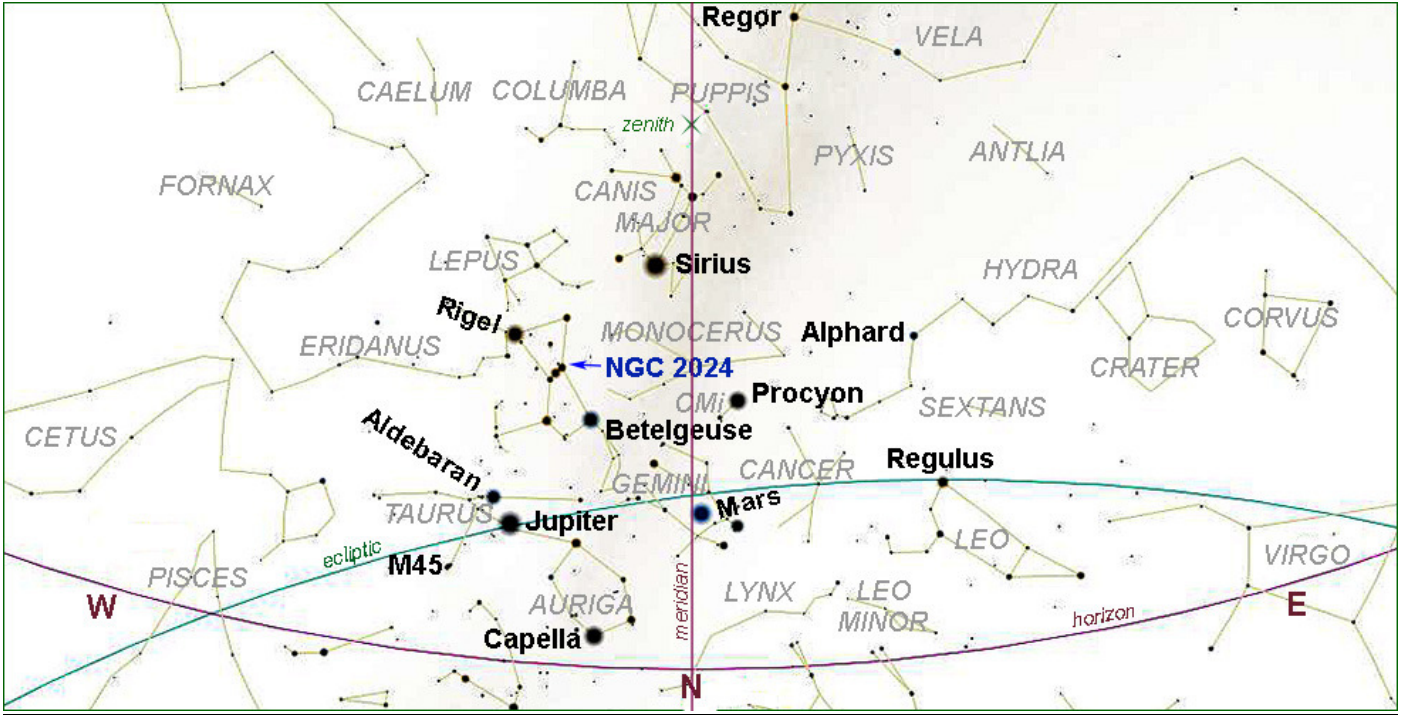


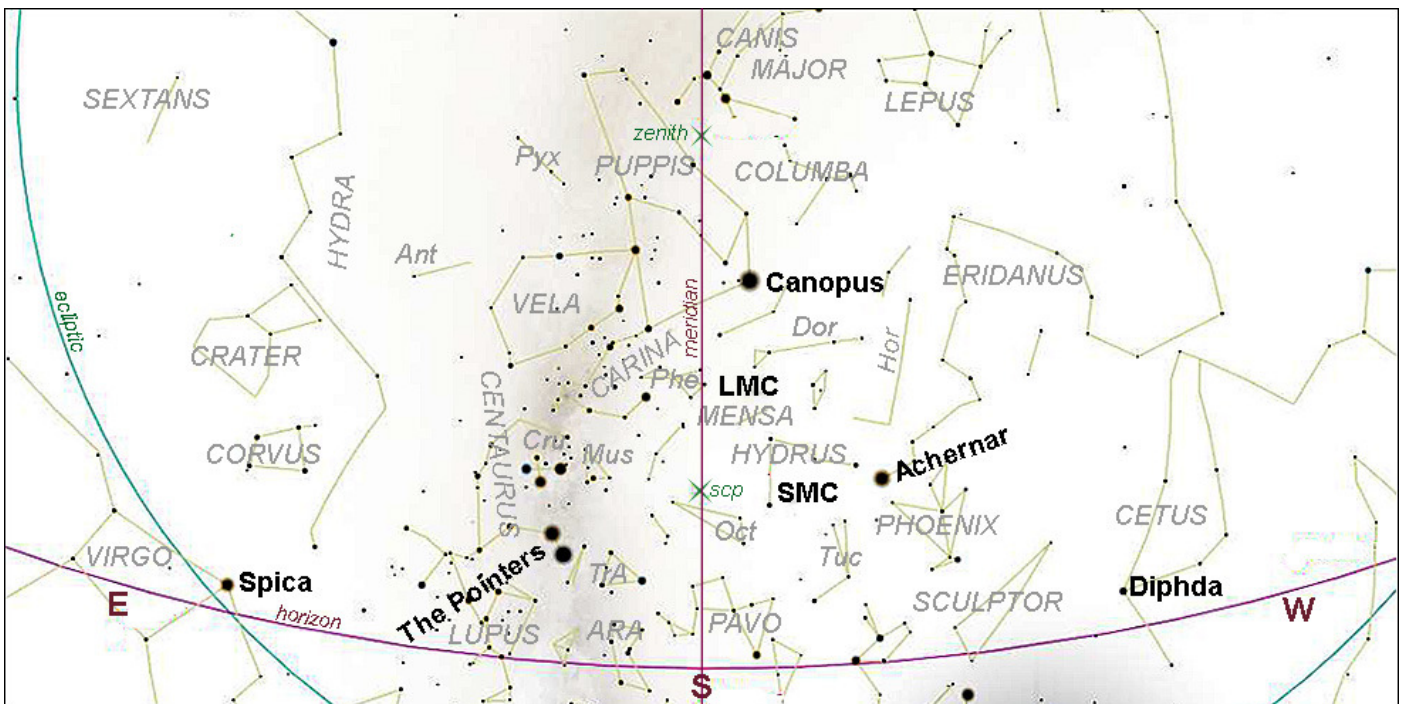


## SKY CHARTS

### EVENING SKY FEBRUARY 25<sup>th</sup> at 21h30 (NORTH DOWN)



### EVENING SKY FEBRUARY 25<sup>th</sup> 21h30 (SOUTH DOWN)



## SUGGESTED EVENING OBSERVATION WINDOW

*(Lunar observations notwithstanding)*

<i>Date</i>	<i>Moon</i>	<i>Dusk end</i>
<b>February 20</b>	<i>Rises</i> <b>23h27 (50%)</b>	<b>21h30</b>
to <b>March 2</b>	<i>Sets</i> <b>20h44 (6%)</b>	<b>21h00</b>

## THE SOLAR SYSTEM

PLEASE NOTE: all events are as predicted for **HERMANUS**, Western Cape, South Africa.

### FEBRUARY HIGHLIGHTS from the 2025 SKY GUIDE

<i>Date</i>	<i>Time (SAST)</i>	<i>Item</i>
1	21h41	<b>Moon</b> (14%) and <b>Venus</b> (37%) set together <b>Mercury</b> furthest from <b>Earth</b> ( 1 412 au)
	21h54	<b>Neptune</b> (magn. +7.9) sets
2	04h03	<b>Moon</b> at perigee (367 457 km)
	00h06	<b>Moon</b> at ascending node
4		<b>Callisto</b> at maximum from <b>Jupiter</b> (9') <b>Jupiter</b> stationary
5	10h02	<b>First quarter Moon</b>
6	23h00	<b>Moon</b> (67%), <b>Jupiter</b> and <b>the Pleiades</b> within 12° on the western horizon
8		<b>Jupiter</b> stationary <b>Moon</b> northernmost ( + 28, 6°)
9	21h09	<b>Moon</b> passes 1.6° north of <b>Mars</b> <b>Mercury</b> at superior conjunction
	23h43	<b>Moon</b> (92%) dark limb occults <b>♃ Gem</b> (magn. +3.75), reappearance 00h41
12	15h53	<b>Full Moon</b> (29) <b>Amphitrite</b> at opposition (magn. +9.2) <b>Callisto</b> at maximum from <b>Jupiter</b> (9')
13		<b>Moon</b> (99%) passes 2.2° north of <b>Regulus</b>
15		<b>Venus</b> at greatest brilliancy (magn. -4.9)
	08h53	<b>Moon</b> at descending node
18	03h11	<b>Moon</b> at apogee ( 404 818 km)
19		<b>Venus</b> at perihelion
20	19h33	<b>Last quarter Moon</b> <b>Callisto</b> at maximum from <b>Jupiter</b> (9')
23		<b>Moon</b> southernmost ( +28, 7° )
24		<b>Mars</b> stationary
28	02h45	<b>New Moon</b> <b>Venus</b> stationery

## SOLAR SYSTEM VISIBILITY

**2025 FEBRUARY 25<sup>th</sup>**

*When visible?*

<b>Sun</b>	Aquarius	Rise:	06h27	<b>Never look at the sun without SUITABLE EYE PROTECTION!</b>
Length of day	12 hours 57 minutes	Transit:	12h56	
		Set:	19h24	
<b>Mercury</b>	Aquarius	Rise:	07h30	Low in the west after sunset
Magnitude	-1.1	Transit:	13h16	
Phase	85%	Set:	20h00	
Diameter	6"			
<b>Venus</b>	Pisces	Rise:	09h14	Evening
Magnitude	-4.6	Transit:	14h49	
Phase	18%	Set:	20h24	
Diameter	46"			
<b>Mars</b>	Gemini	Rise:	16h51	Morning
Magnitude	-0.4	Transit:	21h35	
Phase	94%	Set:	02h24	
Diameter	11"			
<b>Jupiter</b>	Taurus	Rise:	14h04	Evening
Magnitude	-2.3	Transit:	19h02	
Diameter	40"	Set:	00h04	
<b>Saturn</b>	Aquarius	Rise:	07h31	Low in the west after sunset
Magnitude	+1.1	Transit:	13h48	
Diameter	16"	Set:	20h05	
<b>Uranus</b>	aries	Rises:	12h36	Evening
Magnitude	+5.7	Transit:	17h45	
Diameter	4"	Set:	22h54	
<b>Neptune</b>	Pisces	Rise:	08h12	Low in the west after sunset
Magnitude	+8.0	Transit:	14h18	
Diameter	2"	Set:	20h24	
<b>Pluto</b>	Capricornus	Rise:	03h36	Morning
Magnitude	+14.5	Transit:	10h45	
		Set:	17h54	

**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

### Rupes Recta

**Location:** Near the south-eastern “shore” of Mare Nubium.

**Type:** Also known as the ‘Straight Wall’, this is a most curious linear feature. Roughly on a vertical centreline of the Moon’s face, about one-third of the way down from the southern pole, it is easily seen with a small telescope when the lighting is right. The escarpment thus has a fairly gradual slope making the timing of the observation fairly critical. Lighting is very important indeed. When the Sun is at the right angle, the Straight Wall becomes quite obvious. This fault scarp changes from a dark line to a bright one toward Luna noon.

**Dimensions:** 110 km long, 2 to 3 km wide, height 240 to 300 metres.

**Notes:** The crater Birt to the west is about 17 km in diameter. Further west is the Rima Birt rille.

**Best seen:** One day after First Quarter (6<sup>th</sup> February) and at Last Quarter (20<sup>th</sup> February).

**Discovery:** Christiaan Huygens in the 1770s.

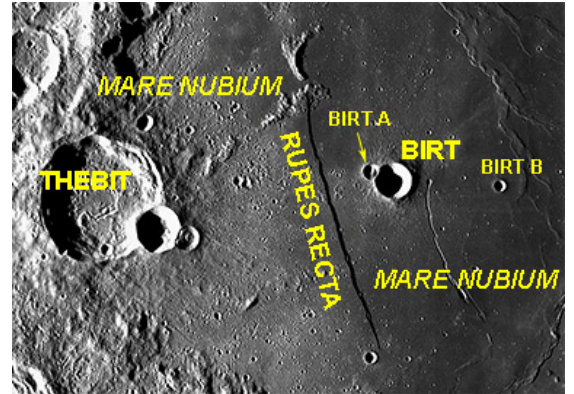


Image by Lunar Reconnaissance Orbiter

The next lunar eclipse, visible from southern Africa, is predicted for 28<sup>th</sup> August 2026

## METEOR ACTIVITY

<u>From SGSA</u> <u>2025</u>	<i>Maximum</i> <i>Date/Time</i>	<i>Moon on max</i> <i>Date/Time</i>	<i>Duration</i>	<i>Radiant</i>	<i>ZHR*</i>	<i>Velocity</i> <i>Km/sec</i>
<b><math>\alpha</math> Centaurids</b>	February 9 22h00 – 03h30	89%	January 31 to February 20	Hadar ( $\beta$ Cen)	6	60
<b><math>\gamma</math> Normids</b>	Mar 14 00h00 – 04h30	100%	February 25 To March 28	West of <b>Antares</b>	5	56

*Observation prospects look poor for both of these showers; see CAMNotes from Tim Cooper below.*

\* 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.

## COMETS, ASTEROIDS AND METEORS

### From Tim Cooper

The latest observing circular, CAMNotes 2025 No.1, is online and gives details of observations required for January to March.

<https://assa.sao.ac.za/wp-content/uploads/sites/23/2024/12/ASSA-CAMnotes-2025-Number-1.pdf>

*extract ... C/2024 G3 (ATLAS) ... the comet continues to fade quickly, and by January-end should be around magnitude +7-8, low above the south-western horizon located in the constellation of Piscis Austrinus. Note however, the brightness of the comet is hard to predict with any accuracy... (it is reported that this comet may have disintegrated towards the end of January – ed.)*

## HOME GROWN IMAGES

### The Flame Nebula (NGC 2024)



#### Image by Derek Duckitt

- Imaging telescope / lens Sigma Lens 450-500 mm Lens 150-500 mm DG APO HSM
- Imaging camera Fujifilm X-T30 (CMOS)
- Mount Alt-azimuth tripod Sky Watcher HEQ5 Pro
- Guiding telescope / lens William Optics Refractor 32/120 mm Uniguide Scope
- Guiding camera ZWO Optical ASI 553 MC PRO (CMOS)
- Processed with Affinity Photo 2.5.7, Siril 1.2.4, Fujifilm XT-30 Android App, DeNoise (Topaz Labs) GraXpert AI, Photoshop 2025, PHD Guiding(Stark Labs)2

- |   |   |
|---|---|
| • Date Sat Jan 18th 2025                          | • Moon Illumination 83%                           |
| • Seeing 5 / 5                                    | • ISO 1,600                                       |
| • Transparency 5 / 5                              | • Lights 38 x 120 sec                             |
| • Sky Darkness #4 Rural/suburban transition - 6/9 | • Darks 15 x 120 sec                              |
| • Ambient Temperature 21.0 °C                     | • Flats 21 x 1/180 sec                            |
| • Moon Age 18.8 Days                              | • Bias 15 x 1/320000 sec                          |
| • Moon Phase Waning Gibbous                       | • Total lights integration time 1 hour 16 minutes |

## LOOKING UP

# FLAME NEBULA NGC 2024, The Ghost of Alnitak

<i>Description</i>	Emission Nebula	<i>Visibility on February 25<sup>th</sup> 2025</i>		
<i>Constellation</i>	Orion			
<i>Distance</i>	1350 LY, 410 pc	<i>Rises</i>	<i>Transits</i>	<i>Sets</i>
<i>Visual Magnitude</i>	+10.0	13h56	20h02	02h08
<i>Absolute magn.</i>	+3.01			
<i>Diameter</i>	7.1 LY, 2.2 pc	<i>Naked Eye</i>		No
<i>Apparent size</i>	30 x 30 arcmin	<i>Binoculars</i>		Yes
<i>J2000 Dec/RA</i>	-1°50'31" / 5h41m43s	<i>Telescopes</i>		Yes
<i>Alt/Az</i>	+51°36'59" / 323°20'47"			

### Description

NGC 2024 is a beautiful emission nebula that covers a 30-arcminute area with patches of nebulosity cut by subtle dark bands and threads. A broad dust lane nearly bisects the nebula. A secondary dark lane runs from near the south end of the main rift into the eastern wing of the nebula. At least a dozen stars of magnitude 10 to 12 are embedded in the nebula.

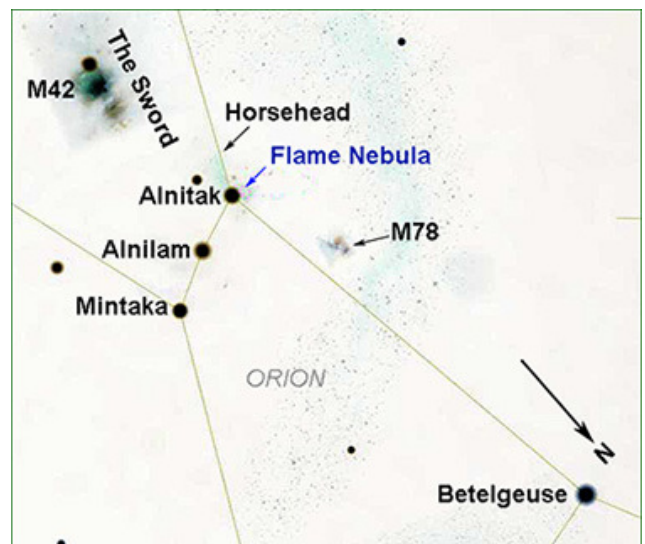
The Flame Nebula is about 1350 light-years away, and is part of the Orion Molecular Complex, a star-forming region that includes the famous Horsehead Nebula. NGC 2024 is ionized and made to luminesce by the easternmost star in Orion's Belt, **Alnitak** ( $\zeta$  Ori). The Flame Nebula glows in a variety of colours, from yellow to orange, though the predominant hue is shell-pink.

The nebula is illuminated by ultraviolet light from the nearby star **Alnitak**.

### Star Formation

Stars are often born in clusters in giant clouds of gas and dust. Astronomers have studied two star clusters using NASA's Chandra X-ray Observatory and infrared telescopes and the results show that the simplest ideas for the birth of these clusters cannot work, as described in our latest press release. A study of NGC 2024 and the Orion Nebula Cluster, another region where many stars are forming, suggests that the stars on the outskirts of these clusters are older than those central regions. This is different from what the simplest idea of star formation predicts where stars are born first in the centre of a collapsing cloud of gas and dust when density is large enough.

Explanations for the new findings can be grouped into three broad categories. The first is that star formation is continuing to occur in the inner regions. This could have happened because the gas in the outer regions of the star forming cloud is thinner and more diffuse than in the inner regions. Over time, if the density falls below a threshold value where it can no longer collapse to form stars, star formation will cease in the outer regions whereas stars will continue to form in the inner regions, leading to a concentration of younger stars there.



The chart above is timed for 25<sup>th</sup> February at 21h30

## Discovery and History

This splendid object was discovered on 1<sup>st</sup> January 1786 by German-born British astronomer **William Herschel**.

## Observation

NGC 2024, part emission nebula and part reflection, located close to Alnitak in Orion. It is often considered to be a test piece of observation to determine if transparency conditions are suitable enough for an attempt on IC434 and B33. This fairly large nebula consists of a central dark passage from which radiate branches forming a sequence of lobes. It is a challenging object to observe, not least due to the proximity of Alnitak. It also requires a different approach along with all difficult deep sky subjects. Time and patience, dark sky, dark adaptation and very good transparency conditions are required. A filter might assist a little, such as Lumicon Deep Sky type or a UHC, keeping Alnitak out of the field of view and increasing the magnification to gain in contrast.

The author continues, "Past encounters have provided varying observational outcomes. I have used 21 mm, 13 mm, 10 mm ultra wide / wide field eyepieces on the subject, x 76, x 123, x 160, I have also scrutinised this area with 20 mm and 25 mm Plössls and observations have been made with and without filter. What are your thoughts, descriptive observational outcomes in pursuing the subject and at what magnification and eyepiece seemed to provide optimum performance?"

Read more on this site:

<https://stargazerslounge.com/topic/302069-the-flame-nebula-eyepiece-and-magnification/>

*[all the more credit to Derek for his stellar achievements –ed.]*

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## Please keep in touch...

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

<https://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!](#)

<http://www.mnassa.org.za/>

*With Grateful thanks to the following:*

2025 Sky Guide Southern Africa

Sky Safari

Stellarium

The Practical Skywatcher's Handbook

Tim Cooper

Wikipedia

Edited by Peter Harvey - [petermh@hermanus.co.za](mailto:petermh@hermanus.co.za)