PRESS RELEASE JULY 2022

ASTRONOMICAL DIARY

PREPARED BY ASTRONOMICAL PUBLICATION UNIT, SPACE SCIENCE AND ASTRONOMY SECTION

ASTRONOMICAL EVENTS, JULY 2022

DATE	EVENT	TIME
13	Moon at Perigee (Distance = 357,371.674 km)	05:06 PM
14	Full Moon at Perigee	02:38 AM
16	Close Approach of Moon and Saturn	06:29 AM
19	Close Approach of Moon and Jupiter	10:48 AM
21	Close Approach of Moon and Mars	11:55 PM
26	Moon at Apogee (Distance = 406,231.081 km)	06:22 PM
29	Piscis Austrinids (ZHR = 5)	02:00 AM
30	α-Capricornids (ZHR = 5)	12:00 AM
30	Southern δ-Aquariids (ZHR = 25)	02:00 AM

PHASES OF THE MOON

First Quarter
July 07 10:14 AM

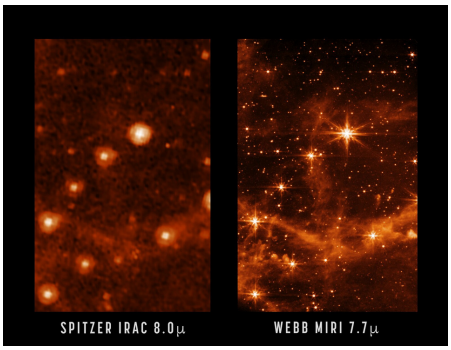
Full Moon
July 14 02:38 AM

Last Quarter
July 20 10:19 PM

New Moon
July 29 01:55 AM

RISE AND SET TIMES OF PLANETS

DATE	MERCURY		VENUS		MARS		JUPITER		SATURN	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
July 01	04:18 AM	05:14 PM	03:27 AM	04:18 PM	12:52 AM	01:14 PM	11:43 PM	*11:53 AM	09:20 PM	*08:57 AM
July 11	05:03 AM	06:03 PM	03:37 AM	04:31 PM	12:36 AM	01:04 PM	11:06 PM	*11:17 AM	08:39 PM	*08:15 AM
July 21	05:58 AM	06:52 PM	03:49 AM	04:45 PM	12:21 AM	12:53 PM	10:28 PM	*10:39 AM	07:58 PM	*07:34 AM
July 31	06:44 AM	07:23 PM	04:02 AM	04:57 PM	12:05 AM	12:42 PM	09:49 PM	*10:00 AM	07:16 PM	*06:51 AM



WEBB'S MIRI IMAGE SHARPNESS CHECK

ASTRONOMY PICTURE OF THE MONTH

This close-up of Webb's MIRI test image (at 7.7 microns) is compared to a past image of the same target, a part of the Large Magellanic Cloud taken with NASA's retired Spitzer Space Telescope's Infrared Array Camera (at 8.0 microns).

The James Webb Space Telescope's first full-color images and spectroscopic data will be released on July 12 at 10:30 p.m. PhST (14:30 UTC). These images will also be made available on these websites: *nasa.gov/webbfirstimages* and *webbtelescope.org*

**MIRI : Mid-Infrared Instrument*

Image Credit: NASA/JPL-Caltech (left), NASA/ESA/CSA/STScI (right)

Notes:
*[1] * following day*
[2] All times displayed are in Philippine Standard Time (PhST)

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Stars and Constellations

July is the best time to observe the northern constellations, **Corona Borealis**, **Draco**, **Hercules**, and **Serpens**, and southern constellations, **Ophiuchus** and **Scorpius**. Several interesting deep-sky objects are also best observed this time of the year, weather permitting, including **Spindle Galaxy (Messier 102)**, **Cat's Eye Nebula (NGC 6543)**, and **Tadpole Galaxy** situated in **Draco**, **Cat's Paw Nebula (NGC 6334)**, also known as the **Bear Claw Nebula** and **Ptolemy's Cluster (Messier 7)** in **Scorpius**, **Hercules Globular Cluster (Messier 13)** in **Hercules**, and **Eagle Nebula (Messier 16)** in **Serpens**. Figure 1 shows the view of the July constellation, located high in the sky on 15 July 2022 at 9:00 PM [1].

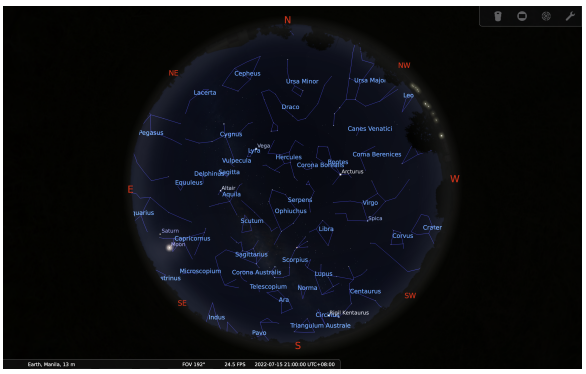


Figure 1: The view of the night sky featuring the prominent July constellations at 9:00 PM on 15 July 2022 using the Stellarium software

The northernmost among the July constellations are **Hercules** and **Draco**, the 5^{th} and 8^{th} largest constellations in the sky, respectively. However, these constellations do not have first-magnitude stars. **Draco** is a circumpolar constellation and is observable in the northern hemisphere observers throughout the year. Meanwhile, several stars in **Hercules**, including **Pi**, **Eta**, **Zeta**, and **Epsilon Herculis**, form an asterism known as the **Keystone**. The said asterism is a relatively large quadrangle between the bright star **Vega** of **Lyra** and the stars of **Corona Borealis** (Figure 2). Keystone also represents the torso of Hercules [1].

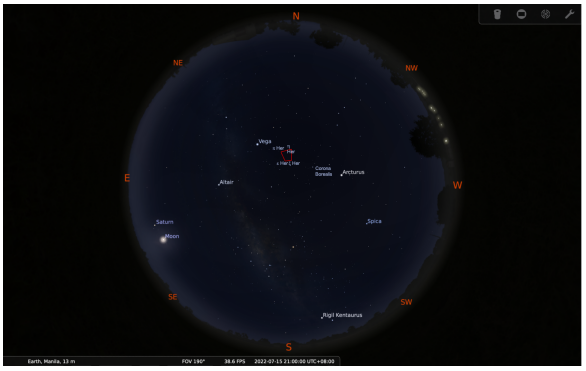


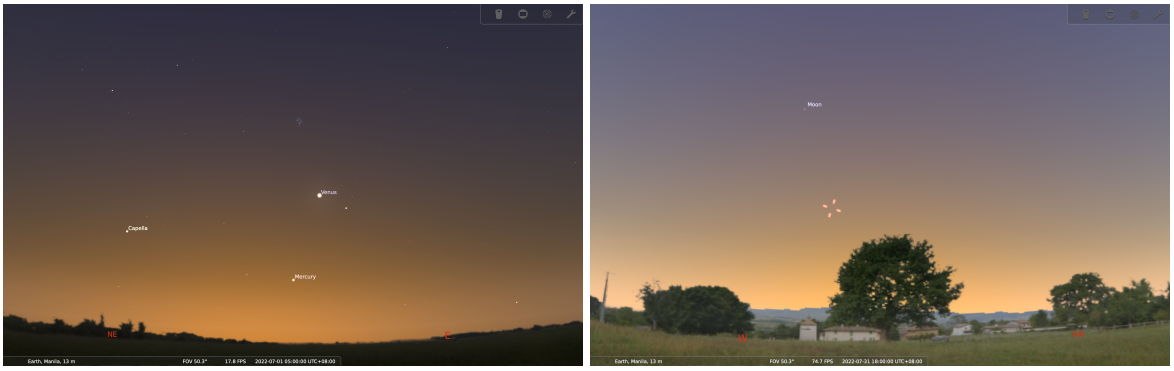
Figure 2: The view of the night sky showing the position of the Keystone asterism on 15 July 2022 at 9:00 PM using the Stellarium software

Corona Borealis is a small but recognizable semi-circular constellation between **Keystone** and **Boötes**. To the south of **Hercules** and **Corona Borealis** lies **Ophiuchus** and **Serpens**, representing the **snake bearer** and the **snake**, respectively. **Ophiuchus** divides **Serpens** into two parts: **Serpens Caput**, the **serpent's head**, and **Serpens Cauda**, the **serpent's tail**. Situated to the south of **Ophiuchus** is one of the brightest, most prominent, and easy-to-find constellations in the southern sky, **Scorpius**. The brightest star of **Scorpius**, **Antares**, also known as **Cor Scorpii**, is a red supergiant and the heart of the scorpion. **Antares** appears distinctly red in an unaided eye. **Scorpius** host about 13 stars brighter than magnitude 3.0, including **Shaula** (**Lambda Scorpii**), the second brightest star within the constellation, and **Sargas** (**Theta Scorpii**), among others [1].

Planetary Location

Observing **Mercury** this month will be tricky as it will be a morning planet lying low near the east northeastern sky in early July and an evening planet lying low near the west northwestern sky at the end of the month. The

position of **Mercury** in the sky on 1 July 2022 at 5:00 AM and 31 July 2022 at 6:00 PM are shown in Figure 3 [2].



(a) 1 July 2022 at 5:00 AM (b) 31 July 2022 at 6:00 PM

Figure 3: The position of the Mercury in the sky at the beginning and end of July 2022 using the Stellarium application

Planets **Venus**, **Mars**, **Jupiter**, and **Saturn** will remain morning planets for the rest of the month. On 16 July at 6:29 AM, the bright **Waning Gibbous Moon** and **Saturn** will have a close approach, also known as **Appulse**, of about 3°48'. The pair will be both located in **Capricornus** and will become visible in the east southeast sky at about 22° above the horizon at around 10:00 PM of the previous night, shown in Figure 4 [3].

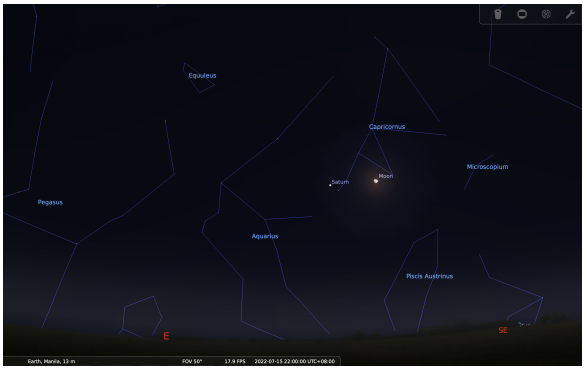


Figure 4: The view of the sky on 15 July 2022 showing the position of the close pairing of Moon-Saturn as it starts to rise in the east southeastern part of the sky at around 10:00 PM using the Stellarium application

On 19 July at 10:48 AM, **Waning Gibbous Moon** and **Jupiter** will closely approach each other, passing about 1°58' of each other. The close pairing is located in **Cetus** and will be visible as soon as the pair is about 21° above the eastern horizon at around midnight of the same day (Figure 5) [4].

Figure 5: The view of the sky on 19 July 2022 showing the position of the close pairing of Moon-Jupiter as it starts to rise in the eastern part of the sky at around midnight using the Stellarium application

Waning Crescent Moon and **Mars** will then have a close pairing on 21 July at 11:55 PM. The pair will be about 0°58.3' from each other. The close pairing is located in **Aries** and will be visible at about 20° above the eastern sky around 2:00 AM the following day (Figure 6).

Figure 6: The view of the sky on 22 July 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 2:00 AM using the Stellarium application

The above-mentioned close pairings are observable until before sunrise. Moreover, the said pairings are too widely separated to fit within the field of view of a telescope but are visible to the naked eye or through a pair of binoculars.

Meteor Showers

The **Piscis Austrinids** is a meteor shower active from 15 July to 10 August, with peak activity occurring around 29 July. The meteor shower is expected to produce 5 meteors per hour and will be active once the radiant, Piscis Austrinus, rises in the southeastern sky around 10:00 PM until before sunrise. The number of visible meteors increases as the radiant ascends to its highest point in the sky around 2:00 AM (Figure 7). The New Moon will cause minimal interference [5, 6].

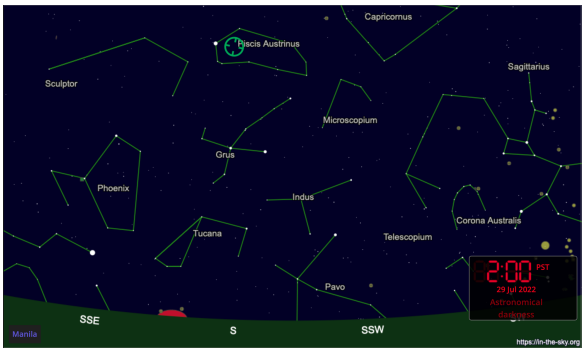


Figure 7: The view of the southern sky during the peak of **Piscis Austrinids** on 29 June 2022 at 2:00 AM when the shower's radiant, represented by the green solid circle, is highest in the sky

Both **Southern δ-Aquariids** and **α-Capricornids** are meteor showers active from 12 July to 23 August and 3 July to 15 August, respectively. Both meteor showers will have their peak activity on 30 July. The **Southern δ-Aquariids** is expected to produce about 25 meteors per hour. The radiant of the shower, **Aquarius**, will be rising in the eastern sky at around 9:00 PM and will remain visible until before sunrise. The radiant will reach its highest point in the sky around 2:00 AM. Figure 8 shows the position of the radiant in the eastern sky at 2:00 AM [5, 7].

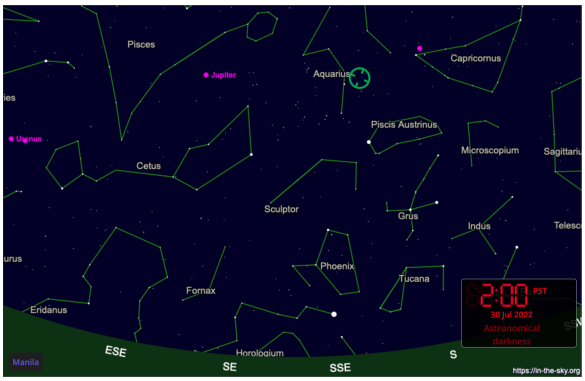


Figure 8: The view of the south southeastern sky during the peak of **Southern δ-Aquariids** on 30 July 2022 at 2:00 AM when the shower's radiant, represented by the green solid circle, is highest in the sky

Meanwhile, **Capricornus**, the radiant of the **α-Capricornids**, will be above the horizon all night. Thus, the shower will be active from sunset until before sunset. The best time to observe **α-Capricornids** is around midnight when the radiant is at the highest point in the sky (Figure 9). **α-Capricornids** is expected to produce 5 meteors per hour. The **1-day old Moon** will pose minimal interference [5, 8].

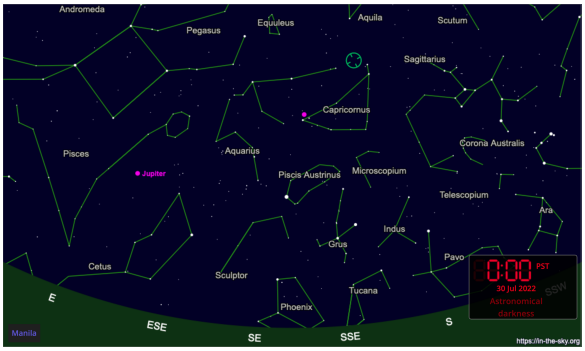


Figure 9: The view of the south southeastern sky during the peak of **α-Capricornids** on 30 July 2022 at 12:00 AM when the shower's radiant represented by the green solid circle is highest in the sky

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.

Full Moon at Perigee

A **Full Moon at Perigee**, commonly known as the **Supermoon**, is an astronomical phenomenon occurring when the closest approach of the **Moon** to the **Earth**, referred to as perigee, coincides with a **Full Moon**. The distance of the **Full Moon** from the **Earth** should be about 363,300 km. The **Full Moon** on 14 July will be about 357,417.824 km away from **Earth**, thus, considered a **Supermoon**. According to NASA, the **Moon** may appear up to 17% bigger and 30% brighter than the average **Full Moon** during **Supermoon**. However, the change in size and brightness of the **Moon** during the **Supermoon** compared to the regular **Full Moon** might be difficult to detect through visual comparison. Change in the size of the **Moon** can be recognized once compared side-by-side with the previous photo of a regular **Full Moon** [9, 10].

Calendar of Astronomical Events for July 2022

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

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

Date	Event	Time
13	Moon at Perigee (Distance = 357371.674 km)	5:06 PM
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30	Southern δ-Aquariids (ZHR = 25)	2:00 AM

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17 June 2022

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