

PRESS RELEASE AUGUST 2022





ASTRONOMICAL DIARY

PREPARED BY ASTRONOMICAL PUBLICATION UNIT, SPACE SCIENCE AND ASTRONOMY SECTION

ASTRONOMICAL EVENTS, AUGUST 2022

DATE	EVENT	TIME
11	Moon at Perigee (Distance = 359,923.559 km)	01:09 AM
12	Close Approach of Moon and Saturn	01:59 PM
13	Perseids (ZHR = 150)	05:00 AM
15	Saturn at Opposition	01:02 AM
15	Close Approach of Moon and Jupiter	07:10 PM
18	κ -Cygnids (ZHR = 3)	09:00 PM
19	Close Approach of Moon and Mars	06:36 PM
22	Mercury at highest altitude in evening sky	---
23	Moon at Apogee (Distance = 405,361.096 km)	05:52 AM
27	Mercury at greatest elongation east	05:47 PM
30	Mercury at dichotomy	12:31 AM

PHASES OF THE MOON

	First Quarter Aug 05 07:07 PM
	Full Moon Aug 12 09:36 AM
	Last Quarter Aug 19 12:36 AM
	New Moon Aug 27 04:17 PM

RISE AND SET TIMES OF PLANETS

DATE	MERCURY		VENUS		MARS		JUPITER		SATURN	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
Aug 01	06:48 AM	07:25 PM	04:04 AM	04:59 PM	12:04 AM	12:41 PM	09:45 PM	*09:56 AM	07:12 PM	*06:47 AM
Aug 11	07:17 AM	07:39 PM	04:18 AM	05:09 PM	11:46 PM	12:29 PM	09:05 PM	*09:16 AM	06:30 PM	*06:05 AM
Aug 21	07:33 AM	07:40 PM	04:33 AM	05:17 PM	11:29 PM	12:16 PM	08:24 PM	*08:34 AM	05:48 PM	*05:22 AM
Aug 31	07:34 AM	07:29 PM	04:47 AM	05:23 PM	11:12 PM	12:01 PM	07:42 PM	*07:51 AM	05:07 PM	*04:40 AM



NASA'S WEBB REVEALS COSMIC CLIFFS

ASTRONOMY PICTURE OF THE MONTH

Captured in infrared light by NASA's new James Webb Space Telescope, this image reveals for the first time previously invisible areas of star birth. This landscape of "mountains" and "valleys" speckled with glittering stars is actually the edge of a nearby, young, star-forming region called NGC 3324 in the Carina Nebula.

NGC 3324 was first catalogued by James Dunlop in 1826. Visible from the Southern Hemisphere, it is located at the northwest corner of the Carina Nebula (NGC 3372), which resides in the constellation Carina. The Carina Nebula is home to the Keyhole Nebula and the active, unstable supergiant star called Eta Carinae.

Reference: nasa.gov/image-feature/goddard/2022/nasa-s-webb-reveals-cosmic-cliffs-glittering-landscape-of-star-birth

Notes:

[1] * following day

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

"tracking the sky...helping the country"

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Stars and Constellations

The constellations best observed during August are **Lyra**, **Sagitta**, and **Aquila** in the northern sky and **Scutum**, **Sagittarius**, and **Corona Australis** in the southern sky. These constellations host some of the most beautiful and well-known deep-sky objects. Figure 1 shows the view of the sky on 15 August at around 9:00 PM when the August constellations are situated overhead [1, 2]

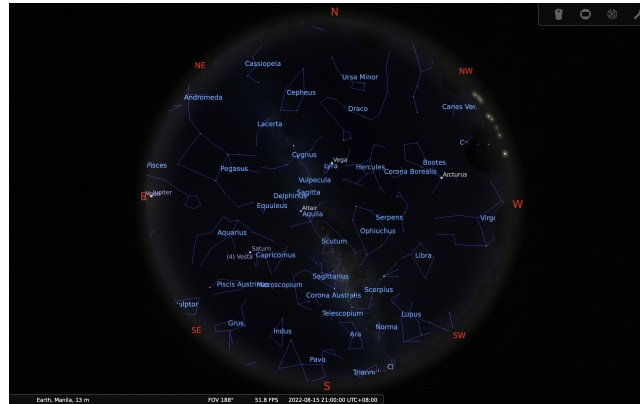


Figure 1: The view of the night sky featuring the prominent August constellations at 9:00 PM on 15 August 2022 using the Stellarium software

The center of the **Milky Way** is in **Sagittarius**. Thus, **Sagittarius** contains about 15 Messier objects within its border, which is relatively more than any other constellation in the sky, such as nebulae, **Lagoon Nebula** (Messier 8), **Omega Nebula** (Messier 17), and **Trifid Nebula** (Messier 20), globular clusters, such as **Messier 22**, **Messier 28**, **Messier 54**, **Messier 55**, **Messier 69**, **Messier 70**, and **Messier 75**, open clusters, namely, **Messier 18**, **Messier 21**, **Messier 23**, and **Messier 25**, and the **Sagittarius Star Cloud** (Messier 24), a large **Milky Way star cloud**, consists of the densest concentration of individual stars. The **Teapot** is an asterism formed by the eight brightest stars in **Sagittarius**, usually used to locate the position of some notable deep-sky objects in **Sagittarius**. Figure 2 presents the view of the southern sky showing the location of the **Teapot** asterism and some deep-sky objects in **Sagittarius** in mid-August at around 9:00 PM. Moreover, **Sagittarius** also hosts **Sagittarius A**, a compact radio source and the top candidate for the location of the supermassive black hole at the center of the galaxy [1, 2].



Figure 2: The view of the southern sky showing the position of the Teapot asterism (red solid line) and the notable deep-sky objects in Sagittarius at 9:00 PM on 15 August 2022 using the Stellarium software

Another constellation in the southern portion of the sky best observed in August is **Corona Australis**, an oval-shaped patterned constellation between **Sagittarius** and **Scorpius**. **Corona Australis** is the home of one of the nearest star-forming regions to Earth, called **Corona Australis Molecular Cloud**. Meanwhile, **Lyra** is relatively small and is considered the northernmost August constellation. **Lyra** is also the home to several famous variable stars, including **Beta Lyrae**, and **RR Lyrae**, and hosts deep-sky objects, including **Ring Nebula** (Messier 57) and the globular cluster **Messier 56**. **Vega**, the brightest star of **Lyra**, is a part of the **Summer Triangle**, an asterism dominating the evening sky during the summer months. The other vertices of the **Summer Triangle** include **Deneb** and **Altair**, the brightest stars in **Cygnus** and **Aquila**, respectively (Figure 3) [1].

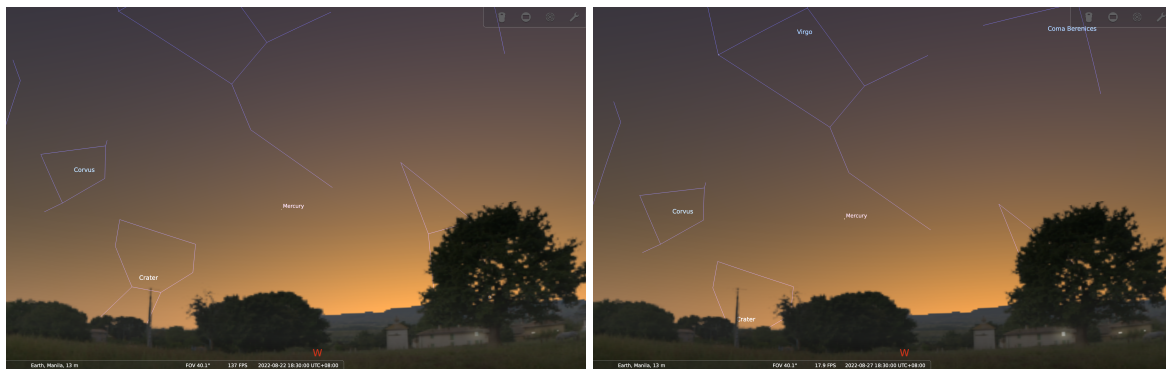


Figure 3: The view of the northeastern sky showing the position of the Summer Triangle (red solid line) at 9:00 PM on 15 August 2022 using the Stellarium software

Aquila also contains several notable deep-sky objects, including nebulae, **Glowing Eye Nebula (NGC 6751)**, **Phantom Streak Nebula (NGC 6741)**, and **NGC 6781**, open cluster **NGC 6709** and **NGC 6755**, and globular cluster **NGC 6760**. **Sagitta** is a small and faint constellation, but it hosts two interesting deep-sky objects, namely globular cluster **Messier 71** and planetary nebula **Necklace Nebula (PN G054.2-03.4)** [1]. The deep-sky objects mentioned can be observed by simply pointing a pair of binoculars in the direction of these objects.

Planetary Location

Mercury is an evening planet observable after sunset for the entire month of August. On 22 August, **Mercury** will reach its highest position in the sky (Figure 4a) [3]. On 27 August at 5:47 PM, **Mercury** is at the greatest separation from the Sun, called the greatest eastern elongation (Figure 4b) [4]. Meanwhile, on 30 August at 12:31 AM, **Mercury** will reach half phase, referred to as dichotomy [5]. However, observing **Mercury** during this time will be tricky since its altitude in the western sky after sunset will be very close to the horizon.



(a) 22 August 2022 at 6:30 PM

(b) 27 August 2022 at 6:30 PM

Figure 4: The position of the Mercury in the western sky during its highest position in the sky and its greatest distance from the Sun after sunset on 22 and 27 August 2022, respectively using the Stellarium application

Venus remains a morning planet for the rest of the month, while **Mars** will start to rise in the east around midnight most of the month. **Saturn** can be observed for much of the night, reaching its highest point in the sky at midnight since on 15 August at 1:02 AM, **Saturn** will be in opposition. Opposition occurs when an exterior planet like **Saturn** is located opposite the **Sun** with **Earth** in between [7]. Meanwhile, **Jupiter** is observable a few hours in the eastern sky after sunset. The **Moon** will have several close approaches, also known as appulse, with different planets in the morning sky. The **Full Moon** and **Saturn** will be about $3^{\circ}41'$ from each other on 12 August at 1:59 PM. The exact moment of the close pairing is not observable. However, the close pairing starts to be visible around 7:30 PM in the east southeastern (Figure 5) until 5:00 AM the following day [6].

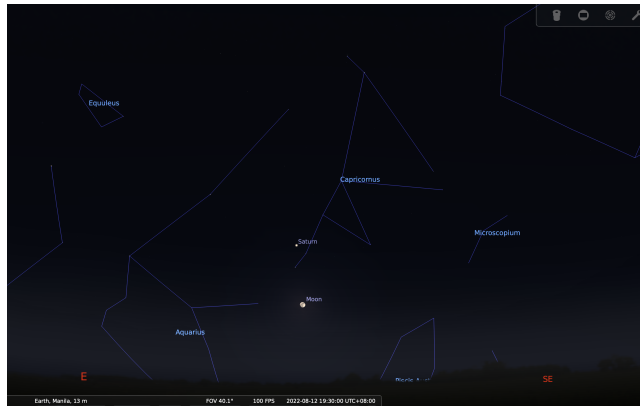


Figure 5: The view of the sky on 12 August 2022 showing the position of the close pairing of Moon-Saturn as it starts to rise in the east southeastern part of the sky at around 7:30 PM using the Stellarium application

Also, on 15 August at 7:10 PM, the **Waning Gibbous Moon** and **Jupiter** will be $1^{\circ}39'$ of each other. The pair will be both located in **Cetus** and will be visible in the eastern sky at around 9:30 PM (Figure 6) [8].

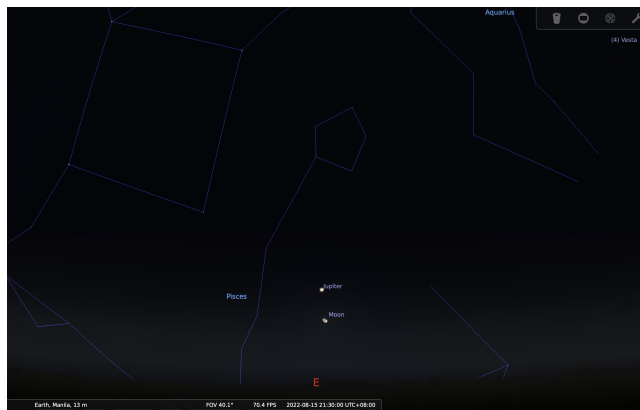


Figure 6: The view of the sky on 15 August 2022 showing the position of the close pairing of Moon-Jupiter as it rise in the eastern part of the sky at around 9:30 PM using the Stellarium application

The **Last Quarter Moon** and **Mars** will be about $2^{\circ}33'$ from each other on 19 August at 6:36 PM. The pair will be visible in the eastern sky at around 12:30 AM at **Taurus** (Figure 7) [9]. The above-mentioned close pairings are observable until before sunrise. Moreover, the said pairings are visible to the naked eye or through a pair of binoculars but are too widely separated to fit within the field of view of a telescope.



Figure 7: The view of the sky on 19 August 2022 showing the position of the close pairing of Moon-Mars as it starts to rise in the eastern part of the sky at around 12:30 AM using the Stellarium application

Meteor Showers

Perseids is an annual meteor shower active from 17 July to 24 August, with peak activity occurring on 13 August. During the peak, **Perseids** is to produce 150 meteors per hour. The shower will be visible once **Perseus**, the shower's radiant, rises in the northeastern sky around midnight until before sunrise. The number of visible meteors increases as the radiant ascends to its highest point in the sky, which will be after dawn. Thus, **Perseids** is likely best observed shortly before sunrise. Figure 8 shows the position of the radiant in the north northeast portion of the sky at around 5:00 AM. The presence of the **Waning Gibbous Moon** in **Aquarius** will cause significant interference throughout the night [10, 11].

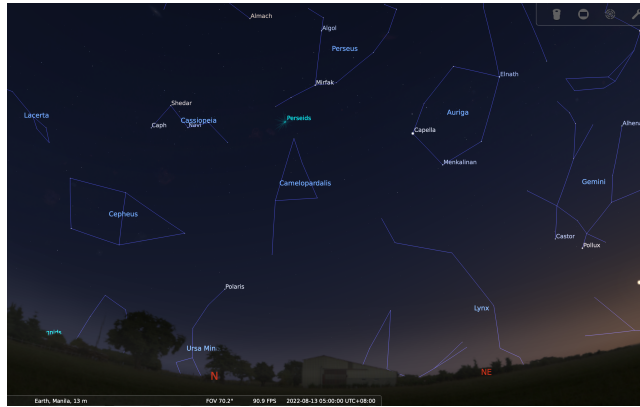


Figure 8: The view of the north northeastern sky during the peak of **Perseids** on 13 August 2022 at 5:00 AM using the Stellarium software

Another meteor shower observable this month is κ -**Cygnids**, a meteor shower active from 3-25 August, with peak activity on 18 August. During its peak, κ -**Cygnids** is expected to produce 3 meteors per hour. The shower's radiant, **Draco**, is already observable after sunset until it sets on the horizon at around 5:00 AM. κ -**Cygnids** is best observed around 9:00 PM when the radiant is at its highest position in the sky (Figure 9) [10, 12].



Figure 9: The view of the northern sky during the peak of κ -**Cygnids** on 18 August 2022 at 9:00 PM when the shower's radiant is highest in the sky using the Stellarium software

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.

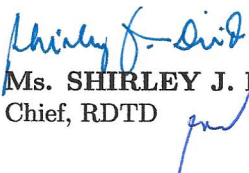
Calendar of Astronomical Events for August 2022

Table 1 shows summary of the astronomical events for the month of August 2022. All times displayed are in Philippines Standard Time (PhST).

Table 1: The summary of astronomical events for the month of August 2022

Date	Event	Time
11	Moon at Perigee (Distance = 359,923.559 km)	1:09 AM
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12 July 2022

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