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China, France join hands in space mission

Experts hail prospects for cooperation in Chang'e 6 expedition and beyond

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There are solid reasons that China and France should join hands in space exploration and development, industry observers said.

Pang Zhishao, an expert on space exploration technology and a renowned writer on spaceflight, said on Wednesday that both countries have their own advantages and can complement each other in space programs.

The observer's remarks came after the two nations said in a joint declaration that they welcome the cooperation between their space institutions regarding the Chang'e 6 probe and joint studies of extraterrestrial samples.

The document was released by the two nations during French President Emmanuel Macron's recent visit to China.

The Chang'e 6 mission, China's next robotic expedition to the moon, will enable French scientists to place their equipment on the silver celestial body's little-known far side, according to China's leading space contractor.

China Aerospace Science and Technology Corp, a State-owned conglomerate, said on Monday that based on a plan made by China and France in 2019, the Chang'e 6 will take a French device to the moon for scientific tasks.

The Chang'e 6 mission, scheduled for launch around 2025, will involve an on-site investigation, the retrieval of samples from the far side of the moon, and systematic and long-term laboratory research on samples collected.

If the mission succeeds, it will become the first time for humanity to retrieve samples from the far side.

"China is good at designing and building sophisticated spacecraft and organizing grand space programs. It also has a lot of science and technology resources as well as engineering expertise that can be used in space explorations," said Pang. "Meanwhile, France is skilled in making some delicate scientific instruments that are essential in many space projects. It also has abundant knowledge of space science."

Putting their strengths together will enable both sides to create more opportunities for their scientists and engineers, achieve goals

with smaller investments and in less time, and learn from each other's experience, according to Pang.

Wang Yanan, editor-in-chief of Aerospace Knowledge magazine, said that as China has opened its space station and deep-space missions to international cooperation, French and other European researchers are keen to take advantage of the opportunities to boost their science and technology studies. Likewise, Chinese scientists are happy to work with their European counterparts to explore the mysteries of the universe, he added.

The China National Space Administration announced payload opportunities on the Chang'e 6 spacecraft in April 2019, offering to carry a total of 10 kilograms of foreign equipment on the mission's lander and orbiter.

Since then, the administration has received more than 20 piggyback proposals from foreign space agencies and scientists.

After rounds of selection and talks, the administration decided that the Chang'e 6's lander will carry scientific instruments from France, Italy and the European Space Agency/Sweden, and a Pakistani payload will be mounted on the orbiter.

According to the French space agency CNES, the French instrument on the lander will be the DORN radon measurement instrument designed to study the transport of lunar dust and other volatile chemicals between the lunar soil and the atmosphere, including during the water cycle.

China began its lunar program in 2004 and has launched five robotic probes since 2007. The fourth in the series, the Chang'e 4, landed on the far side of the moon in January 2019, becoming the first spacecraft to closely observe this lunar region. Its rover, named Yutu 2, has been working there for nearly 1,600 days as the world's longest-operating lunar rover.

Chang'e 4 carried German and Swedish sensing devices to the moon.

The most recent mission, the Chang'e 5, landed on the moon in December 2020 and returned 1,731 grams of lunar rocks and soil to Earth, achieving a historic accomplishment about 44 years after the last lunar substances were brought back from our nearest celestial neighbor.