

IN A HISTORIC FIRST, PAKISTAN'S FIRST LUNAR ORBITER TAKES OFF ABOARD CHINESE MISSION

■ PAKISTANI SATELLITE PART OF CHINA'S CHANG'E-6 LUNAR MISSION LAUNCHED FROM HAINAN

■ CHANG'E-6 AIMS TO COLLECT AROUND 2KG OF LUNAR SAMPLES FROM FAR SIDE OF MOON AND BRING THEM BACK

ISLAMABAD
STAFF REPORT

PAKISTAN'S space programme achieved a historic milestone on Friday as the country's first-ever lunar orbiter lifted off from China's Hainan Space Launch Site. The Pakistani satellite is part of China's Chang'e-6 lunar mission, which was launched from Hainan, China, on Friday.

The mission, which aims to explore the moon's "dark side", will employ lunar research payloads from multiple countries, including Pakistan's iCube-Qamar satellite.

The launch of satellite ICUBE-Qamar was telecast live from the Institute of Space Technology's (IST) website.

The journey towards sending a lunar orbiter commenced in 2022, when the China National Space Agency (CNSA), in collaboration with the Asia Pacific Space Cooperation Organization (APSCO), extended an invitation to member states to contribute a student-built payload for the Chang'e-6 mission to Earth's nearest celestial body.

The Institute of Space Technology (IST) on Tuesday said Pakistan's "historic" lunar module iCube-Q, which was designed by IST in collaboration with China's Shanghai University (SJTU) and Pakistan's national space agency Suparco, will be aboard Chang'e-6.

The mission, dubbed Chang'e, is named after the mythical Chinese moon goddess.

Chang'e-6 aims to collect around two kilograms of lunar samples from the far side of the Moon and bring them back to Earth for analysis. Chinese state news agency Xinhua hailed it as "the first endeavour of its kind in the history of human lunar exploration".

"Chang'e-6 will collect samples from the far side of the Moon for the first time," Ge Ping, vice director of China's Lunar Exploration and Space Engineering Centre, told journalists.



China will send a robotic spacecraft in the coming days on a round trip to the moon's far side in the first of three technically demanding missions that will pave the way for an inaugural Chinese crewed landing and a base on the lunar south pole.

The probe is set to land in the immense South Pole-Aitken Basin, one of the largest known impact craters in the solar system. Once there, it will scoop up lunar soil and rocks, and carry out other experiments in the landing zone.

With no direct line of sight with the Earth, Chang'e-6 must rely on a recently deployed relay satellite orbiting the moon during its 53-day mission, including a never-before-attempted ascent from the moon's "hidden" side on its return journey home.

On Chang'e-6, China is carrying payloads from France, Italy, Sweden and Pakistan, while Chang'e-7 will bear payloads from Russia, Switzerland and Thailand when it launches in 2026.

Nasa is banned by US law from any collaboration, direct or indirect, with China.

Under the separate Nasa-led Artemis programme, US astronauts will land near the south pole in 2026 — the first hu-

mans on the moon since 1972.

ICUBE-Qamar

The 'iCube-Qamar' (iCube-Q) was submitted as a proposal for a lunar CubeSat by the IST. The proposal was selected after an evaluation process.

The development of the payload is a collaborative effort between IST's students and faculty, SUPARCO and China's Shanghai Jiao Tong University (SJTU).

The payload comprises three components: the CubeSat, the separation mechanism, and the mounting bracket. With a weight of approximately 7 kilograms, it houses two cameras for capturing images of the lunar surface, along with various sensors and equipment for deep-space communication, altitude control, and other operational tasks.

The primary measure of mission success hinges on the seamless separation of the iCube-Q CubeSat into lunar orbit from the Chang'e-6 Orbiter. Subsequently, the secondary objective involves confirming the orbiter's functionality through the reception of the beacon signal emitted by iCube-Q.

Upon successful separation, the orbiter will undertake Earth and lunar imaging tasks, aiming to capture images featuring at least two celestial objects to-

gether, such as the Earth, Moon, and the orbiter itself.

In addition to imaging tasks, iCube-Q will gather data on the lunar magnetic field, facilitating the establishment of a lunar magnetic field model. This endeavor holds promise for future missions and international collaboration efforts concerning lunar exploration.

Congratulations

President Asif Ali Zardari and Prime Minister Shehbaz Sharif congratulated the nation on the successful launch of Pakistan's maiden lunar mission.

State-run broadcaster Radio Pakistan reported that the president congratulated the IST, Suparco and the China National Space Administration on the achievement.

He said the successful launch would be a "milestone" for Pakistan's space programme. The president also commended the cooperation between Pakistan and China in aerospace.

PM Shehbaz hailed the iCube-Q satellite as "Pakistan's first step in space" and said that Pakistani scientists and engineers were "proving their mettle ... like the expertise they exhibited in the nuclear technology [programme]".

The prime minister said that Pakistan and China's friendship, which was "higher than Himalayas, deeper than ocean, and sweeter than honey" had now "crossed the frontiers of space".

The premier watched the live launch of the mission. The acceptance of Pakistan's mission among eight countries was the recognition of the capabilities of the country's scientists and experts, he added.

"This is a historic milestone in the technological development. By this achievement, Pakistan has entered a new era of exploring space for productive purposes," the prime minister remarked.

PM Shehbaz said the achievement would help build Pakistan's capacity in the satellite communications besides opening up new avenues for scientific research, economic development and national security.

➔ CONTINUED ON PAGE 03

In a historic first, Pakistan's first lunar orbiter takes off aboard Chinese mission

CONTINUED FROM PAGE 01

"Our sons of soil have proved that they have the capability, passion and expertise to explore space. God willing, Pakistan will achieve excellence in the fields of space and economy too as it had done in the field of nuclear technology on May 28, 1998."

By realising the dream of self-

dependence in the communications infrastructure, Pakistan will "join the comity of nations playing a leading role in the sector", he remarked.

Calling Pakistan's development in science and technology, modern sciences and skill development the need of the hour, the prime minister reiterated the resolve to uplift the country's youth in the said fields to ensure that the

country achieved "excellence" in the field of inventions.

Deputy Prime Minister and Foreign Minister Ishaq Dar took to X to "congratulate the young Pakistani students and scientists on the launch" of the lunar mission. "Today's launch from Hainan ... is a good example of countries and organisations coming together for space cooperation and shared benefits," he added.