



## CHINA'S HUMAN SPACEFLIGHT PROGRAM: BACKGROUND AND LIST OF CREWED AND AUTOMATED LAUNCHES

China's human spaceflight program, Project 921, officially began in 1992. The program is proceeding at a measured pace. The most recent crewed launch, Shenzhou-11 in October 2016, was the 11<sup>th</sup> flight in the series, but only the sixth to carry a crew.

Shenzhou 1-4 were automated tests of the spacecraft. Shenzhou-8 was an automated test of rendezvous and docking procedures with the Tiangong-1 space station. The others carried crews.

Tiangong-1, China's first space station, was launched in September 2011. It hosted the automated Shenzhou-8 in 2011 and two three-person crews: Shenzhou-9 in 2012 and Shenzhou-10 in 2013.

Tiangong-1 is a small 8.6 metric ton (MT) module. As first space stations go, it is rather modest -- just less than half the mass of the world's first space station, the Soviet Union's Salyut 1. Launched in 1971, Salyut 1 had a mass of about 18.6 MT. The first U.S. space station, Skylab, launched in 1973, had a mass of about 77 MT. Today's International Space Station (ISS), a partnership among the United States, Russia, Japan, Europe, and Canada, has a mass of about 400 MT and has been permanently occupied by 2-6 person crews rotating on 4-6 month missions since the year 2000.

Tiangong-2, very similar to Tiangong-1, was launched on September 15, 2016. The Chinese initially said they intended to launch two two-man crews to Tiangong-2, but more recently have indicated there will be only one. Shenzhou-11 was launched on October 16, 2016 U.S. Eastern Time (October 17 local time at the launch site) and returned on November 18.

China is planning to launch a three-module 60 MT ton space station that will be in place in the early 2020s.

Chinese astronauts are often called "taikonauts" in the West. English-language Chinese news reports refer to them as astronauts. Shenzhou means Divine Vessel. Tiangong means Heavenly Palace. All human spaceflight-related launches have been from the Jiuquan Space Launch Center in the Gobi desert. China is developing its first automated cargo resupply spacecraft (Tianzhou-1), launching to Tiangong-2 in 2017. That will be launched from the new Wenchang Satellite Launch Center on Hainan Island.

The table below lists all Chinese human spaceflight missions to date, including automated tests and those that carried crews.

<b>LIST OF CHINESE HUMAN SPACEFLIGHT MISSIONS</b> <b>(Prepared by SpacePolicyOnline.com)</b> <b>all dates are U.S. Eastern Time</b>			
<b>Mission</b>	<b>Launch Date (Eastern Time)</b>	<b>Crew (# of flights)</b>	<b>Comments</b>
Shenzhou-1	Nov. 19, 1999	none	Automated test
Shenzhou-2	Jan. 9, 2001	none	Automated test
Shenzhou-3	Mar. 25, 2002	none	Automated test
Shenzhou-4	Dec. 29, 2002	none	Automated test
Shenzhou-5	Oct. 15, 2003	Yang Liwei	First Chinese astronaut 21 hour 12 min mission
Shenzhou-6	Oct. 12, 2005	Fei Junlong Nie Haisheng	First Chinese 2-person crew 5 day mission
Shenzhou-7	Sept. 25, 2008	Zhai Zhigang Liu Boming Jing Haipeng	First Chinese 3-person crew First Chinese spacewalk (Zhai for 22 min; Liu did stand-up EVA in airlock for about 2 min) 3 day mission Small (40 kg) subsatellite ejected
Tiangong-1	Sept. 29, 2011	Visited	First Chinese space station (8.5 metric tons)
Shenzhou-8	Oct. 31, 2011	none	Automated test of rendezvous and docking with Tiangong-1 (docked twice)
Shenzhou-9	July 19, 2012	Jing Haipeng (2) Liu Wang Liu Yang	First Chinese space station crew; automated and manual docking Liu Yang first Chinese woman astronaut Jing first Chinese astronaut to make 2 flights 13 day mission
Shenzhou-10	June 11, 2013	Nie Haisheng (2) Zhang Xiaoguang Wang Yaping	Automated docking with Tiangong-1 on June 13. Later did manual docking test, and, just before reentry, a fly-around (China's first) Wang second Chinese woman astronaut and first "teacher in space" because she taught a lesson from space 15 day mission

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Tiangong-2	Sept. 15, 2016	Visited	Similar to Tiangong-1.
Shenzhou-11	Oct. 16, 2016	Jing Haipeng (3) Chen Dong	Jing first Chinese astronaut to make 3 flights. Docked with TG-2 for 30 days, total mission time 32 days