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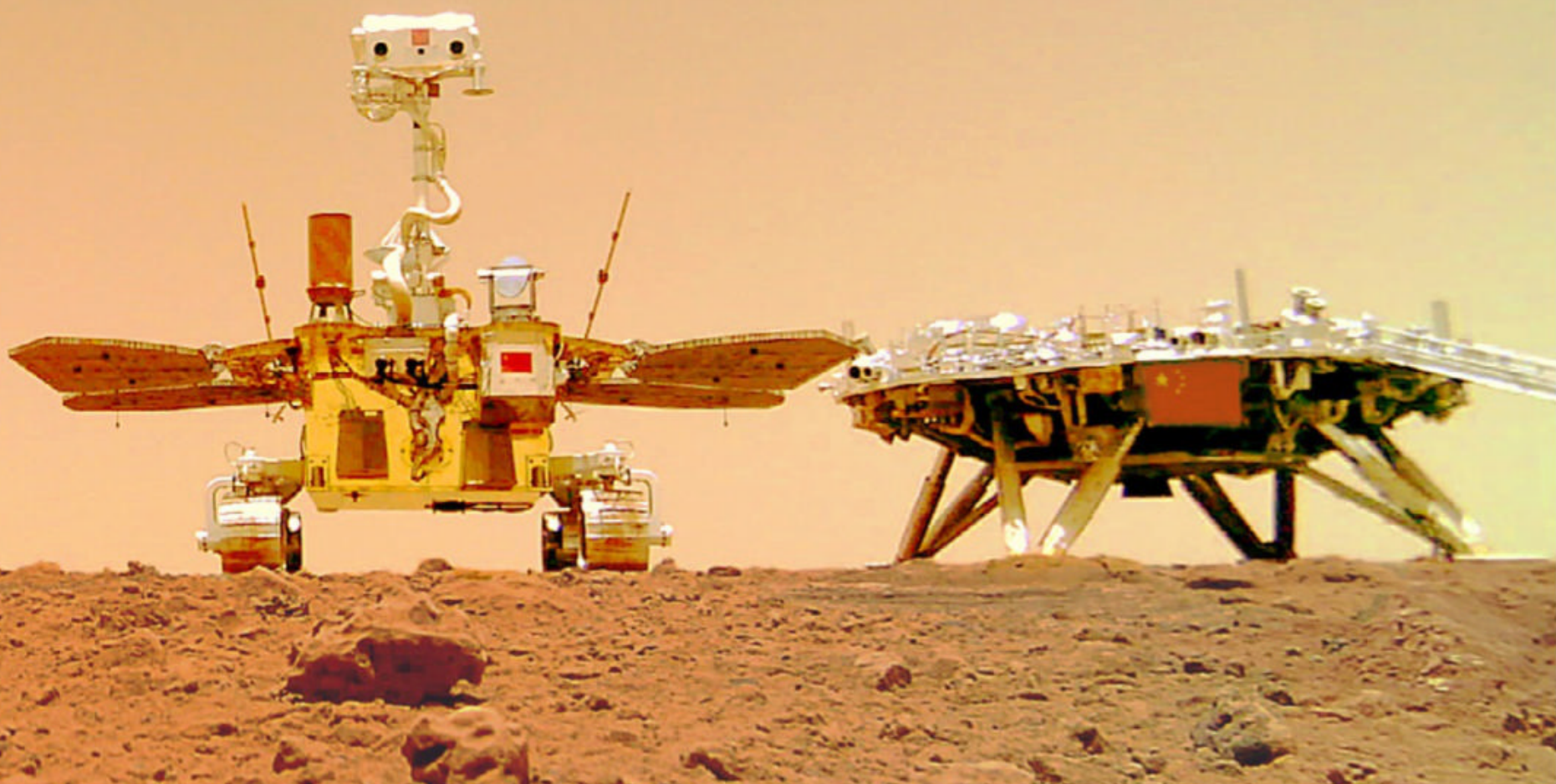
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# CHINA'S FIRST MARS ROVER TOUCHES DOWN

Zhurong's successful start on its martian trek makes history.



**FAMILY PHOTO.** Rolling about 33 feet (10 m) south of its landing platform, Zhurong released a separate camera before returning to the lander for this martian tourist snapshot.  
CHINA NATIONAL SPACE ADMINISTRATION

» At 7:18 p.m. EST on May 14, a six-wheeled rover the size of a small car plunged into Mars' thin atmosphere, braking with a series of parachutes and retro-rockets. In a picture-perfect landing, Zhurong touched down on the lava plains of Utopia Planitia and stretched out its solar panels, making China the second country to successfully land and operate a rover on Mars.

As the news reached the Beijing Aerospace Control Center, where it was the morning of May 15, bleary-eyed engineers erupted in thunderous

applause. With its successful touchdown, Zhurong, named for an ancient Chinese god of fire, has now vaulted China into the hallowed ranks of nations with a multiplanetary presence.

## MAKING HISTORY

Zhurong's journey began in July 2020, when it launched aboard the Mars-bound Tianwen-1 spacecraft. The mission reached the Red Planet on Feb. 10, 2021, about a week before NASA's Perseverance rover arrived. Unlike NASA's craft, which deposited the rover immediately on the surface

upon its arrival Feb. 18, the Tianwen-1 orbiter then circled Mars for a few months, scouting out the best landing site for the rover.

Previously, the U.S. and the Soviet Union had been the only two countries to land spacecraft softly on Mars. The USSR's Mars 3 mission achieved the first soft landing in 1971, but its rover only transmitted for 20 seconds, sending a partial image to its orbiter before ceasing communication. Despite numerous other attempts, the USSR failed to beat the U.S. to successfully landing and operating a robotic

martian mission; NASA's Viking 1 took that honor in 1975.

Now, nearly 50 years later, China is making history by becoming just the second country to properly land and operate a mission on Mars, capping the nation's decade-long leap to the forefront of space exploration.

"You were brave enough for the challenge, pursued excellence and placed our country in the advanced ranks of planetary exploration," said Chinese leader Xi Jinping, according to Reuters. "Your outstanding achievement will forever be etched in the memories of the motherland and the people."

### SCIENTIFIC OPPORTUNITY

Beyond its technical success, Zhurong has also caught the attention of researchers worldwide for one simple reason: its landing site. Zhurong is exploring Utopia Planitia — an area of Mars that planetary scientists have wanted to revisit ever since NASA's Viking 2 lander operated for several years there in the late 1970s.

Utopia Planitia is the largest known impact basin on Mars — or anywhere else in our solar system. The terrain is full of interesting geological features. And below its surface lies a frozen lake that holds about as much water as Lake Superior, Earth's largest freshwater lake by surface area.

Of particular interest in Zhurong's vicinity is a mud volcano, a landform no other martian rover has explored. Researchers believe mud volcanoes form when a mixture of water and soil erupts to the surface. On Earth, mud volcanoes are inhabited by bacteria that produce methane.

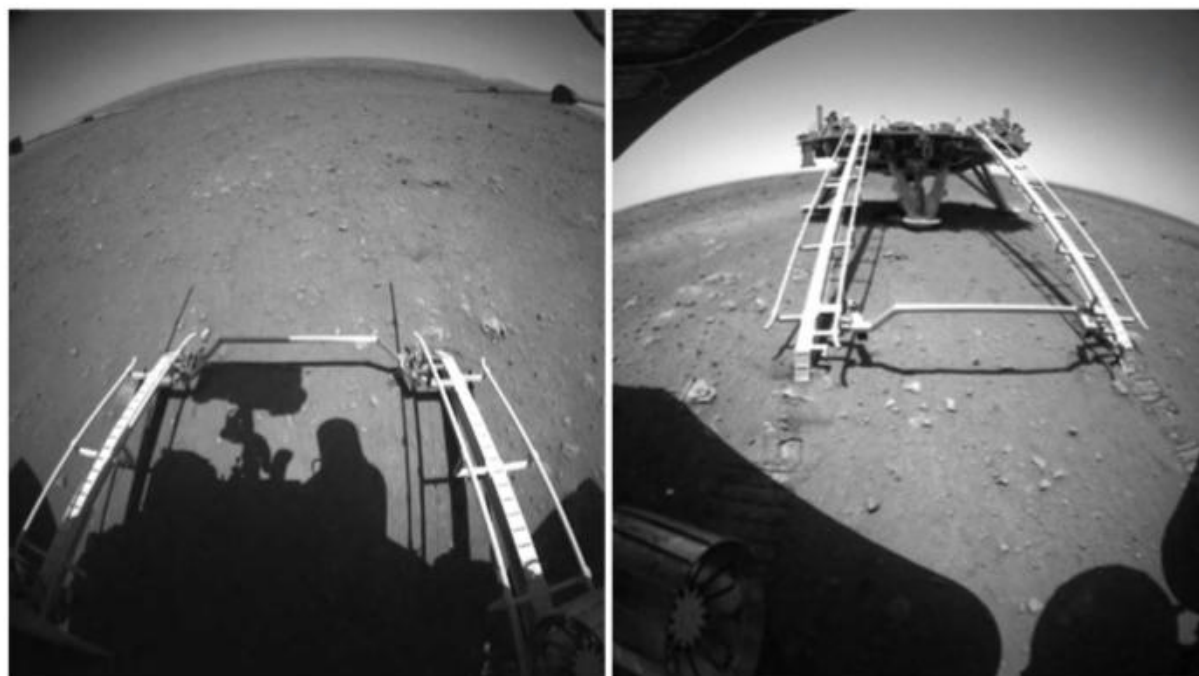
All of that makes Utopia Planitia a prime place to explore. Like NASA's Perseverance rover, Zhurong will also stash Mars soil samples that China eventually hopes to retrieve.

The road ahead for Zhurong won't be easy. Officials at the China National Space Administration (CNSA) say the rover landed in an area riddled with rocks and more craters than expected. However, engineers think the rover is up to the challenge.

CNSA says it expects the rover's mission to last just 90 days. But the space agency said the same thing when its Yutu-2 lunar rover landed on the Moon in 2019 — yet that rover is still active today. And NASA's Mars Opportunity rover's initial 90-day mission was ultimately extended more than 14 years, giving it time to trek across some 28 miles (45 kilometers) of terrain.

Even if Zhurong doesn't live up to the lengthy legacies of past rovers, it has already succeeded where so many Mars spacecraft have failed in the past.

—ERIC BETZ



**WHEELS DOWN.** On May 22, the Chinese space agency's Zhurong Mars rover left its landing platform and safely drove onto the Red Planet's surface. CHINA NATIONAL SPACE ADMINISTRATION

### SPLISH SPLASH

Nearly six months after hitching a ride to the International Space Station (ISS) aboard a SpaceX Falcon 9 rocket, NASA's first commercial crew — carried by a SpaceX Crew Dragon capsule — safely splashed into the Gulf of Mexico near the coast of Panama City, Florida, on May 2.

### COSMIC HUM

Voyager 1, which launched in 1977 and is now near the edge of the solar system, detected a faint but persistent murmur coming from the relatively empty space between stars. According to new research, the hum is from low-level, long-lasting vibrations in interstellar plasma.

### FLOATING FILM

Russia's Roscosmos space agency recently announced plans to send a director and actress to the ISS to shoot a movie tentatively titled *Challenge*. The expedition is expected to launch from Baikonur Cosmodrome aboard a Soyuz spacecraft in October.

### NASA'S NEW ADMIN

Vice President Kamala Harris swore in Bill Nelson, former U.S. senator from Florida, as NASA's 14th administrator on May 3. In the Senate, Nelson spearheaded the creation of the Space Launch System, the rocket that will fly Artemis missions to the Moon. In 1986, as a congressman, he flew aboard the space shuttle *Columbia*.

### EXPLOSIVE ARMS

With the help of the Hubble Space Telescope, astronomers have pinned down the origins of five brief but powerful blasts called fast radio bursts. The team traced the enigmatic explosions to the spiral arms of five distant galaxies and hopes identifying their origins will shed light on what causes them.

### SURVIVABLE IMPACTS?

Tardigrades are tiny creatures that can temporarily survive extreme conditions, including the vacuum of space. But new research shows they can't survive impacting sand at speeds higher than 2,000 mph (3,200 km/h). This could place limits on the theory of panspermia, which suggests life arrived on Earth in a meteorite impact. — JAKE PARKS