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Space & Astronomy:

Interstellar Visitor 3I/ATLAS

Astronomers have identified 3I/ATLAS, only the third interstellar object ever discovered in our solar system. This comet-like object is not in orbit around the Sun; rather, it is just passing through on a steep, hyperbolic trajectory at an extremely high velocity of nearly 60 km/s. It is estimated to be as large as 10 kilometers in diameter, which is much larger than its predecessors, 'Oumuamua and Borisov. The object's proximity and composition, including water ice, make it a valuable target for research. Observations from telescopes, including the James Webb Space Telescope (JWST), are providing data to help scientists learn more about its properties and origin.

JUICE Mission Venus Flyby

The Jupiter Icy Moons Explorer (JUICE) mission is performing a critical flyby of Venus today. This flyby is a key step in the spacecraft's long journey to Jupiter, which is scheduled to arrive in 2031. The gravitational assist from Venus will "kick" the spacecraft, saving a substantial amount of fuel and adjusting its trajectory toward its final destination. JUICE will use this opportunity to scan Venus and check the status of its instruments.

Other Skywatching Events

Iapetus reaches western elongation: Saturn's moon Iapetus is positioned at its greatest western elongation, making it appear brighter and offering a good opportunity for observers to spot it. Its distinct two-toned hemispheres make it a unique target.

Asteroid 2025 PM2: A near-Earth asteroid, 2025 PM2, is making a close flyby, passing about 2.31 million miles from Earth. Although it is large, it poses no threat. It is one of several asteroids being tracked by astronomers.

Moon and Antares: The half-lit Moon will appear close to the red supergiant star Antares in the constellation Scorpius. This is a good skywatching opportunity for observers.

The Pillow Planetary Nebula: NASA's Astronomy Picture of the Day for August 31, 2025, is the Pillow Planetary Nebula (NGC 7027), a small, unusually shaped nebula about 3,000 light-years away.

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MCQS

1.What makes 3I/ATLAS a valuable target for research?

- a) Its small size and high velocity.
- b) Its close proximity and composition, including water ice.
- c) Its circular orbit around the Sun.
- d) Its discovery by amateur astronomers.

Answer: b) Its close proximity and composition, including water ice.

The news states that the object's proximity and composition, which includes water ice, make it a valuable research target.

2.How does the size of 3I/ATLAS compare to its predecessors, 'Oumuamua and Borisov?

- a) It is much smaller.
- b) It is about the same size.

- c) It is much larger, estimated to be up to 10 kilometers in diameter.
- d) Its size is unknown.

Answer: c) It is much larger, estimated to be up to 10 kilometers in diameter.

The text specifies that 3I/ATLAS is estimated to be as large as 10 kilometers in diameter, which is "much larger" than its predecessors.

3.What is the main purpose of the JUICE mission's Venus flyby?

- a) To perform a close-up study of Venus's atmosphere.
- b) To take high-resolution images of Venus's surface.
- c) To receive a gravitational assist to save fuel and adjust its trajectory.
- d) To test the spacecraft's communication systems.

Answer: c) To receive a gravitational assist to save fuel and adjust its trajectory.

The flyby is described as a "critical step" where the gravitational assist from Venus will "kick" the spacecraft, saving fuel and adjusting its trajectory to Jupiter.

4.When is the JUICE spacecraft scheduled to arrive at Jupiter?

- a) 2028
- b) 2030
- c) 2031
- d) 2035

Answer: c) 2031

The news states that the spacecraft's arrival at Jupiter is scheduled for 2031.

5.Why is Iapetus a good target for observers to spot during its western elongation?

- a) It is the brightest object in the night sky.
- b) It has a distinctive red color.





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- c) It appears brighter and has unique two-toned hemispheres.
d) It is surrounded by a prominent ring system.

Answer: c) It appears brighter and has unique two-toned hemispheres.

The text explains that Iapetus appears brighter at its greatest western elongation and that its two-toned hemispheres make it a unique target.

6.What is the significance of the near-Earth asteroid 2025 PM2's flyby?

- a) It poses a threat to Earth.
b) It is a valuable target for a sample return mission.
c) It is a routine flyby that poses no threat.
d) It will enter Earth's atmosphere and burn up.

Answer: c) It is a routine flyby that poses no threat.

The news explicitly states that although the asteroid is large, it "poses no threat."



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