

PRESS RELEASE APRIL 2024

# ASTRONOMICAL DIARY

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

# **ASTRONOMICAL EVENTS, APRIL 2024**

DATE	EVENT	TIME
01-30	Global Astronomy Month	
04	Planetary Alignment of Venus, Neptune, Saturn and Mars	
06	Conjunction of Moon and Mars	11:51 a.m.
06	Close approach of Moon and Mars	01:22 p.m.
06	Conjunction of Moon and Saturn	05:24 p.m.
06	Close approach of Moon and Saturn	06:18 p.m.
08	Moon at Perigee (Distance = 358,951.314 km)	01:51 a.m.
11	Close approach of Mars and Saturn	04:35 a.m.
11	Conjunction of Mars and Saturn	11:00 a.m.
11	Conjunction of Moon and Jupiter	05:09 a.m.
20	Moon at Apogee (Distance = 405,570.873 km)	10:10 a.m.
21	Comet 12P/Pons-Brooks reaches peak brightness and	
	passes perihelion	
22	Lyrid Meteor Shower (ZHR = 18)	
23	π-Puppid Meteor Shower (ZHR = var)	

# **PHASES OF THE MOON**

	Last Quarter Apr 02 11:15 a.m.
	<b>New Moon</b> Apr 09 02:21 a.m.
	<b>First Quarter</b> Apr 16 03:13 a.m.
	<b>Full Moon</b> Apr 24 07:49 a.m.

## **RISE AND SET TIMES OF PLANETS**

DATE	MERCURY		VENUS		MARS		JUPITER		SATURN	
	Rise	Set								
Apr 01	06:36 am	07:08 pm	05:01 am	04:59 pm	04:02 am	03:45 pm	07:57 am	08:35 pm	04:25 am	04:12 pm
Apr 11	05:46 am	06:11 pm	05:02 am	05:10 pm	03:49 am	03:38 pm	07:26 am	08:06 pm	03:50 am	03:37 pm
Apr 21	04:52 am	05:07 pm	05:03 am	05:22 pm	03:35 am	03:30 pm	06:55 am	07:36 pm	03:14 am	03:02 pm
Apr 30	04:21 am	04:34 pm	05:05 am	05:32 pm	03:22 am	03:23 pm	06:27 am	07:10 pm	02:41 am	02:30 pm



#### **GLOBAL ASTRONOMY MONTH** The flagship program of Astronomers Without Borders

Global Astronomy Month (GAM) is the world's largest annual celebration of astronomy occurring throughout the month of April. GAM is the flagship program of Astronomers Without Borders to encourage everyone to observe and admire the wonders of the universe.

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

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### Stars and Constellations

April is the perfect month to observe the beauty of the night sky, with a particular focus on the northern constellations Ursa Major, Leo, and Leo Minor. Meanwhile, outstanding constellations in the southern hemisphere include Hydra, Sextans, Crater, and Antlia. The prominent April constellations at 09:00 p.m. on 15 April 2024 are positioned directly overhead as shown in Figure 1. [1,2]



Figure 1: The view of the night sky featuring the prominent April constellations at 09:00 p.m. on 15 April 2024 using the Stellarium software

April is the best time to look at famous deep sky objects, like Cigar Galaxy (M82), Pinwheel Galaxy (M101), Owl Nebula (M97), Leo Triplet of galaxies (M65, M66, and NGC 3628), and Southern Pinwheel Galaxy (M83) [Figure 2]. [2]

**Ursa Major** is the largest northern and third largest constellation in the sky, next to Hydra and Virgo. Its seven brightest stars form the **Big Dipper** asterism, the Plough, namely *Dubhe, Merak, Phecda, Megrez, Alioth, Mizar*, and *Alkaid*. [2]



Figure 2: The Northern Constellations



Figure 3: Illustration of how to find Polaris of Ursa Minor, Arcturus of Bootes, Spica of Virgo, Regulus of Leo, Castor of Gemini, and Capella of Auriga using the Big Dipper as guide c/o Stellarium software.

The Big Dipper is a well-known pattern that can be used as a navigation tool. It can guide you to the North Star, also known as *Polaris*, which is part of another famous asterism called the Little Dipper in the Ursa Minor constellation. To find the North Star, follow an imaginary line from Merak to Dubbe and continue along the arc until you reach it. The handle of the Big Dipper also points towards Arcturus, a bright star in the constellation Boötes, the Herdsman. If you continue along this line, you will eventually reach Spica, the brightest star in the Virgo constellation and one of the brightest stars in the sky [Figure 3]. [2]

Leo is a prominent zodiacal constellation with six bright stars forming a recognizable spring asterism named the Sickle. It resembles a backward question mark pattern that makes up the lion's head. At the base of the Sickle, is the brightest star in Leo, *Regulus*, which denotes the lion's heart. The constellation's second brightest star, *Denebola*, which represents the lion's tail, is located at the opposite end to Regulus and the Sickle. Notable deep sky objects in Leo include the *Leo Triplet* [Figure 2c], a group of galaxies consisting of Messier 65, Messier 66, and NGC 3628. [2]

Leo Minor is a small and faint constellation also known as the "smaller lion." It is located between Ursa Major to the north, Cancer to the southwest, Lynx to the west, and Leo to the south. This constellation was formed from the stars between the constellations Leo and Ursa Major. [2]



Figure 4: The Southern Constellations

The southern constellation, **Hydra** is the largest and the longest of all the modern 88 constellations. The brightest star in Hydra is the orange giant named *Alphard*. The head of the Hydra is located south of the Cancer constellation, while the tail is between Centaurus and Libra. Due to its extensive size, Hydra houses various fascinating deep sky objects such as the *Southern Pinwheel Galaxy (M83)* [Figure 4a], which is a stunning face-on spiral galaxy, the globular cluster *Messier 68* [Figure 4b], and the open cluster *Messier 48* [2].

**Sextans** is a constellation situated in a dim region of the sky between the constellations Hydra, Crater, and Leo. It is home to several remarkable deep sky objects, including the interacting pair of spiral galaxies identified as NGC 3169 and NGC 3166 [Figure 4c]. [2]

**Crater** and **Antlia** are two relatively faint constellations that do not have many notable deep sky objects except for the Crater 2 dwarf galaxy, which is the fourth largest dwarf galaxy orbiting the Milky Way, and the Antlia Dwarf, which is a dwarf spheroidal galaxy known as the Milky Way satellite Antlia 2. [2]

#### **Planetary Location**

**Mercury** won't be visible due to its proximity to the Sun, while **Venus** can be seen lying very low in the morning sky. On the other hand, **Mars** and **Saturn** will be sitting low on the eastern horizon and will remain visible until the end of the month. **Jupiter** can be seen in the western sky after sunset, however, it will be difficult to observe towards the last week of the month as it gets lost in the Sun's glare. [1,3,5]

There will be a *planetary alignment* in the morning of **04 April 2024**. It will feature four planets – **Venus**, **Neptune**, **Saturn**, and **Mars** [Figure 5]. The planets Venus, Saturn, and Mars can be seen with the naked eye, however, viewing Neptune will require a modest telescope or high-powered binoculars. [4]

A planetary alignment is a term used in astronomy to describe the phenomenon when multiple planets gather closely on one side of the Sun at the same time. This provides a stunning celestial display that can be observed without the need for special astronomical equipment. [4]



Figure 5: The view of the eastern sky showing the planetary alignment of planets Mars, Saturn, and Venus on 04 April at exactly 05:15 a.m. using Stellarium Software.



Figure 6: The best time to view the conjunction of the Waning Crescent Moon and Mars and the Waning Crescent Moon and Saturn on the east-southeastern horizon at 05:00 a.m. before sunrise on 06 April 2024 using Stellarium.

On 06 April at 11:51 a.m., the **Moon** and **Mars** will be in conjunction, where the Moon will pass 1°58' to the south of Mars. About an hour later, at 01:22 p.m., they will make a close approach, passing within 1°45' of one another. On the same day, there will also be another conjunction between the **Moon** and **Saturn**, with the Moon passing 1°13' to the south of Saturn at 05:24 p.m., followed by their close approach at 06:18 p.m., passing within 1°04' of each other. However, this event will not be visible as it will occur during daytime. The best time to view these events is at 05:00 a.m. [Figure 6] when they will be more than 10° above the east-southeastern horizon before Sunrise in the constellation Aquarius. [1,3,6,7,8,9]

On 11 April at 04:35 a.m., the planets **Mars** and **Saturn** will pass within 26.4 arcminutes of each other [Figure 7]. This will be followed by their conjunction at 11:00 a.m., with Saturn passing 28 arcminutes to the south of Mars. [3,10,11]



Figure 7: The view of the eastern sky showing the close approach of planet Mars and Saturn on 11 April at exactly 04:35 a.m. using Stellarium Software.



Figure 8: The best time to view the pairing of the Moon and Jupiter in the west-north-western sky on April 11 is at 06:30 p.m., using Stellarium Software.

Similarly, there will be a conjunction between the **Moon** and **Jupiter** on 11 April at 05:09 a.m. The Moon will pass 3°59' to the north of Jupiter. Unfortunately, this event cannot be observed as it occurred in the morning when Jupiter was not visible. The best time to view this pairing is at 06:30 p.m. or after sunset [Figure 8]. In addition to this, the **Moon** will have a close approach with **Pleiades (M45)**, passing with just a mere 19.5 arcminutes of each other. [3,12,13]

## COMET 12P/PONS-BROOKS

**Comet 12P/Pons-Brooks** is expected to become the brightest in its appearance in April 2024. It will reach its brightest point and pass perihelion on **21 April** while being in the Taurus constellation, with an estimated visual magnitude of 4.6. Given its brightness, the Comet should be visible with the help of a binocular with a 40-50mm aperture or a small telescope. However, due to its proximity to the Sun, it will be challenging to observe it as it will easily disappear into the sunset glow. [14,15]

#### Meteor Shower

The Lyrid Meteor Shower, produced by Comet C/1861 G1 (Thatcher), will be visible from 14 to 30 April with an expected peak of activity to occur on 22 April. It will be visible once the constellation Hercules, the point in the sky from which the meteor shower appears to originate, rises at around 09:15 p.m. each night and remains active until about 05:13 a.m. the following day. The radiant is highest in the sky at around 04:00 a.m. as indicated in the finder chart in Figure 9. Therefore, the best time to observe the shower is shortly before dawn, when up to 18 Meteors per hour can be observed. This estimate assumes that the viewer is in a clear, dark, moonless sky and that the radiant is highest in the sky. Unfortunately, the Waxing Gibbous Moon in Virgo will significantly interfere with meteor shower observation throughout the night. [16,17].



Figure 9: The view of the northern sky during the peak of Lyrids on 22 April 2024 at 04:00 a.m. when the shower's radiant is represented by the green solid circle.



Figure 10: The view of the southwestern sky during the peak of  $\pi$ -Puppids on 23 April 2024 at 08:00 p.m. when the shower's radiant is represented by the green solid circle.

Another meteor shower that can be observed in April is called the  $\pi$ -Puppids, produced by the comet 26P/Grigg-Skjellerup and is active from 15 to 28 April, with its peak activity expected on 23 April. This meteor shower can be observed after sunset until the shower's radiant sinks towards the horizon at around 10:11 p.m. The shower is expected to peak at around 08:00 p.m. [Figure 10], so the best display might be seen before the radiant sets on 23 April. During the peak activity, the Waxing Gibbous Moon in Virgo will significantly impact the meteor-watching. [18]

Observing meteor showers does not require specialized equipment such as binoculars or telescopes; they can be seen with the unaided eye. To maximize the viewing experience, choose a dark observing spot far from city lights and under clear, moonless skies.

#### Calendar of Astronomical Events for April 2024

Table 1 shows a summary of the astronomical events for April 2024. All times displayed are in Philippines Standard Time (PhST).

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Table 1: The summary of astronomical events for April 2024

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12 March 2024

For more information, call or email:

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