



# Chang'e-5 Mission: China

## Why in News

China has launched an **unmanned spacecraft** to bring back lunar rocks, the first attempt by any nation to retrieve samples from the Moon in **four decades**.

- The **Chang'e-5 mission**, named after the ancient Chinese goddess of the moon, will seek to collect lunar material to help scientists understand more about the moon's origins and formation.

## Key Points

- **Launch:** The **Long March-5 Y5 rocket**, carrying the **Chang'e-5 spacecraft**, was launched from **Wenchang Space Launch Center** (China).
- **Key Task of the Mission:** To drill 2 meters beneath the moon's surface and scoop up about 2 kilograms of rocks and other debris to be brought back to Earth.
  - It will **help scientists** learn about:
    - Moon's origins,
    - Volcanic activity on its surface and its interior, and
    - When its magnetic field, key to protecting any form of life from the sun's radiation dissipated.
- **Functioning:**
  - Upon entering the moon's orbit, the spacecraft is intended to deploy **a pair of vehicles to the lunar surface, a lander and an ascender**.
  - A lander will drill into the ground, then transfer its soil and rock samples to an ascender that will lift off and dock with an orbiting module.
    - There will be an attempt to collect 2 kg of samples in a previously unvisited area in a massive lava plain known as **Oceanus Procellarum, or "Ocean of Storms"**.
    - Area of the moon where the spacecraft is due to land is **1-2 billion years old**.
  - If this is successful, the samples will be **transferred to a return capsule** that will return them to Earth, with a landing in China's **Inner Mongolia region**.
  - The entire mission is scheduled to take around **23 days**.
- **Significance:** If the mission is **completed as planned**, it would make **China** only the **third country** to have retrieved lunar samples, joining the **United States** and the **Soviet Union**.
  - The **Apollo programme** (which first put men on the moon), the **United States** landed 12 astronauts over six flights from 1969 to 1972, bringing back 382 kg of rocks and soil.
  - **The Soviet Union Lead Luna:** Deployed three successful robotic sample return missions in the 1970s. The last, the Luna 24, retrieved samples in 1976 from **Mare Crisium, or "Sea of Crises"** - a lunar basin.
  - The **Apollo-Luna sample** zone of the moon, while critical to our understanding, was undertaken in **an area that comprises far less than half the lunar surface**.
  - Subsequent data from orbital remote sensing missions have shown a wider diversity of rock types, mineralogies and ages than represented in the **Apollo-Luna sample collections**.

#### ▪ China's Moon Missions:

- China made its **first lunar landing** in 2013.
- In January 2019, the **Chang'e-4 probe** touched down on the far side of the moon, the **first by any nation's** space probe.
  - Chang'e is a series of lunar probes launched by China National Space administration.

#### ▪ China's Other Space Plans:

- It aims to have a **permanent manned space station in service by around 2022.**
- Within the next decade, China **plans to establish a robotic base station** to conduct unmanned exploration in the **south polar region of the moon.**

- It is to be developed through the Chang'e-6, 7 and 8 missions through the 2020s.

#### ▪ Other Important Mission to Moon:

- **Chandrayaan 3** by **ISRO**
- **Artemis Mission** by **National Aeronautics and Space Administration (NASA)**

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