

Experts Unveil China's Space Ambitions for Deep Space Exploration

China is pursuing a number of ambitious plans to explore deep space. These range from searching for water on the moon to returning samples from Mars. The long-term goal is to explore the outer regions of the solar system, Chinese experts explained.



The Long March 2F carrier (upper section with capsule) at Shenzhen Science & Technology Museum (credit VCG)

"Scientists around the world believe that water exists on the Moon, but so far no one has found it. Now China will search for it. We will employ various methods, from surface surveys to exploring the interiors of craters," said Ye Peijian, a member of the Chinese Academy of Sciences.

The Chang'e-7 probe consists of an orbiter, a lander, a rover, a hopper, and a relay satellite. At the Moon's south pole are craters that never receive sunlight. Scientists suspect that large reserves of water ice exist there. However, no spacecraft has yet ventured into these regions to investigate. With its specially designed hopper, Chang'e-7 will be the first to explore such a permanently shadowed lunar crater up close.

Researchers at the space laboratory of Harbin University of Technology in northeastern China's Heilongjiang Province are currently conducting experiments to assist the Chang'e-7 mission in locating water ice.

"We have just created a lunar soil simulation for the Moon's polar region. Next, we will use this experimental setup to produce water ice. The equipment can first create a vacuum environment like that on the Moon. It can also cool the lunar mineral material to minus 240 degrees Celsius. Subsequently, a water molecule excitation device generates a continuous stream of water molecules. When these come into contact with the cold lunar soil, they are adsorbed and deposited, forming ice. Using special tools and molds, we can thus produce samples of lunar water ice," explained Zhang Weiwei, Associate Professor at the Department of Mechatronics, Harbin University of Technology.

Alongside its lunar missions, China's planetary exploration program, the *Tianwen* series, is also progressing rapidly.

"The Tianwen-2 mission is a star hunt, aiming to collect samples from a small near-Earth body and return them to Earth. Tianwen-3 aims to return samples from Mars to Earth. Tianwen-4 is our mission to explore Jupiter. I think this demonstrates our ability and resources to expand our horizons from Earth and near-Earth lunar space into interplanetary space, and in the future, even to the entire solar system and beyond," said Sun Zezhou, a deputy of the National People's Congress and a researcher at the Fifth Academy of the China Aerospace Science and Technology Corporation.

China's ambitions in deep space exploration extend beyond the *Chang'e* and *Tianwen* missions. With plans to explore the Sun, the outer reaches of the solar system, and Venus, the country is building a comprehensive deep space exploration system. This is intended to cover the space from Earth and the Moon, through Mars and small bodies, to other planets.

Reference:

Translated reprint (07:55:05 2026-03-12):

<https://german.cgtn.com/2026/03/12/ARTI1773298487247793>