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Space Plan From China Broadens Challenge to U.S.

By **EDWARD WONG** and **KENNETH CHANG**

BEIJING — Broadening its challenge to the United States, the Chinese government on Thursday announced an ambitious [five-year plan for space exploration](#) that would move [China](#) closer to becoming a major rival at a time when the American program is in retreat.

Coupled with China's earlier vows to build a space station and put an astronaut on the [moon](#), the plan conjured up memories of the cold-war-era space race between the United States and the Soviet Union. The United States, which has de-emphasized manned spaceflight in recent years, is now dependent on Russia for transporting its astronauts to the International Space Station. Russia, for its part, has suffered an embarrassing string of failed satellite launchings.

China has been looking for ways to exert its growing economic strength and to demonstrate that its technological mastery and scientific achievements can approach those of any global power. The plan announced Thursday calls for launching a space lab and collecting samples from the moon, all by 2016, along with a more powerful manned spaceship and space freighters.

In recent years, China has also sought to [build a military capacity](#) in keeping with its economic might, expanding its submarine fleet and, this year, [testing its first aircraft carrier](#), a refurbished Soviet model. Under the new space plan, it would vastly expand its version of a Global Positioning System, which would have military as well as civilian uses.

The plan shows how the government intends to draw on military and civilian resources to meet the goals, which the government is betting will also produce benefits for the Chinese economy. "This approach offers lessons for other

advanced space powers, including the U.S., which needs to make sure it sustains its high-level investment in various aspects of space development across the board,” said Andrew S. Erickson, a professor at the United States Naval War College who has studied the Chinese space program.

While a leader in the business of launching satellites, China is still years behind the United States in space. Its human spaceflight accomplishments to date put it roughly where the United States and the Soviet Union were in the mid-1960s.

But China has consistently stuck to a development timeline for its program and met the realistic goals set out in its five-year plans, which are mainstays of the Communist Party’s authoritarian system.

For human spaceflight, the plan lays out a continuation of China’s steady but unrushed efforts to develop technologies and extend its capacities. It says that China will begin the work to land its astronauts on the moon, but it does not provide a target date for when they will go.

“I think it is a comprehensive, moderately paced program,” said John M. Logsdon, former director of the Space Policy Institute at George Washington University. “It’s not a crash program.”

By contrast, NASA’s direction tends to shift with every change of presidency. President George W. Bush called on NASA to return to the moon by 2020. President Obama canceled that program and now wants the agency to send astronauts to an asteroid. NASA shut down its 30-year [space shuttle](#) program after a final flight in July.

“The one thing that is admirable about their program is they don’t have fits and starts,” said Joseph R. Fragola, a space safety expert who has visited the space facilities in China. “Their program is low budget but it is laid out, and they follow it in an orderly process, and we don’t do that.”

Experts say Beijing is approaching its space program the way it did its military modernization. In addition to the aircraft carrier, which it bought from Ukraine, China has also made a progress on an anti-ship ballistic missile, which could be deployed to ward off foreign warships. Last January, the Chinese military tested a stealth fighter hours before Robert M. Gates, the

defense secretary at the time, met in Beijing with President Hu Jintao.

Unlike in the United States, where there are separate military and civilian space programs, in China the People's Liberation Army is the driving force behind development of the Chinese space program. Civilian institutions, including various universities and laboratories, are part of the military-led efforts. In the white paper that laid out the plan, released by the State Council, China's cabinet, the authors took pains to say that Beijing was not seeking to challenge any nation militarily with its space program.

"China always adheres to the use of outer space for peaceful purposes, and opposes weaponization or any arms race in outer space," the paper said.

Analysts say one of the more notable goals of the five-year strategy is to further develop the Beidou Navigation Satellite System, which on Tuesday began providing navigation, positioning and timing data on China and surrounding areas. The white paper said China intended to have a global system by 2020, with 35 satellites in orbit. If it met that goal, China would join Russia in having a system that tries to rival America's. China has already launched 10 satellites for the Beidou system, and plans to launch six more next year.

Beidou is not as advanced as its American counterpart, but it is expected to overshadow the Russian system and would provide the Chinese military with an alternative to relying on a civilian version of the American network. Beidou would also be used for civilian purposes, like providing drivers with a navigation tool.

"This has major commercial implications, it has major security implications," Mr. Erickson said. "To be a great military and space power, it's important to have one's own satellite navigation system."

The white paper, which follows similar reports released in 2000 and 2006, also said China would develop new Long March launch vehicles to deliver heavier payloads into orbit. It will also work on improving conditions for human spaceflight.

To lay that groundwork, the paper said, China "will launch space laboratories, manned spaceship and space freighters; make breakthroughs in and master

space station key technologies, including astronauts' medium-term stay, regenerative life support and propellant refueling; conduct space applications to a certain extent and make technological preparations for the construction of space stations."

On deep-space exploration, the paper said China planned to launch orbiters that would make soft lunar landings and do roving and surveying. After that, the paper said, China will collect samples of the moon's surface and bring them back for analysis.

The paper also said China planned to carry out a comprehensive plan for upgrading its satellite technology and widening the uses of its satellites.

"In aggregate, this is clearly going to propel China even further into space to a significant degree," Mr. Erickson said. "There's relentless progress across the board."

In 2003, China became the third country to send a human into space, behind the United States and the Soviet Union, when it put Yang Liwei into orbit around the earth. It launched a lunar probe in 2007 that orbited the moon and took pictures, and the next year completed its first spacewalk when Zhai Zhigang remained for 13 minutes outside the Shenzhou 7 spacecraft.

China's Long March 5 rocket, currently under development, would be able to lift about 25 tons to low-earth orbit, comparable to the United States' Delta IV Heavy rocket and much smaller than the Saturn V rocket that launched the Apollo spacecraft to the moon four decades ago. But that would be enough for China to get to the moon by launching its lunar spacecraft in pieces and assembling it in the earth's orbit.

Edward Wong reported from Beijing, and Kenneth Chang from New York.

