

China's first space walk signals new rivalry in outer space

By John Chan
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China's third manned space flight, launched on September 25 and returning to earth on September 28, was its most ambitious. Some 40 years after the Soviet Union and the US, China has become only the third country to conduct a space walk. While in the short-term Beijing used the space mission to stir up fervent nationalism, its longer-term aim is to end the present dominance in space of the major powers, particularly the US.

Three astronauts led by Zhai Zhigang manned the Shenzhou VII space capsule, which is larger and heavier than those used in two previous manned flights in 2003 (one man) and 2005 (two men). With five tracking vessels deployed around the world, the activities of the astronauts were beamed live back to China and then broadcast amid great fanfare on state television.

The climax of the mission was Zhai's 15-minute space walk on September 27 to test a Chinese-made, \$4.4 million spacesuit and related equipment. With the assistance of fellow astronaut Liu Boming, Zhai waved the Chinese national flag as he floated outside the capsule. His task was to retrieve a test sample of solid lubricant that had been placed on the outside of the spacecraft prior to launch.

The successful flight has been the subject of endless comment in the state media and by government officials who have hailed the three astronauts as "national heroes". For the Chinese Communist Party (CCP) regime, the flight was a useful device for promoting patriotic fervour and distracting attention from the explosive issues of global financial turmoil, social inequality, official corruption and the crisis over unsafe milk products.

After the three astronauts landed, Zhai told a television crew: "The mission was glorious and full of challenges but the result was perfect. I feel proud of my country." State media also broadcast the reaction of their families, who made suitably patriotic comments about how great the motherland was. The *Beijing Youth Daily* enthused: "Following the Soviets and Americans, the black-haired and yellow-skinned Chinese have now left a footprint in space."

The first astronaut of Chinese descent was physicist

Taylor Wang, born in Shanghai in 1940, who was aboard a US Challenger space shuttle in 1985. As for all the nationalist drum beating, China is still well behind the major space powers and heavily reliant on Russian know-how. While reengineered to make it larger, the Shengzhou spacecraft is largely based on the Soviet Soyuz capsule. China's own spacesuit, the Feitian, is also based on the Russian-made Orlan-M. Russian space experts have reportedly assisted in all of China's manned missions.

However, China is beginning to challenge the decades-long dominance of the US and Russia in space. According to the US National Aeronautic and Space Administration (NASA), the number of Chinese spaceflights between 2003 and 2007 was 10. While still behind Russia's 22 and America's 16 over the same period, the figure is equal to the combined total for the EU, Japan and India.

The ability to conduct space walks is essential for the building of a space station, which requires astronauts to be able to join components, make external checks and conduct repairs. After Zhai's space walk, the Shengzhou VII released a small satellite, as part of another experiment in preparation for building a space laboratory in 2011 and eventually a space station by 2020. According to the *South China Morning Post*, the core of China's space station, named *Tiangong* or Sky Mansion, will lift off in two years and will be joined later with two other laboratories to create a living and working environment for five astronauts.

China plans two unmanned and five manned space flights to acquire the expertise for docking in space. To put the space station module into orbit, China is developing a new Long March V rocket capable of carrying a payload of 25 tonnes into the orbit. It is due to be tested in 2009. If these plans succeed, by 2015 China will become the only country with its own space outpost, even as Russia and the US expand the huge International Space Station (ISS).

A space industry official told the *South China Morning Post* that China was not "set on fancy performances" like the US and the former USSR during the Cold War. "The accelerating pace of the Chinese space program we see is

largely driven by real needs. The nation thirsts for some of the world's most advanced technology not because it wants to fight the third world war but for the booming manufacturing industry, for jumbo jets, satellite TV and new pharmaceuticals," he said.

Military capability

While seeking to advance commercial interests, the Chinese space program, like those of the US, Russia and other powers, is intimately bound up with military considerations. Just as China's first satellite launch in 1970 was related to its development of an intercontinental ballistic missile, more powerful rockets for launching a space station will enhance China's military capacity. Greater technical sophistication also enabled China to test an anti-satellite missile in January 2007, by destroying an aging weather satellite.

A major motivation behind China's space program has been to counter the US military's plans to enhance its capability for space warfare. According to the US-based Union of Concerned Scientists, China's manned space program was abandoned by Deng Xiaoping in 1978 in favour of more practical projects involving unmanned satellites. However, the Reagan administration's "Star Wars" program in the 1980s, aimed at neutralising the Soviet nuclear arsenal, also rattled Beijing and provoked an intense debate about the need to develop hi-tech space technology.

In 1986, four veteran scientists involved in China's nuclear weapons program drafted a proposal to Deng calling for the development of space capacities that would allow China to "claim a seat at the table of the international club". Deng subsequently ordered the implementation of Plan 863 to build a space station. Following the Tiananmen Square massacre in 1989, the US imposed an arms embargo on Beijing, which also ended previous space cooperation. As its economic growth accelerated in the 1990s, sections of the US ruling elite increasingly saw China as a potentially dangerous rival and collaboration in space has not resumed.

Up to 1992, Plan 863 was delayed by continuing internal debate in Beijing, with opponents arguing the large sums of money involved would be better spent on alleviating rising social tensions. Once again, Deng intervened to support manned space flights, now known as the 921 Project. The emerging "strategic partnership" between China and Russia--in response to growing US militarism--gave Beijing access to former Soviet military and aerospace technologies. By contrast, Beijing's requests for a place in the International Space Station project were repeatedly rejected by the US.

The US already has advanced space warfare programs. In 2006, the US National Space Policy declared that the US will "deny, if necessary, adversaries the use of space

capabilities hostile to US national interests." The US responded to China's anti-satellite test by shooting down one of its own spy satellites earlier this year. Last November the Bush administration signed a space plane program to build a hypersonic bomber capable of operating between the upper atmosphere and low space orbit and striking anywhere in the world in two hours. The program was cancelled by Congress in 2001, but was revived following China's anti-satellite test.

However, the US may yet be compelled to turn to China for assistance. The US space shuttles are due to retire in 2010, but their replacement, the Ares-Orion spacecraft, will not enter service until 2015. In the interim, the US will be dependent on Russia for deploying its astronauts to the International Space Station. But growing tensions between the US and Russia, especially over Georgia, have placed a question mark over this cooperation.

According to the *International Herald Tribune*, NASA chief Michael Griffin told his colleagues that "five minutes" after Russia intervened in Georgia he decided to explore the extended use of the space shuttle. Griffin, who has repeatedly warned of China's space challenge to the US, markedly changed his tone after China's first space walk. "I certainly do not see China as a threat," he said, even hinting that China could be a partner in US plans to return to the moon. Undoubtedly, the possibility of using China's spacecraft assistance to put US astronauts on the International Space Station is also under consideration. Whether China would agree remains to be seen.

The problems surrounding the International Space Station highlight a more fundamental issue. International cooperation in space is a logical necessity given the huge costs involved and the absurdity of trying to stake out national territories in space. However, such research, which would greatly enhance mankind's scientific knowledge, is threatened by rising international tensions as the major powers each seek to build their military capacity in space at the expense of their rivals with potentially disastrous consequences.

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