

PRESS RELEASE JULY 2025





# ASTRONOMICAL DIARY

PREPARED BY ASTRONOMICAL PUBLICATION AND PLANETARIUM UNIT, SPACE SCIENCE AND ASTRONOMY SECTION

## ASTRONOMICAL EVENTS, JULY 2025

DATE	EVENT	TIME
01	Mercury at highest altitude in evening sky	---
04	Mercury at greatest elongation east	12:39 p.m.
05	Moon at Apogee (Distance = 404,561.904 km)	10:29 a.m.
16	Close approach of the Moon and Saturn	03:21 p.m.
16	Conjunction of the Moon and Saturn	06:31 p.m.
20	Moon at Perigee (Distance = 368,087.526 km)	09:55 p.m.
22	Conjunction of the Moon and Venus	03:25 a.m.
23	Conjunction of the Moon and Jupiter	12:19 p.m.
29	Close approach of the Waxing Crescent Moon and Mars	02:30 a.m.
29	Conjunction of the Waxing Crescent Moon and Mars	03:45 a.m.
30	$\alpha$ -Capricornid meteor shower (ZHR = 5)	---
30	Southern $\delta$ -Aquariid meteor shower (ZHR = 25)	---

## PHASES OF THE MOON

	<b>First Quarter</b> Jul 03 03:30 a.m.
	<b>Full Moon</b> Jul 11 04:37 a.m.
	<b>Last Quarter</b> Jul 18 08:38 a.m.
	<b>New Moon</b> Jul 25 03:11 a.m.

## RISE AND SET TIMES OF PLANETS

DATE	MERCURY		VENUS		MARS		JUPITER		SATURN	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
Jul 01	07:26 am	08:13 pm	02:36 am	03:17 pm	09:46 am	10:09 pm	05:12 am	06:07 pm	11:26 pm	11:29 am*
Jul 11	07:23 am	07:59 pm	02:39 am	03:26 pm	09:30 am	09:49 pm	04:43 am	05:37 pm	10:47 pm	10:51 am*
Jul 21	06:51 am	07:20 pm	02:45 am	03:36 pm	09:15 am	09:29 pm	04:13 am	05:07 pm	10:07 pm	10:11 am*
Jul 31	05:48 am	06:17 pm	02:53 am	03:47 pm	09:01 am	09:09 pm	03:43 am	04:37 pm	09:27 pm	09:31 am*



### WAR AND PEACE NEBULA ASTRONOMY PICTURE OF THE MONTH

The War and Peace Nebula (NGC 6357), officially designated as RCW 103, is a dynamic zone of cosmic activity where newborn stars emerge from dense clouds of gas and dust, located about 8,000 light-years away in the constellation Scorpius. The nebula's nickname comes from an infrared image captured by NASA's Spitzer Space Telescope, which revealed a striking visual contrast: one half of the nebula resembles a skull or helmet, symbolizing war, while the other half looks like a dove, representing peace. This dramatic imagery inspired astronomers to give it the poetic title "War and Peace." The formation of its cosmic clouds is also reminiscent of a lobster, giving rise to its alternate name, the Lobster Nebula.

The War and Peace Nebula becomes most accessible in July, as Scorpius ascends to a favorable altitude during evening hours.

Image credit: CTIO/NOIRLab/DOE/NSF/AURA T.A. Rector, J. Miller, M. Zamani & D. de Martin

#### Notes:

[1] All times displayed are in Philippine Standard Time (PhST);

[2] \*following day

# Stars and Constellations

The constellations of **July** invite you to look skyward with their breathtaking views. The northern sky displays the beauty of **Hercules**, **Draco**, **Corona Borealis**, and **Serpens**, while in the south are the marvelous presence of **Ophiuchus**, **Norma**, **Triangulum Australe**, **Ara**, and **Scorpius**. The prominent constellations are positioned directly overhead at 09:00 p.m. on 15 July 2025 as shown in Figure 1. [1]

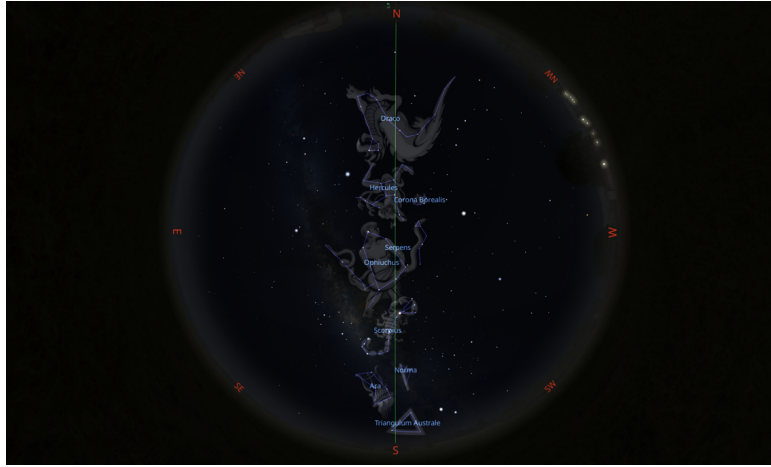


Figure 1: The view of the night sky featuring the prominent June constellations at 09:00 p.m. on 15 June 2025 using the Stellarium software.

The constellation **Hercules**, the Hero, has captivated astronomers and storytellers for centuries, with its combination of rich mythology and astronomical interest. It is the fifth-largest constellation in the sky, yet its lack of exceptionally bright stars makes it less recognizable. Its brightest star, Beta Herculis, or Kornephoros, is a yellow giant with an apparent magnitude of 2.81. Another significant star in Hercules is Alpha Herculis, or Rasalgethi, a red giant with brightness varying from magnitude 3.1 to 3.9, classifying it as a variable star. Hercules contains many noteworthy deep-sky attractions. The most famous one is the Hercules Globular Cluster (M13), one of the brightest globular clusters in the Northern Hemisphere and observable without a telescope under optimal conditions. Other deep-sky objects in Hercules are the Turtle Nebula (NGC 6210), the Hercules A Galaxy [Figure 2a], and the Hercules Cluster of Galaxies (Abell 2151), in which the interacting galaxies, NGC 6050 and IC 1179, are a part of. In mythology, the constellation represents the Greek demigod, Hercules, renowned for his strength and twelve labors. [2,3]

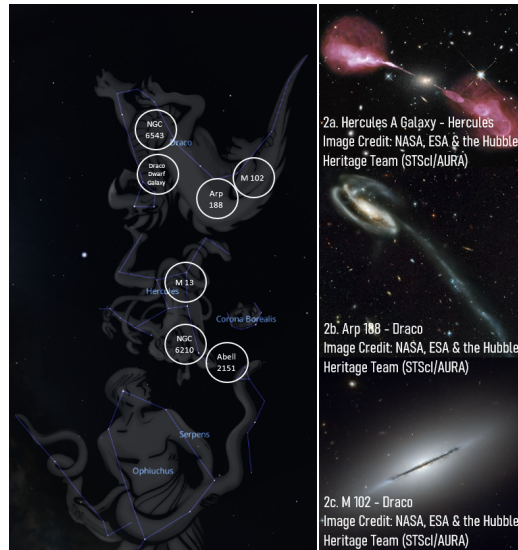


Figure 2: The northern constellations

**Draco**, representing the dragon in one of Hercules' twelve labors, is the eighth-largest constellation in the sky. Spanning an area of about 1,083 square degrees, the constellation is home to notable stars and deep-sky treasures. Eltanin (or Gamma Draconis), its brightest star, is an orange giant with a visual magnitude of 2.24. Its position played a crucial role in verifying the aberration of light. Another significant star is Thuban (or Alpha Draconis), which was once the North Star, as a result of the precession of the equinoxes. One remarkable galaxy in Draco is the Draco Dwarf, which is one of the faintest galaxies observed. Other renowned galaxies and nebulae in Draco are the Tadpole Galaxy (Arp 188) [Figure 2b], the Cat's Eye Nebula (NGC 6543), and the Spindle Galaxy (M102) [Figure 2c]. [2,4]



**Norma** is a small constellation that is not among the most famous or easily visible. While its stars may not be the brightest in the sky, having no stars brighter than magnitude 4.0, interesting ones can be found in the constellation, including the T Normae, a cataclysmic variable star system renowned for its significant outbursts. Despite its lesser-known status, it serves as a host to a number of intriguing deep-sky objects. The Norma Cluster (Abell 3627) stands out as the most notable deep-sky treasure in the constellation, being one of the most massive galaxy clusters ever discovered. Other fascinating objects in Norma are the planetary nebulae, Ant Nebula [Figure 3a] and Fine Ring Nebula [Figure 3b]. [2,5]

Another small and relatively faint southern constellation is **Ara**, the Altar. The brightest star, Beta Arae, with a magnitude of 2.84, is an orange supergiant approximately 600 light years away from Earth. Ara contains several captivating deep-sky features, such as the globular clusters NGC 6362, NGC 6352, and NGC 6397, which is notable for being one of the nearest globular clusters to Earth. Also situated within the constellation Ara is the Stingray Nebula [Figure 3c], recognized as the youngest planetary nebula discovered to date, providing crucial information on the terminal phases of stellar life cycles. [2,6]

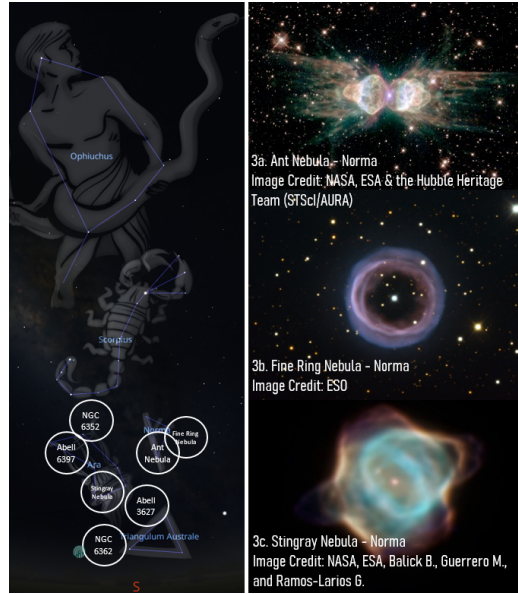


Figure 3: The southern constellations

## Planetary Location

**Mars** and **Saturn** are evening objects in the month of July, with Mars becoming readily available as dusk fades to darkness, while Saturn will be seen rising in the eastern sky. **Venus** will still be an early morning planet exhibiting its brightness until it gets lost in the glare of the Sun. **Jupiter** will not be observable in the first half of July due to its proximity to the Sun, but it will also grace the dawn sky as it rises at an altitude of  $10^\circ$  above the horizon. On the other hand, **Mercury** will be visible above the western horizon in the first half of the month, but will be challenging to view as it sits low on the horizon from the middle towards the end of the month. Mercury will reach its highest altitude in the evening sky on 01 July, shining brightly at magnitude 0.4. It will be at its Greatest Eastern Elongation, with a maximum separation from the Sun at  $25.9^\circ$ , on 04 July at 12:39 p.m. [1,7,8,9,10]

On 16 July, at 03:21 p.m., the **Moon** and **Saturn** will approach closely, passing within  $3^\circ 22'$  of each other. At 06:31 p.m., the two objects will be in conjunction, with the Moon passing  $3^\circ 50'$  to the north of Saturn. Both objects are located in the constellation Pisces. The exact occurrence of these events will not be visible as the two objects are still below the horizon, but their close pairing can be viewed at 11:30 p.m. [Figure 4]. [7,11,12]



Figure 4: The view of the eastern sky showing the close pairing of the Moon and Saturn on 16 July at 11:30 p.m. using Stellarium.



Figure 5: The view of the eastern sky showing the conjunction of the Moon and Venus on 22 July at 03:25 a.m. using Stellarium.

On 22 July at 03:25 a.m., the **Moon** will pass  $7^{\circ}08'$  to the north of **Venus**, as they will be in conjunction. The Moon will be shining brightly at magnitude -10.4, while Venus is at magnitude -4.0, lying behind the background stars of the constellation Taurus. The exact timing of this event will be observable in the pre-dawn sky as shown in Figure 5. On the following day, at 12:19 p.m., the **Moon** and **Jupiter** will also share the same right ascension, separated by  $4^{\circ}54'$ . Their conjunction, occurring during daytime, will not be visible, but the pair can be viewed at 04:40 a.m. until they get lost in the brightness of the Sun [Figure 6]. [7,13]



Figure 6: The view of the eastern sky showing the pairing of the Moon and Jupiter on 23 July at 04:40 a.m. using Stellarium.



Figure 7: The view of the western sky showing the close pairing of the Moon and Mars on 29 July at 07:30 p.m. using Stellarium.

The **Waxing Crescent Moon** and **Mars** will make a close approach on 29 July at 02:30 a.m., passing within  $1^{\circ}07'$  of each other. On the same day, at 03:45 a.m., they will be in conjunction, with the Moon passing  $1^{\circ}17'$  to the south of Mars. The two objects are still below the horizon at the exact occurrence of these events, but their close pairing can be seen at 07:30 p.m. until they set on the western horizon [Figure 7]. [14,15]

All the conjunctions and near approaches mentioned between the planet and the moon, or planet to planet, will be visible enough to fit within the field of view of a telescope and can also be viewed with the naked eye or using a pair of binoculars.

## Meteor Shower

Two meteor showers will have peak activity on the same day, **30 July**. [16,17]

The  **$\alpha$ -Capricornid meteor shower** will be observable from **03 July to 15 August**. It is produced by comet 169P/NEAT and is expected to generate about 5 meteors per hour at its peak. Capricornus, the radiant of the meteor shower, will remain above the horizon throughout the night, indicating continuous meteor activity the entire night, with its best viewing likely to be around 01:00 a.m., when its radiant is highest overhead [Figure 8]. [16]



Figure 8: The view of the southern sky during the peak of the  $\alpha$ -Capricornid meteor shower on 30 July 2025 at 01:00 a.m. when the shower's radiant is represented by the green solid circle.

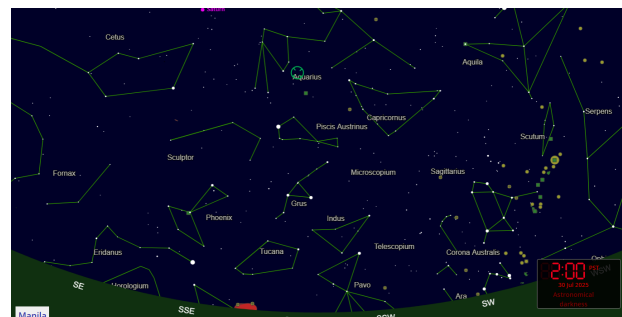


Figure 9: The view of the southern sky during the peak of the Southern  $\delta$ -Aquariid meteor shower on 30 July 2025 at 02:00 a.m. when the shower's radiant is represented by the green solid circle.

The other meteor shower is the **Southern  $\delta$ -Aquariids**, active from **12 July to 23 August**. It originates from debris left behind by the comet P/2008 Y12 (SOHO), and its meteors appear to radiate from a point in the constellation Aquarius. At its peak, the shower can produce up to 25 meteors per hour under ideal dark-sky conditions. Rising above the eastern horizon at about 08:20 p.m. each night, the radiant of the Southern  $\delta$ -Aquariids remains active until approximately 05:13 a.m. The shower is best observed around 02:00 a.m., when

the radiant reaches its highest altitude in the sky [Figure 9]. With the Moon, in Virgo, at about its first quarter phase, minimal interference will be present during the meteor shower observation. [17]

Meteor showers are observable through the naked eye, and no special equipment such as telescopes or binoculars is needed. Maximize the viewing experience by choosing a dark observation site away from the city lights under clear and moonless sky conditions.

## Calendar of Astronomical Events for July 2025

Table 1 shows a summary of the astronomical events for July 2025. All times displayed are in Philippines Standard Time (PhST).

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