PRESS RELEASE MAY 2023

ASTRONOMICAL DIARY

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

ASTRONOMICAL EVENTS, MAY 2023

DATE	EVENT	TIME
02	Mercury at Inferior Solar Conjunction	07:22 a.m.
05	Penumbral Lunar Eclipse (**start)	11:12 p.m.
06	Penumbral Lunar Eclipse (**end)	03:34 a.m.
06	η - Aquarids	04:00 a.m.
09	η - Lyrids	04:00 a.m.
13	Close approach of the Moon and Saturn	11:26 p.m.
23	Close approach of the Moon and Venus	08:37 p.m.
25	Close approach of the Moon and Mars	06:37 p.m.

PHASES OF THE MOON

Full Moon
May 06 01:34 a.m.

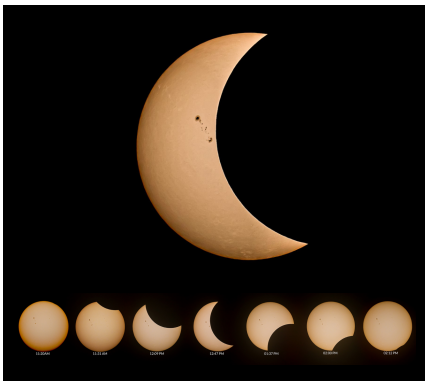
Last Quarter
May 12 10:28 p.m.

New Moon
May 19 11:53 p.m.

First Quarter
May 27 11:22 p.m.

RISE AND SET TIMES OF PLANETS

DATE	MERCURY		VENUS		MARS		JUPITER		SATURN	
	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
May 01	05:39 AM	06:15 PM	08:18 AM	09:21 PM	10:16 AM	11:13 PM	04:49 AM	05:12 PM	02:02 AM	01:43 PM
May 11	04:47 AM	05:14 PM	08:27 AM	09:31 PM	10:01 AM	10:56 PM	04:18 AM	04:42 PM	01:25 AM	01:06 PM
May 21	04:13 AM	04:39 PM	08:35 AM	09:38 PM	09:47 AM	10:39 PM	03:46 AM	04:12 PM	12:48 AM	12:29 PM
May 31	04:00 AM	04:33 PM	08:42 AM	09:40 PM	09:33 AM	10:22 PM	03:15 AM	03:42 PM	12:10 AM	11:51 AM



PARTIAL SOLAR ECLIPSE

ASTRONOMY PICTURE OF THE MONTH

Did you witness last month's Partial Solar Eclipse?

This Partial Solar Eclipse is taken last 20 April 2023 as seen at PAGASA Synoptic Station in General Santos City. The maximum obscuration (partiality) is 55.6%.

The last Partial Solar Eclipse that was observed in the Philippines was on June 21, 2020. After April 20, 2023, it will be more than five years before the Philippines sees another one, as the next Partial Solar Eclipse will take place on July 22, 2028.

Image Credit: Mendoza, Lordnico P. / PAGASA

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

"tracking the sky…helping the country"
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Stars and Constellations

The northern constellations best observed in May are Canes Venatici and Coma Berenices, and the southern constellations Centaurus, Virgo, Corvus, Crux, and Musca. The constellation Crux is known to be the smallest constellation in the sky. The deep sky objects located in the said constellations are also prominent telescope targets like the Virgo Cluster and Coma Cluster of galaxies, the Whirlpool Galaxy (M51), the Sunflower Galaxy (M63), the Black Eye Galaxy (M64), the Sombrero Galaxy (M104), the Antennae Galaxies, Omega Centauri, Centaurus A, and the Jewel Box Cluster (Figure 1) [1][2].

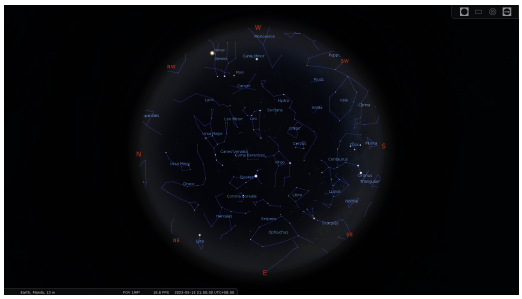
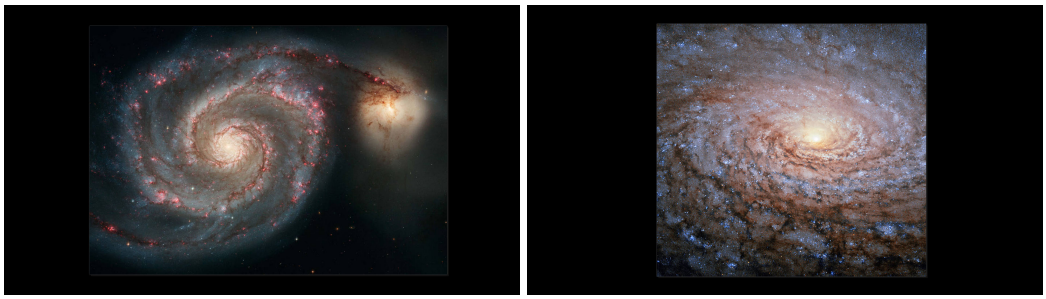


Figure 1: The view of the southern sky during the peak of γ-Normids on 15 March 2023 at 04:00 a.m when the shower's radiant is represented by the green solid circle.

Serving as the home of La Superba (Y Canum Venaticorum) one of the reddest stars in the sky, the **Canes Venatici**, or the hunting dogs is one of the prominent May constellations this year. La Superba, the red giant star, is a semi-regular variable, a pulsating red supergiant with a magnitude ranging from 4.86 to 7.32 over a period of about 160 days. Moreover, Canes Venatici also hosts five (5) popular Messier objects which are the Whirlpool Galaxy (M51), Sunflower Galaxy (M63), Cat's Eye Galaxy (M94), the spiral galaxy Messier 106, and the bright, large globular cluster Messier 3 [2].



(a) The Whirlpool Galaxy
(Credits: NASA, ESA, S. Beckwith (STScI) and the Hubble Heritage Team (STScI/AURA))

(b) The Sunflower Galaxy
(Credits: ESA, Hubble and NASA)

Figure 2

Centaurus is one of the famous southern constellations that hosts Alpha Centauri which is the third brightest star in the sky. Composed of two (2) Sun-like stars and a red dwarf, this Alpha Centauri system is known to be the nearest star to the Sun. Moreover, Centaurus also hosts the brightest globular cluster named Omega Centauri. It is composed of approximately 10 million stars spanning about 150 light years in diameter and is the largest and most massive known globular cluster [2].

Figure 3: The position of Centaurus and Crux showing the Gacrux and Acrux as pointer stars that lead to a location close to the southern celestial pole at 09:00 p.m. on 15 May 2023 using Stellarium software

Lastly, **Crux**, the smallest constellation in the sky which is commonly used in navigation, has a famous asterism

called the Southern Cross [2]. This asterism has held cultural importance in the southern hemisphere. It can be seen on the flags of a number of South American nations, including those of Samoa, New Zealand, Papua New Guinea, and Australia.

Planetary Location

Mercury is not observable in the evening sky at the beginning of the month due to its proximity to the Sun [3]. On 02 May, Mercury will reach inferior solar conjunction and will be in close approach to the Sun. This happens every synodic cycle of the planet or approximately every 115 days. Mercury will appear at a separation of only 0°42' from the Sun, making it completely invisible for several weeks due to the glare of the Sun [4]. However, it is visible at the end of the month, first appearing as a morning planet above the eastern horizon, then disappearing from view as dawn approaches. On 29 May, Mercury will reach its greatest separation from the Sun known as the greatest elongation west. With a magnitude of 0.4, the planet will only be observable during twilight and will be difficult to observe during its thin crescent phase [5].

Figure 4: The view of the west-northwestern sky on 23 May 2023 at 08:09 p.m. showing the close approach of waxing crescent Moon and Venus using the Stellarium application

Venus and **Mars** are currently early evening planets. It will be visible in the western sky after sunset, fading into darkness and disappearing below the horizon at about 10:46 p.m. and 09:29 p.m. respectively [3]. On 23 May, the waxing crescent Moon and Venus will be in conjunction, with the Moon passing at 2°12' to the north of Venus [6]. At the same time, the two objects will also make a close approach. They are both located in the constellation Gemini [7]. Figure 4 shows the position of the waxing crescent Moon and Venus at the exact time of the event. The pairing of these two events will be widely separated to fit within the field of view of a telescope but will be visible to the naked eye or through a pair of binoculars.

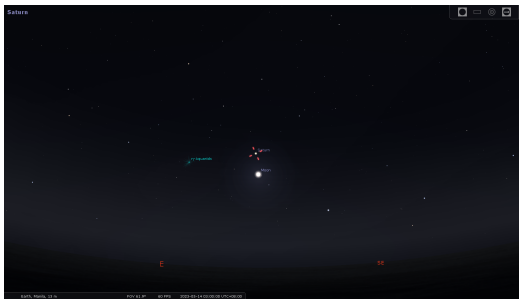


Figure 5: The view of the eastern sky on 14 May 2023 at 03:00 a.m. showing the close approach of waning crescent Moon and Saturn using the Stellarium application

Meanwhile, **Jupiter** and **Saturn** are now becoming visible in the morning sky at dawn for the entire month, fading from view at the western horizon as dawn breaks at around 05:00 a.m. [3]. Also, Saturn and the waning crescent Moon will be in conjunction as well as close approach on 13 May. Both located in the constellation Aquarius, the Moon and Saturn will be sharing the same right ascension at 3°17" and will be visible in Quezon City at 01:15 a.m.. The magnitude of the Moon and Saturn are -11.7 and 0.8, respectively [8]. Figure 5 shows the position of the waning crescent Moon and Saturn passed its conjunction and close approach event.

Meteor Shower

The η**-Aquariid Meteor Shower**, produced by the debris of Comet Halley, is a major meteor shower that will be observed from **19 April to 28 May**, with its peak of activity occurring on 06 May. This meteors shower may produce about 40 meteors per hour in a very dark and cloudless condition. The radiant of the meteor shower, constellation Aquarius, will rise on the eastern horizon at around 01:32 a.m. η-Aquariids is best observed shortly before dawn when their radiant is at its highest point in the sky Figure 6. The presence of waning gibbous Moon, in the constellation Libra at the shower's peak will cause significant interference with the shower observation [9].

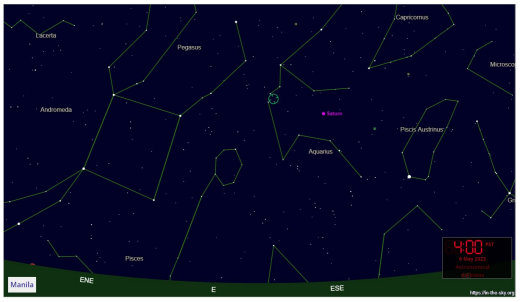


Figure 6: The view of the eastern sky during the peak of η-Aquariids on 06 May 2022 at 04:00 a.m. when the shower's radiant represented by the green solid circle is highest in the sky

Another meteor shower that can be seen in May is called η**-Lyrids** which is active from **03–14 May**, with its peak activity occurring on 09 May, producing up to 3 meteors per hour. The parent body responsible for η-Lyrids is a comet named C/1983 H1 (IRAS-Araki-Alcock). The radiant of the meteor shower, constellation Lyra, will rise over the eastern horizon at around 08:56 p.m.. The finest shower display for observing η-Lyrids occurs around 04:00 a.m., when the radiant is at its highest point in the sky (Figure 7). This can be observed just before daybreak. The waning gibbous Moon in Sagittarius presents significant interference with the observation [10].

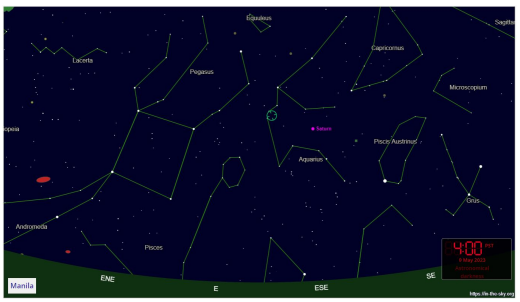
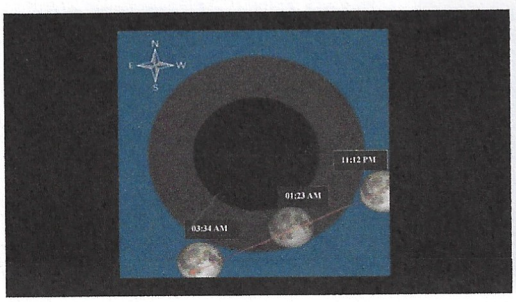


Figure 7: The view of the eastern sky during the peak of η-Lyrids on 09 May 2023 at 04:00 a.m. when the shower's radiant represented by the green solid circle is highest in the sky

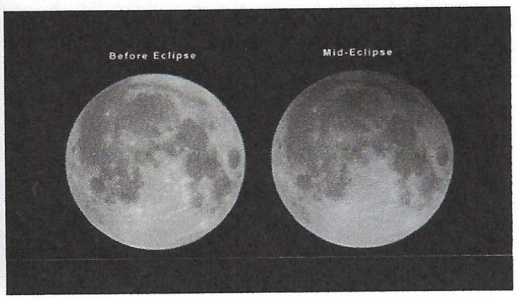
Penumbral Lunar Eclipse

A **Lunar Eclipse will occur on 05–06 May 2023**. The Moon will pass through 95% of the penumbral shadow and cause a minor darkening of the lunar surface, thus creating a Penumbral Lunar Eclipse. In the Philippine setting, the Moon will pass through the Earth's penumbral shadow between 11:12 P.M. on 05 May to 03:34 A.M. on 06 May. The Penumbral lunar eclipse will be visible in any location where the Moon is above the horizon, including Europe, Asia, Australia, Africa, Pacific, Atlantic, Indian Ocean, and Antarctica [11, 12].

Table 1 shows the list of times when each major phase of the eclipse will start while Figure 8 shows the simulated view of the eclipse.



(a) The simulation of what to expect during the Penumbral Lunar Eclipse on 05-06 May 2023 as seen from Manila, Philippines (Credits: Timeanddate)



(b) Predicted comparison of the Moon's image before and the maximum eclipse of 05-06 May 2023 Penumbral Lunar Eclipse (Credit: Earthsky)

Figure 8

Table 1: The predicted time of occurrence of the major phases of the eclipse are the following: Penumbral Duration 4h 21m 36s

Phase	Date	Time	Visible in Manila
Moon enters Penumbra	05 May 2023	11:12 p.m.	Yes
Maximum Eclipse	06 May 2023	01:23 a.m.	Yes
Moon Exit Penumbra	06 May 2023	03:34 a.m.	Yes

Unlike solar eclipses, lunar eclipses are safe to watch and do not require the use of any kind of protective filter for the eyes. A pair of binoculars may also be used to help magnify the view.

Calendar of Astronomical Events for May 2023

Table 2 shows a summary of the astronomical events for May 2023. All times displayed are in Philippines Standard Time (PhST).

Table 2: The summary of astronomical events for May 2023

Date	Event	Time
2	Mercury at Inferior Solar Conjunction	07:22 a.m.
05-06	Penumbral Lunar Eclipse	11:15 p.m. (start)
06	η-Aquariids	04:00 a.m.
09	η-Lyrids	04:00 a.m.
11	Moon at Perigee (Distance = 369,375.708 km)	01:05 p.m.
13	Close approach of the Moon and Saturn	11:26 p.m.
12	Close approach of the Moon and Venus	08:37 p.m.
25	Close approach of the Moon and Mars	06:37 p.m.
26	Moon at Apogee (Distance = 404,439.596 km)	09:39 a.m.

Approved by:

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25 April 2023

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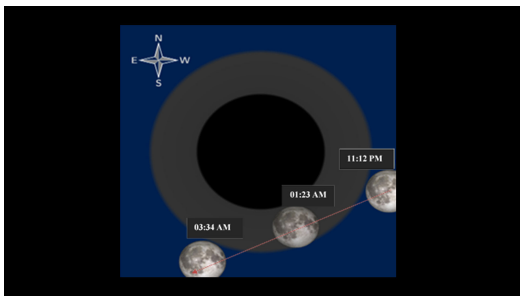

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25 April 2023

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References

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[2] C. Guide, "Constellations: A Guide to the Night Sky, May Constellation" https://www.constellation-guide.com/constellations-by-month/may-constellations/, Last accessed 2023-04-24, 2023
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