Chandrayaan 3

Chandrayaan-3

Chandrayaan-3 (CHUN-dr?-YAHN /?t??ndr??j??n/) is the third mission in the Chandrayaan programme, a series of lunar-exploration missions developed by the - Chandrayaan-3 (CHUN-dr?-YAHN) is the third mission in the Chandrayaan programme, a series of lunar-exploration missions developed by the Indian Space Research Organisation (ISRO). The mission consists of a Vikram lunar lander and a Pragyan lunar rover, as replacements for the equivalents on Chandrayaan-2, which had crashed on landing in 2019.

The spacecraft was launched on July 14, 2023, at 14:35 IST from the Satish Dhawan Space Centre (SDSC) in Sriharikota, India. It entered lunar orbit on 5 August, and touched down near the lunar south pole, at 69°S, on 23 August 2023 at 18:04 IST (12:33 UTC). With this landing, ISRO became the fourth national space agency to successfully land on the Moon, after the Soviet space program, NASA and CNSA, and the first national space agency to achieve a soft landing near the lunar south pole.

The lander was not built to withstand the cold temperatures of the lunar night, so it was shut down at sunset over the landing site, twelve days after landing. The orbiting propulsion module remained operational and was repurposed for scientific observations of Earth; it was shifted from lunar orbit to a high Earth orbit on 22 November 2023,where it remaines in service .

Pragyan (Chandrayaan-3)

Sanskrit: prajñ?na, lit. 'wisdom') is a lunar rover that forms part of Chandrayaan-3, a lunar mission developed by the Indian Space Research Organisation - Pragyan (from Sanskrit: prajñ?na, lit. 'wisdom') is a lunar rover that forms part of Chandrayaan-3, a lunar mission developed by the Indian Space Research Organisation (ISRO).

A previous iteration of the rover, also named Pragyan, was launched as part of Chandrayaan-2 on 22 July 2019 and was destroyed with its lander, Vikram, when it crashed on the Moon on 6 September. Chandrayaan-3 launched on 14 July 2023, carrying new versions of Vikram and Pragyan, which successfully landed near the lunar south pole on 23 August 2023.

Chandrayaan programme

The Chandrayaan programme (/?t??ndr??j??n/ CHUN-dr?-YAHN) (Sanskrit: Candra 'Moon', Y?na 'Craft, Vehicle', pronunciation) also known as the Indian Lunar - The Chandrayaan programme (CHUN-dr?-YAHN) (Sanskrit: Candra 'Moon', Y?na 'Craft, Vehicle',) also known as the Indian Lunar Exploration Programme is an ongoing series of outer space missions by the Indian Space Research Organisation (ISRO) for the exploration of the Moon. The program incorporates a lunar orbiter, an impactor, a soft lander and a rover spacecraft.

There have been three missions so far with a total of two orbiters, landers and rovers each. While the two orbiters were successful, the first lander and rover which were part of the Chandrayaan-2 mission, crashed on the surface. The second lander and rover mission Chandrayaan-3 successfully landed on the Moon on 23 August 2023, making India the first nation to successfully land a spacecraft in the lunar south pole region, and the fourth country to soft land on the Moon after the Soviet Union, the United States and China.

Chandrayaan-4

Chandrayaan-4 (pronunciation; from Sanskrit: Chandra, "Moon" and y?na, "craft, vehicle") is a planned lunar sample return mission of the Indian Space - Chandrayaan-4 (; from Sanskrit: Chandra, "Moon" and y?na, "craft, vehicle") is a planned lunar sample return mission of the Indian Space Research Organisation (ISRO) and the fourth iteration in its Chandrayaan lunar exploration programme. As of January 2025 the conceptualisation phase has been completed, and the design phase is nearing completion. The mission is expected to launch around 2027. It is planned to return up to 3 kg (6.6 lb) of lunar regolith from near Shiv Shakti point, the landing site of Chandrayaan-3.

National Space Day (India)

National Space Day in India commemorates the successful landing of Chandrayaan-3 on the Moon. It is celebrated on 23 August. On 23 August 2023, the Indian - National Space Day in India commemorates the successful landing of Chandrayaan-3 on the Moon. It is celebrated on 23 August.

Chandrayaan-2

Chandrayaan-2 (pronunciation; from Sanskrit: Chandra, "Moon" and y?na, "craft, vehicle") is the second lunar exploration mission developed by the Indian - Chandrayaan-2 (; from Sanskrit: Chandra, "Moon" and y?na, "craft, vehicle") is the second lunar exploration mission developed by the Indian Space Research Organisation (ISRO) after Chandrayaan-1. It consists of a lunar orbiter, the Vikram lunar lander, and the Pragyan rover, all of which were developed in India. The main scientific objective is to map and study the variations in lunar surface composition, as well as the location and abundance of lunar water.

The spacecraft was launched from the second launch pad at the Satish Dhawan Space Centre in Andhra Pradesh on 22 July 2019 at 09:13:12 UTC by a LVM3-M1 rocket. The craft reached lunar orbit on 20 August 2019. The Vikram lander attempted a lunar landing on 6 September 2019; the lander crashed due to a software error.

The lunar orbiter continues to operate in orbit around the Moon. A follow-up landing mission, Chandrayaan-3, was launched in 2023 and successfully performed a lunar landing.

Pragyan (Chandrayaan-2)

part of Chandrayaan-2, a lunar mission developed by the Indian Space Research Organisation (ISRO). The rover was launched as part of Chandrayaan-2 on 22 - Pragyan (from Sanskrit: prajñ?na, lit. 'wisdom') is a lunar rover that forms part of Chandrayaan-2, a lunar mission developed by the Indian Space Research Organisation (ISRO). The rover was launched as part of Chandrayaan-2 on 22 July 2019 and was destroyed with its lander, Vikram, when it crashed on the Moon on 6 September 2019.

In July 2023, Chandrayaan-3 launched, carrying new versions of Vikram and Pragyan, which successfully landed near the lunar south pole on 23 August 2023.

Lunar Polar Exploration Mission

The Lunar Polar Exploration Mission (LUPEX) (also called as Chandrayaan-5) is a planned joint lunar mission by the Indian Space Research Organisation - The Lunar Polar Exploration Mission (LUPEX) (also called as Chandrayaan-5) is a planned joint lunar mission by the Indian Space Research Organisation (ISRO) and Japan Aerospace Exploration Agency (JAXA). The mission would send an uncrewed lunar lander and

rover to explore the south pole region of the Moon no earlier than 2028. It is envisaged to explore the permanently shadowed regions and to determine the quantity and quality of water on the Moon. JAXA is likely to provide the H3 launch vehicle along with instruments and ISRO would be providing the lander. Both sides will also develop a 250kg lunar rover.

LUPEX will follow the planned lunar sample-return mission Chandrayaan-4.

Chandrayaan-1

Chandrayaan-1 (pronunciation; from Sanskrit: Chandra, "Moon" and y?na, "craft, vehicle") of the Chandrayaan programme, was the first Indian lunar probe - Chandrayaan-1 (; from Sanskrit: Chandra, "Moon" and y?na, "craft, vehicle") of the Chandrayaan programme, was the first Indian lunar probe. It was launched by the Indian Space Research Organisation (ISRO) in October 2008, and operated until August 2009. The mission consisted of an orbiter and an impactor. India launched the spacecraft using a PSLV-XL (C-11) rocket on 22 October 2008 at 00:52 UTC from Satish Dhawan Space Centre (SDSC), at Sriharikota, Andhra Pradesh. The mission was a major boost to India's space program, as India researched and developed its own technology to explore the Moon. The vehicle was inserted into lunar orbit on 8 November 2008.

On 14 November 2008, the Moon Impact Probe separated from the Chandrayaan orbiter at 14:36 UTC and struck the south pole in a controlled manner. The probe hit near the crater Shackleton at 15:01 UTC. The location of the impact was named Jawahar Point. With this mission, ISRO became the fifth national space agency to reach the lunar surface. Other nations whose national space agencies achieved similar feats were the former Soviet Union in 1959, the United States in 1962, Japan in 1993, and European Space Agency member states in 2006.

The estimated cost for the project was ?386 crore (US$88.73 million). It was intended to survey the lunar surface for over two years, to produce a complete map of the chemical composition at the surface and its three-dimensional topography. The polar regions were of special interest as there was a high chance of finding water ice. One of its many achievements was the discovery of the widespread presence of water molecules in lunar soil.

After almost a year, the orbiter started experiencing several technical issues including failure of the star tracker and poor thermal shielding; Chandrayaan-1 stopped communicating at about 20:00 UTC on 28 August 2009, shortly after which the ISRO officially declared that the mission was over. Chandrayaan-1 operated for 312 days as opposed to the intended two years; however, the mission achieved most of its scientific objectives, including detecting the presence of Lunar water.

On 2 July 2016, NASA used ground-based radar systems to relocate Chandrayaan-1 in its lunar orbit, almost seven years after it shut down. Repeated observations over the next three months allowed a precise determination of its orbit which varies between 150 and 270 km (93 and 168 mi) in altitude every two years.

Moon landing

Chandrayaan-3 module in the lunar south pole region, making India the fourth nation to successfully complete a soft landing on the Moon. Chandrayaan-3 - A Moon landing or lunar landing is the arrival of a spacecraft on the surface of the Moon, including both crewed and robotic missions. The first human-made object to touch the Moon was Luna 2 in 1959.

In 1969, Apollo 11 was the first crewed mission to land on the Moon. There were six crewed landings between 1969 and 1972, and numerous uncrewed landings. All crewed missions to the Moon were conducted by the Apollo program, with the last departing the lunar surface in December 1972. After Luna 24 in 1976, there were no soft landings on the Moon until Chang'e 3 in 2013. All soft landings took place on the near side of the Moon until January 2019, when Chang'e 4 made the first landing on the far side of the Moon.