Psyche Mission

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Why in News?

Recently, NASA's Psyche spacecraft recently captured a rare crescent view of Mars during a gravity-assist flyby, offering valuable scientific observations as it continues its journey toward the metal-rich asteroid 16 Psyche.

Recent developments

- On 15 May 2025, Psyche passed within 4,609 km of the Martian surface.
- **Slingshot maneuver** – Is also known as a *gravity-assist flyby or slingshot.*
- It used Mars' gravitational pull to increase the spacecraft's speed and adjust its trajectory toward its final destination.
- According to NASA, the flyby boosted Psyche's velocity by nearly 1,000 miles per hour and altered its orbital path around the Sun by about one degree.
- **Image capture** – Using its multispectral imager, the spacecraft captured thousands of images of Mars, including a striking crescent view.
- This rare perspective was possible because Psyche approached the planet at a high phase angle, allowing sunlight to illuminate only a thin portion of the Martian disk.
- The images also revealed prominent geological features such as the Huygens double-ring crater and the heavily cratered southern highlands.

About the Psyche Mission

- **Launched by** – NASA
- **Launched in** – *October 2023.*
- **Aim** – To explore the metal-rich asteroid 16 Psyche.
- **Asteroid 16 Psyche** – located in the main asteroid belt between Mars and Jupiter.
- Scientists believe the asteroid may be rich in iron & nickel and could represent the exposed core of an early planetesimal, providing clues about the formation of rocky planets, including Earth.
- **Mission duration** – Spacecraft is expected to travel more than 3.6 billion km and arrive at the asteroid in 2029.
- After reaching its destination, it will spend 2 years orbiting 16 Psyche.
- **Conducting detailed studies** - Through imaging, surface mapping, and analysis of its composition, magnetic properties & internal structure.

Reference

The Indian Express| Pysche Mission



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