



## Shenzhou XIX crew members in spacewalk

By ZHAO LEI  
[zhaolei@chinadaily.com.cn](mailto:zhaolei@chinadaily.com.cn)

Shenzhou XIX mission crew members conducted their first spacewalk outside the Tiangong space station on Tuesday, completing several assignments, according to the China Manned Space Agency.

The agency said in a news release that mission commander Senior Colonel Cai Xuzhe and crew member Lieutenant Colonel Song Lingdong returned to the Wentian science module at 9:57 pm after floating nine hours outside the colossal orbital station. The third crew member, Lieutenant Colonel Wang Haoze, stayed inside Tiangong to provide support, it said.

With support from ground controllers and the use of a robotic arm, the team completed all their assigned tasks, including installing space debris shield devices and checking the condition of extravehicular equipment, the agency said.

It was the 18th spacewalk carried out by Chinese astronauts and the longest such operation by this country so far. Next, they will carry out a large amount of scientific experiments and technological tests, and will conduct multiple spacewalks and payload deployment operations, according to the release.

This has been the third time for Cai to carry out a spacewalk. He made two spacewalks during his first orbital journey in the Shenzhou XIV mission in the second half of 2022.

Meanwhile, Song has become the first Chinese person from the post-1990 generation to have taken part in a spacewalk.

The Shenzhou XIX trio, the eighth group of inhabitants of the Chinese space station, were launched on Oct. 30 by a Long March 2F carrier rocket from the Jiuquan Satellite Launch Center in northwestern China and arrived at the orbital outpost later that day to take over from their peers in the Shenzhou XVIII flight.

Over the past 49 days, the astronauts had completed various tasks, including station maintenance, spacesuit checks, emergency response drills and medical aid rehearsals.

The crew is expected to return to Earth in late April or early May.

Orbiting Earth at distance of about 400 kilometers, the Chinese space station has three permanent parts — a core module and two science capsules — and is regularly connected to several visiting crew and cargo spaceships. It weighs about 100 metric tons and is expected to operate for at least 10 years as a national space-based platform for science and technology.

## Ending the year with one more Long March

A Long March 2D rocket launched in Shanxi province on Tuesday successfully placed four PIESAT-2 satellites into their designated orbits.

Among the nine launches of the Long March rockets this year, this last one stands out as it involved sending four satellites into space via a single rocket. To meet the requirements for satellite deployment, the rocket has a diameter of 3.8 meters. Its larger internal space allows for omnidirectional wave transmission, providing ample space for the satellites and making satellite-to-ground communication more convenient.

Reports indicate that next year, at least eight more satellites of the PIESAT-2 series will be launched, includ-

ing four sun-synchronous orbit X-SAR satellites and four low-angle C-SAR satellites. The 20 satellites in orbit will fully realize global network operations, significantly enhancing satellite response capabilities.

During the launch of the Long March 2D rocket, its team encountered snowy weather, with temperatures dropping below minus 20 degrees Centigrade. Low temperatures are always a challenge for the aerospace industry. In 1986, the US space shuttle Challenger blew up primarily because extremely low temperatures caused rubber O-rings in the solid rocket boosters to become brittle and fail to seal properly.

More than 30 years later, human

space technology has made significant leaps forward, but dealing with low temperatures remains a concern. To mitigate the adverse effects of cold weather, researchers applied thermal insulation layers to the rocket's fairing and critical sections and used ground air ducts at the launch tower to continuously supply warm air to the rocket.

This mission marks the 553rd flight of the Long March rocket series. Years of continuous flights have fully demonstrated its excellent performance and high reliability, providing a strong endorsement for Chinese rockets to serve the world.

— ZHANG ZHOUXIANG, CHINA DAILY