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Artemis II — First Crewed Lunar Mission in 53 Years and India's Space Diplomacy

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On this Page

WHY IN NEWS

NASA launched Artemis II on April 1, 2026 — a 10-day crewed circumlunar flyby mission that marks humanity's first journey beyond low Earth orbit since Apollo 17 in December 1972. India, a signatory to the Artemis Accords since June 2023, has a direct strategic and scientific stake in the mission's success.

THE MISSION — WHAT ARTEMIS II DOES

Mission Profile

Artemis II is **not a lunar landing**. It is a **crewed test flight** — the first time human beings will venture to the Moon's vicinity since Apollo 17. The Orion spacecraft, with four astronauts aboard, will complete a free-return trajectory around the Moon and return to Earth.

Why this trajectory? A free-return path uses the Moon's gravity to swing the spacecraft back to Earth without requiring a propulsive burn for return — maximising safety margins for a first crewed flight. If engines fail, the Moon's gravity automatically returns the crew to Earth.

The Crew

ASTRONAUT	ROLE	SIGNIFICANCE
Reid Wiseman (NASA, USA)	Commander	Oldest person to leave low Earth orbit
Victor Glover (NASA, USA)	Pilot	First person of colour beyond low Earth orbit
Christina Koch (NASA, USA)	Mission Specialist	First woman in lunar vicinity
Jeremy Hansen (CSA, Canada)	Mission Specialist	First non-US citizen beyond low Earth orbit; first to lunar vicinity

Launch Vehicle and Spacecraft

Space Launch System (SLS) Block 1:

- Height: 98 metres (taller than Saturn V at 111m, but comparable in power)
- Thrust: ~39.1 MN at launch (core stage + 4 RS-25 engines + 2 solid rocket boosters)
- Second flight of SLS (first crewed)

Orion Spacecraft:

- Crewed module designed for deep space; not intended for LEO rotation
- Life support for up to 21 days
- First crewed flight (Artemis I's Orion was uncrewed, November 2022)
- European Service Module (ESM) provided by ESA — critical international contribution

THE ARTEMIS PROGRAMME — ARCHITECTURE

Three-Phase Strategy

MISSION	YEAR	GOAL
Artemis I	November 2022	Uncrewed circumlunar flyby — SLS/Orion systems test (success)
Artemis II	April 2026	First crewed circumlunar flyby — life support, navigation, re-entry test
Artemis III	TBD (2027+)	First crewed lunar landing since Apollo 17; first woman on Moon; landing near south pole

Why the South Pole?

Artemis III targets the lunar south pole — where permanently shadowed craters contain **water ice** deposits confirmed by ISRO's Chandrayaan-1 (2009, M3 instrument). Water ice = potential rocket propellant (H_2 + O_2 electrolysis) = the key to sustainable lunar operations and eventually Mars missions.

India's contribution to this discovery: The Moon Mineralogy Mapper (M3) instrument aboard Chandrayaan-1 first confirmed water ice absorption signatures at the lunar poles in 2009 — a finding that directly motivated Artemis's south-polar focus.

INDIA AND THE ARTEMIS FRAMEWORK

The Artemis Accords

India signed the **Artemis Accords** in June 2023 during PM Modi's Washington visit — becoming the 27th signatory nation. The Accords are a US-led multilateral framework for peaceful, transparent, and sustainable lunar and deep-space exploration.

Key provisions relevant to India:

- **Transparency:** nations commit to publishing space exploration plans
- **Interoperability:** common technical standards for rescue and docking
- **Space resources:** signatories may extract and use space resources (moon minerals, water ice) — a significant departure from the Outer Space Treaty's (1967) non-appropriation principle
- **Conflict zones:** no military activities in areas of scientific interest

India's strategic calculation: Signing the Accords aligns India with the US-led coalition (vs China-Russia's International Lunar Research Station, or ILRS, project) while preserving ISRO's autonomy.

ISRO-NASA Joint Projects

1. **NISAR (NASA-ISRO Synthetic Aperture Radar):** Joint Earth-observation satellite; dual-frequency SAR; launched 2025; monitors ice sheets, forests, sea level rise, earthquakes
2. **Commercial crew potential:** NASA has expressed interest in LVM3 (India's heavy-lift rocket) for commercial Artemis-related launches
3. **Gaganyaan-ISS collaboration:** India's crewed Gaganyaan mission (target 2026-27) includes an Indian astronaut training at NASA's Johnson Space Center

The Strategic Dimension

The Artemis programme is inseparable from US-China competition in space. China and Russia's ILRS aims to put a permanent lunar research station in operation by 2035. Both the US and China view the lunar south pole as strategically vital — for water ice, helium-3 (potential fusion fuel), and prestige.

India's signing of the Accords — without signing the China-Russia framework — is a deliberate foreign policy choice, consistent with the Quad partnership and India's deepening strategic alignment with the US in the Indo-Pacific.

APOLLO LEGACY AND WHAT CHANGED

Apollo 17 — The Last Moon Mission (1972)

Apollo 17 (December 7–19, 1972) carried Gene Cernan (Commander), Harrison Schmitt (LMP), and Ron Evans (CM Pilot). Cernan was the last human to walk on the Moon — his final words as he stepped off the surface: *"We leave as we came and, God willing, as we shall return."*

The 53-year gap (1972–2026) between Apollo 17 and Artemis II reflects:

- Post-Apollo budget cuts (Nixon administration reduced NASA funding by 30%)
- Space Shuttle era focus on LEO (1981–2011)
- ISS construction and operation (1998–present)
- Congressional funding volatility for deep-space missions

What Artemis Changes

Unlike Apollo (mission-by-mission, no infrastructure), Artemis aims for:

- **Lunar Gateway:** a small space station in lunar orbit (planned 2027+), with Canadian, ESA, JAXA participation
- **Permanent lunar surface presence** by the 2030s

- **Commercial lunar economy:** Artemis Commercial Lunar Payload Services (CLPS) — 14 companies contracted to deliver payloads to the Moon

UPSC RELEVANCE

Artemis II crew names and firsts; SLS; Orion; Artemis Accords (52 signatories); Apollo 17 (1972); Chandrayaan-1 water ice discovery (2009); NISAR; Lunar Gateway; CSA (Canadian Space Agency).

MAINS GS-3:

"India's space diplomacy — evaluate the Artemis Accords from the perspective of India's strategic interests in the Indo-Pacific."

MAINS GS-3:

"Assess the scientific and economic potential of lunar water ice for India's future deep-space missions."

INTERVIEW:

"Do you think India should prioritise the Moon over Mars? What does the Artemis Accords membership mean for India's strategic autonomy in space?"

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ARTEMIS II — MISSION DATA:

Launch: April 1, 2026; Kennedy Space Center (Launch Complex 39B)

Launch window: 6:24 PM ET (backup: April 2–6, 2026)

Duration: ~10 days; circumlunar free-return trajectory

Crew: Reid Wiseman (CDR), Victor Glover (PLT), Christina Koch (MS1), Jeremy Hansen (MS2)

Launch vehicle: SLS Block 1 (RS-25 engines + SRBs; thrust ~39.1 MN)

Spacecraft: Orion (NASA crewed module) + European Service Module (ESA)

Altitude from Moon surface at closest approach: ~7,600 km

ARTEMIS PROGRAMME CONTEXT:

Artemis I: November 16–December 11, 2022; uncrewed; successful

Artemis III: planned 2027+; first crewed lunar landing; south pole target; first woman/person of colour on Moon

Total NASA budget since 2012 (SLS/Orion programmes): ~$93 billion

APOLLO PROGRAMME REFERENCE:

Apollo 11: July 20, 1969 — first human Moon landing (Armstrong, Aldrin, Collins)

Apollo 17: December 1972 — last Moon landing; Gene Cernan last human on Moon

Total Apollo missions to Moon: 6 landings (Apollo 11, 12, 14, 15, 16, 17)

ARTEMIS ACCORDS:

Signatories: 52 nations (as of 2026); India signed June 2023

Contrasting framework: China-Russia International Lunar Research Station (ILRS)

Key provision (controversial): space resource utilisation permitted

INDIA'S SPACE PROGRAMME LINKS:

Chandrayaan-1 (2008-09): discovered water ice at lunar poles (M3 instrument, NASA instrument aboard)

Chandrayaan-3: July 2023 — first soft landing near lunar south pole (Vikram lander, Pragyan rover)

NISAR: India-NASA SAR satellite; launched 2025

Gaganyaan: India's crewed mission; target 2026-27; Shubhanshu Shukla (IAF, trained at NASA) — crew

Aditya-L1: India's first solar mission; inserted at L1 January 6, 2024

OTHER RELEVANT FACTS:

Outer Space Treaty (OST) 1967: prohibits national appropriation of Moon — Artemis Accords' resource clause is legally contested under OST

Lunar Gateway: small lunar-orbit space station; international partners: NASA, ESA, JAXA, CSA; planned ~2027-28

Helium-3: rare isotope abundant on Moon; potential fuel for fusion reactors

ISS altitude: ~420 km; Moon distance: ~384,400 km average (perigee: ~362,600 km)

Sources: NASA Artemis II , PIB , InsightsIAS

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