

## **Blue Moon**

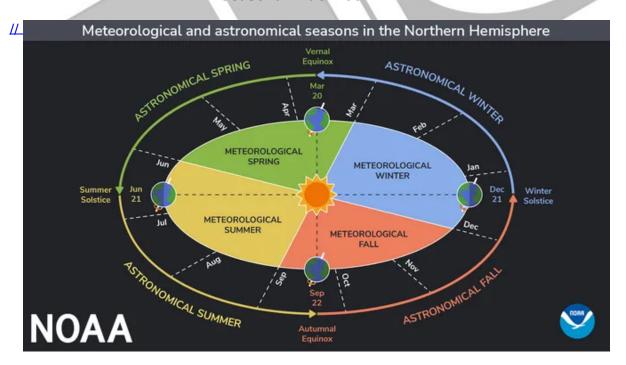
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## Why in News?

Recently, the phenomenon of the "blue moon" occurred in August 2024. This has prompted discussions regarding its origins, significance, and the diverse interpretations associated with it.

### What is the Blue Moon?

- About: A blue moon is the second full moon that occurs within a single calendar month.
  - The next Blue Moon will occur on 31st May 2026.
- **Types:** There are 2 types of Blue Moons, neither of which involve the moon's colour.
  - Seasonal Blue Moon: A Seasonal Blue Moon happens when there are 4 full moons in a single astronomical season-spring, summer, autumn (fall), or winter, rather than the usual 3. The third full moon in this series is referred to as a "Blue Moon."
    - Typically, each season spans about 3 months, allowing for 3 full moons. However, due to the <u>lunar cycle's</u> duration (about 29.5 days), occasionally, 4 full moons can occur within one season.
      - When this happens, the third of these four full moons is called a "Seasonal Blue Moon."



- Monthly Blue Moon: It is the second full moon in a single calendar month.
  - Since **full moons typically happen once a month**, having two in the same month is rare, making the **second one a "Blue Moon".**

• The upcoming Blue Moon on 31st May 2026, will be a monthly Blue Moon.

#### Formation:

- The moon phases complete a cycle in 29.5 days, resulting in 12 lunar cycles over 354 days.
  - Consequently, approximately every 2.5 to 3 years, a 13th full moon occurs within
    a calendar year, known as a Blue Moon, which does not follow the standard
    naming conventions.
- Since **February** has only 28 days in a regular year and 29 days in a leap year, **it can never have a Blue Moon.**

## **Instances When Moon Actually Appeared Blue Due to Atmospheric Conditions**

- **Eruption of Mt. Tambora in Indonesia (1815):** It was the most powerful eruption following the prior eruption of **Mayon** <u>volcano</u> in the Philippines.
  - This, along with other climatic factors, resulted in a significant global temperature drop of 0.4-0.7º C in 1816, leading to the phenomenon known as the 'year without summer.'
  - The volcanic ash and particles in the atmosphere during this time may have also caused the moon to appear blue.
- Eruption of the Indonesian volcano Krakatoa (1883): It produced ash that reached an altitude of 80 kilometers. The minute ash particles, approximately one micron in size, filtered the light and caused the moon to appear in a noticeable blue-green hue.
- 1983 El Chichon eruption in Mexico and those of Mt. St. Helens in 1980 and Mount Pinatubo in 1991, have also been associated with the phenomenon of blue moons.



# **UPSC Civil Services Examination Previous Year Question (PYQ)**

# Q. Recently, scientists observed the merger of giant 'blackholes' billions of light-years away from the Earth. What is the significance of this observation? (2019)

- (a) 'Higgs boson particles' were detected.
- **(b)** 'Gravitational waves' were detected.
- (c) Possibility of inter-galactic space travel through 'wormhole' was confirmed.
- (d) It enabled the scientists to understand 'singularity'.

Ans: (b)

