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## Space & Astronomy:

### Major Events

**Cygnus XL Delays Arrival at ISS:** The arrival of Northrop Grumman's new Cygnus XL cargo spacecraft at the International Space Station (ISS) has been delayed. The spacecraft, which launched on a SpaceX Falcon 9 rocket, experienced an unexpected early shutdown of its main engine during orbit-raising maneuvers. Ground controllers are now evaluating an alternate plan for the spacecraft to rendezvous with the ISS.

Cygnus XL is designed to deliver over 11,000 pounds of supplies and scientific experiments to the orbiting lab.

**Asteroid Flybys:** Two asteroids, 2025 QV9 and 2025 FA22, have recently made close but safe flybys of Earth.

Asteroid 2025 FA22, which is larger than Delhi's Qutub Minar, will pass Earth at a distance of about 842,000 kilometers, more than twice the lunar distance.

Asteroid 2025 QV9, about 100 feet wide, passed at a distance of approximately 1.25 million miles.

While these asteroids pose no immediate threat, their observation is crucial for refining orbital models and improving planetary defense strategies.

### Skywatching Highlights

**Total Lunar Eclipse:** A total lunar eclipse occurred, visible across Europe, Africa, Asia, Australia, and Antarctica. The event, where the

Moon passed completely into Earth's shadow, created a "Blood Moon" effect for observers in those regions.

**Planetary Viewing:** Tonight, observers can easily spot several planets in the sky.

The waning crescent Moon will appear near **Jupiter** and the stars of Gemini, Castor and Pollux, before dawn.

Later in the week, a lunar occultation will occur on September 19, where the Moon will pass in front of **Venus**, which will be visible to observers in parts of Europe and Africa.

**Saturn at Opposition:** Saturn is at its brightest this month, especially as it approaches opposition on September 21. During this time, Earth will be directly between the Sun and Saturn, making the ringed planet highly visible all night long. Its rings will also appear nearly edge-on.

### Scientific Discoveries

**Mars Perseverance Rover:** NASA's Perseverance rover has found potential biosignatures in a rock sample named "Sapphire Canyon" on Mars. After a year of peer review, the findings, which suggest clues of past microbial life, have been published. This discovery is a significant step in the search for ancient life on the Red Planet.

**Jupiter Auroras:** For the first time, NASA's Juno spacecraft has observed auroras on Jupiter that are linked to its largest moon, Callisto. This new discovery helps scientists better understand the interaction between Jupiter's moons and its magnetic field.





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## MCQS

- 1.What is the name of the rock sample on Mars where NASA's Perseverance rover has found potential biosignatures?
- A. "Redstone Mesa"
  - B. "Sapphire Canyon"
  - C. "Curiosity Peak"
  - D. "Valles Marineris"

**Answer:** B. "Sapphire Canyon"

The Mars Perseverance rover has discovered potential biosignatures, or clues of past microbial life, in a rock sample it collected from a location on Mars named "Sapphire Canyon."

- 2.What is the primary reason for the delay in the Cygnus XL cargo spacecraft's arrival at the International Space Station (ISS)?
- A. A collision with orbital debris.
  - B. An unexpected early shutdown of its main engine.
  - C. A navigation system malfunction.
  - D. The ISS's docking port is currently occupied.

**Answer:** B. An unexpected early shutdown of its main engine.

The Cygnus XL spacecraft experienced an early shutdown of its main engine during orbit-raising maneuvers, which has caused a delay in its scheduled rendezvous with the ISS.

- 3.Which planet is at its brightest this month and will be at opposition on September 21, making it highly visible all night?
- A. Mars
  - B. Jupiter
  - C. Saturn
  - D. Venus

**Answer:** C. Saturn







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Saturn is currently at its brightest and will reach opposition on September 21. During opposition, Earth is positioned directly between the Sun and Saturn, allowing the ringed planet to be visible throughout the night.

**4. For the first time, NASA's Juno spacecraft has observed auroras on Jupiter linked to which of its moons?**

- A. Io
- B. Europa
- C. Ganymede
- D. Callisto

**Answer:** D. Callisto

NASA's Juno spacecraft has made a new discovery, observing auroras on Jupiter that are associated with its moon, Callisto, which helps in understanding the planet's magnetic field and its interactions with its moons.



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