

# NASA helicopter's mission ends after three years on Mars

January 28 2024, by Issam AHMED

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This NASA photo obtained January 25, 2024 shows the Ingenuity Mars helicopter's rotor blade damaged during flight landing.

NASA's Ingenuity Mars helicopter, which made history by achieving the

first powered flight on another world, has officially ended its nearly three-year mission after sustaining rotor damage during its last outing, the space agency said Thursday.

The tissue-box sized aircraft, which hitched a ride to the Red Planet under the belly of the Perseverance rover, first lifted off the surface on April 19, 2021.

Originally intended only to prove flight was possible in the ultra-thin Martian atmosphere through five test runs, Ingenuity went on to be deployed a total of 72 times, logging more than two hours of flight time in short hops.

"The Ingenuity absolutely shattered our paradigm of exploration, introducing this new dimension of aerial mobility," Lori Glaze, the director of NASA's Planetary Science Division told reporters Thursday.

Its mission evolved to act as an aerial scout to assist its wheeled companion in searching for signs of ancient microbial life from billions of years ago when Mars was much wetter and warmer than today.

Ingenuity's longevity surpassed all expectations, defying challenges including [dust storms](#), treacherous terrain, a dead sensor and frigid conditions.

Designed to operate in springtime, its solar-powered heating system was unable to remain on throughout the night in winter, which led to the flight computer freezing over and forced engineers to devise new protocols.



This NASA photo shows the Ingenuity Mars helicopter as it hovered over the Martian surface on April 19, 2021.

"It is bittersweet that I must announce that Ingenuity, the little helicopter that could... has now taken its last flight on Mars," said NASA administrator Bill Nelson in a video message.

"Like the Wright brothers, what they did back here on Earth at the early part of the last century, Ingenuity has paved the way for future flight in our solar system, and it's leading the way for smarter, safer human missions to Mars and beyond."

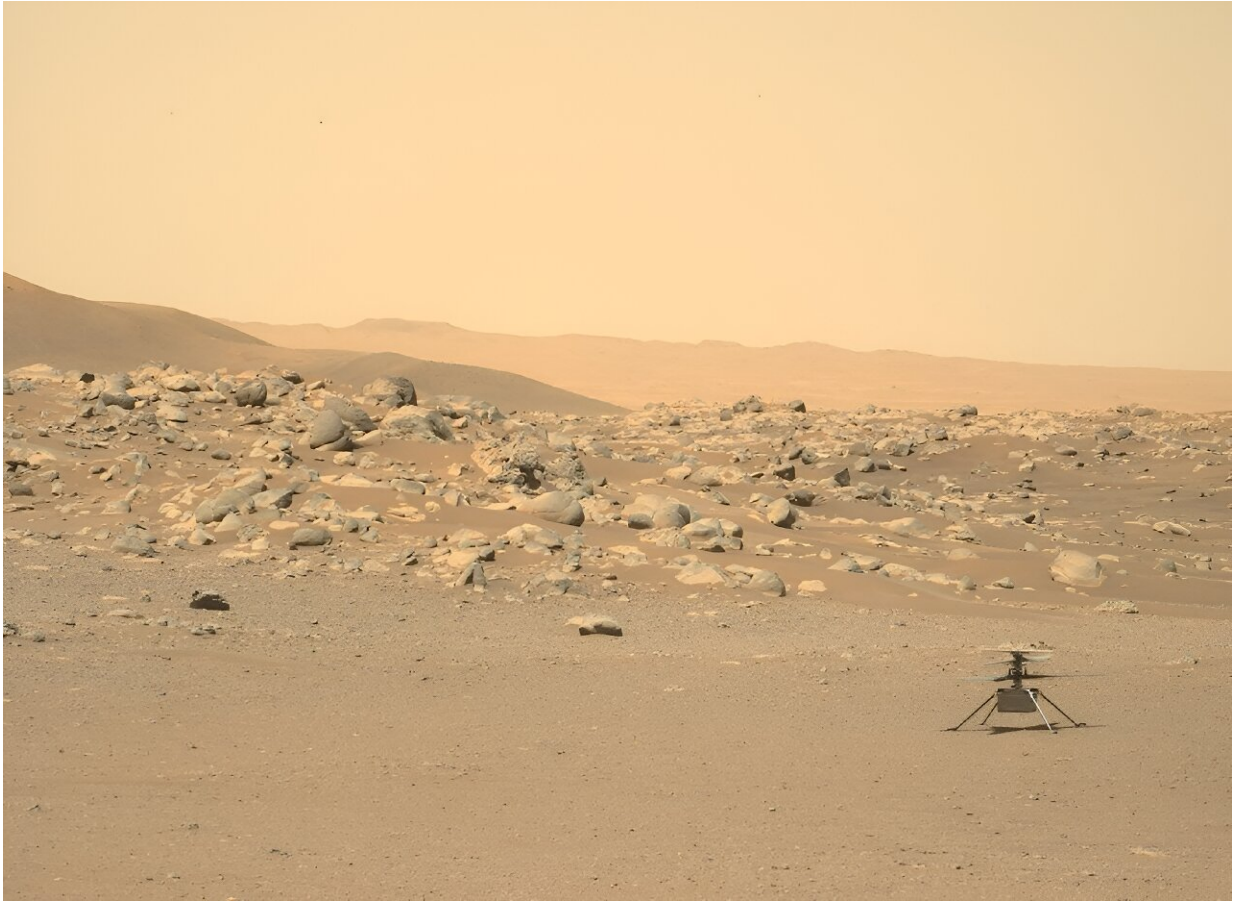
## Crash landing

While the helicopter, which weighs four pounds (around two kilograms), remains upright and in communication with [mission control](#), images from its last flight on January 18 indicate "one or more" of its [rotor blades](#) sustained damage during landing, meaning it is no longer capable of flight.

NASA unexpectedly lost and then reestablished contact following the final flight, though the relief for space enthusiasts turned out to be short-lived.

Data showed that the helicopter achieved its planned maximum altitude of 40 feet (12 meters) and hovered there for 4.5 seconds.

But the temporary blackout occurred just as it was on its way down to land, around three feet above the surface.



The Ingenuity Mars helicopter, seen here in June 2021, was deployed a total of 72 times.

"Imagery revealing damage to the rotor blade arrived several days later. The cause of the communications dropout and the helicopter's orientation at time of touchdown are still being investigated," the statement said.

The broken blade seems to have collided with the surface of Mars during landing, Ingenuity project manager at NASA's Jet Propulsion Laboratory Teddy Tzanetos told reporters Thursday, cleaving off "the last 25 percent of the length" of the appendage.

"We've just lost a massive chunk of our thrust capacity," he explained, adding "we will never know" whether the rotor strike or the communications loss came first.

"Eventually... we will lose contact," Tzanetos said, though it's unclear whether that will happen within days or months.

According to Tzanetos, the lessons learned from Ingenuity will inform flight on Mars long into the future.

"None of us should be surprised in the future, when the first astronauts, the first women and men are on the surface (of Mars), and we have fleets of aircraft flying around," he said.

Ingenuity's legacy is set to live on in Dragonfly, a car-sized, nuclear-powered rotorcraft NASA is planning to send to the surface of Titan, Saturn's largest moon, in 2028.

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