

American Space Missions to Mars 1964 - 2020

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Over the past 60 years, space scientists from around the world have attempted at least 40 missions, and more than half of them have failed. The first successful mission took place in November 1964, with NASA's Mariner 4; as planned, the first 22 images of the planet were transmitted, and the Soviet Union—which had previously attempted missions but failed five times in a row—was beaten to the mark. Seven years later, it was the Russians' turn to send the first probe into Mars' orbit, beating the Americans by six months.

The first detailed photos of the Martian surface were taken in the mid-1970s by the twin Viking probes, thanks to which it was possible to map nearly 97% of the planet's surface.

After twenty years of failed attempts, the Mars Global Surveyor mission succeeded in reaching the planet's orbit in 1997, but even following this small milestone, subsequent missions were disappointing.

Over the past twelve years, starting with the analyses conducted by the American Curiosity rover—which, like the current Perseverance, gained immense fame—numerous missions have followed. In addition to the United States and Russia, India and the European Union have also contributed to and invested in the exploration of Mars through the organization of space missions.

So far, the United States has taken the lion's share, but the race to explore the Red Planet is increasingly involving all the most technologically advanced countries: they are all fascinated by Mars and by the history and events that led it to become the seemingly uninhabited and inhospitable planet we know today. The success of the most recent missions has led everyone to hope and believe with greater conviction that perhaps, in the not-too-distant future, it will be possible for humans to set foot on the fascinating Mars for the first time.

All American missions to Mars are represented here, including preparatory activities such as the assembly of parachutes and robots, through postcards postmarked on the day and at the location of the event :

Mariner 3	November 1964
Mariner 4	November 1964
Mariner 6	February 1969
Mariner 7	March 1969
Mars Supersonic Planetary Entry Decelerator	October 1970
Mariner 8	May 1971
Mariner 9	May 1971
Viking 1	August 1975
Viking 2	September 1975
Mars Observer	September 1992
Erebus Project	December 1992
Mars Global Surveyor	November 1996
Mars Pathfinder	December 1996
Mars Climate Orbiter	December 1998
Mars Polar Lander	January 1999
Mars Odyssey	April 2001
Mars Exploration Rover Field Tests	April 2001
Mars Exploration Rover Spirit	June 2003
Mars Exploration Rover Opportunity	July 2003
Mars Reconnaissance Orbiter	August 2005
Phoenix Mars Lander	August 2007
Mars Science Laboratory	November 2011
Mars Atmosphere and Volatile Evolution	November 2013
Mars InSight	May 2018
Mars Perseverance Rover	July 2020

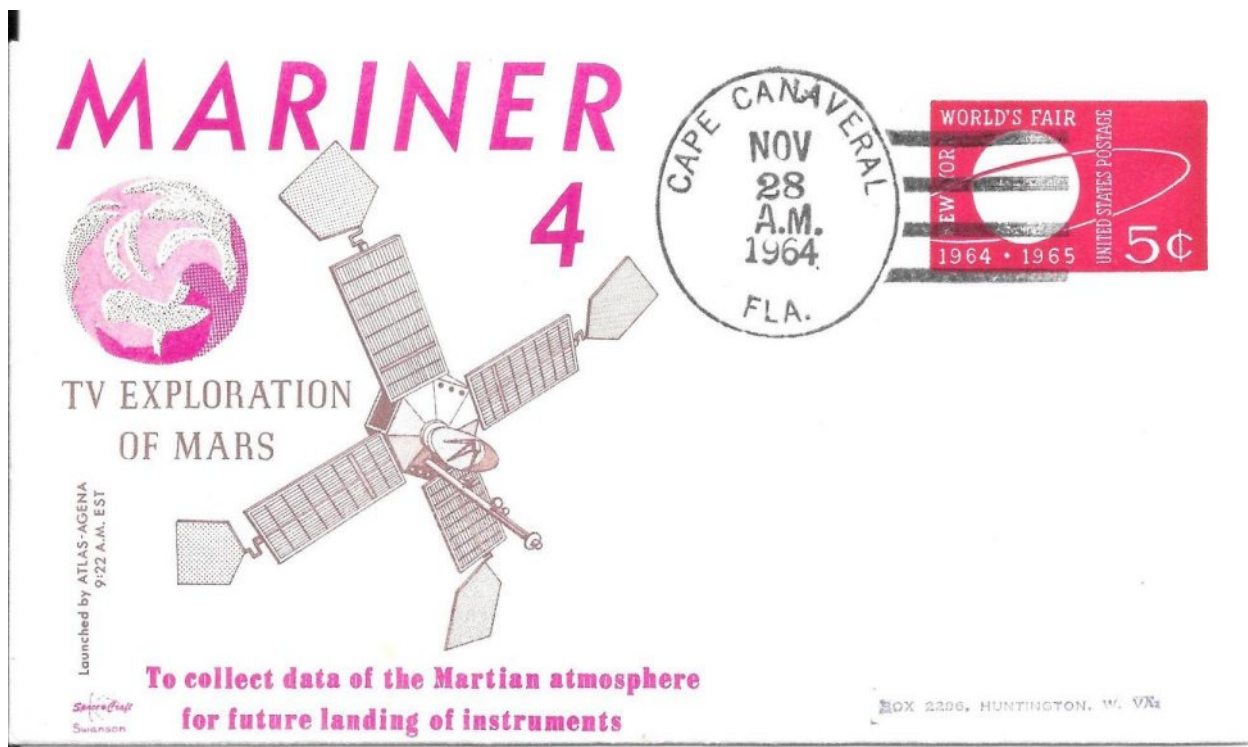


MARINER 3 - MARINER 4

On November 5th 1964, the Atlas-Agena rocket launched the Mariner 3 probe into space towards Mars. But right from the start the heat shield protecting the probe failed and the control centre lost contact with the probe. Cover with a manual postmark of the civilian post office at the Cape Canaveral launch base on the day of the launch.

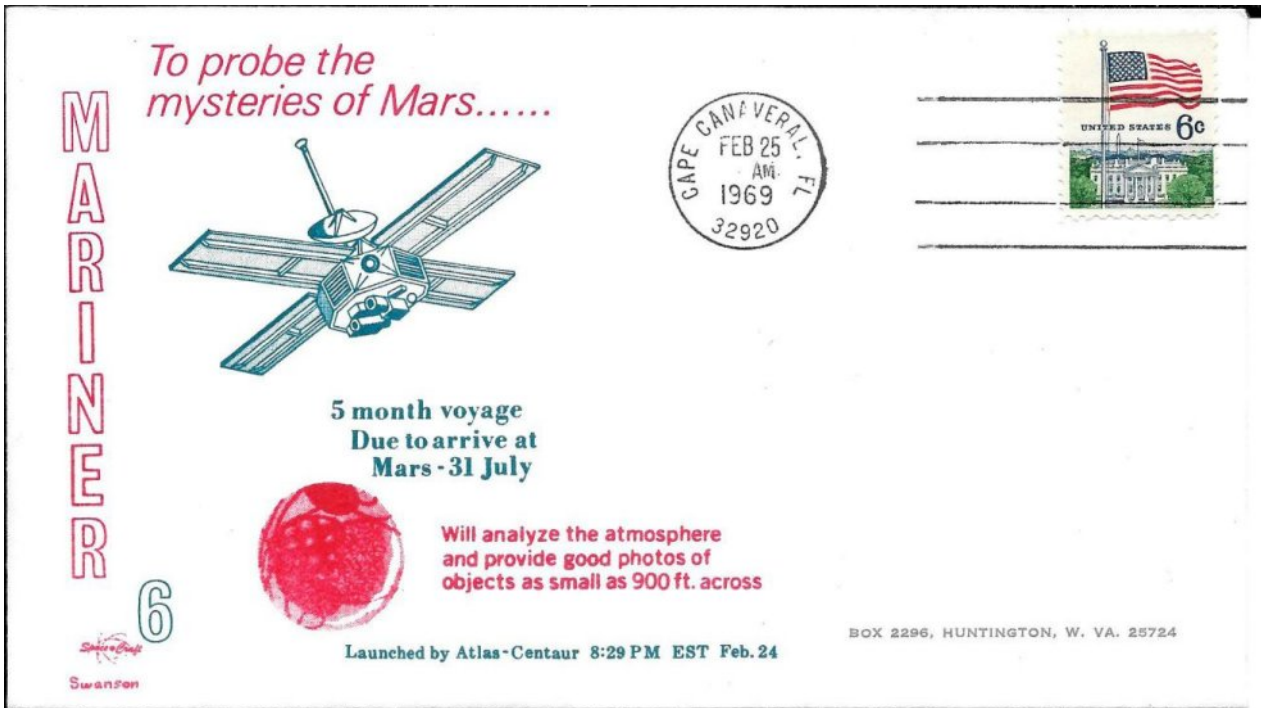


The Mariner 4 probe reached its destination on July 15th 1965 after a flight lasting almost eight months, flying over the Red Planet. At its closest approach, it transmitted the first 11 images of the Martian surface. The seventh frame revealed something unexpected: craters. Cover with a manual postmark of the civilian post office at the Cape Canaveral launch base dated November 28th 1964, the day of the launch.

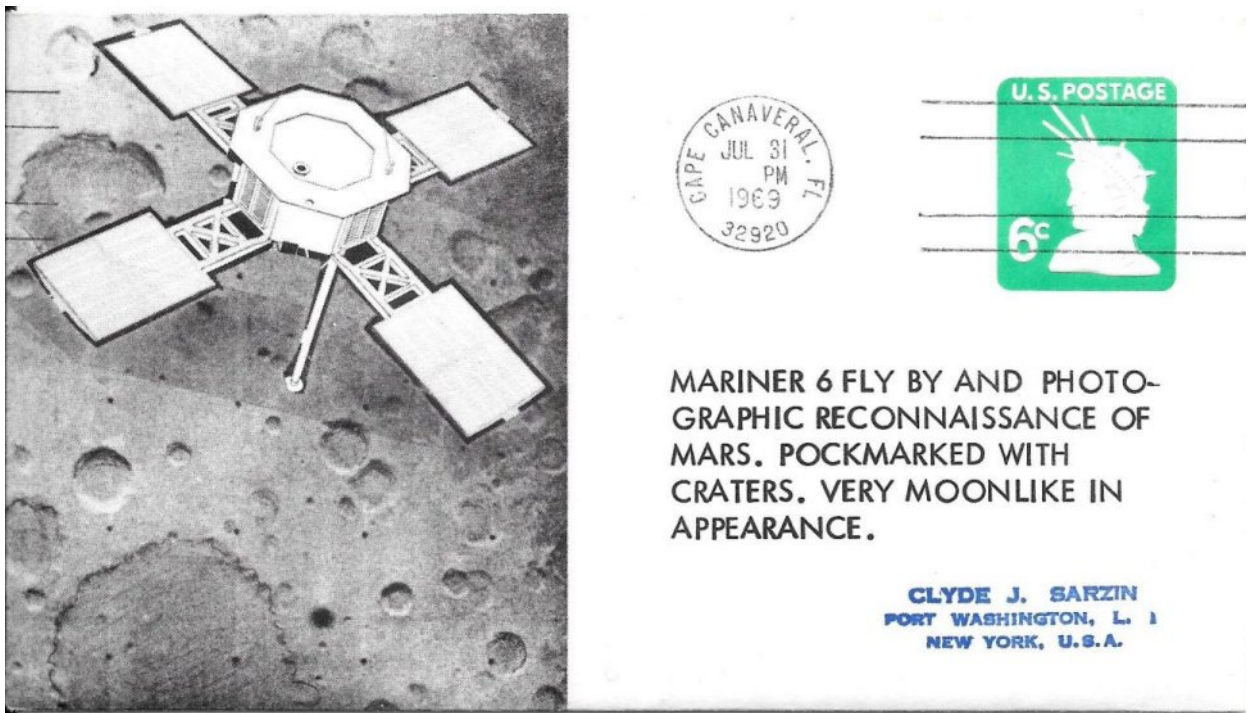


MARINER 6

The Mariner 6 probe was launched from Cape Canaveral on February 25th 1969, using an Atlas-Centaur AC-20 rocket. The probe was equipped with two cameras to study the atmospheric composition. Cover with a mechanical postmark of the civilian post office at the Cape Canaveral launch base on the day of the launch.



On July 31st 1969, the probe reached a distance of 3,400 km from the planet and detected that the main component of the atmosphere was carbon dioxide. Cover with a mechanical postmark of the civilian post office at the Cape Canaveral launch base on the day of closest approach to Mars.



MARINER 7

The Mariner 7 probe was launched from Cape Canaveral on March 27th 1969. Despite some minor anomalies during launch, the probe reached a distance from the Martian surface similar to that of Mariner 6, Cover with a special mechanical postmark on a 'closed globe' label, in use from July 1st 1965 at the Kennedy Space Center's internal post office on the day of launch.



Mariner 7 took further photographs of the Martian south pole, an area that had aroused interest during Mariner 6's flyby. NASA continued to receive data until mid-1971. Cover with a machine postmark of the civilian post office at the Cape Canaveral launch base dated August 5th 1969, the day of closest approach to Mars.

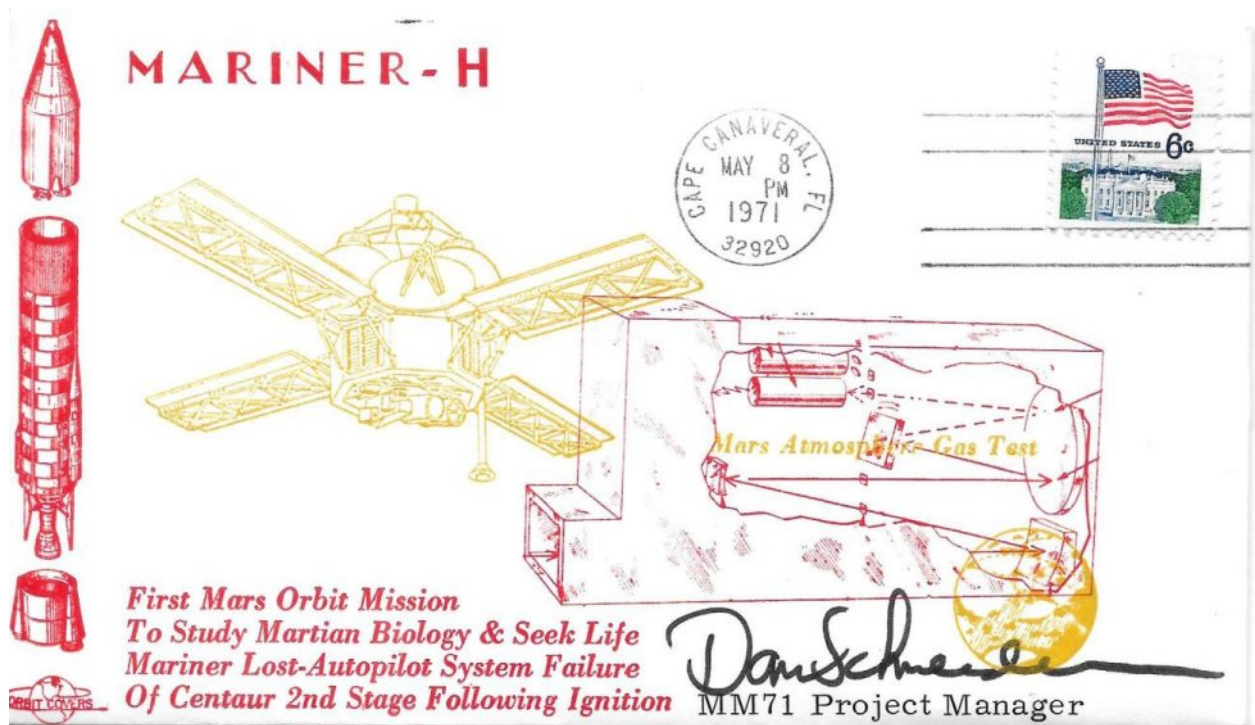


MARS SPED 2 - MARINER 8

Landing on Mars is not like landing on Earth; Mars has too much atmosphere to allow rockets alone to land heavy vehicles, as is done on the Moon, but too little atmosphere to land vehicles using drag and parachutes, as is done on Earth. Cover with a mechanical postmark of the Wallops Island military post office dated October 9th 1970, the day of the launch of Castor, the second stage of the Scout rocket used to test the parachute re-entry.



The Mariner Mars 71 project consisted of two spacecraft (Mariners H and I), each of which was to be placed into a Martian orbit to carry out a separate mission. To date, Mariner 8 remains the last American planetary probe to be lost due to a launch vehicle malfunction. Cover with a mechanical postmark of the civilian post office at the Cape Canaveral launch base dated May 8th 1971, the day of the launch.



MARINER 9

Mariner 9 was launched on May 30th 1971 and became the first spacecraft to orbit another planet on November 13th 1971. The Mariner 9 mission revealed a geologically active planet.

Covers with a mechanical postmark of the civilian post office at Cape Canaveral on the day of launch ; with a postmark dated 5/31/71 of the internal post office of the military area of Woomera in South Australia, where the Island Lagoon Tracking Station, one of the facilities used to monitor data from the probe, is situated and with a special 'closed globe' version of the mechanical postmark of the internal post office of the Kennedy Space Center on the day the probe entered Martian orbit.



VIKING 1 - VIKING 2

The decisive question is if there is life on Mars. It was for this very purpose that the Viking missions had been prepared. They were launched on August 20th and September 9th 1975 and on July 19th 1976 Viking 1 entered Martian orbit and the following day the lander touched down in the Chryse Planitia region. Cover with a mechanical postmark of the civilian post office at the Cape Canaveral launch base on the Viking 1 launch day.

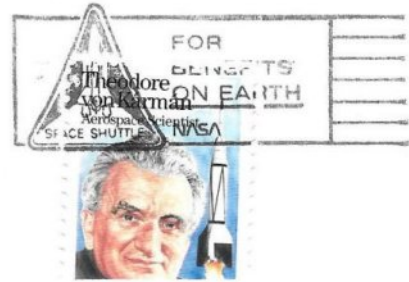


The success was repeated on September 3rd 1976 with the arrival on the planet of Viking 2, which landed in the region known as Utopia Planitia. Cover with a special mechanical postmark on a 'closed globe' plate issued at the internal post office of the Kennedy Space Centre on the day of the Viking 2 launch.

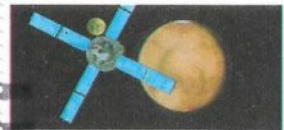
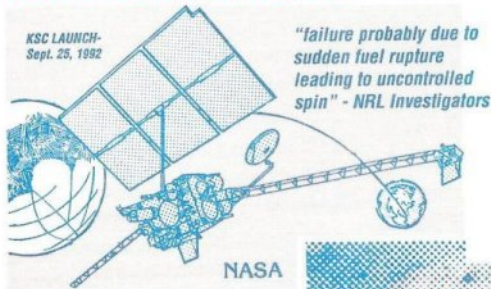


MARS OBSERVER - EREBUS PROJECT

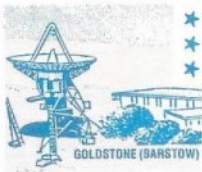
Mars Observer was a space probe launched on September 25th 1992 to study the geology and climate of Mars. Covers with a 'Space Shuttle' postmark of Kennedy Space Centre on the launch day and a postmark of Pasadena, where the Jet Propulsion Laboratory, the responsible centre for the development of space probes, on the day that contact was lost.



FAILS TO ORBIT-AUG. 24 PM, 1993



Mars Observer Programmed To Orbit Mars, Fails To Send Any Signals

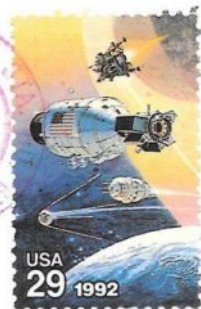
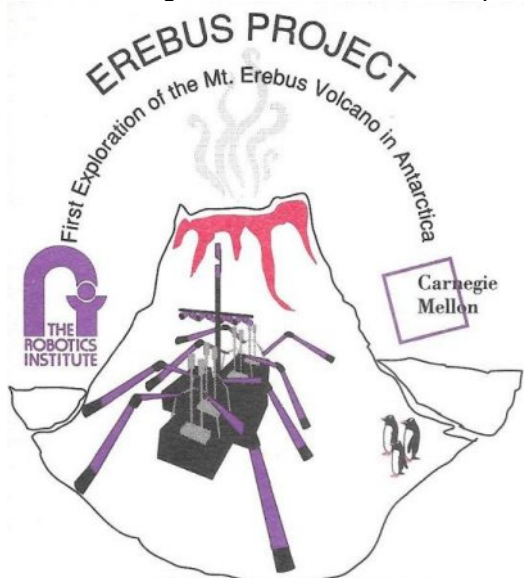


Mission Control Pasadena, CA Awaited Signals



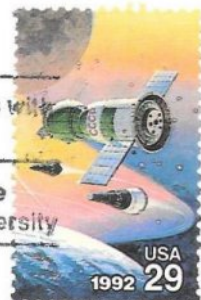
(Viking Photo-1976) -SOME BELIEVE "THE FACE ON MARS" STOPPED THE MARS OBSERVER

In 1992 a walking robot named Dante was sent to Antarctica to explore an active volcano, Mount Erebus, to simulate an exploration mission over rough terrain such as those that might be found on Mars. Cover with a manual postmark of Pittsburgh, home to the University, dated December 8th 1992, the day the robot was launched.



Mt. Erebus, Jan. 1 - 2, 1993 Antarctica

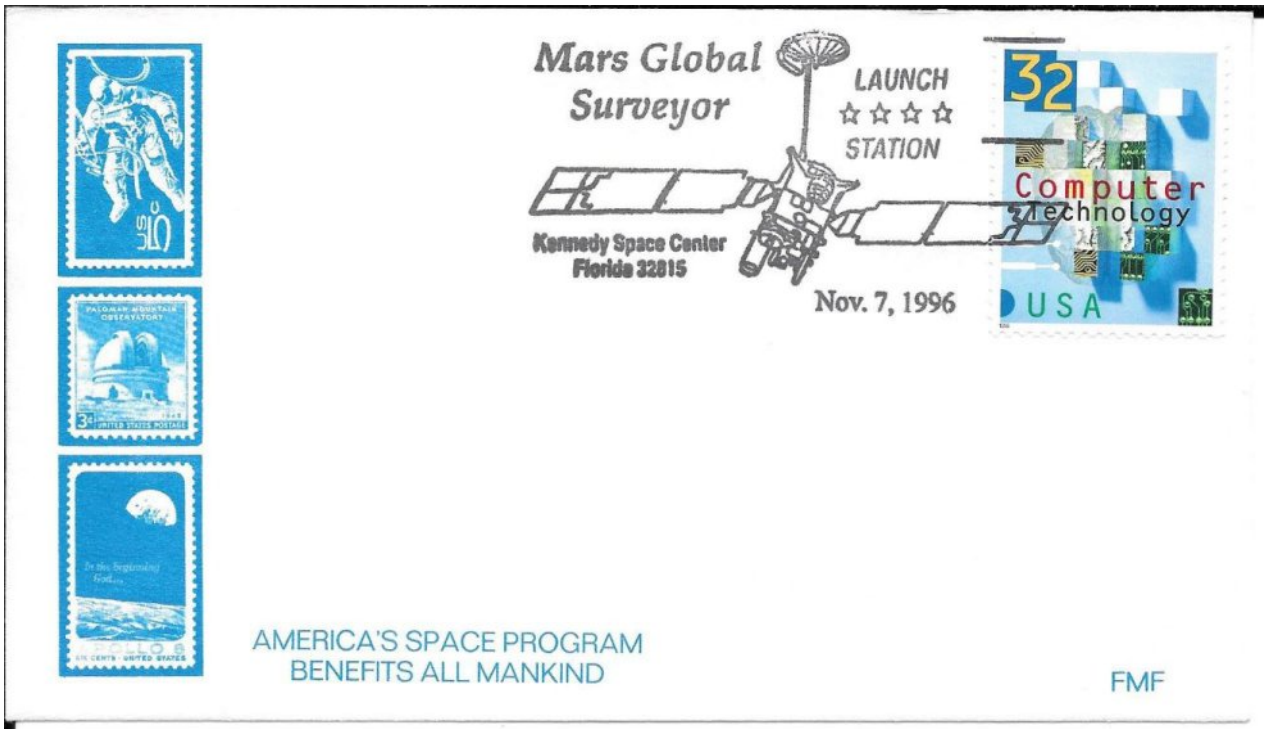
Carried to Mt. Erebus with Project Team Robotics Institute Carnegie Mellon University



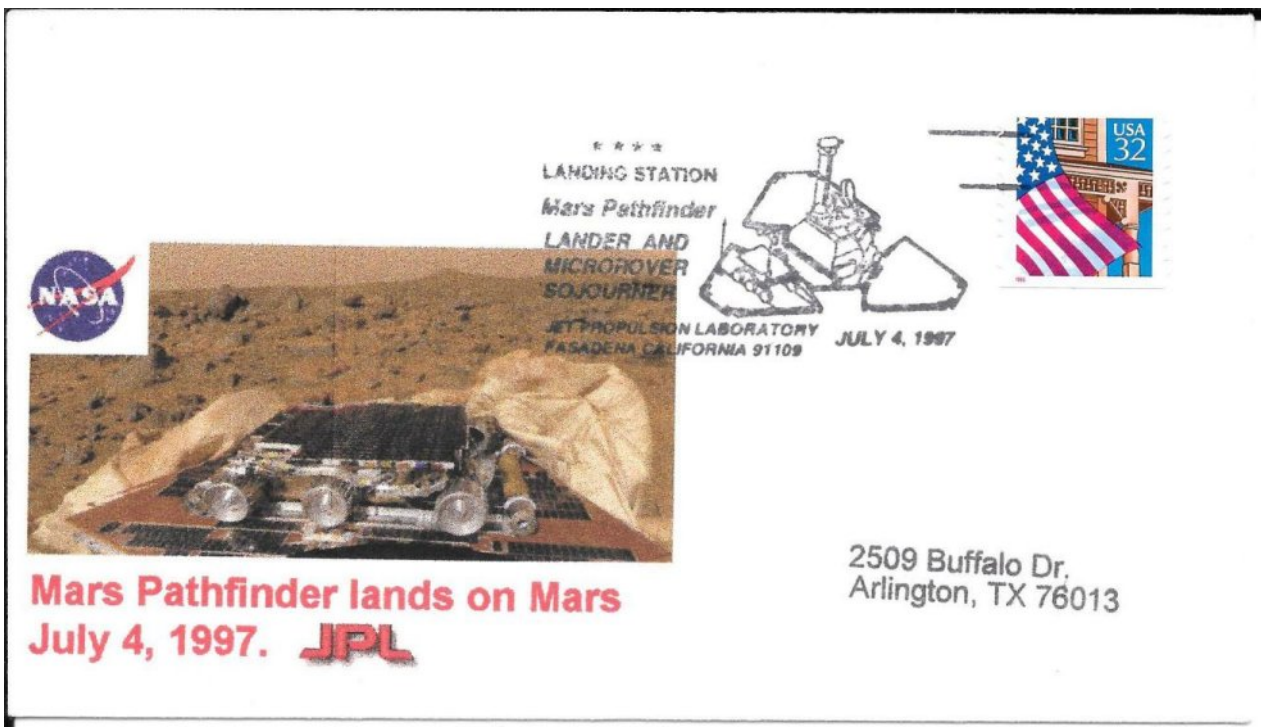
This cover was carried by the
 ■ Robot Explorer Dante
 ■ Project Team to Mt. Erebus
 Date: _____ Signed: *[Signature]*

MARS GLOBAL SURVEYOR - MARS PATHFINDER

Mars Global Surveyor began its first mapping mission in March 1999. The mission was extended several times, until contact was lost on November 2nd 2006. Cover with a special postmark of the mission, of the Kennedy Space Centre, dated November 7th 1996, the launch day.

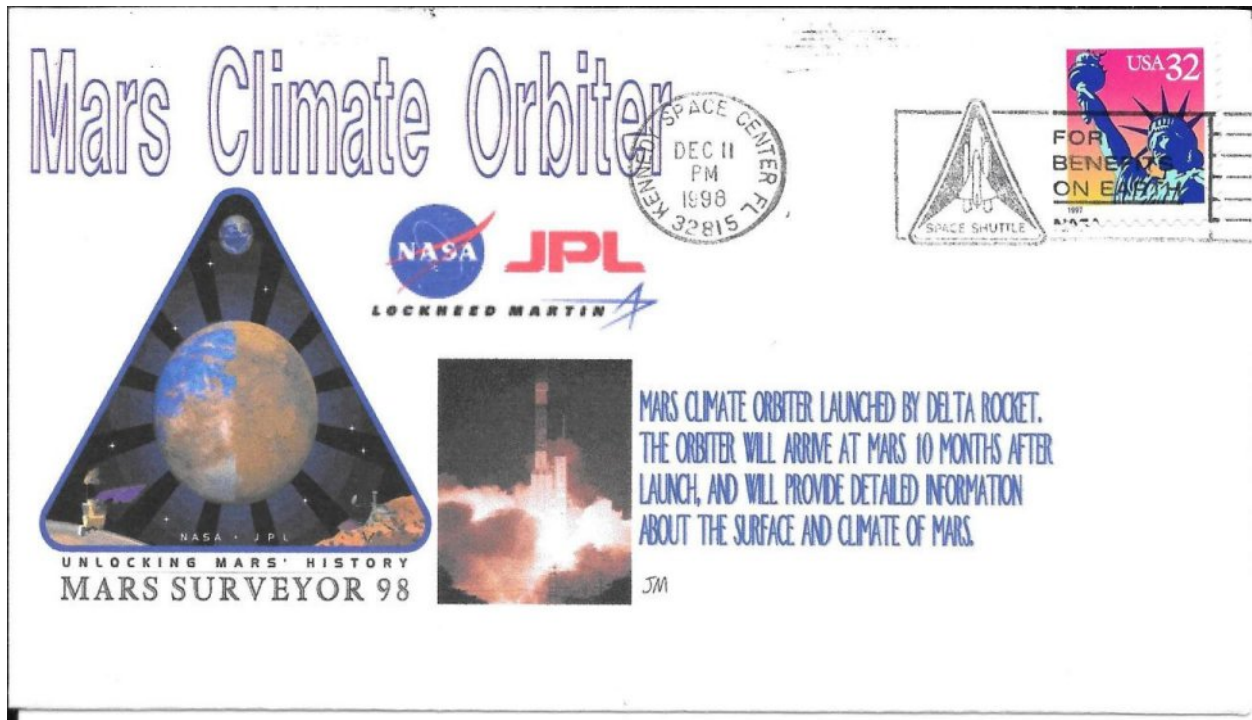


Launched on December 4th 1996, the Sojourner rover was one of NASA's most successful missions; the probe would use a system of giant airbags to cushion the impact with the ground. Cover with a special postmark of the mission of Pasadena, home of the Jet Propulsion Laboratory, the mission control centre, dated July 4th 1997, the day of the landing on Mars.

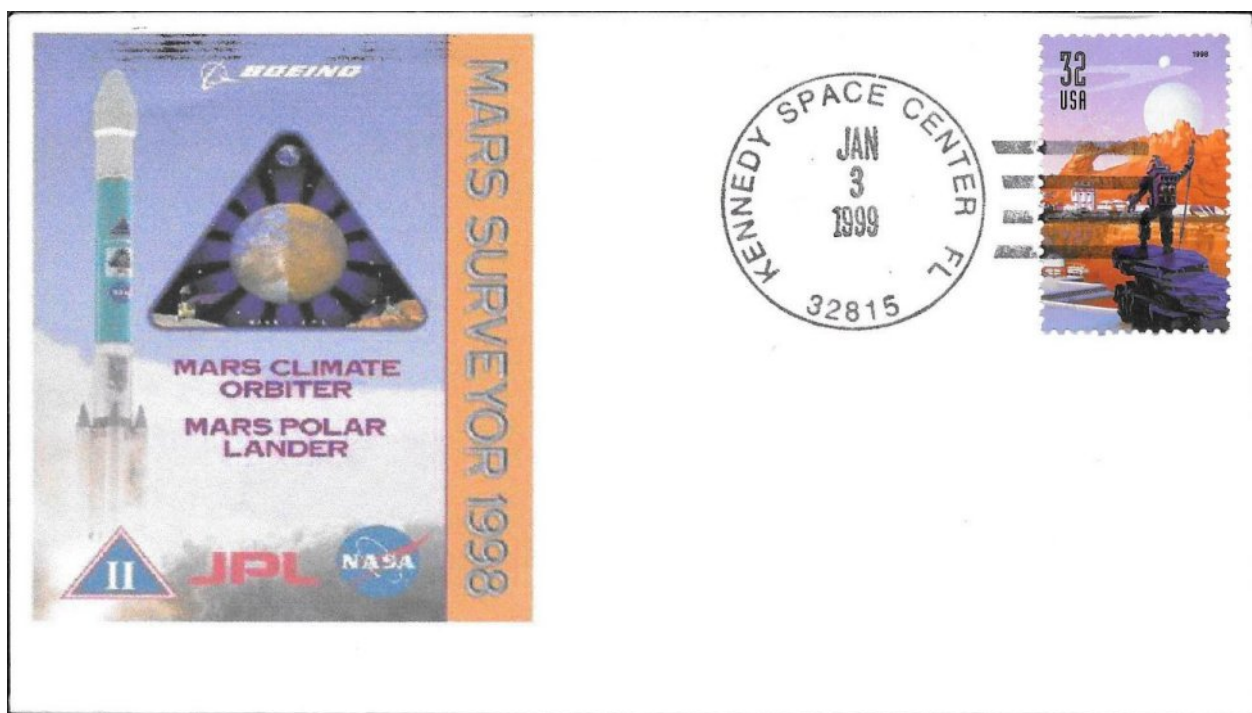


MARS CLIMATE ORBITER - MARS POLAR LANDER

NASA needed an orbiter to act as a radio link between Earth and the Martian surface. To this goal, the Mars Climate Orbiter was designed and launched on December 11th 1998. a spectacular misunderstanding between Lockheed Martin and NASA led to the loss of the probe on September 23rd 1999. Cover with a mechanical postmark featuring a Shuttle-themed plate of the Kennedy Space Center on the launch day.

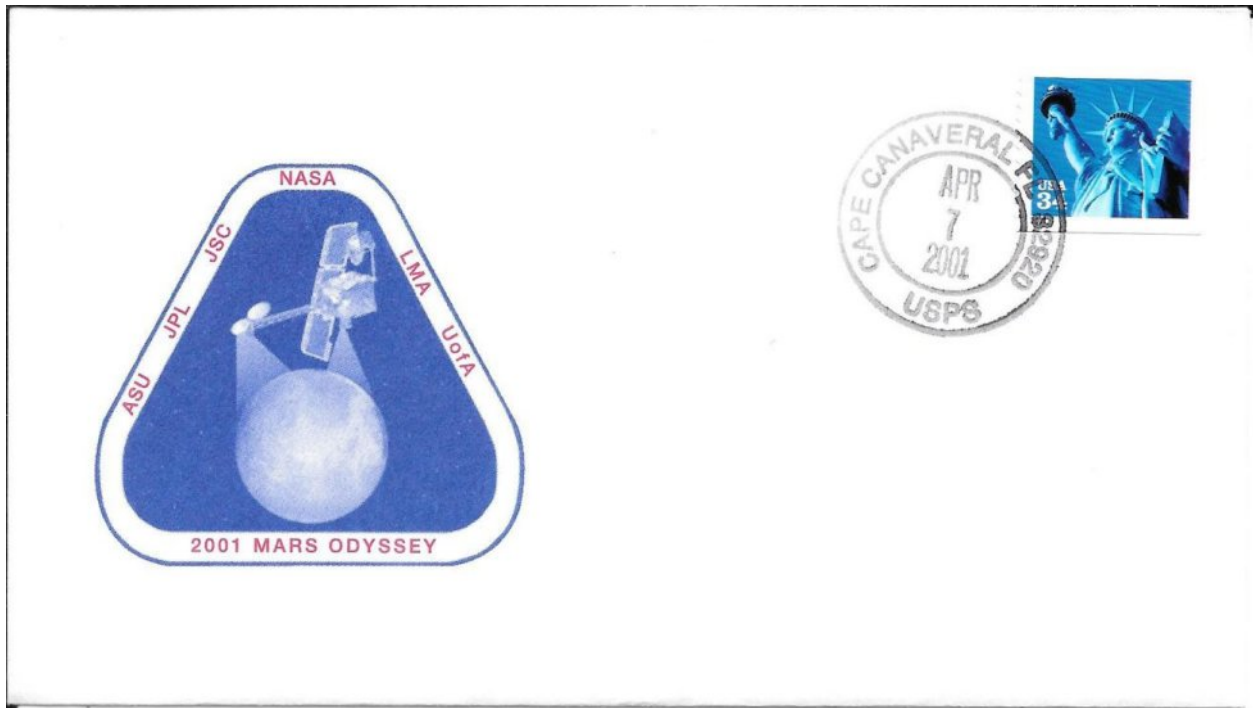


Mars Polar Lander had on board two small probes called Deep Space 2, designed to impact the Martian surface to test new technologies. Mars Polar Lander and Deep Space 2 were lost on arrival on December 3rd 1999, probably due to a fault in the landing software. Cover with a manual postmark of the internal post office of the Kennedy Space Centre dated January 3rd 1999, the day of the launch.

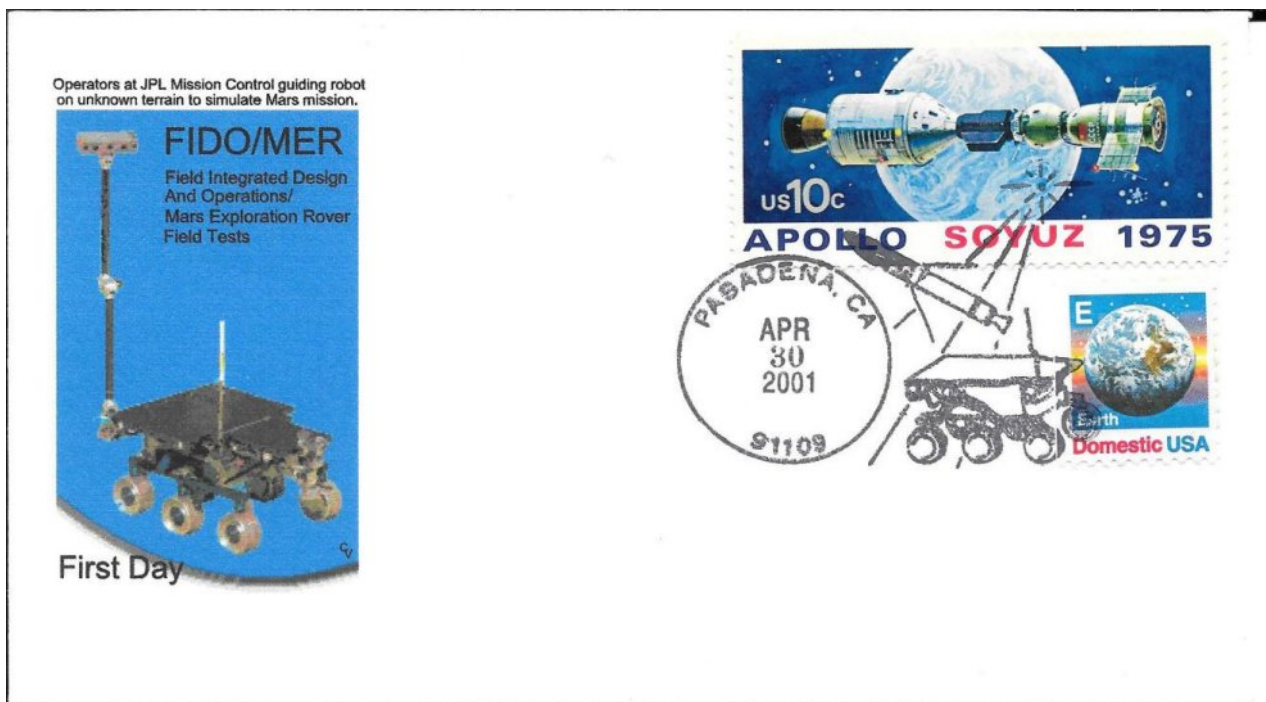


MARS ODISSEY - MARS FIDO ROVER

Launched on 7 April 2001 and still orbiting the Red Planet today, Odyssey is NASA's longest-running Mars mission. It carries the Thermal Emission Imaging System (THEMIS), an infrared camera that provides a unique view of the Martian surface. Envelope with a hand-cancelled postmark from Cape Canaveral on the day of launch.

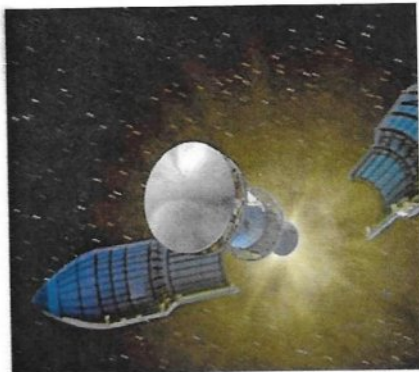


Five medium-sized research rover platforms were built at JPL in the early 2000s. The rovers were named FIDO (Field Integrated Design and Operations), Rocky 8, K9, Athena and PLuto. Envelope with a special FIDO-themed postmark from Pasadena, dated 30 April 2001, the first day of testing.



MARS EXPLORATION ROVER

The Mars Exploration Rover mission was a robotic space mission involving two rovers, Spirit and Opportunity. The rovers were launched on 10 June 2003 and 7 July 2003 respectively, and landed in January 2004 at widely separated equatorial locations on Mars. The last successful communication with Spirit was on 22 March 2010, while the last contact with Opportunity was on 10 June 2018. Covers with manual postmarks of the Kennedy Space Centre on the day of the launches and a cover with a special MER-themed postmark of Pasadena dated 3 January 2004, the day Spirit landed on Mars.



Mars
Exploration
Rover 1

"Spirit"

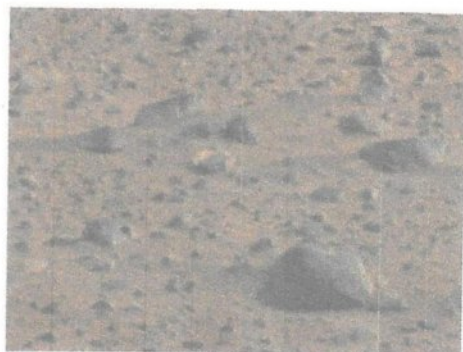


The "Spirit" rover was launched from Space Launch Complex 17A at the Cape Canaveral Air Force Station atop a Boeing Delta 2 (7925) rocket. From a preliminary parking orbit the Thiokol Star 48B solid-fuel motor ignited, boosting Spirit out of Earth orbit and

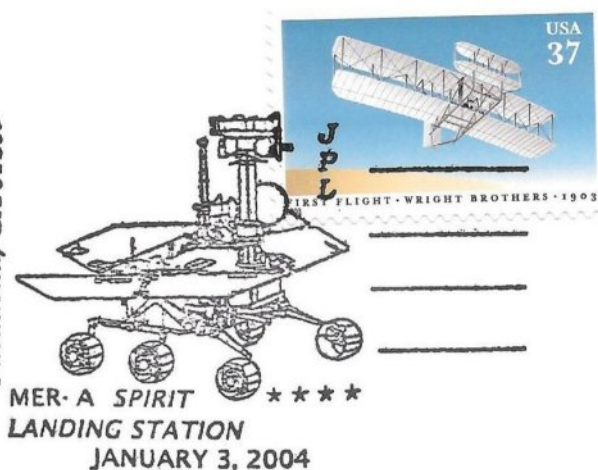


Mars
Exploration
Rover 2

"Opportunity"



Pasadena, CA 91109



David R. Silcox
404 East Broad Street
Shillington, PA 19607

MARS RECONNAISSANCE ORBITER - PHOENIX MARS LANDER

On 12 August 2005, NASA launched the Mars Reconnaissance Orbiter with the aim of improving our understanding of Mars through detailed observation, investigating potential landing sites for future surface missions. Cover with a manual postmark of the Kennedy Space Centre dated 12 August 2005, the day of the launch.



Mars Reconnaissance Orbiter Launch

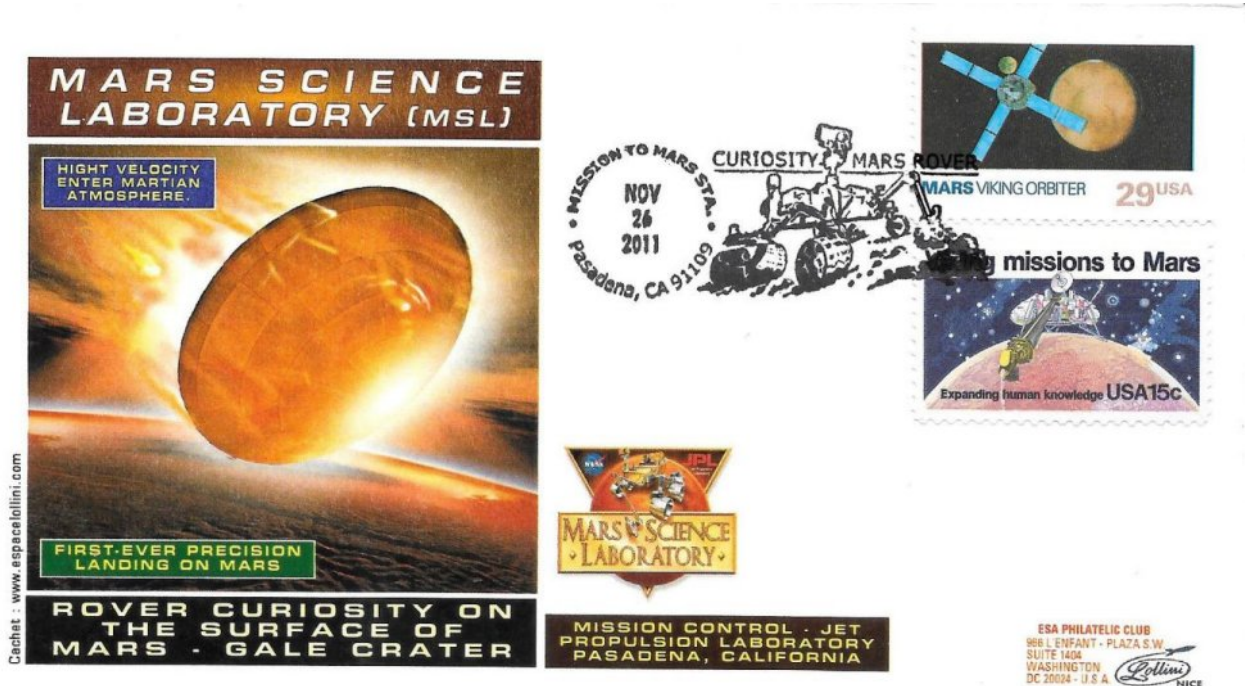
Trailing smoke and fire, an Atlas V launch vehicle, 19 stories tall, with a two-ton Mars Reconnaissance Orbiter (MRO) on top, roars away from Launch Complex 41 at Cape Canaveral Air Force Station at 7:43 a.m. EDT on August 12, 2005. All systems performed nominally for NASA's first launch of an Atlas V on an interplanetary mission. The orbiter carries six scientific instruments for examining the surface, atmosphere and subsurface of Mars in unprecedented detail from low orbit. For example, its high-resolution camera will reveal surface features as small as a dishwasher. NASA expects to get several times more data about Mars from the orbiter than from all previous Martian missions combined.

Launched on 4 August 2007 and landing on Mars on 25 May 2008, the Phoenix Mars Lander studied the Martian soil and operated until reduced sunlight meant there was insufficient energy to keep it running. Cover with a manual postmark from Cape Canaveral dated 4 August 2007, the day of the launch.



MARS SCIENCE LABORATORY - MAVEN

The Mars Science Laboratory is the exploration mission that brought the Curiosity rover to Mars; it was launched on 26 November 2011 and landed on the planet on 5 August 2012. Curiosity set out to determine whether Mars ever had the right environmental conditions to support microbial life. Cover with a special Curiosity-themed postmark of Pasadena on the day of launch.



MAVEN (Mars Atmospheric and Volatile Evolution) is the first spacecraft ever to take direct measurements of the Martian atmosphere. The probe is currently operational, with enough fuel to last at least until 2030. Cover with a special MAVEN-themed postmark of Cape Canaveral, dated 18 November 2013, the day of the launch.



A United Launch Alliance Atlas V lifted off from Space Launch Complex 41 at Cape Canaveral Air Force Station in Florida to send the Mars Atmosphere and Volatile Evolution, or MAVEN, spacecraft on its way to study the Red Planet's upper atmosphere. Scientists expect data gathered during the MAVEN mission to help explain how Mars' climate has changed over time due to the loss of atmospheric gases.

It will take MAVEN 10 months to reach Mars orbit, then its one-year research mission will begin.

MARS INSIGHT

The Interior Exploration using Seismic Investigations, Geodesy and Heat Transport (InSight) mission, was the first US interplanetary mission launched from California. On 20 December 2022, NASA announced that the InSight lander had lost communication with Earth. Covers bearing a special Insight-themed postmark of the post office at Vandenberg Air Force Base dated 5 May 2018, the day of launch; a special Insight-themed postmark of Pasadena dated 26 November 2018, the day of landing on Mars; and a manual postmark of Pasadena dated the day contact was lost with the lander.



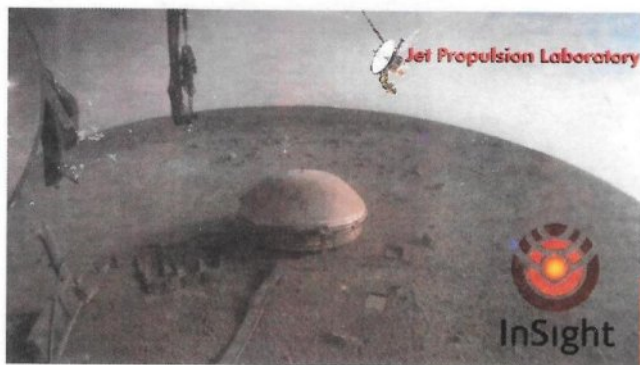
MISSION CONTROL - JET PROPULSION LABORATORY PASADENA, CALIFORNIA



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WASHINGTON
DC 20024 - U.S.A. *Polini* NICE



Mars InSight Lander Landing



Mars 'InSight' Lander Falls Silent
Jet Propulsion Laboratory - Pasadena CA
December 20 2022

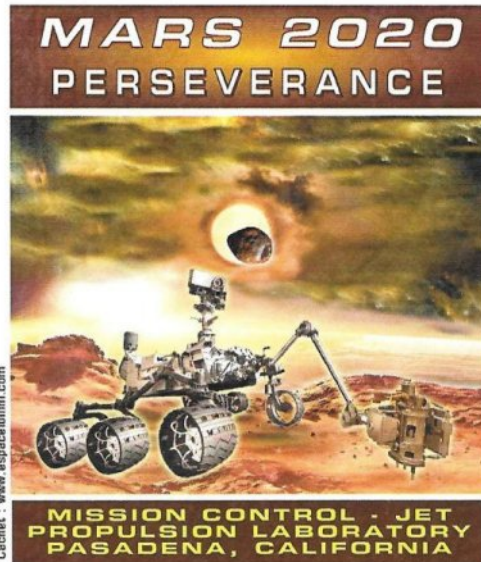


By now, it's a familiar view of Mars: A distant horizon strewn with rocks while, up close, a domed seismometer, a robotic arm and other instruments sit covered in red dust. But this photo from NASA's InSight Mars lander just might be its last. "My power's really low, so this may be the last image I can send," NASA wrote as the InSight lander while sharing the image on Twitter Monday December 19. "Don't worry about me, though: my time here has been both productive and serene." In a blog post on December, NASA announced that InSight failed to respond to communications from Earth and it's assumed the Mars lander may have reached the end of its operations. (Credit: Space.com)



MARS PERSEVERANCE ROVER

Perseverance is a car-sized Mars rover designed to explore Jezero Crater on Mars. The Mars Helicopter, Ingenuity, carried by the Perseverance rover, has successfully demonstrated powered flight in the thin Martian atmosphere. Covers bearing a special Mars 2020 figurative postmark of Cape Canaveral dated 30 July 2020, the day of launch; a special Perseverance figurative postmark of Pasadena dated 18 February 2021, the day of landing on Mars; and a manual postmark of Pasadena dated 19 April 2021, the day of the first flight of the Ingenuity mini-helicopter.



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LAN
CAP

LANDING SITE JEZERO
BASED ON DATA HIGH
STEREO CAMERA (HRSC)
ON ESA'S MARS EXPRESS



MARS PERSEVERANCE
LANDED - FEB
MISSION CONTROL-NASA
LABORATORY, PASA



Mars 'Ingenuity' Helicopter First Flight

Jet Propulsion Laboratory - Pasadena CA - April 19 2021

Monday, April 19 2021, NASA's Ingenuity Mars Helicopter became the first aircraft in history to make a powered, controlled flight on another planet. The Ingenuity team at the agency's Jet Propulsion Laboratory in Southern California confirmed the flight succeeded after receiving data from the helicopter via NASA's Perseverance Mars rover at 6:46 a.m. EDT (3:46 a.m. PDT). The solar-powered helicopter first became airborne at 3:34 a.m. EDT (12:34 a.m. PDT) - 12:33 Local Mean Solar Time (Mars time) - a time the Ingenuity team determined would have optimal energy and flight conditions. Altimeter data indicate Ingenuity climbed to its prescribed maximum altitude of 10 feet (3 meters) and maintained a stable hover for 30 seconds. It then descended, touching back down on the surface of Mars after logging a total of 39.1 seconds of flight. Additional details on the test are expected in upcoming downlinks. (Credit: NASA)

