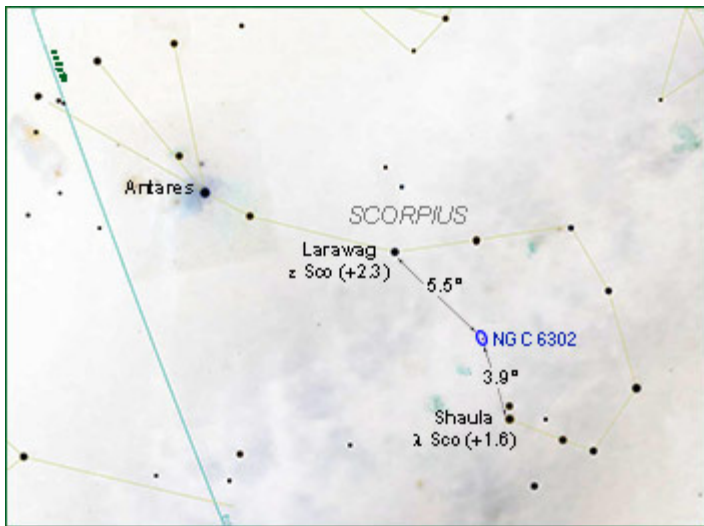


Imaged by [Hubble Space Telescope](#)

Processed by Derek DUCKITT

Butterfly Nebula NGC 6302, C69, Bug Nebula

<i>Description</i>	Planetary nebula	<i>Visibility on June 4th 2024</i>		
<i>Constellation</i>	Scorpius			
<i>Distance</i>	2.4 kly, 0.74 kpc	<i>Rises</i>	<i>Transits</i>	<i>Sets</i>
<i>Magnitude</i>	7.1	16h55	01h07	09h15
<i>Apparent diameter</i>	0.8 arcmin			
<i>Actual size</i>	1.5 ly	<i>Naked Eye</i>		No
<i>J2000 Dec/RA</i>	-37°06'16"/17h13m44s	<i>Binoculars</i>		Yes
<i>Alt/Az</i>	+41°22'12"/111°4'39"	<i>Telescopes</i>		Yes



DISCOVERY HISTORY

The Butterfly has been known since at least 1888, as it is included in the New General Catalogue as NGC 6302. The earliest known study of this nebula is by E. E. Barnard who drew and described it in 1907.

AMATEUR OBSERVATION

It has a complex bipolar morphology with two primary lobes, similar to an hour-glass. A dark lane runs through the waist of the nebula, obscuring the central star at visible wavelengths.

(The alternative name “Bug Nebula” is, to my mind, a most inappropriate choice, an insult to such

a magnificent piece of natural art – Ed.)

PHYSICAL PROPERTIES

NGC 6302 is one of the most interesting and complex nebulae in the observable sky. The spectrum shows that its central star is exceptionally hot with an estimated surface temperature of about 250 000°C. It must have been very large, shining brightly in ultraviolet light. It is hidden from view by a dense equatorial torus of dust. Cutting across the bright ionised gas, the dust torus surrounding the central star is nearly edge-on to our line of sight. This dense dust disc has caused the star’s outflows to form their complex bipolar structure with ionised walls, knots and sharp edges.

The prominent north-west lobe, extending up to 3’ away from the central star, is thought to have formed from an eruptive event around 1 900 years ago. At an angular distance of 1.71’ from the central star, the flow velocity of this lobe is 263 km/sec. At the extreme periphery of the lobe the outward velocity exceeds 600 km/sec. the western edge of the lobe suggests a collision with pre-existing globules of gas which modified the outflow in that region. There is evidence for a second pair of lobes which may have belonged to a previous phase of mass loss.

The prominent dark dust lane running through the centre of the nebula shows extraordinary chemistry including multiple crystalline silicates, carbonates, water-ice and quartz. The dust is both oxygen-rich and carbon-rich, indicative of a recent change from o-rich to c-rich chemistry in the central star. Molecular hydrogen has also been detected in this hot star’s dusty cosmic shroud.

Please keep in touch...

Have a look at our excellent website, edited by Derek Duckitt.

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

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!](#)

With Grateful thanks to the following:

2024 Sky Guide Southern Africa

Derek Duckitt

Sky Safari

Stellarium

Wikipedia

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