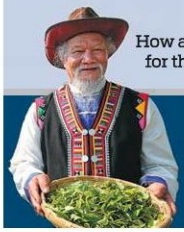

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# First panoramic images of Mars released

By **ZHAO LEI** and **ZHU LIXIN** in Hefei

A panoramic image of Mars released by the China National Space Administration and the Chinese Academy of Sciences on Monday at a ceremony in Hefei, Anhui province.
PROVIDED TO CHINA DAILY

China published on Monday the first global panoramic images of Mars taken by the country's Tianwen 1 mission.

The color images include the Robinson projection, Mercator projection, azimuthal projection and orthographic projection of the eastern and western hemispheres of Mars, with a spatial resolution of 76 meters.

The images were jointly released by the China National Space Administration and the Chinese Academy of Sciences at a ceremony in Hefei, capital of Anhui province, marking the launch of the Space Day of China activities this year.

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China celebrates April 24 as its Space Day every year in honor of the first Chinese satellite launched on the date in 1970.

The panoramas were created by processing 14,757 images taken by the mid-definition camera mounted on the Tianwen 1's Martian orbiter during its 284 remote-sensing maneuvers from November 2021 to July 2022.

They are expected to provide better base maps to scientists and engineers around the world to facilitate research and planning for future expeditions to Mars, the space administration said.

Zhang Rongqiao, chief designer of the Tianwen 1 mission, said that in order to produce the panoramas, the orbiter had to fly around Mars with a very high level of orbital accuracy.

"The panoramas were created by piecing together many separate images, so we must avoid gaps or unnecessary overlaps. That means we had to ensure excellent performance in the orbiter's trajectory control," he said. "In addition, we tried many methods to figure out how to guarantee the correct colors on the images."

Zhang pointed out that the panoramas have put an end to China's dependence on foreign base maps of Mars, and they will help the international science community a lot in its research on Mars. He added that the mission's entire scientific data will be available to scientists, as well as members of the public, around the world.

Named after an ancient Chinese poem, Tianwen 1 was launched on July 23, 2020, and it became the country's first independent interplanetary exploration endeavor.

The spacecraft traveled about 475 million kilometers and carried out several trajectory maneuvers before entering the Martian orbit in February 2021.

The Mars rover, Zhurong, named after the god of fire in ancient Chinese legend, touched down on the planet in May 2021 and then began to travel across the Martian surface for scientific tasks.

Zhurong and Tianwen 1's orbiter, which is traveling around Mars to relay signals for the rover and also conducting other scientific operations, have transmitted around 1,800 gigabytes of raw data back to Earth. Zhurong has moved 1,921 meters on Mars and is now in dormancy.

After studying the images and data from Tianwen 1, Chinese scientists have spotted and identified many geological bodies surrounding its landing site and have named 22 of them after Chinese villages that are steeped in historical and cultural heritage.

In another development, China has gifted lunar samples retrieved by the Chang'e 5 mission to Russia and France to boost their lunar research, according to the national space administration.

On Monday, the administration announced that 1.5 grams of lunar samples were presented to Russia during President Vladimir Putin's visit to China in February 2022. In return, Russia gave China a reciprocal amount from the 1970 Soviet Luna 16 mission during President Xi Jinping's visit to Moscow this March.

During French President Emmanuel Macron's visit to China earlier this month, 1.5 grams of lunar samples were gifted to the European nation, which has cooperated with China on space exploration for several decades.

**Tang Mingnan**

# Space exploration for betterment of humankind

Monday marked China's eighth Space Day, a day to celebrate the country's achievements in space exploration and research, and ponder how to carry forward the spirit of space exploration for the benefit of humankind.

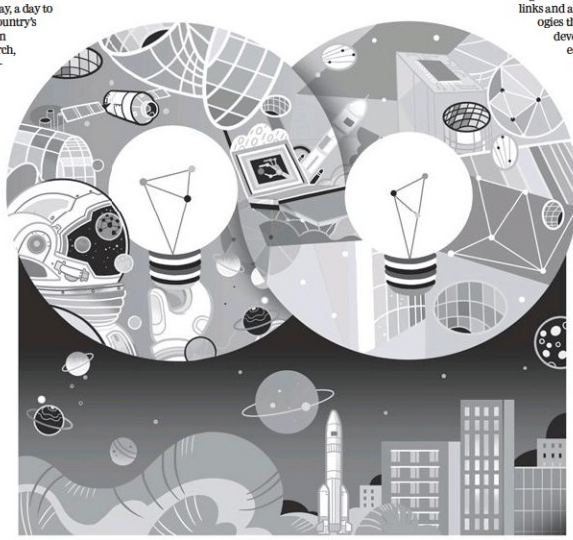
China designated April 24 as Space Day in 2016 to mark the launch of the country's first satellite, Dongfanghong 1, on the same day in 1970.

As the backbone of the air space industry, the General Design Department of China Aerospace Science and Industry Corp Second Academy, which was founded in 1958, advances the spirit of space exploration, remains true to the country's original aspiration and has been carrying forward the mission of space research.

The aerospace scientists remain committed to the mission of building up China as a space power, and making significant advancements in science and technology.

Apart from overcoming daunting challenges and difficulties, the younger scientists and technicians with the spirit of space exploration, heighten their sense of dedication, adopt a realistic approach to space science, see the big picture, and promote innovation.

In fact, with solid cultural and spiritual support, China is marching toward becoming a space power, and opening a new chapter in space defense system in the new era. Also, there is a need to boost the high-quality development of the space industry and reduce costs of and increase returns on space research. It is important that the space industry, along with the overall science and technology sector, better safeguard China's national security.



LI MIN / CHINA DAILY

Moreover, a holistic approach should be adopted to further develop the space industry and advance the overall national defense strategy, because a holistic approach would mobilize and guide different sectors to take part in and contribute to not only the space industry's development but also the coordination and overall planning of relevant activities.

China is building a strategic space science and technology force, and promoting innovations to strengthen the weak links and advance cutting-edge technologies through rigorous research and development in equipment needed to build space labs, space vehicles and other apparatus. But while doing so, the nation needs to accelerate the integration of different facilities, optimize resource allocation, and facilitate the growth of new forms and business models for the space industry.

These measures will help raise the quality and overall performance of the space industry.

Furthermore, it is important to strengthen team-building and improve the personnel training mechanism to cultivate a large number of outstanding young scientists, while holding in high esteem the older generation of aerospace scientists and technicians and passing on their stories and spirit to the younger generation.

In short, the country needs to carry forward the spirit of space exploration, further develop the space industry, strengthen the science and technology sector and build the people into a powerful global force to pave the way for the rejuvenation of the Chinese nation.

*The author is director of the General Design Department of the China Aerospace Science and Industry Corp Second Academy. The views don't necessarily reflect those of China Daily.*