

Cargo spacecraft burns up as planned on Earth reentry

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China's Tianzhou 5 cargo spacecraft burned up as it reentered Earth's atmosphere as planned on Tuesday morning, according to the China Manned Space Agency.

The agency said in a news release that, under ground control guidance, the robotic craft flew back into the atmosphere at 9:13 am. After that, most of the spaceship burned up, and a small amount of debris fell into secure areas in the South Pacific Ocean.

The Tianzhou 5 detached from the Tiangong space station on Monday afternoon and then started the process of atmospheric reentry guided by ground control.

The vessel launched on Nov 12 from the Wenchang Space Launch Center in Hainan province, and docked with Tiangong later the same day. It was tasked with delivering supplies such as fuel and items for the astronauts' daily needs.

It was the fourth cargo ship to have linked with Tiangong, which is manned by three astronauts from the Shenzhou XVI mission.

On May 5, the vessel was undocked from Tiangong to carry out an experimental solo flight that lasted 33 days. It reconnected with the space station in June.

In addition to resupply and refueling tasks, the ship carried several cutting-edge experimental payloads to the space station, and they have been installed and are working well, according to the agency.

It noted the space hydrogen-oxygen fuel cell system has been successfully demonstrated in

orbit and the test results will be used for the research and development of new spacecraft fuel cells to be used in China's planned manned missions to the moon.

Another piece of advanced equipment, the broad-energy-spectrum, high-energy particle detector, has obtained a lot of scientific data in terms of charged particles, neutrons and particle radiation effects.

In late December, the Tianzhou 5 deployed the Macao Student Science Satellite 1, a 12-kilogram mini satellite, into orbit. The satellite has been used to help students in Macao learn about Earth imaging, radio communication and other spaceflight activities.

Pang Zhihao, an expert on space exploration technology and a renowned writer on spaceflight, said that after years of service, the Tianzhou series has proved to be a reliable, efficient transport vehicle for the Tiangong station.

"As the model has been fully used and engineers have been very sure about its reliability and capability, the next Tianzhou ships will likely carry more payloads and conduct more tasks," he said.

The safe disposal of Tianzhou 5 indicates China's technologies and experience in spacecraft reentry are trustworthy, he said.

Designed to function for more than a year, each Tianzhou cargo spaceship has two parts — a cargo cabin and a propulsion section. The vehicles are 10.6 meters long and 3.35 meters wide.

The cargo vehicle model has a lift-off weight of 13.5 metric tons and can transport up to 6.9 tons of supplies to the space station.