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100 space missions planned for this year

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China plans to carry out about 100 space missions this year, making it a very busy time for the nation's space industry.

The record-setting launch schedule was unveiled on Monday by China Aerospace Science and Technology Corp, a State-owned conglomerate and the nation's leading space contractor, at a news conference in Beijing. The company will be responsible for nearly 70 of the planned missions, deploying over 290 spacecraft into orbit, said Ma Tao, deputy head of its space program planning department.

Notable spaceflights for the year will include two crewed journeys and two cargo missions to the Tiangong space station, the Chang'e 6 robotic expedition to the moon's far side, and the maiden flights of the Long March 6C and Long March 12 carrier rockets.

Experts said the year's most significant launch will be the Chang'e 6 expedition, tasked with bringing back the first samples from the little-known lunar far side.

"If everything goes according to plan, the spacecraft will touch down in the South Pole-Aitken Basin, and collect dust and rock samples from there," Ma said.

The United States, the former Soviet Union and China have brought lunar samples back to Earth, but none of these countries have ever obtained samples from the moon's far side, most of which is never visible from Earth.

Ma said the space contractor will launch several state-of-the-art spacecraft this year, ranging from a satellite dedicated to monitoring ocean salinity to an astronomical satellite jointly made by Chinese and French scientists.

The majority of the planned launches will be conducted by the State-owned company's Long March rocket family, with additional launches by its secondary rocket series called Smart Dragon, China Aerospace Science and Industry Corp's Kuaizhou fleet, and several models from private companies.

Ma said his company will also continue its efforts in the research, development and construction of over 200 spacecraft to be launched in the coming years. They include a new-generation crewed spaceship, the Chang'e 7 lunar probe, the Tianwen 2 asteroid explorer and several advanced satellites.

The company will build more than 230 rockets in 2024, which will be used this year and in the coming years, he added.

Last year, China ranked second globally in terms of launch numbers. It carried out 67 rocket launches, with 47 involving the Long March family, all of which were successful.

Besides State-owned contractors, private enterprises have become a new power in China's rocket industry, with their growth being fast-tracked. Twelve rockets built by Chinese private companies were used last year to send satellites into space, far more than in previous years.

Long March 12 to debut this year

Wider body will give country's new carrier rocket greater carrying capacity

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China has developed a new type of carrier rocket that is expected to make its debut flight this year, according to a designer.

Zeng Wenhua, a structural designer at the Shanghai Academy of Spaceflight Technology, said on Monday that the research and development stage of the Long March 12, the latest model in the Long March family, has been completed at the academy, a subsidiary of State-owned conglomerate China Aerospace Science and Technology Corp.

Assembly and testing of the first Long March 12 rocket is underway at the academy, she said, adding that the maiden flight has been scheduled to take place this year at the Hainan International Commercial Aerospace Launch Center in Wenchang, Hainan province. The center is under construction and is expected to start formal operations in June.

The Long March 12 will become the first Chinese rocket with a diameter of 3.8 meters — most Chinese rockets have a diameter of 3.35 meters — and will have two stages. It will be more than 60 meters tall, Zeng said.

A wider body means the rocket can contain more propellants than 3.35-meter-wide models, giving it greater carrying capacity, she said.

She said the rocket's medium-sized body would allow it to be conveniently transported by rail

to China's inland launch centers. Propelled by six liquid oxygen-kerosene-fueled engines, the model will be capable of transporting spacecraft with a combined weight of about 10 metric tons to a low-Earth orbit or six tons of satellites to a typical sun-synchronous orbit at an altitude of 700 kilometers, Zeng said.

"The Long March 12 incorporates a number of new technologies and will feature high reliability and multiple functions," she said.

"Its service will extensively improve our country's capability to send spacecraft to a sun-synchronous orbit and deploy multi-satellite networks in low orbits."

Zeng said a major new feature of the rocket is that it will have an automatic ignition-malfunction detection system. "The system will be able to detect any anomaly after the rocket is ignited and will cease the launch sequence and prevent the vehicle from lifting off by use of a special tether device," Zeng said, noting the Long March 12 will be the first Chinese rocket equipped with such a system.

In addition to the Long March 12, the Long March 6C, a new variant in the Shanghai academy's Long March 6 series, is also scheduled to make its first flight this year.

The two-stage variant will mainly be used to transport small and mid-sized satellites to sun-synchronous orbits, said Yu Yansheng, one of its chief designers.