

Five Ways Mariner 4 Changed Mars Exploration

Transcript:

It's 1965:

A gallon of gas cost thirty-one cents.

Goldfinger was the year's Top Movie.

The Beatles' album, 'A Hard Day's Night,' won a Grammy.

And, Mariner 4 became the world's first successful mission to Mars.

Here are five things you probably didn't know about it.

Mariner 4 was the first spacecraft to navigate using the stars, like ancient mariners that sailed the seas.

Mariner 4 went farther than any other human-made object at the time, and used the bright star Canopus as a reference.

Once its star sensor found Canopus, gas jets on the spacecraft kept the vehicle locked in the correct orientation for the trip to the Red Planet.

Mariner 4 reached Mars on July 14, 1965, and took 22 pictures as it flew by. They were the first pictures ever taken of another planet from deep space.

The pictures showed moon-like craters, shattering the idea of finding life on the surface, but opening the age of scientific Mars exploration.

Mariner 4 carried an analog television camera, the best technology at the time.

The pictures were sent back digitally, as ones and zeros. While waiting for early computers to process the data, engineers anxious to see a picture, created their own by hand-coloring printouts, paint-by-number style. It was the first digital image of Mars from space.

Radio dishes on Earth picked up Mariner 4's data at just 8 1/2 bits per second, an amazing feat at the time, given the large distances involved. It took a week to send the 22 images back to Earth. Today, the Curiosity rover sends data almost 250,000 times faster than Mariner 4.

Mariner 4 also discovered that Mars has a very thin atmosphere. This discovery was made by the spacecraft sending radio signals through the Martian atmosphere as it passed behind the planet.

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This first ever visit to Mars was a boost for the United States in the midst of the Cold War with the Soviet Union.

President Lyndon Johnson passed out medals to NASA and the Jet Propulsion Laboratory for the success of Mariner 4.

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A lot has changed since Mariner 4. Back then a typical engineer wore a white shirt, pencil tie and often, a pocket protector. Today -- not so much.

A half-century may have passed, but the nation's pride in Mars exploration remains. Mariner 4 set the stage for future missions that flew to Mercury, Venus, Mars, and even the outer planets.