



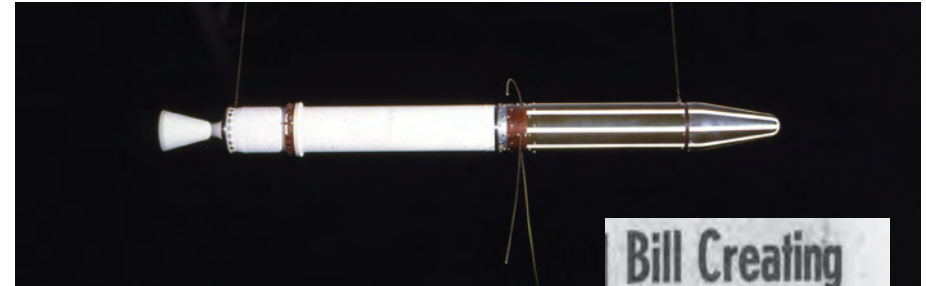
Sputnik 1. National Air and Space Museum

1957

Oct. 4 – The Soviet Union launches the first artificial satellite, Sputnik, into space. Sputnik was about the size of a beach ball and weighed less than 190 pounds. “Sputnik” means “companion” or “satellite” in Russian.

Listen to Sputnik’s beep at [nasa.gov/wpcontent/uploads/2015/01/578626main_sputnik-beep.mp3](https://www.nasa.gov/wpcontent/uploads/2015/01/578626main_sputnik-beep.mp3).

Nov. 3 – The U.S.S.R. launches Sputnik 2 with a dog named Laika on board. Laika did not survive the voyage.



Explorer 1. National Air and Space Museum

1958

Jan. 31 – The United States launches its first satellite, Explorer 1.

July 29 – President Eisenhower signs the National Aeronautics and Space Act, creating NASA.

Oct. 11 – The U.S. launches Pioneer 1, NASA’s first spacecraft. It was meant to go into lunar orbit, but sent just 43 minutes of data back before re-entering Earth’s atmosphere.

Bill Creating Space Agency Becomes Law

WASHINGTON, (UPI) — President Eisenhower signed into law yesterday a bill creating a powerful new federal space agency to supervise all this country’s efforts to unlock the secrets of the universe.

He also issued a special statement hailing the bill as a “historic step” which will help the United States lead the world in the exploration of space. The bill pledges the agency to “peaceful purposes for the benefit of all mankind.”

Eisenhower asked Congress to establish the new agency last fall after Russia stunned the world by launching the world’s first two artificial satellites.

The agency, to be called the Aeronautics and Space Administration (ASA), will be built around the 38-year-old National Advisory Committee for Aeronautics.

The new agency, to be headed by a \$22,500-a-year administrator, will plan, direct and conduct all of this country’s peaceful air and space research under President Eisenhower’s personal day-to-day supervision.

But the Defense Department will continue to have jurisdiction over space activities primarily involving weapons and defense. Here, too, the President, as now, will have the final word.



The original seven astronauts for the Mercury Project pose in front of an Air Force Jet. From left to right: Scott Carpenter, L. Gordon Cooper, John H. Glenn, Virgil I. Gus Grissom, Walter M. Wally Schirra, Alan B. Shepard, and Donald K. Deke Slayton. NASA



NASA selected its first seven astronauts on April 27, 1959. Left to right at front: Walter M. Wally Schirra, Donald K. Deke Slayton, John H. Glenn, Jr., and Scott Carpenter. Left to right at rear: Alan B. Shepard, Virgil I. Gus Grissom, and L. Gordon Cooper, Jr. NASA

'Moon' Races Around Globe 560 Miles Up

LONDON, (P) — The Russians announced yesterday they hung an artificial moon 560 miles out into space and that it is streaking around the world at enormous speed.

They said it can be seen with glasses and followed by radio through instruments it carries.

Sighting of man's first satellite was reported from Columbus, Ohio and Terre Haute, Ind. Signals from the radio - equipped sphere were picked up by the Naval Research Laboratory at Washington, D.C., and by amateur radio operators throughout the nation.

National Broadcasting Co. said Radio Corporation of America communications had picked up the sound of the Russian earth satellite launched somewhere in Russia yesterday.



The recovery operation of the Faith 7 spacecraft after the completion of the 1-1/2 day orbital flight (MA-9 mission) with Astronaut Gordon Cooper. Navy frogmen attach the flotation collar to the spacecraft. The MA-9 mission was the last flight of the Mercury Project and launched on May 15, 1963 boosted by The Mercury-Atlas launch vehicle. NASA

St. Petersburg Times

THURSDAY, APRIL 23, 1959

Sure They'll Come Back Safe America's First Space Pioneers Ready To Orbit

Move To Close Schools Hit By Clergyman

Predicts Political Retaliation Redistricting Sectional War Seen By Collins

Governor Offers Some Significant Political Advice

Japan Celebrates Wedding Of Prince

Broad Court Reform Plan Is Outlined

1959

Jan. 2 – The Soviet satellite Luna (“Moon”) 1 launches in an attempt to hit the moon. It misses the moon and instead becomes the first man-made object to achieve an orbit around the Sun. It is later dubbed “Artificial Planet 1” and renamed Mechta (“Dream”).

April 9 – NASA introduces the first American astronauts, the Mercury 7.

Sept. 13 – The Soviet satellite Luna 2 becomes the first spacecraft to impact the surface of the moon.

Oct. 4 – The Soviet satellite Luna 3 launches, orbits the moon and photographs the moon’s far side for the first time.



Astronaut John Glenn enters the Mercury spacecraft, Friendship 7, prior to the launch of MA-6 on February 20, 1961 and became the first American who orbited Earth. The MA-6 mission was the first manned orbital flight boosted by the Mercury-Atlas vehicle, a modified Atlas ICBM (Intercontinental Ballistic Missile), lasted for five hours, and orbited Earth three times.



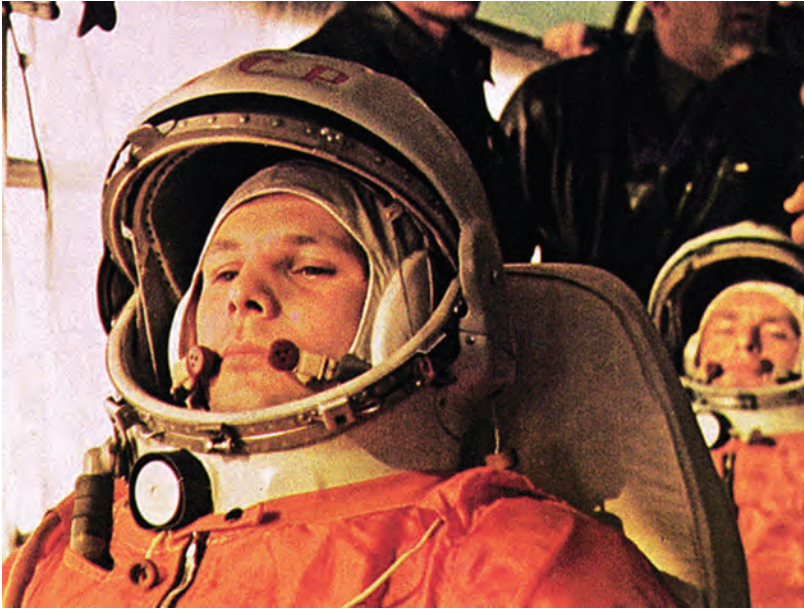
Ham, a three-year-old chimpanzee, in the spacesuit he would wear for the second Mercury- Redstone (MR-2) suborbital test flight in January, 1961. NASA used chimpanzees and other primates to test the Mercury capsule before launching the first American astronaut, Alan Shepard, in May 1961. NASA



A three-year-old chimpanzee, named Ham, in the biopack couch for the MR-2 suborbital test flight. On January 31, 1961, a Mercury-Redstone launch from Cape Canaveral carried the chimpanzee "Ham" over 640 kilometers down range in an arching trajectory that reached a peak of 254 kilometers above Earth. The mission was successful and Ham performed his lever-pulling task well in response to the flashing light. NASA used chimpanzees and other primates to test the Mercury Capsule before launching the first American astronaut Alan Shepard in May 1961. NASA



First pass of Echo 1 over the Goldstone Tracking Station in California on the morning of Aug. 12, 1960. NASA/JPL-Caltech



Yuri Gagarin, pilot of the Vostok 1, on the bus on the way to the launch. During the flight, he was not allowed to operate the controls because the effects of weightlessness had only been tested on dogs so far. The mission was instead controlled by ground crews, and an override key was provided in case of emergency. NASA



Echo 1. National Air and Space Museum

1960

April 1 – The U.S. launches TIROS 1, the first weather satellite. Although it operated for only 78 days, it transmitted the first television image from space.

Aug. 12 – The U.S. launches ECHO 1, the first communications satellite.

Aug. 19 – The U.S.S.R. launches Sputnik 5, carrying the dogs Strelka and Belka. They become the first living beings to survive a trip into space.

1961

April 12 – Soviet cosmonaut Yuri Gagarin becomes the first human in space. Gagarin completes one orbit of Earth in the Soviet spacecraft Vostok (“East”) 1. April 12 is internationally recognized as “Yuri’s Day.”

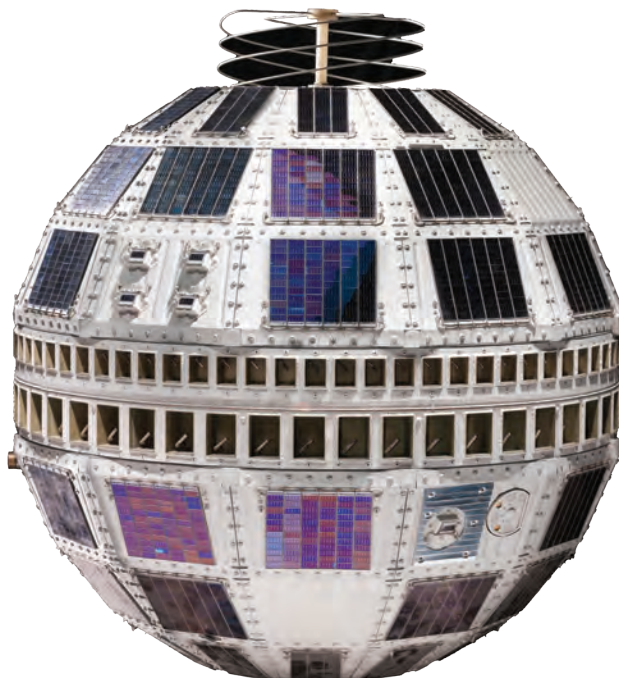
May 5 – Astronaut Alan Shepard completes a 15-minute suborbital flight and becomes the first American in space.

May 25 – President Kennedy challenges the country to put a man on the moon by the end of the decade.



Soviet cosmonaut Yuri Gagarin shakes hands with NASA's Gemini 4 astronauts, Edward H. White II and James A. McDivitt at the Paris International Air Show in June 1965. This first meeting between Gagarin and the Gemini 4 astronauts occurred shortly after the completion of the Gemini 4 mission, where White performed the first American EVA. Yuri Gagarin achieved fame as the first human to orbit Earth. Also shown in the picture (seated) are Vice President Hubert H. Humphrey and (standing) French Premier Georges Pompidou. NASA

Right: Telstar 1. National Air and Space Museum



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7TH YEAR—No. 101

FOUR SECTIONS—66 PAGES

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THE TAMPA TRIBUNE

TAMPA, FLORIDA, THURSDAY, APRIL 15, 1965

Districting Bill Passes Senate, 35-3

'Park Choppers' Whip Through Bryant Plan Calling For 43-Member Senate

SENATE, April 14 (AP)—A bill to reorganize the Senate into 43 members passed today by a vote of 35-3. The bill, known as the "Park Choppers" bill, was introduced by Sen. J. Lee Rankin (D-Miss.) and passed by a vote of 35-3. The bill would reduce the number of senators from 100 to 43, with each state having one senator. The bill was passed by a vote of 35-3, with 35 senators voting in favor, 3 against, and 2 absent. The bill was passed by a vote of 35-3, with 35 senators voting in favor, 3 against, and 2 absent. The bill was passed by a vote of 35-3, with 35 senators voting in favor, 3 against, and 2 absent.

Indecent Book, Film Passes Senate

SENATE, April 14 (AP)—A bill to allow the distribution of indecent material to be sold or shown in public places passed today by a vote of 35-3. The bill, known as the "Indecent Book and Film" bill, was introduced by Sen. J. Lee Rankin (D-Miss.) and passed by a vote of 35-3. The bill would allow the distribution of indecent material to be sold or shown in public places. The bill was passed by a vote of 35-3, with 35 senators voting in favor, 3 against, and 2 absent.

Russians Put Man In Space Orbit And Return Him Alive

Space Man

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Soviets Say Space Man Feels Well, No Injuries

Space Man

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Happy, Boasting Soviet Officials Challenge West To Equal Feat

Space Man

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Red Space Feat Raises Puzzling Questions

Space Man

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Legislators To Get Plea Not to Annex Plant Site

HOUSE VOTES THAT PUPILS LEARN ABOUT COMMUNISM

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Kennedy Says 'We Are Behind In Space'

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Bill To Ban Secrecy In Government Introduced

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The Weather

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Northeast Florida Lashed by High Winds, Heavy Rain

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FOR BUSY PEOPLE

A Quick Look at the News

There was a lot of activity in the news today. The Senate passed a bill to reorganize the Senate into 43 members. The House passed a bill to allow the distribution of indecent material to be sold or shown in public places. The President signed a bill to allow the distribution of indecent material to be sold or shown in public places. The news today was full of activity.

Russians Hail Soviet Space Man

HOUSE VOTES THAT PUPILS LEARN ABOUT COMMUNISM

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1962

Feb. 20 – Astronaut John Glenn becomes the first American in orbit. Glenn completes three orbits of Earth in the spacecraft Friendship 7.

June 16 – Cosmonaut Valentina Nikolayeva Tereshkova becomes the first woman in space.

July 10 – The U.S. launches Telstar I, the first active communications satellite and the first satellite launched for a private company (AT&T). On July 23, it relays the first publicly available transatlantic TV signal.

Dec. 14 – The U.S. spacecraft Mariner 2 flies past the planet Venus in the first space mission to study another planet at close range.



A camera onboard the "Friendship 7" Mercury spacecraft photographs astronaut John H. Glenn Jr. during the Mercury-Atlas 6 spaceflight. NASA



John Glenn poses for a photo with the Mercury "Friendship 7" spacecraft during preflight activities. NASA



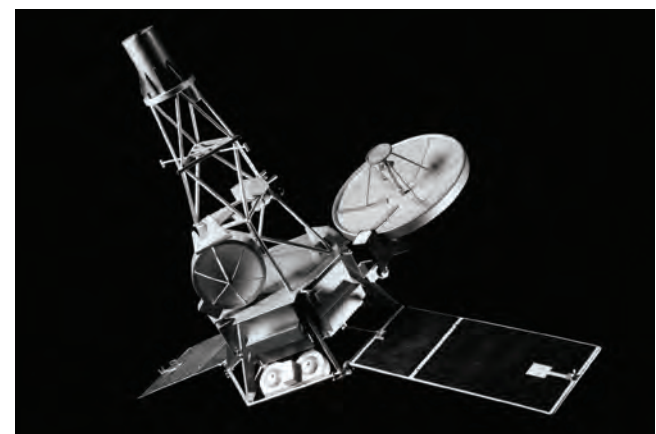
Valentina Tereshkova. San Diego Air and Space Museum



1964

July 19 – China launches and recovers an experimental biological rocket carrying white mice.

A model of the Mariner spacecraft at the National Aeronautics and Space Administration (NASA) Lewis Research Center in June 1964. NASA



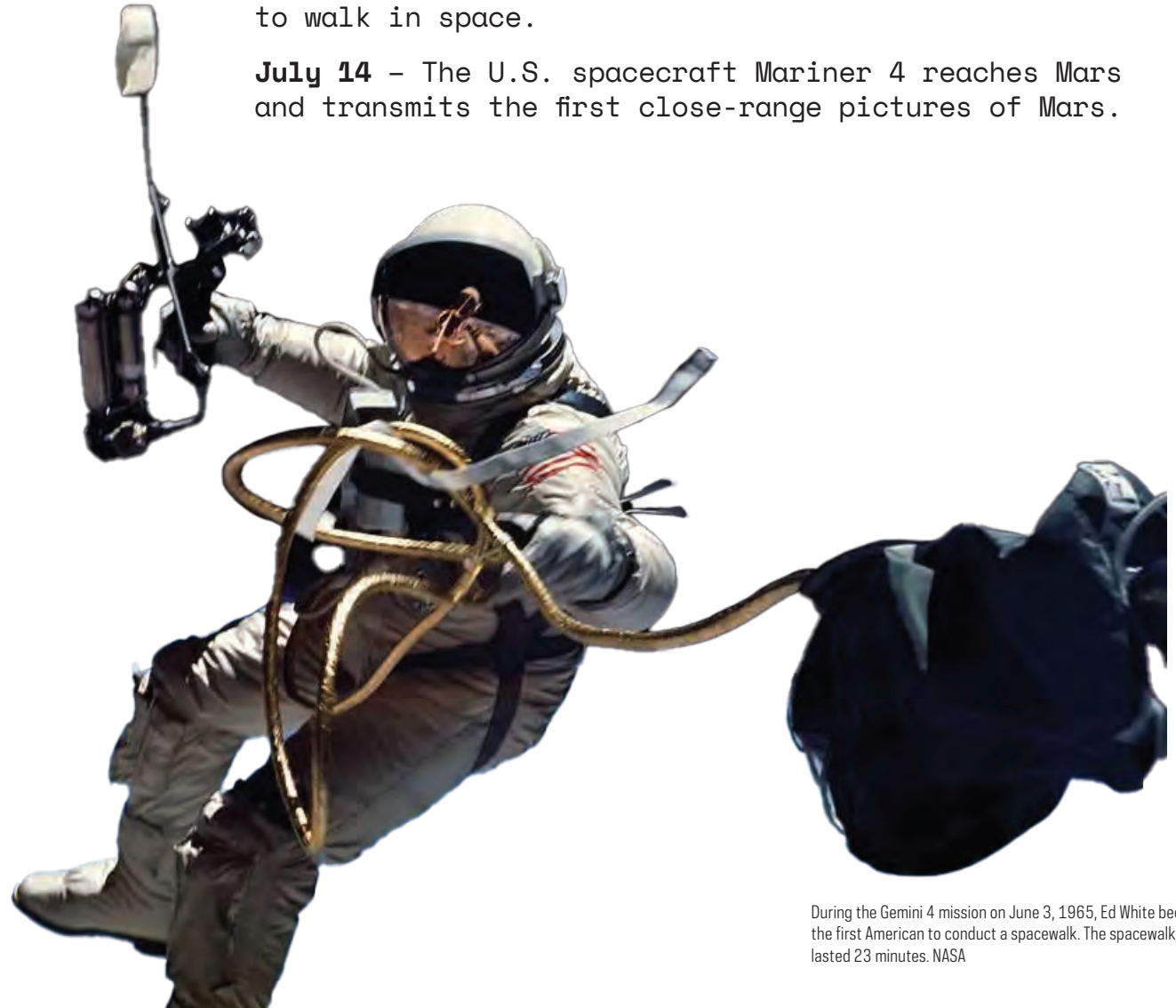


1965

March 18 – Cosmonaut Alexi Leonov becomes the first man to walk in space, performing the first tethered spacewalk outside spacecraft Voskhod ("Sunrise") 2 while in Earth's orbit.

June 3 – Astronaut Ed White becomes the first American to walk in space.

July 14 – The U.S. spacecraft Mariner 4 reaches Mars and transmits the first close-range pictures of Mars.



During the Gemini 4 mission on June 3, 1965, Ed White became the first American to conduct a spacewalk. The spacewalk lasted 23 minutes. NASA



Astronauts, from the left, Gus Grissom, Ed White II and Roger Chaffee stand near Cape Kennedy's Launch Complex 34 during training for Apollo 1 in January 1967. NASA

1966

Feb. 3 – The Soviet spacecraft Luna 9 becomes the first spacecraft to make a soft landing on the moon and transmit pictures back to Earth.

April 3 – The Soviet spacecraft Luna 10 becomes the first spacecraft to orbit the moon. The spacecraft operates for 460 lunar orbits and makes 219 active data transmissions.

June 2 – The U.S. spacecraft Surveyor 1 becomes the first American spacecraft to land on the moon.



1967

Jan. 27 – Astronauts Gus Grissom, Ed White and Roger Chaffee are killed in an accidental fire on the launch pad during a preflight test. The mission originally scheduled for Grissom, White and Chaffee is later designated Apollo 1.

April 24 – Cosmonaut Vladimir M. Komarov is killed in a crash when the parachute on his Soyuz (“Union”) 1 spacecraft fails to deploy.

Oct. 10 – [The Outer Space Treaty](#), which provides the basic framework on international space law, enters into force.

Oct. 18 – The Soviet space probe Venera (“Venus”) 4 sends a capsule to descend into the atmosphere of the planet Venus. It is the first probe to perform in-place analysis of the environment of another planet.



Taken aboard Apollo 8 by Bill Anders, this iconic picture shows Earth peeking out from beyond the lunar surface as the first crewed spacecraft circumnavigated the Moon, with astronauts Anders, Frank Borman, and Jim Lovell aboard. NASA

1968

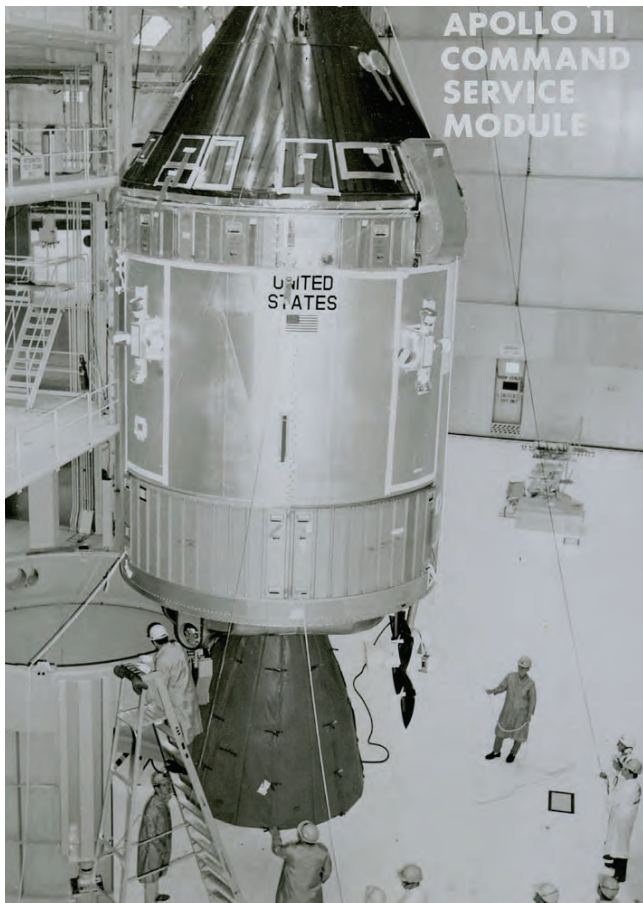
Sept. 15 – The Soviet spacecraft Zond (“Probe”) 5 launches. It becomes the first spacecraft to orbit the moon and return safely to Earth. The spacecraft also carries the first terrestrial organisms to the moon, including two tortoises, fruit fly eggs and plants.

Dec. 7 – The U.S. launches the Orbiting Astronomical Observatory 2, or Stargazer, the first autonomous orbiting observatory.

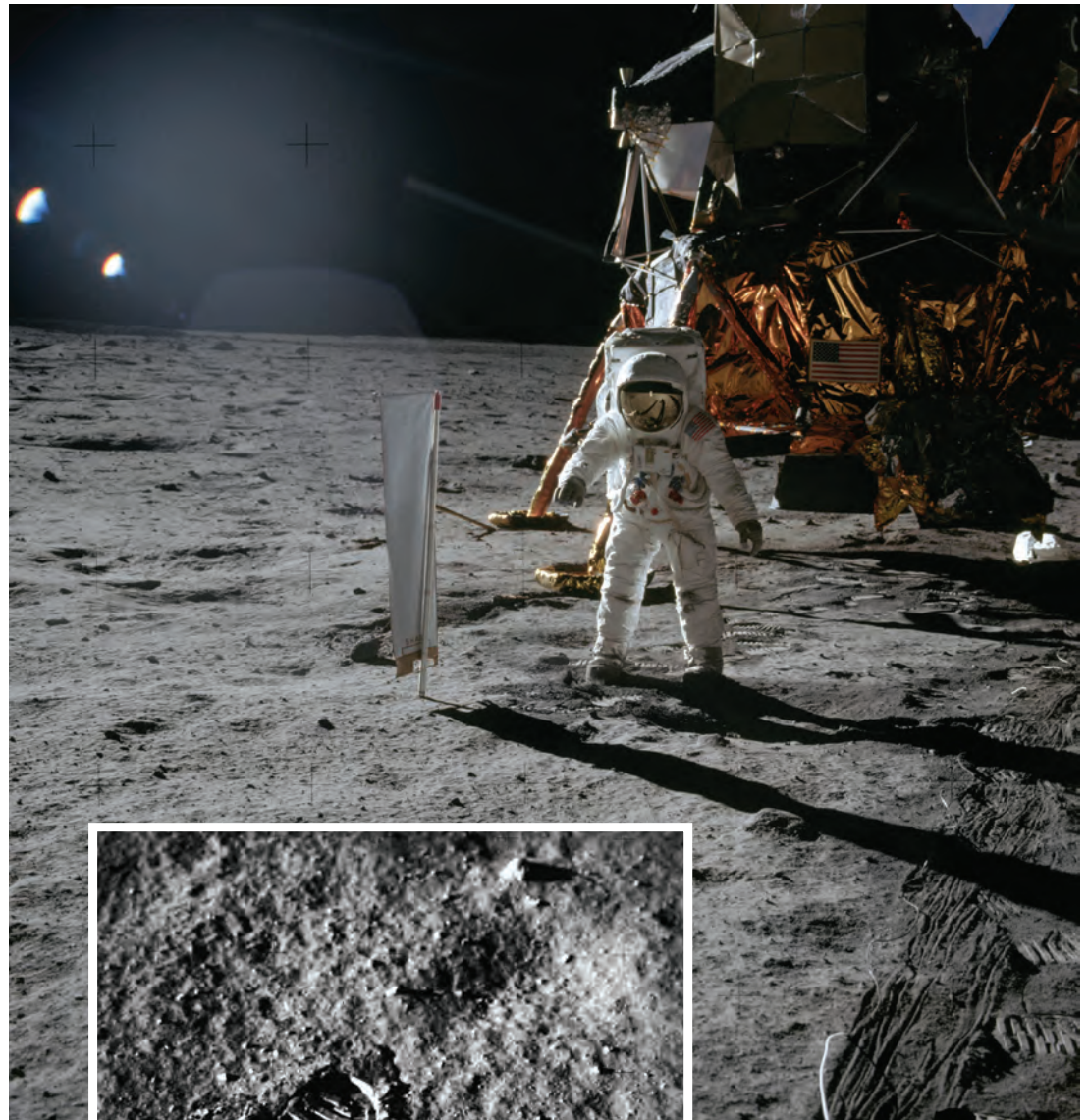
Dec. 21 – The U.S. mission Apollo 8 launches. Astronauts Bill Anders, Frank Borman and Jim Lovell become the first humans to orbit the moon and the first humans to see Earth from lunar orbit. On Dec. 24, Anders takes the iconic photo “Earthrise,” which shows Earth peeking out from beyond the lunar surface.

1969

July 20 – Astronauts Neil Armstrong and Edwin E. "Buzz" Aldrin Jr. become the first humans to walk on another celestial body, the moon, during the U.S. Apollo 11 mission.



Apollo 11 command service module. NASA

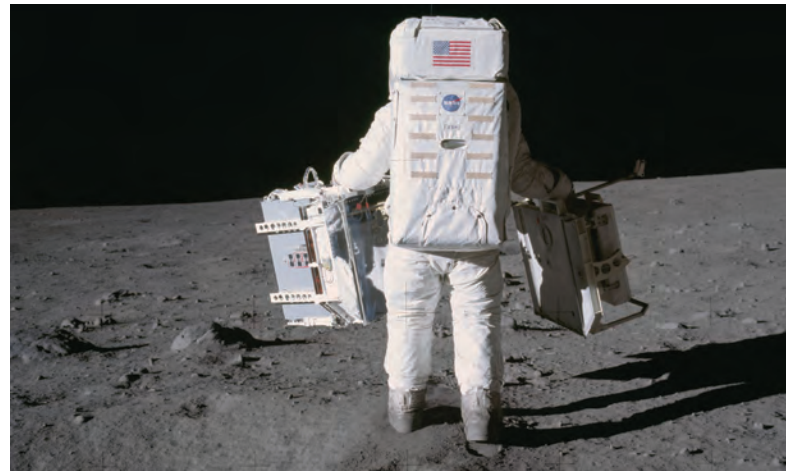


Close-up view of an astronaut's footprint in the lunar soil. NASA

Astronaut Buzz Aldrin, lunar module pilot, is photographed during the Apollo 11 extravehicular activity (EVA) on the lunar surface. In the right background is the lunar module. On Aldrin's right is the Solar Wind Composition (SWC) experiment, already deployed. NASA



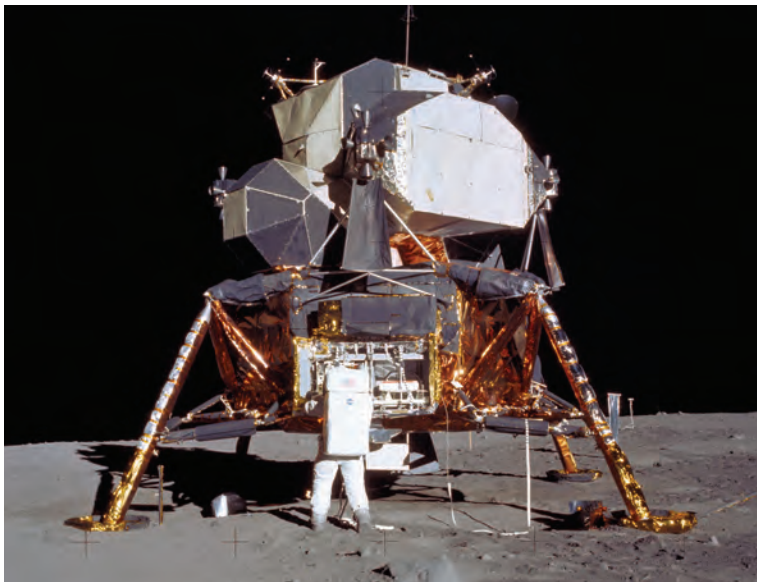
Astronaut Edwin E. "Buzz" Aldrin Jr., lunar module pilot, egresses the Lunar Module (LM) "Eagle" and begins to descend the steps of the LM ladder as he prepares to walk on the moon. While astronauts Armstrong and Aldrin descended in the LM "Eagle" to explore the moon, astronaut Michael Collins, command module pilot, remained with the Command and Service Modules (CSM) "Columbia" in lunar orbit. NASA



Astronaut Edwin E. "Buzz" Aldrin Jr., lunar module pilot, moves toward a position to deploy two components of the Early Apollo Scientific Experiments Package (EASEP) on the surface of the Moon during the Apollo 11 extravehicular activity. The Passive Seismic Experiments Package (PSEP) is in his left hand; and in his right hand is the Laser Ranging Retro-Reflector (LR3). NASA



Apollo program mission patch. NASA

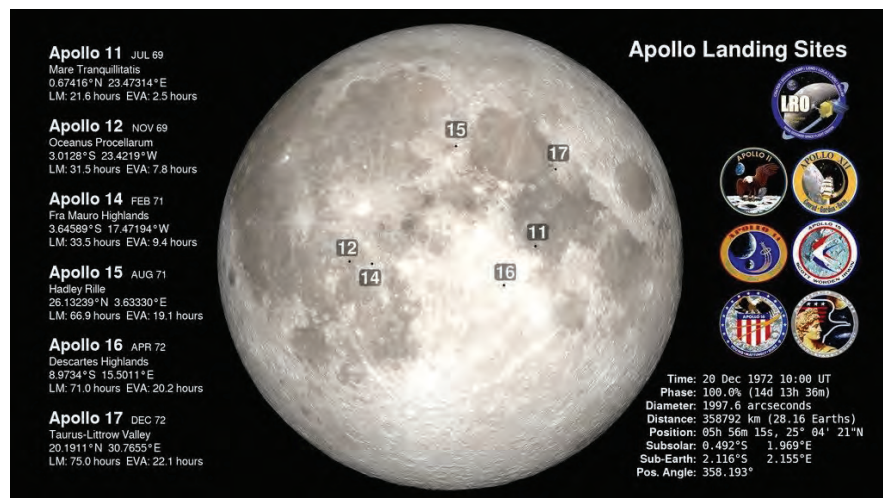


Apollo 11 Lunar Module resting on lunar surface. Astronaut Edwin E. "Buzz" Aldrin Jr., lunar module pilot, prepares to deploy the Early Apollo Scientific Experiments Package (EASEP) during the Apollo 11 lunar surface extravehicular activity (EVA). NASA





Prototype of the "mail box" constructed at the Manned Spacecraft Center (MSC) to remove carbon dioxide from the Apollo 13 Command Module (CM) is displayed in the Mission Control Center (MCC). The "mail box" was constructed when it became apparent CO₂ was prevalent in the CM and the spacecraft's lithium hydroxide system was not removing it sufficiently. A space suit exhaust hose is connected to a lithium hydroxide canister to purge the cabin air. There are 16 such canisters in the CM and each will last approximately 12 hours. Looking at the "mail box" are (from the left): Milton L. Windler, shift 1 flight director; Dr. Donald K. (Deke) Slayton, director of flight crew operations, MSC; Howard W. Tindall, deputy director, flight operations, MSC; Sigurd A. Sjoberg, director, flight operations, MSC; Dr. Christopher C. Kraft, deputy director, MSC; and Dr. Robert R. Gilruth, director, MSC. NASA



1970

April 11 - The U.S. mission Apollo 13 launches, crewed by astronauts Jim Lovell, John "Jack" Swigert and Fred Haise. Just under 56 hours into the mission, an oxygen tank in the service module explodes, forcing the crew to use the small lunar module as a lifeboat. After more than three days circling the moon, the crew returns safely to Earth.

April 24 - China launches its first satellite, which broadcasts the patriotic anthem "The East is Red" as it orbits. It is the fifth country to send a satellite into orbit, following the Soviet Union, the United States, France and Japan.

Sept. 12 - The Soviet spacecraft Luna 16 launches. It becomes the first automatic spacecraft to return soil samples of the moon.

Nov. 17 - The Soviet spacecraft Luna 17 lands on the moon with the first automatic robot, Lunokhod 1. Driven by a five-person team back on Earth, Lunokhod ("Moonwalker") 1 travels over the lunar surface for 11 lunar days (322 Earth days).

Dec. 15 - The Soviet spacecraft Venera 7 lands on Venus, becoming the first probe to make a soft landing on another planet. The craft is able to transmit data for 23 minutes.



1971

April 19 – The U.S.S.R. launches the space station Salyut ("Salute") 1, the first space station in orbit around Earth.

June 6 – The Soviet spacecraft Soyuz 11 carries cosmonauts G.T. Dobrovolsky, V.N. Volkov, and V.I. Patsayev to the Salyut 1 station in the first human occupancy of an orbital space station. On June 29, the three cosmonauts become the first humans killed in space when the crew capsule depressurizes while preparing for reentry.

July 30 – Astronauts David Scott and James Irwin drive the first Lunar Roving Vehicle, also known as the Moon Buggy, on the surface of the moon.

Nov. 13 – The U.S. Mariner 9 probe reaches Mars and becomes the first spacecraft to orbit another planet.

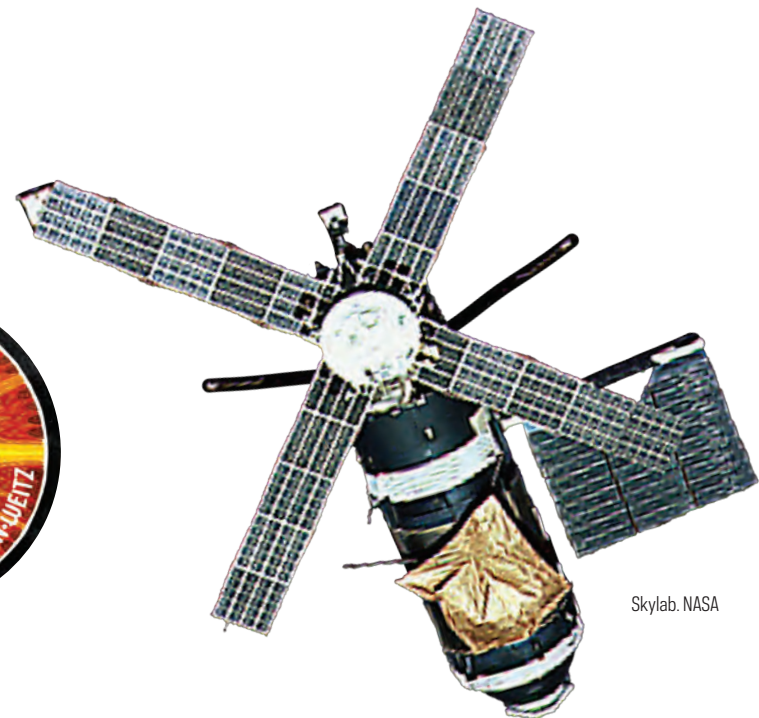
Dec. 2 – The Soviet lander Mars 3 becomes the first spacecraft to soft-land on Mars, but contact is lost after just 20 seconds.



Lunar Roving Vehicle (LRV). NASA



Skylab 1 mission patch. NASA



Skylab. NASA

1972

July 23 – The U.S. launches its Landsat 1 satellite, beginning more than 40 years of continuous observations of Earth's land surfaces, oceans and atmosphere.

Dec. 11 – Eugene Cernan and Harrison "Jack" Schmitt become the last humans to walk on the moon.

1973

May 14 – The U.S. launches Skylab, the first U.S. space station.

Dec. 3 – The U.S. spacecraft Pioneer 10 becomes the first spacecraft to fly by Jupiter.



July 17 – The U.S. spacecraft Apollo 18 and Soviet spacecraft Soyuz 19 dock in the Apollo-Soyuz Test Project, the first joint mission between the U.S. and U.S.S.R.

Oct. 22 – The Soviet Venera 9 spacecraft lands successfully on Venus and sends the first pictures of the Venusian surface back to Earth.

Apollo spacecraft as seen from Soyuz. NASA/U.S.S.R.
Academy of Sciences



1976

July 20 - The U.S. lander Viking 1 becomes the first spacecraft to successfully land on Mars and later performs the first Martian soil sample using its robotic arm and a special biological laboratory.

Sept. 3 - The U.S. lander Viking 2 lands on Mars. It later discovers and photographs water frost.

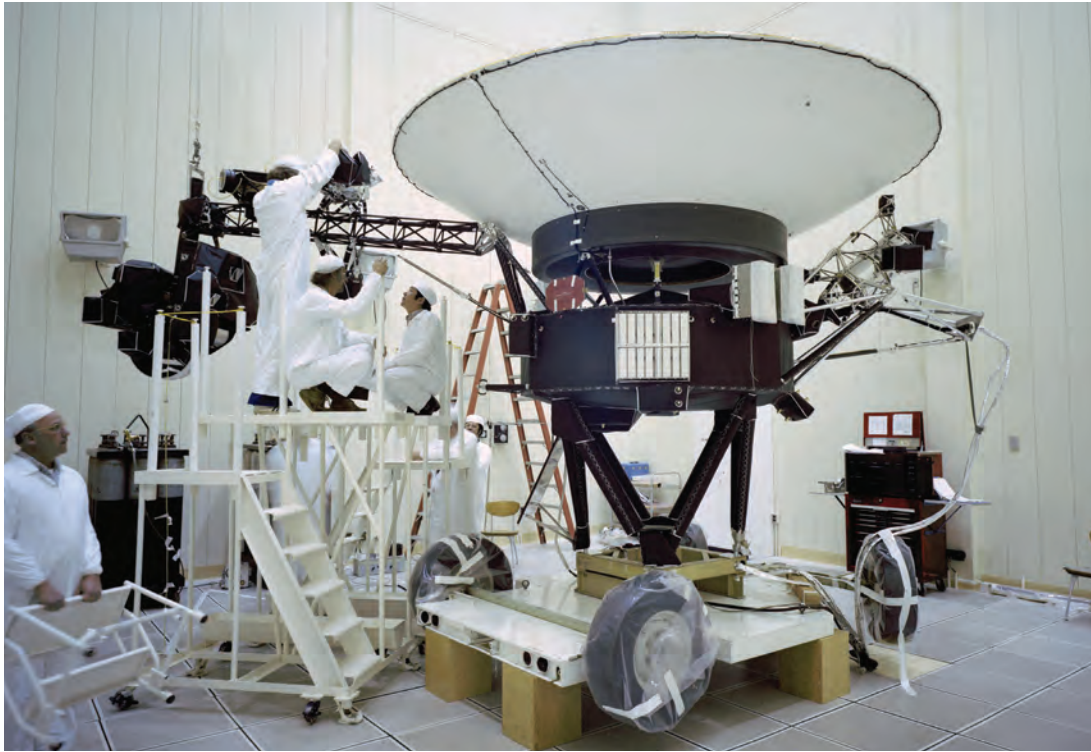
1977

Aug. 20 - The U.S. spacecraft Voyager 2 launches.

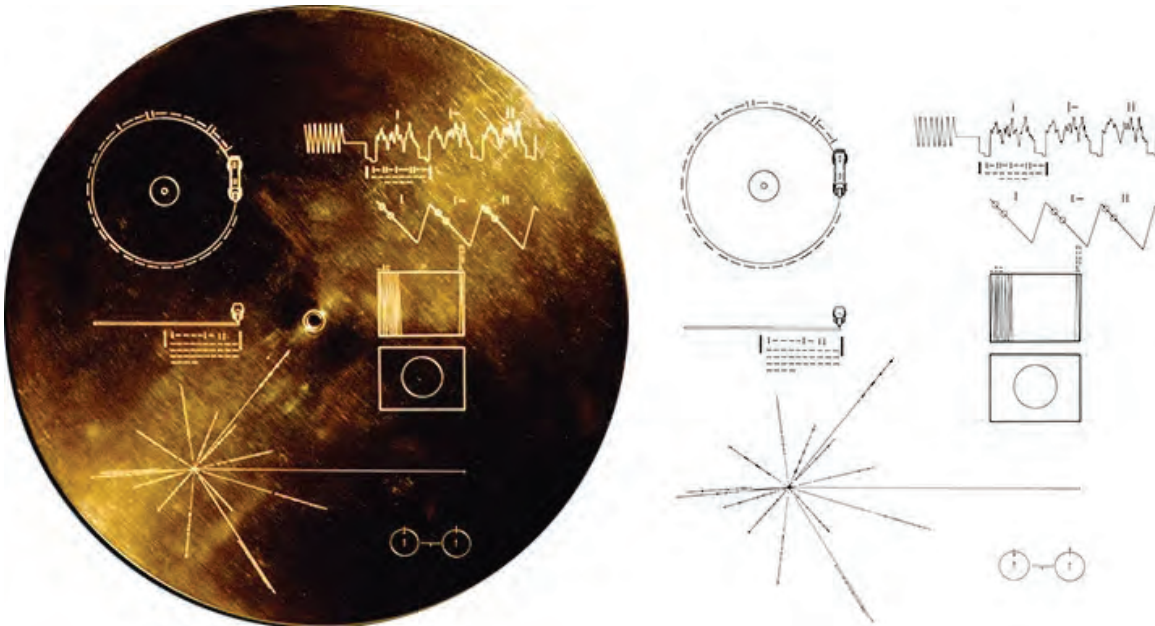
Sept. 5 - The U.S. spacecraft Voyager 1 launches. The Voyagers' mission is to conduct close-up studies of Jupiter and Saturn, Saturn's rings, and the larger moons of the two planets.



Full-scale model of Voyager 2. NASA



Right: Engineers working on Voyager 2. NASA/JPL-Caltech



1978

Jan. 17 – NASA announces the selection of 35 new astronauts, including the first women and African Americans.

Dec. 4 – The U.S. Pioneer Venus Orbiter enters orbit around Venus. The Pioneer Venus Multiprobe spacecraft deploys four small probes into the Venusian atmosphere on Dec. 9.

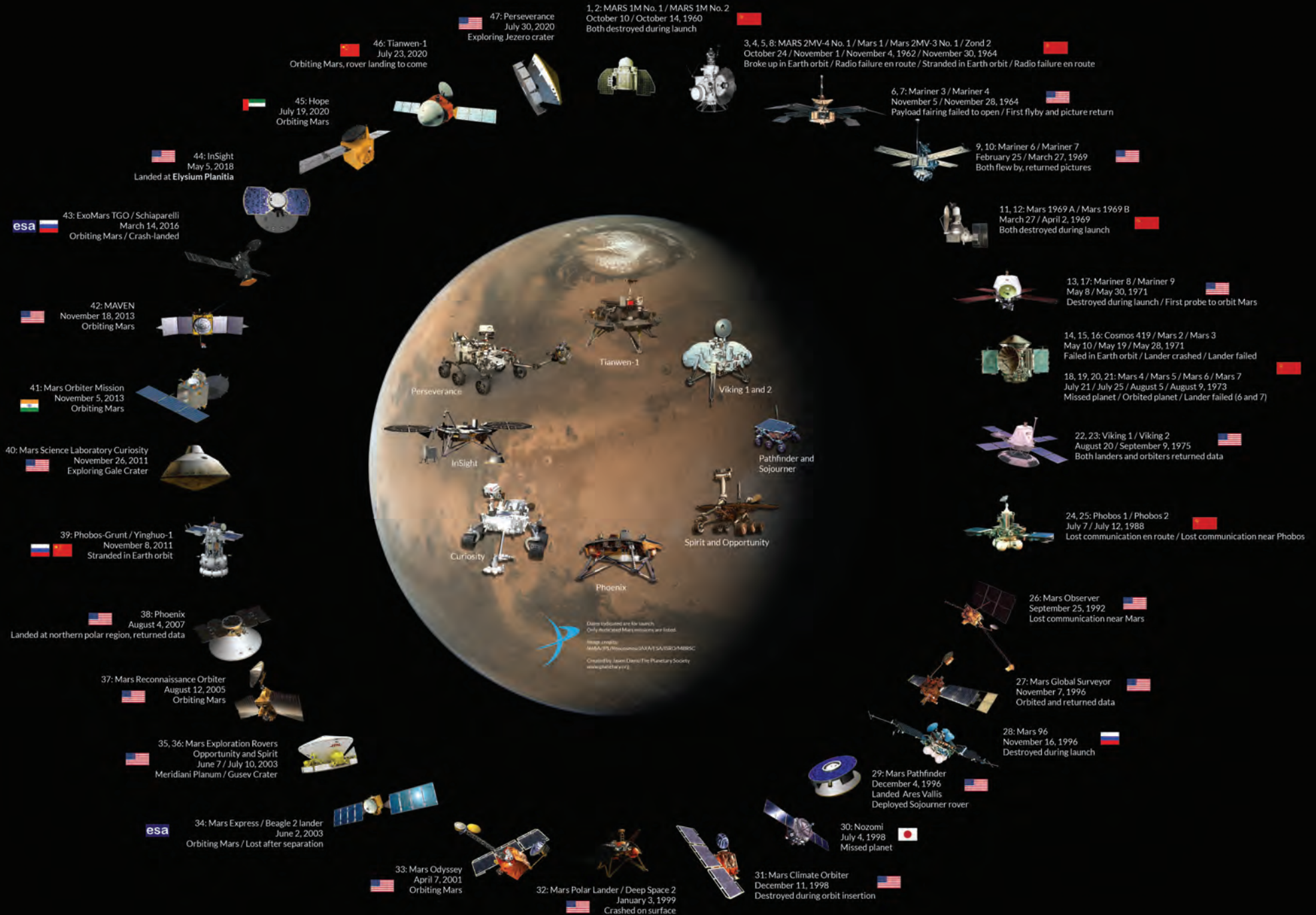
1979

March 5 – The U.S. Voyager 1 spacecraft arrives at Jupiter. Voyager 2 arrives on July 9.

Sept. 1 – The U.S. spacecraft Pioneer 11 becomes the first spacecraft to fly past Saturn, discovering another moon and another ring.

Pioneers 10 and 11, which preceded Voyager, both carried small metal plaques identifying their time and place of origin for the benefit of any other spacefarers that might find them in the distant future. With this example before them, NASA placed a more ambitious message aboard Voyager 1 and 2, a kind of time capsule, intended to communicate a story of our world to extraterrestrials. The Voyager message is carried by a phonograph record, a 12-inch gold-plated copper disk containing sounds and images selected to portray the diversity of life and culture on Earth. The record's protective cover includes instructions for playing its contents, finding Earth in the cosmos and dating how long it has been in space. The record features images and a variety of natural sounds, such as thunder, birds, musical selections from different cultures and eras, and spoken greetings in 55 languages. NASA

Mars Exploration Family Portrait



Tampa Bay Times/NIE 21



Astronaut Sally K. Ride aboard Space Shuttle Challenger. NASA



Astronaut Guion S. Bluford aboard Space Shuttle Challenger. NASA

1983

April 4 - The U.S. launches the second space shuttle, Challenger.

June 13 - Pioneer 10 becomes the first spacecraft to travel beyond the orbits of the known planets. In about 2 million years, it will come close to the star Aldebaran.

June 19 - Astronaut Sally Ride becomes the first American woman in space.

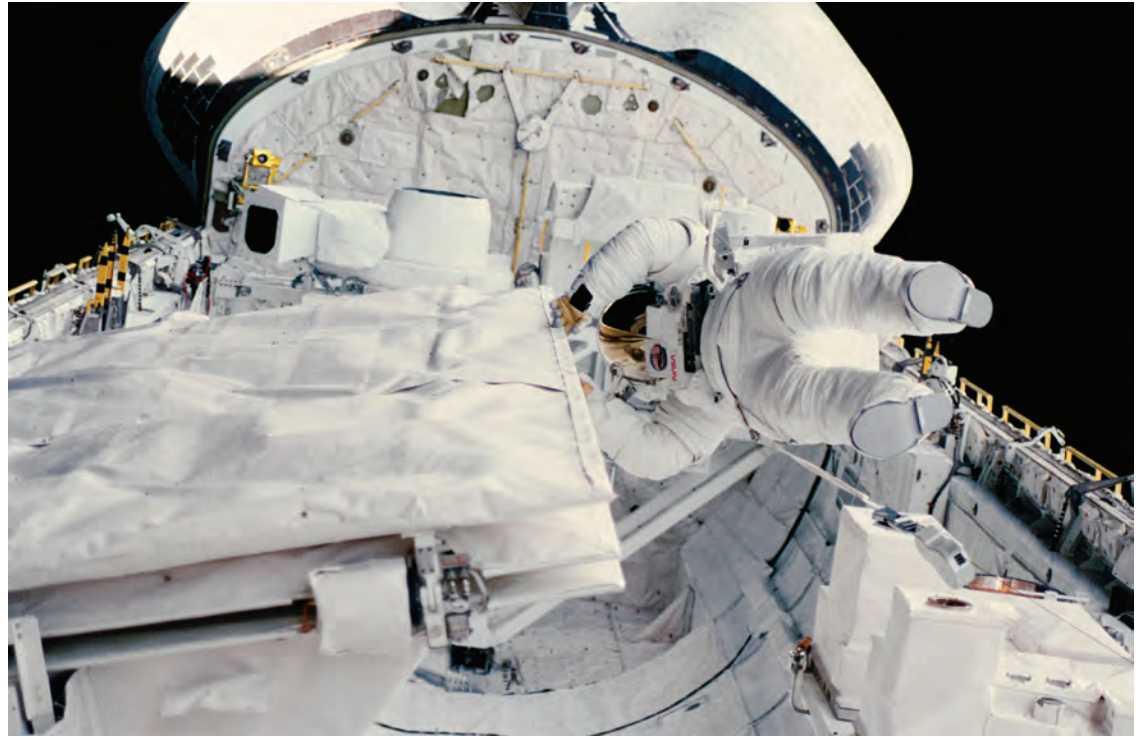
Aug. 30 - Astronaut Guion Bluford becomes the first African American in space.





Astronaut Bruce McCandless II participating in a historical Extravehicular Activity (EVA). This EVA represented the first use of a nitrogen-propelled, hand-controlled device called the Manned Maneuvering Unit (MMU), which allows for much greater mobility than that afforded previous spacewalkers who had to use restrictive tethers. NASA

Space Shuttle Discovery. NASA



Astronaut Kathryn D. Sullivan checks the latch of the SIR-B antenna in the space shuttle Challenger's open cargo bay during her historic extravehicular activity (EVA) on Oct. 11, 1984. NASA

1984

Feb. 3 – Astronaut Bruce McCandless becomes the first human to take an untethered spacewalk.

April 6 – The crew of space shuttle Challenger mission STS-41-C makes the first on-orbit satellite repair, replacing instruments on the Solar Max satellite.

Aug. 30 – The U.S. launches its third space shuttle, Discovery.

Oct. 11 – Kathryn Sullivan becomes the first American woman to walk in space.



Space Shuttle Atlantis. NASA

1985

Oct. 3 – The U.S. launches the fourth space shuttle, Atlantis.

1986

Jan. 24 – Voyager 2 arrives at Uranus, transmitting images and discovering 11 new moons.

Jan. 28 – The space shuttle Challenger explodes 73 seconds after liftoff, resulting in the deaths of the crew of seven astronauts, including teacher-astronaut Christa McAuliffe.

Feb. 20 – The U.S.S.R. launches the core section of the Soviet Space Station Mir ("Peace" or "World"), the first modular space station in orbit.

March 13 – The European Space Agency (ESA) Giotto spacecraft becomes the first spacecraft to make a close flyby of a comet nucleus, Halley's Comet.

St. Petersburg Times
WEDNESDAY, JANUARY 29, 1986

Shuttle explodes; crew of 7 killed

Fatal flight of 'Challenger'

How shuttle is powered
The shuttle is powered by three main engines and two solid rocket boosters. The main engines are located in the aft field joint, and the boosters are located in the side field joint. The shuttle is launched from the Kennedy Space Center in Florida.

What went wrong?
The shuttle exploded 73 seconds after liftoff. The cause of the explosion is still under investigation. The shuttle was launched on January 28, 1986, and was scheduled to fly for 28 days.

The last words from 'Challenger'
The shuttle's last words were "Goodbye, Earth. Hello, Mars." The shuttle was launched on January 28, 1986, and was scheduled to fly for 28 days.

A comparison of distance
The shuttle's flight path is shown in the diagram. The shuttle was launched from the Kennedy Space Center in Florida and flew towards the east. The diagram shows the shuttle's path relative to the Earth's surface.

What went wrong?
The shuttle exploded 73 seconds after liftoff. The cause of the explosion is still under investigation. The shuttle was launched on January 28, 1986, and was scheduled to fly for 28 days.

Inside
The shuttle's crew consisted of seven astronauts. The shuttle was launched on January 28, 1986, and was scheduled to fly for 28 days.

1988

Sept. 29 – The space shuttle Discovery launches, marking the shuttle's return to flight two and a half years after the Challenger accident.

1989

Aug. 25 – Voyager 2 arrives at Neptune, transmitting images, discovering previously unknown Neptunian rings and confirming six new moons.

Nov. 18 – The U.S. launches the Cosmic Background Explorer satellite. COBE measures the background radiation of the universe to better understand how the universe formed after the Big Bang.



Space Shuttle Atlantis approaching Russia's Mir Space Station. NASA

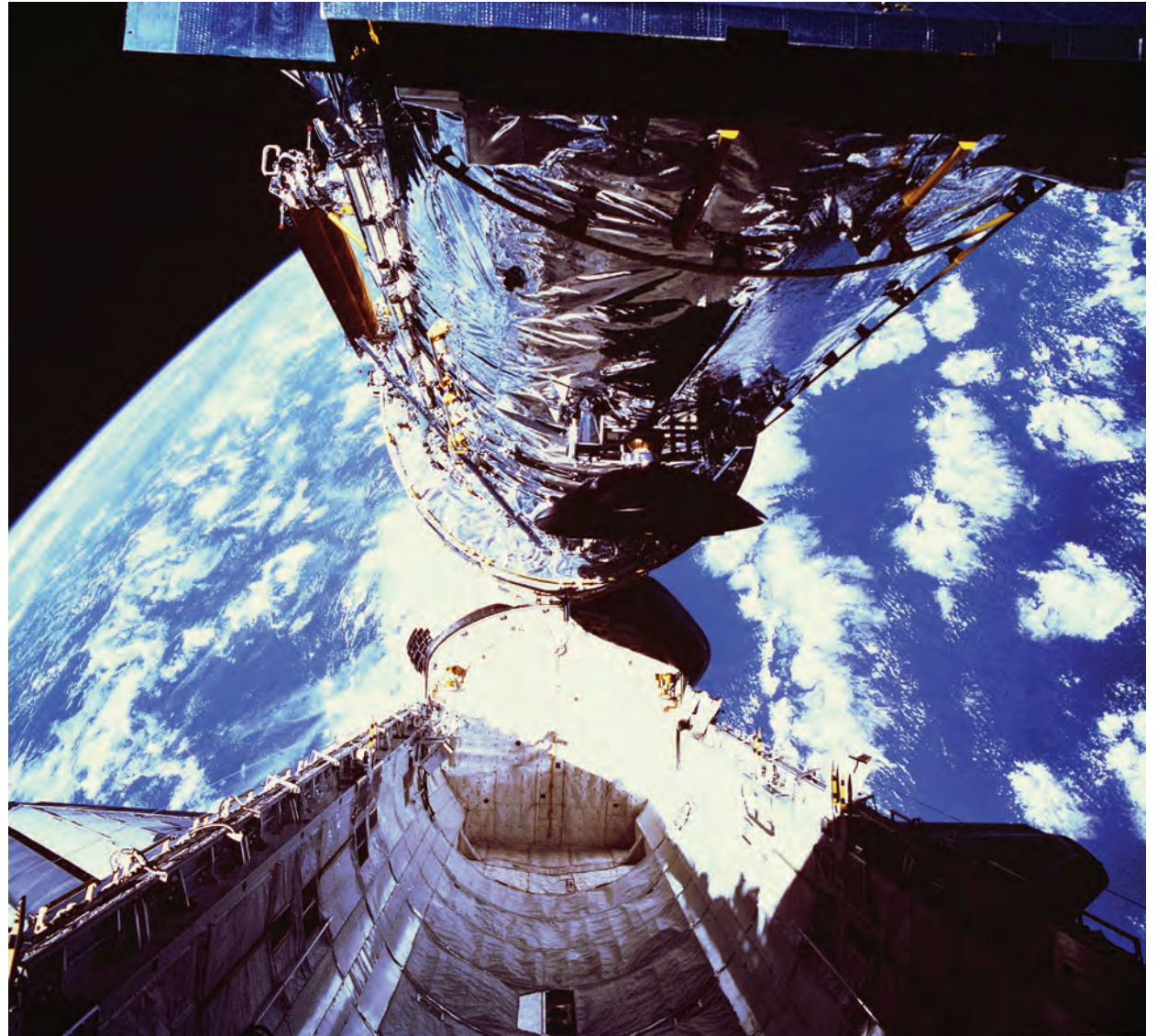
1990

Aug. 10 – The U.S. spacecraft Magellan arrives at Venus and begins mapping the surface using radar equipment.

Aug. 24 – The space shuttle Discovery deploys the Hubble Space Telescope.

1991

Oct. 29 – NASA's Galileo probe performs the first asteroid encounter by a spacecraft, passing 990 miles from asteroid 951 Gaspra, and later making close observations of a second asteroid known as 243 Ida.



The Hubble Space Telescope (HST) clears the cargo bay of Space Shuttle Discovery during its deployment on April 25, 1990. NASA



Russia's Mir space station is captured on film as it floats above the blue and white planet Earth during Shuttle-Mir final fly-around. NASA



Astronauts and cosmonauts aboard Russia's Mir space station pose for a joint inflight NASA-Mir portrait. NASA/Russian Aviation and Space Agency



Cosmonaut Yuri I. Onufrienko, commander for the Mir-21 mission, floats through the Base Block Module on Russia's Mir Space Station. NASA



Space Shuttle Atlantis during its move away from Russia's Mir Space Station, photographed by the Mir-19 crew on July 4, 1995. NASA



Astronaut Mae Jemison working in the Spacelab-J module of Space Shuttle Endeavour. NASA

1992

May 7 – The U.S. launches the fifth space shuttle, Endeavor.

Sept. 12 – Astronaut Mae Jemison becomes the first African American woman in space.

1993

Nov. 17 – The United States, Russia, Japan, Canada and the European Space Agency announce they will cooperate in building the International Space Station (ISS).

Dec. 2 – The space shuttle Endeavor launches to perform the first servicing mission of the Hubble Space Telescope.

Space Shuttle Endeavour. NASA

1994

Feb. 3 – Cosmonaut Sergei Krikalev becomes the first Russian cosmonaut to fly aboard an American space shuttle, Discovery.

1995

Feb. 2 – Astronaut Eileen Collins becomes the first woman space shuttle pilot.

March 14 – Astronaut Norm Thagard launches aboard a Russian Soyuz spacecraft to spend 115 days aboard the Russian space station Mir.

June 27 – The space shuttle Atlantis docks with Mir, remaining docked for five days.

Dec. 7 – The U.S. spacecraft Galileo arrives at Jupiter and releases its probe into Jupiter's atmosphere. The probe descends 125 miles and transmits data for fifty-eight minutes.

1996

May 18 – The X PRIZE Competition offers \$10 million to the first person or team to safely launch and land a spacecraft capable of carrying three people to a suborbital altitude of 100 kilometers (62.5 miles) and repeat the trip again within two weeks.



The docked Russian Mir Space Station seen through the Spacehab viewing port onboard the space shuttle Atlantis. NASA

1997

July 4 – The U.S. spacecraft Mars Pathfinder lands on Mars. It consists of a lander and a robotic rover named Sojourner, which becomes the first rover to operate on another planet.

1998

Nov. 20 – Russia launches the first element of the Zarya (“Sunrise”) Control Module.

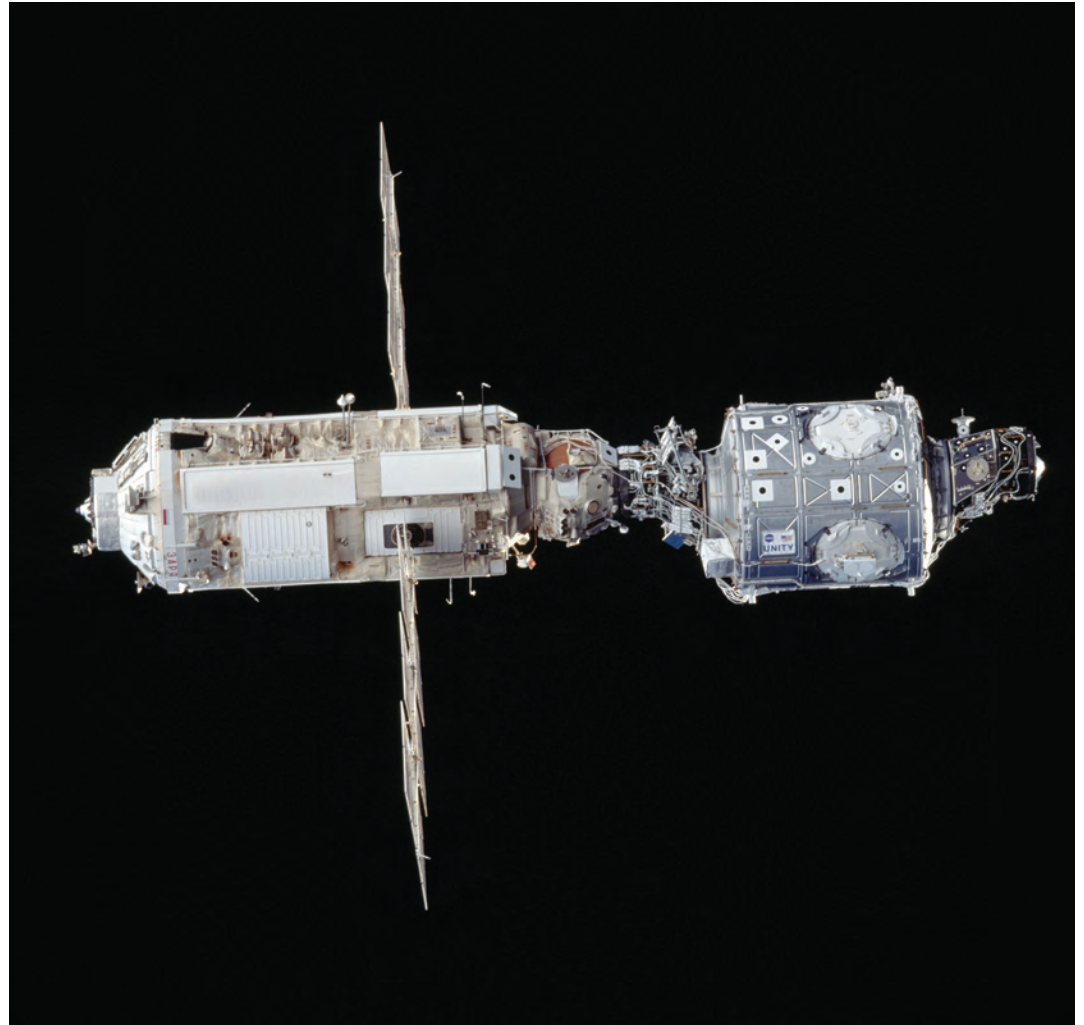
Dec. 6 – The crew of space shuttle Endeavor joins the U.S.-built Unity node to Zarya, officially beginning construction of the ISS.

1999

May 29 – Discovery becomes the first shuttle to dock to the International Space Station.

July 23 – STS-93 Columbia is the first shuttle mission to be commanded by a woman, astronaut Eileen Collins.

Nov. 20 – China launches its first unmanned spacecraft, the Shenzhou-1 (“Divine Ship”).



The U.S.-built Unity connecting module and the Russian-built Zarya module viewed from Space Shuttle Endeavour. NASA

2000

Feb. 14 – The U.S. Near Earth Asteroid Rendezvous (NEAR) spacecraft begins transmitting images of the asteroid Eros.

Nov. 2 – Astronaut Bill Shepherd and cosmonauts Yuri Gidzenko and Sergei Krikalev board the ISS as Expedition 1 crew members, beginning humanity's permanent presence in space.

2001

Feb. 7 – Destiny, the U.S. laboratory module, becomes part of the ISS. The lab increases onboard living space by 41% and continues to be the primary research laboratory for U.S. payloads.

Feb. 12 – NEAR lands on the surface of Eros.

April 28 – American Dennis Tito becomes the first space tourist, launching to the ISS in a Russian Soyuz spacecraft for an eight-day stay.



The crews of the Space Shuttle Atlantis and International Space Station (ISS) pose for an in-flight joint group portrait. In front are (L-R) cosmonaut Sergei K. Krikalev, Expedition One flight engineer; astronaut William M. (Bill) Shepherd, Expedition One mission commander; and Yuri P. Gidzenko, Soyuz commander. The shuttle crew is made up of (L-R) astronauts Mark L. Polansky, pilot; Kenneth D. Cockrell, mission commander; and Marsha S. Ivins, Robert L. Curbeam and Thomas D. Jones, all mission specialists. Krikalev and Gidzenko represent the Russian Aviation and Space Agency. NASA



First Chinese astronaut Yang Liwei waves before boarding China's first manned spacecraft Shenzhou 5 at Jiuquan Satellite Launch Center in northwest China's Gansu Province Wednesday, Oct. 15, 2003. AP/Xinhua, Li Gang

St. Petersburg Times
SUNDAY, February 2, 2003
Florida's Best Newspaper

THE ST. PETERSBURG TIMES STAFF: (Left to right) David Brown, Rick Harkler, Laurel Clark, Eugene Clark, Michael Anderson, William McCord, and Ken Raman.

WHAT HAPPENED?

SHUTTLE COLUMBIA DISINTEGRATES; SEVEN ASTRONAUTS LOST

Photos of the space shuttle Columbia streak across the sky 200,000 feet over Tyler, Texas, on Saturday. Astronauts were about 10 minutes from landing in Cape Canaveral when the shuttle broke apart in flames.

NASA left with tragic puzzle as nation mourns

The shuttle Columbia disintegrated 16 minutes before landing, leaving seven astronauts in peril. The shuttle was on its final mission, STS-28, and was scheduled to land at Cape Canaveral on Saturday.

THE MEN AND WOMEN LOST

A look at the seven astronauts aboard Columbia, including space first-timers.

SHIP HAD FLARED RECORD

Columbia had just broken the shuttle's speed record of 28,000 mph in 22 years of service, but its history was marred.

CASPERELLA GOES AHEAD

Many aboard ship with boating accidents, but the party went on, drawing about 250,000 people.

SUNDAY, FEBRUARY 2, 2003 • TAMPA, FLORIDA • TBO.com

THE TAMPA TRIBUNE

and The Tampa Times

THE TAMPA TRIBUNE STAFF: (Left to right) David Brown, Rick Harkler, Laurel Clark, Eugene Clark, Michael Anderson, William McCord, and Ken Raman.

ALMOST HOME

Columbia's Astronauts Were 16 Minutes From A Perfect Mission

Before from Columbia streaks across the sky Saturday over Tyler, Texas. The country will mourn the lost crew, who just Tuesday bowed their own heads in memory of Challenger's crew.

IN SPACE

COLUMBIA'S LAST FLIGHT — As it hurtled into the atmosphere at 19 miles the speed of sound Saturday morning, space shuttle Columbia, the oldest in the nation's fleet, seemed destined for a routine landing at Kennedy Space Center's Grand Central Terminal. But unusually well the weather had cooperated.

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2003

Feb. 1 – The space shuttle Columbia breaks up on re-entry into Earth's atmosphere, resulting in the deaths of all seven crew members.

Aug. 25 – NASA launches the largest-diameter infrared telescope ever in space, the Spitzer Space Telescope.

Sept. 21 – NASA's Galileo mission ends a 14-year exploration of the solar system's largest planet and its moons with the spacecraft crashing by design into Jupiter at 108,000 mph.

Oct. 15 – China launches the Shenzhou 5 spacecraft with the first Chinese astronaut, Yang Liwei, on board. This makes China the third country in the world, after Russia and the United States, to launch a crewed spacecraft.

2004

Jan. 3 – The U.S. rover Spirit lands on Mars. Designed to last only three months, Spirit continues to roam until 2009. It then continues to function as a stationary science platform until 2010.

Jan. 25 – The U.S. rover Opportunity, the sister rover to Spirit, lands on Mars. Designed to last only three months, Opportunity continues to operate until 2018.

June 21 – Mojave Aerospace Ventures' SpaceShipOne is the first private, commercial spacecraft to be flown into space. Pilot Mike Melvill flies the craft to an altitude of 62 miles (100 kilometers).

June 30 – The Cassini spacecraft, a joint endeavor of NASA, ESA and the Italian space agency (ASI), enters orbit around Saturn.

Oct. 5 – SpaceShipOne claims the \$10 million X PRIZE by making its second trip into space within two weeks. On this flight, civilian astronaut Brian Binnie pilots the craft to an altitude of 367,442 feet (112 kilometers), breaking the altitude record for an airplane set by X-15 pilot Joseph Walker in 1963.



SpaceShipOne flies attached to its launch ship, White Knight. AP/Jim Campbell



Spirit and Opportunity. NASA



India's maiden lunar mission Chandrayaan-1 is seen successfully taking off at the Satish Dhawan Space Centre in Sriharikota, India, on Wednesday, Oct. 22, 2008. AP/Indian Space Research Organization

2005

Jan. 14 – The ESA's Huygens probe, which traveled to Saturn with the Cassini spacecraft, lands on Saturn's moon Titan.

July 3 – The NASA spacecraft Deep Impact deploys an impactor to collide with Comet Tempel 1, revealing a number of new findings about comets and their composition, including evidence of water ice and organic materials.

July 26 – Space shuttle Discovery launches with seven astronauts aboard, the U.S.' first manned space launch since the 2003 Columbia disaster.

2006

Jan. 15 – The NASA spacecraft Stardust returns to Earth with samples of Comet Wild-2, the first samples ever collected from a comet.

2007

Aug. 4 – NASA launches the Phoenix Mars Lander.

Aug. 8 – Space shuttle Endeavour and a crew of seven launches with teacher-astronaut Barbara Morgan, the first teacher in space since the Challenger disaster in 1986, aboard as a crewmember.

Nov. 5 – China's first lunar orbiter, Chang'e 1, enters the moon's orbit. Chang'e is the name of a mythological Chinese goddess who flew from Earth to the moon.

2008

Jan. 14 – The NASA space probe Messenger skims 124 miles above Mercury.

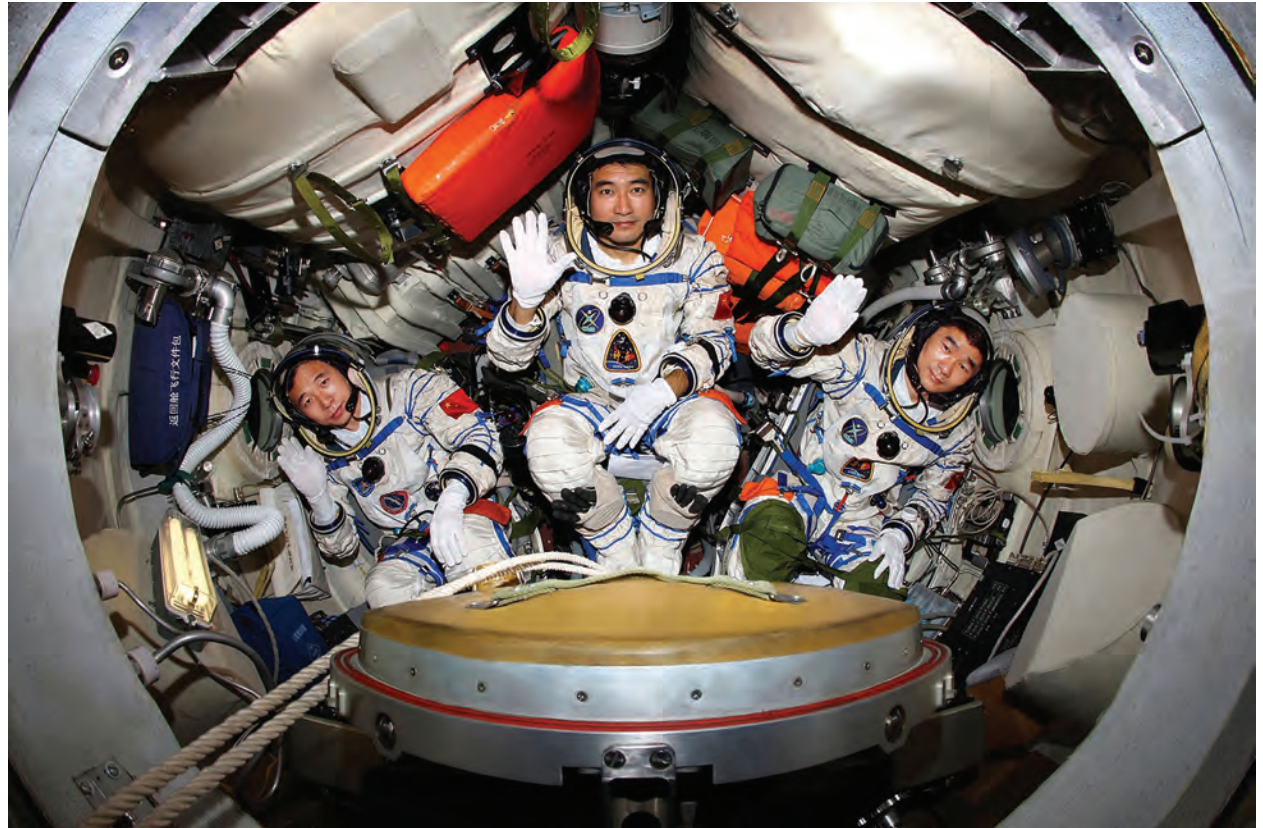
Feb. 7 – The ESA's Columbus Laboratory becomes part of the ISS.

March 11 – The Japanese Kibo laboratory module becomes part of the ISS.

May 25 – The Phoenix Mars Lander lands safely and begins sending images back to Earth. Phoenix later finds evidence of water ice.

Sept. 25 – China launches the spacecraft Shenzhou 7, carrying three astronauts. Astronaut Zhai Zhigang makes the first Chinese spacewalk.

Oct. 22 – India launches the lunar orbiter Chandrayaan (“Moon Craft”) 1, India's first deep space mission. Chandrayaan-1 later releases the Moon Impact Probe (MIP), which impacts the moon at the lunar south pole.



Chinese astronauts Zhai Zhigang, center, Liu Boming, right, and Jing Haipeng, left, wave in the cabin during training at the Jiuquan Satellite Launch Center in Jiuquan, in China's Gansu province. The three astronauts were launched on China's third manned space mission Thursday, Sept. 25, 2008. AP/Color China Photo/Jiuquan Launch Center

2009

March 6 – The NASA spacecraft Kepler launches. Its mission is to search for planets outside our solar system, in a distant area of the Milky Way.

June 18 – NASA launches the Lunar Crater Observation and Sensing Satellite (LCROSS) to confirm the presence or absence of ice on the moon. On Nov. 13, NASA scientists announce the discovery of a “significant amount” of ice in a crater near the moon's south pole.



A SpaceX Falcon 9 rocket soars upward after liftoff from Kennedy Space Center on a Commercial Resupply Services mission for NASA to the International Space Station. NASA

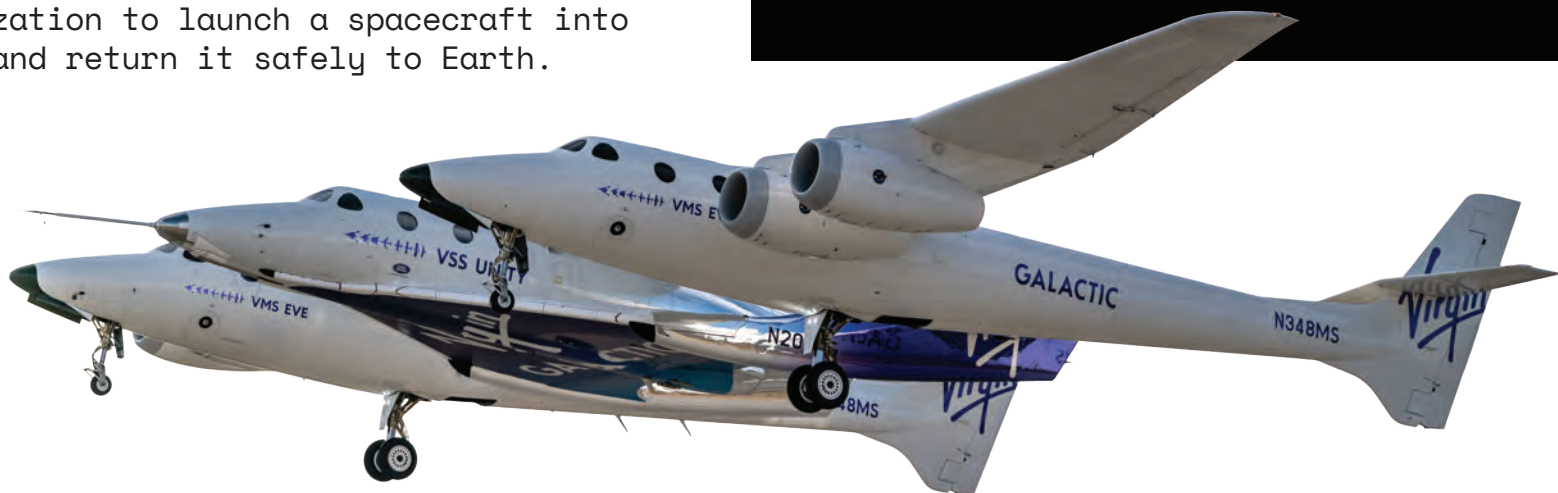
2010

June 13 – The Japanese spacecraft Hayabusa (“Falcon”) returns the first samples from an asteroid, 25143 Itokawa, to Earth.

Oct. 1 – China launches its second lunar exploration probe, Chang’e 2.

Oct. 10 – Virgin Galactic, a private company, announces the successful first manned glide flight of the VSS Enterprise, a suborbital plane designed to take private citizens on suborbital space flights.

Dec. 8 – The commercial company SpaceX becomes the first non-government organization to launch a spacecraft into orbit and return it safely to Earth.



Virgin Galactic's VMS Eve and VSS Unity in flight. Virgin Galactic

March 18 – NASA's Messenger probe becomes the first spacecraft to orbit Mercury.

July 8 – Atlantis becomes the last space shuttle to be launched into space.

July 16 – NASA's Dawn spacecraft becomes the first spacecraft to orbit an asteroid.

July 18 – Russia launches Spektr-R ("Spectrum"), the largest space telescope to be placed into orbit.

Sept. 29 – China launches Tiangong ("Heavenly Palace") 1, the first Chinese space lab.

Nov. 26 – NASA launches the Curiosity Mars rover.



Self-portrait of Mars rover Curiosity. NASA



'Voyager 1,' now 35, at outer edge of space

Associated Press

Thirty-five years after leaving Earth, *Voyager 1* is reaching for the stars.

Sooner or later, the workhorse spacecraft will bid adieu to the solar system — the first time a human-made object will have escaped to the other side.

When NASA's *Voyager 1* and *Voyager 2* first rocketed out of Earth's grip in 1977, no one knew how long they would last. Now, they are the longest-operating spacecraft in history and the most distant, at billions of miles from Earth.

Today marks the 35th anniversary of *Voyager 1*'s launch to Jupiter and Saturn. It is now flitting around the fringes of the solar system, which is

enveloped in a giant plasma bubble. This hot and turbulent area is created by a stream of charged particles from the sun.

Outside the bubble is a new frontier in the Milky Way — the space between stars. Once it plows through, scientists expect a calmer environment by comparison.

Voyager 1 is in uncharted celestial territory. The boundary that separates the solar system and interstellar space is near, but it could take days, months or years to cross it.

Voyager 1 is currently more than 11 billion miles from the sun. Twin *Voyager 2*, which celebrated its launch anniversary two weeks ago, trails behind at 9 billion miles from the sun.

The NASA Jet Propulsion Laboratory built the spacecraft. Their original goal was to tour Jupiter and Saturn, and they sent back postcards of Jupiter's big red spot and Saturn's glittery rings.

Voyager 2 then journeyed to Uranus and Neptune. It remains the only spacecraft to fly by these two outer planets. *Voyager 1* used Saturn as a gravitational slingshot to catapult itself toward the edge of the solar system.

"Time after time, Voyager revealed unexpected — kind of counterintuitive — results, which means we have a lot to learn," said Ed Stone, 76, *Voyager*'s chief scientist and a professor of physics at the California Institute of Technology.

Still searching

Thirty-five years after leaving Earth, NASA's *Voyager 1* continues to explore space and may soon leave the solar system.

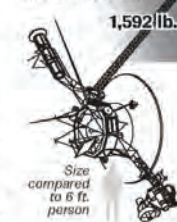
Moving through space

Termination shock
Shifting boundary where solar winds are reduced

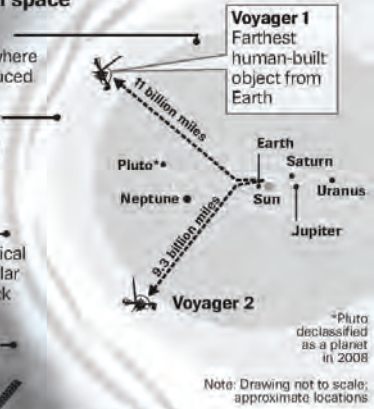
Heliopause Sun's influence gives way to that of interstellar space; end of the solar system

Bow shock Theoretical area where interstellar gases create a shock wave around heliopause

Interstellar space
Space between two or more stars



Source: NASA



Voyager 1 probe

- Travels 38,000 mph
- Carries disk with sounds and images portraying the diversity of life and culture on Earth as a greeting to any life form
- Radio signals from the craft take 16 hours and 38 minutes to reach Earth
- Has enough fuel and power to send messages until at least 2020, 12.4 billion miles from Earth

McClatchy-Tribune

2012

May 22 – SpaceX launches the first commercial ISS supply mission.

Aug. 6 – NASA's Curiosity rover successfully lands on Mars.

Aug. 25 – NASA's Voyager 1 probe, launched in 1977, becomes the first spacecraft to reach interstellar space.

2013

Sept. 6 – NASA launches the unmanned LADEE lunar probe.

Nov. 5 – India launches the Mangalyaan (Hindi for "Mars Craft"), also known as the Mars Orbiter Mission (MOM), the country's first mission to Mars.

Dec. 14 – China's Chang'e 3 probe lands on the moon and deploys the Yutu rover. It is the first moon landing since 1976. China becomes the third country, after the U.S. and the former U.S.S.R., to land on the moon. Yutu is the pet rabbit of the lunar goddess Chang'e in Chinese mythology.



NASA/AP

A crop of “Outredgeous” red romaine lettuce from NASA’s Veggie plant growth system.

SPACE STATION

Astronauts eat space-grown lettuce

A group of astronauts harvested the first samples of lettuce grown on the International Space Station and ate it as Earthlings watched the live stream of the historic salad preparation on Monday. The NASA experiment, called Veg-01, will help scientists determine the feasibility of fresh-grown food for long-term space missions, such as ones that would send astronauts to Mars. This isn’t the first batch of lettuce grown. The first round of romaine was returned to Earth and tested for safety. Some day soon, astronauts could count on a more ready supply of space veggies.



Image of Pluto taken by the Long Range Reconnaissance Imager (LORRI) aboard NASA’s New Horizons spacecraft, taken on July 13, 2015, when the spacecraft was 476,000 miles (768,000 kilometers) from the surface. NASA/APL/SwRI

2014

Aug. 6 – The ESA’s Rosetta space probe becomes the first spacecraft to enter orbit around a comet, 67P/Churyumov-Gerasimenko.

Sept. 23 – India’s Mars Orbiter Mission enters orbit around Mars. India becomes the fourth nation in the world, after the U.S., Russia and China, to successfully put a spacecraft in orbit around Mars.

Nov. 12 – The ESA’s Philae lander is released from the Rosetta space probe and becomes the first spacecraft to make a soft landing on a comet.



A SpaceX Falcon 9 rocket and Crew Dragon spacecraft lifts off from Kennedy Space Center. NASA

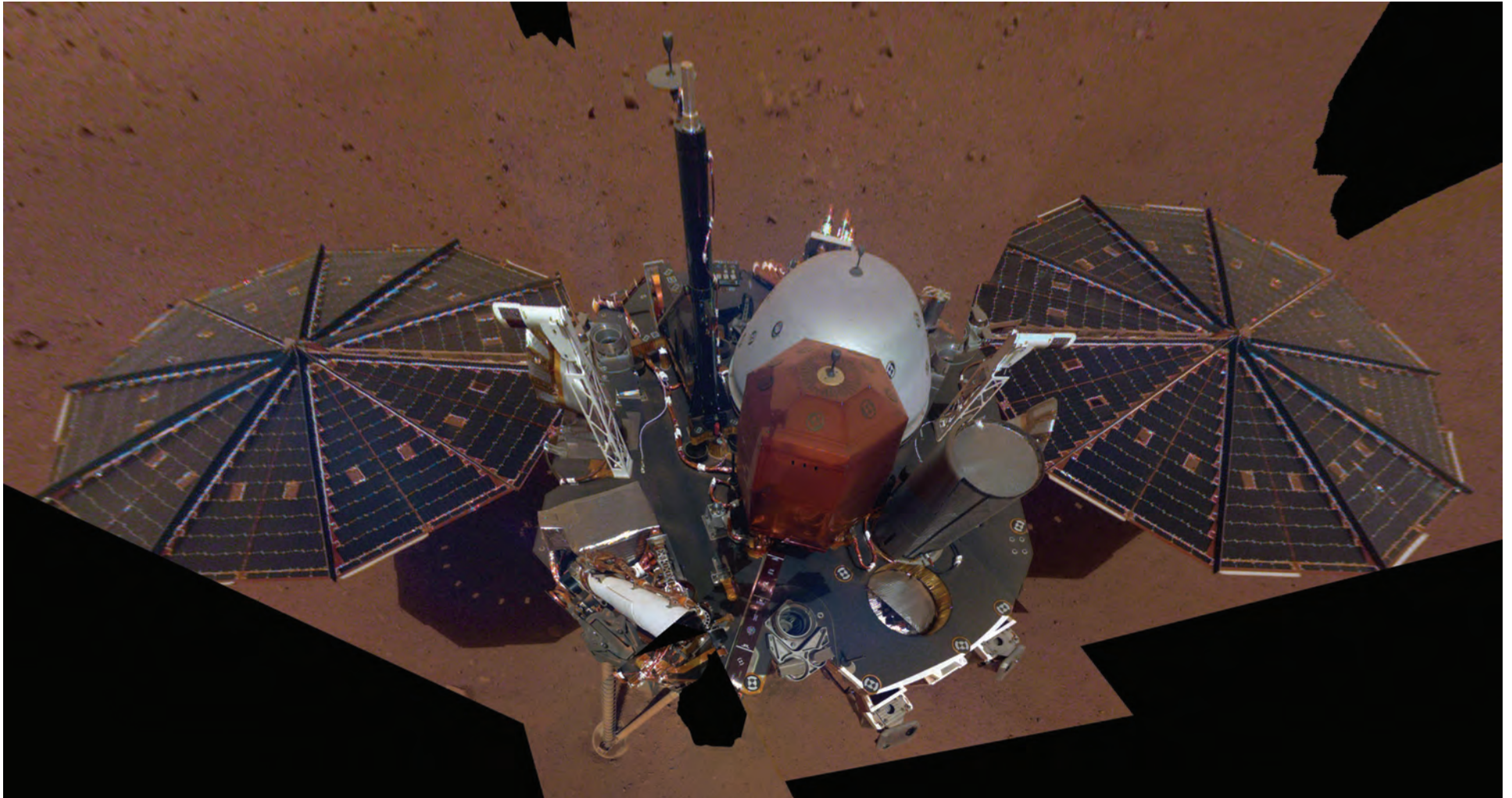
2015

March 6 – NASA’s Dawn spacecraft enters orbit around Ceres, becoming the first spacecraft to orbit a dwarf planet.

July 15 – NASA’s New Horizons spacecraft flies by Pluto, sending back the first close-up views of the dwarf planet.

Aug. 10 – The crew of the ISS become the first astronauts to eat food grown in space.

Dec. 21 – SpaceX makes the first successful vertical landing of an orbital booster rocket.



This is NASA InSight's first full selfie on Mars. It displays the lander's solar panels and deck. On top of the deck are its science instruments, weather sensor booms and UHF antenna. The selfie was taken on Dec. 6, 2018 (Sol 10). The selfie is made up of 11 images which were taken by its Instrument Deployment Camera, located on the elbow of its robotic arm. Those images are then stitched together into a mosaic. NASA

2016

July 4 – NASA's Juno spacecraft reaches orbit around Jupiter.

Sept. 15 – China launches the orbital laboratory Tiangong-2, which replaces Tiangong-1.

2018

Sept. 21 – The Japan Aerospace Exploration Agency (JAXA)'s Hayabusa 2 spacecraft successfully deploys two rovers called MINERVA-II 1A and 1B to the surface of an asteroid known as Ryugu, becoming the first to land moving rovers on the surface of an asteroid.

Nov. 5 – Voyager 2 reaches interstellar space.

Nov. 27 – NASA's Mars InSight lander lands on Mars.

2019

Jan. 1 – NASA's New Horizons spacecraft flies by the Kuiper Belt Object Arrokoth, the most distant object ever explored up close.

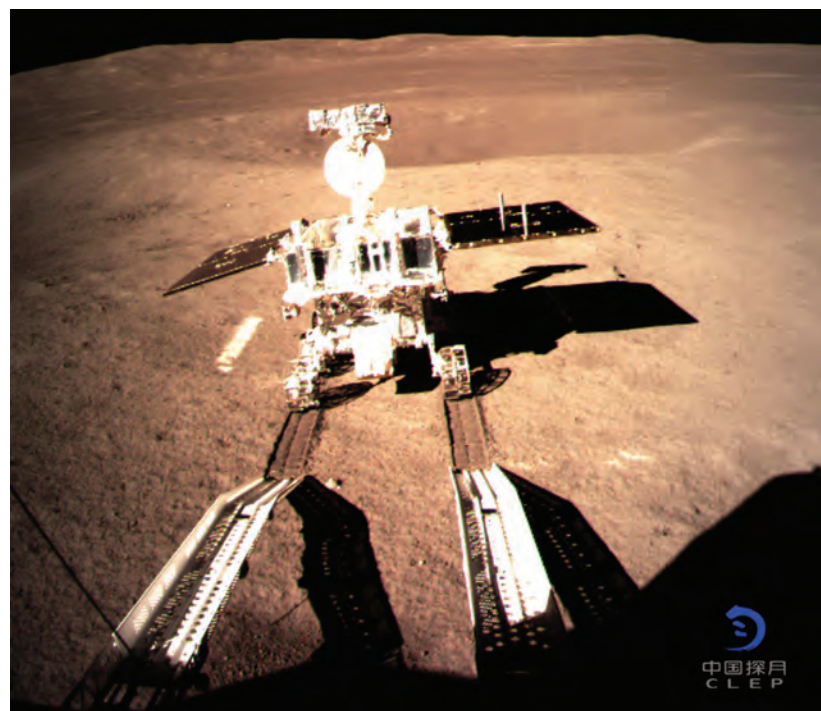
Jan. 3 – China's Chang'e 4 spacecraft makes the first-ever soft landing on the far side of the moon and deploys a lunar rover. The first seeds germinated on another celestial body are grown in a sealed biosphere on the lander.

July 22 – India launches the lunar orbiter, lander and rover Chandrayaan-2. Although the lander crashed on the surface, the orbiter continues to operate.

Dec. 20 – The National Defense Authorization Act is signed into law, creating the U.S. Space Force, the first new branch of the armed services since 1947. The Space Force consolidates space operations from across more than 60 different organizations into a unified service.



U.S. Space Force insignia. USSF



China's lunar rover Yutu-2 leaves wheel marks after leaving the Chang'e 4 lander that touched down on the surface of the far side of the moon. China National Space Administration/Xinhua News Agency via AP



2020

Jan. 7 – Five chocolate chip cookies baked by the crew of the ISS become the first food to be baked in space. The cookies, baked one at a time in a special zero gravity oven, take a little over two hours to cook thoroughly in the microgravity environment.

May 30 – SpaceX becomes the first private company to launch astronauts into space with the Crew Demo 2 test flight, which successfully launches two astronauts into orbit on a mission to the ISS. This mission marks the return of America's manned space program since the space shuttle program ended in 2011.

July 20 – The United Arab Emirates (UAE) launches the Al-Amal ("Hope") Mars orbiter.

July 23 – China launches the Tianwen-1 ("Questions to Heaven") probe to Mars, its first independent mission to another planet.

Oct. 13 – The Artemis Accords, a non-binding set of principles designed to guide civil space exploration and use in the 21st century, are signed by Australia, Canada, Italy, Japan, Luxembourg, the United Arab Emirates, the United Kingdom and the United States. As of January 2025, there are 53 signatories.

Dec. 1 – The Chinese Chang'e-5 probe successfully lands on the moon's surface and collects 1.7 kilograms (3.7 pounds) of lunar regolith samples, which are later returned to Earth. China becomes the third country, after the U.S. and U.S.S.R., to return lunar samples to Earth.

China's Mars rover touches ground on red planet

BEIJING

China's first Mars rover has driven down from its landing platform and is now roaming the surface of the red planet, China's space administration said Saturday.

The solar-powered rover touched Martian soil at 10:40 a.m. Saturday Beijing time, the China National Space Administration said.

China landed the spacecraft carrying the rover on Mars last Saturday, a tech-

nically challenging feat more difficult than a moon landing, in a first for the country. It is the second country to land and operate a spacecraft on Mars, after the United States.

Named after the Chinese god of fire, Zhurong, the rover has been running diagnostics tests for several days before it began its exploration. It is expected to spend 90 days in a search of evidence of life.

— ASSOCIATED PRESS

Successful moon mission vaults China into ranks of space powers

BY GERRY SHIH
Washington Post

TAIPEI, Taiwan — Bearing 4.4 lbs. of lunar rock and soil, China's Chang'e-5 capsule touched down on the frozen steppes of Inner Mongolia early Thursday and vaulted China into the ranks of only three nations that have ventured to the moon and brought back samples.

The mission will provide earthbound researchers with the first fresh batch of lunar material in 44 years. The last delivery came in 1976, when the Soviet Luna 24 mission scooped up about six ounces of moon rocks and returned.

The Chang'e-5 mission launched on Nov. 24, and its lander touched down Dec. 1 near Mons Rümker, a volcanic mound on the near side of the moon. Chi-

nese officials say the site is of a younger geological age and can provide new insights about the makeup of the moon and the universe compared with sites sampled in the 1960s and 1970s by the Soviet Union and United States.

The mission was also significant, according to Chinese space officials, because it was the first time China synchronized and docked vessels in the moon's orbit.

Footage released by state media showed the Chang'e-5's copper-colored return capsule nestled safely in the snow and recovery staff members celebrating next to a Chinese flag. China's space-faring exploits have stoked national pride and have been a priority for Chinese leader Xi Jinping, who has spoken of his "space dream" as part of a broad-

er vision for China to become a comprehensive superpower.

In a congratulatory statement, Xi hailed the mission as a "remarkable feat" that would be remembered by the Chinese people.

China's space budget, while not publicly available, is estimated by the Space Foundation nonprofit organization to be the world's second-largest at more than \$8 billion a year, compared with NASA's \$22 billion. U.S. and Russian funding for their space programs has fallen relative to their national budgets since the space race of the 1960s. Last year, China became the first country to land a rover on the far — or "dark" — side of the moon, a technical challenge that required the use of a dedicated lunar satellite to relay signals to Earth.

Space cookies slow to make, taste unknown

BY MARCIA DUNN
Associated Press

CAPE CANAVERAL — The results are finally in for the first chocolate chip cookie bake-off in space.

While looking more or less normal, the best cookies required two hours of baking time last month up at the International Space Station. It takes far less time on Earth, under 20 minutes.

And how do they taste? No one knows.

Still sealed in individual baking pouches and packed in their spaceflight container, the cookies remain frozen in a Houston-area lab after splashing down two weeks ago in a SpaceX capsule. They were the first food baked in space from raw ingredients.

The makers of the oven, Texas-based Nanoracks, expected a difference in baking time in space, but not that big.

"There's still a lot to look into to figure out really what's driving that difference, but definitely a cool result," said Mary Murphy, a manager at Nanoracks.

Italian astronaut Luca Parmitano was the master baker in December, radioing down a description as he baked them one by one in the prototype Zero G Oven.

The first cookie — in the oven for 25 minutes at 300 degrees Fahrenheit — ended up seriously under-baked. He more than doubled the baking time for the next two, and the results were still so-so. The fourth cookie stayed in the oven for two hours, and finally success.



Feb. 9 – The Al-Amal Mars orbiter enters Mars orbit. The UAE becomes the fifth nation in the world, after the U.S., Russia, China and India, to successfully put a spacecraft in orbit around Mars.

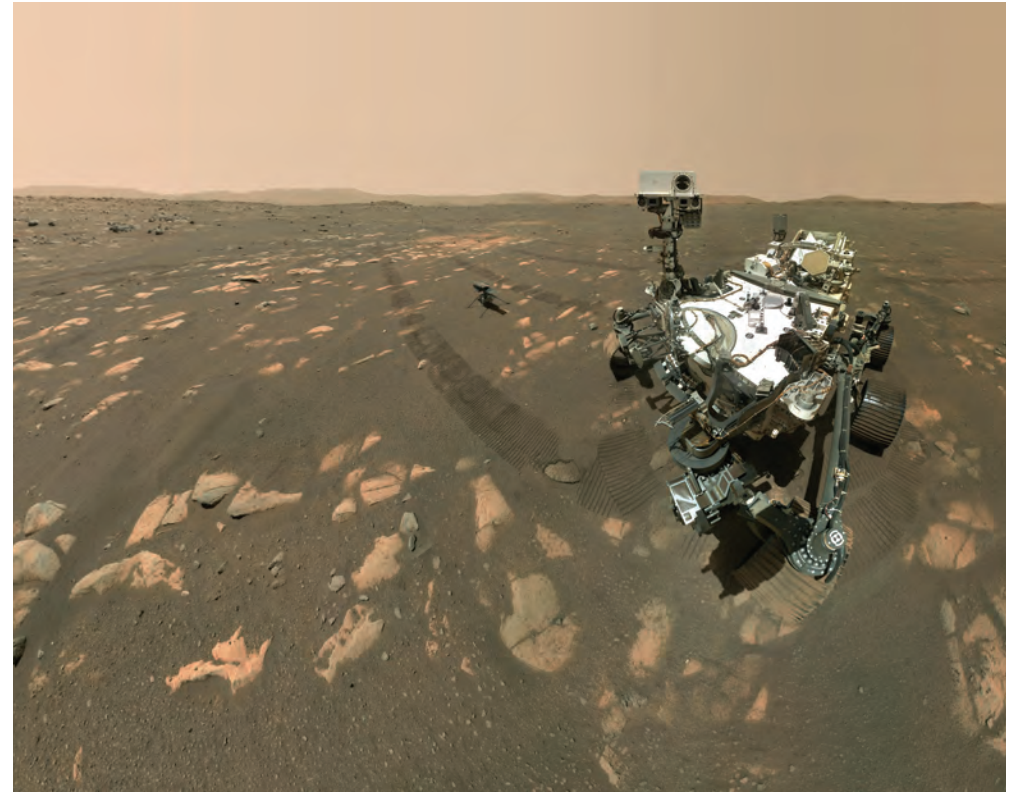
Feb. 18 – NASA's Perseverance rover lands on Mars and later records the first sounds ever captured on the surface of Mars.

April 19 – NASA's Ingenuity Mars helicopter launches from the Perseverance Mars rover, becoming the first aircraft to make a powered, controlled flight on another planet.

April 28 – NASA's Parker Solar Probe becomes the first man-made spacecraft to enter the atmosphere of the Sun.

April 29 – China launches Tianhe ("Heavenly River"), the first module of its Tiangong space station, into low Earth orbit.

May 15 – China's Tianwen-1 spacecraft lands on Mars and deploys the Zhurong rover, marking China's first landing on another planet. China becomes the second country after the United States to land a robotic rover on the surface of Mars. Zhurong is the god of fire in Chinese mythology.



NASA's Perseverance Mars rover took a selfie with the Ingenuity helicopter, seen here about 13 feet (3.9 meters) from the rover in this image taken April 6, 2021. This image is made up of 62 individual images taken in sequence while the rover was looking at the helicopter, then again while it was looking at the camera, then stitched together once they are sent back to Earth. NASA

June 16 – China's Shenzhou 12 mission takes three Chinese astronauts for a three-month stay on Tianhe, the initial module of the Tiangong space station.

July 20 – The commercial company Blue Origin launches four private citizens to space aboard the New Shepard, an autonomous, reusable suborbital rocket system.



Blue Origin's New Shepard. Blue Origin

July 11 – The commercial company Virgin Galactic makes its first fully crewed flight, launching two pilots and four passengers into suborbital space aboard its spaceship VSS Unity.

Sept. 15 – SpaceX launches the first all-civilian astronaut crew into Earth orbit.

Dec. 25 – NASA launches the James Webb Space Telescope.



ANDY WONG | Associated Press

China launched a three-man crew to its space station Thursday, its first crewed mission in five years.

China's space station has its first inhabitants after launch

BY SAM MCNEIL
Associated Press

JIUQUAN, China — A Chinese spaceship carrying a three-person crew docked with China's new space station at the start of a three-month mission Thursday, marking a milestone in the country's ambitious space program.

The *Shenzhou-12* craft connected with the *Tianhe* space station module about six hours after takeoff from the Jiuquan launch center on the edge of the Gobi Desert.

The three astronauts are the first to take up residency in the main living module and will carry out experiments, test equipment, conduct maintenance and prepare the station for receiving two laboratory modules next year.

The mission brings to 14 the number of astronauts China has launched into space since 2003, becoming only the third country after the former Soviet Union and the United States to do so on its own.

The astronauts were seen off by space officials, other uniformed military personnel and a crowd of children waving flowers and flags and singing patriotic songs.

The rocket dropped its boosters about two minutes into the flight



NG HAN GUAN | Associated Press

Chinese astronauts, from left, Tang Hongbo, Nie Haisheng and Liu Boming wave as they prepare to board for liftoff at the Jiuquan Satellite Launch Center in northwestern China on Thursday.

followed by the cowlings surrounding *Shenzhou-12* at the top of the rocket. After about 10 minutes it separated from the rocket's upper section, extended its solar panels and shortly afterward entered orbit.

About a half-dozen adjustments took place over the following six hours to line up the spaceship for docking with the *Tianhe*, or *Heavenly Harmony*, module at about 4 p.m.

China is not a participant in the International Space Station, largely as a result of U.S. objec-

tions to the secrecy and close military ties of Chinese programs. However, China has been stepping up cooperation with Russia and a host of other countries, and its station may continue operating beyond the International Space Station, which is reaching the end of its functional life.

China landed a probe on Mars last month that carried a rover, the *Zhurong*, and earlier landed a probe and rover on the moon's less explored far side and brought back the first lunar samples by any country's space program since the 1970s.

2022

April 8 – Axiom Space launches the first fully commercial space mission, launching four civilian astronauts to the ISS aboard a Dragon spacecraft and Falcon 9 rocket, both manufactured by SpaceX.

July 24 – China launches the Wentian (“Quest for the Heavens”) module of its Tiangong space station.

Oct. 31 – China launches the Mengtian (“Dreaming of the Heavens”) module of its Tiangong space station.

Nov. 16 – NASA launches the first Orion spacecraft into space to mark their return to lunar exploration. The Artemis 1 mission launches as an unmanned test mission to orbit the moon and return to Earth. The spacecraft spends three weeks in space and makes 2 separate orbits of the moon.

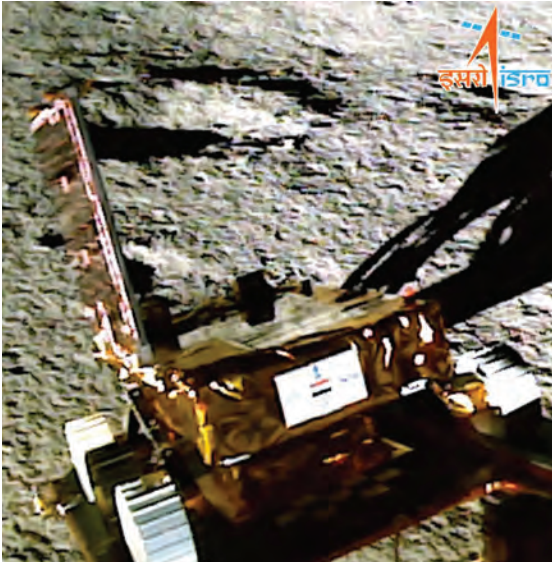
Nov. 29 – China launches the Shenzhou 15 mission, carrying three Chinese astronauts to the completed Tiangong space station. They dock the following day, marking the first time that six occupants are aboard at once and beginning the permanent occupancy of the space station.



NASA's Space Launch System (SLS) rocket with the Orion spacecraft aboard is seen atop the mobile launcher at Launch 39B at NASA's Kennedy Space Center in Florida. NASA



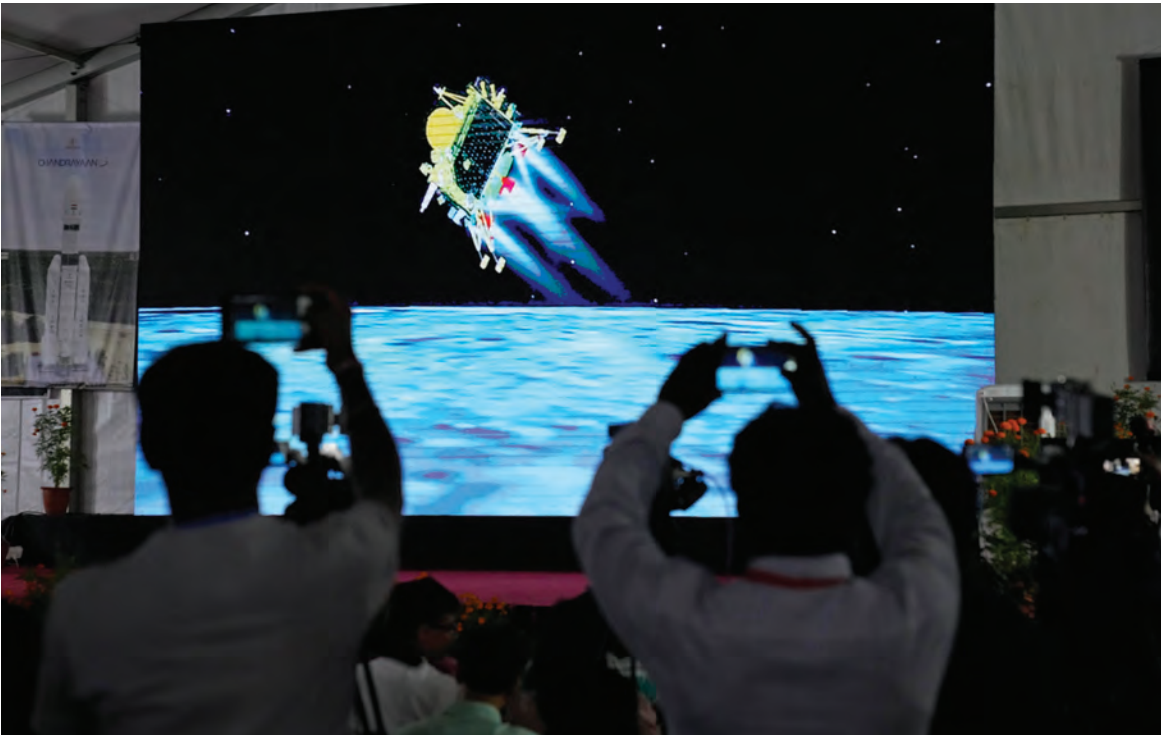
SpaceX's Crew Dragon, atop the company's Falcon 9 rocket, rolls out to Launch Complex 39A at NASA's Kennedy Space Center on April 19, 2022. NASA



India's Chandrayaan-3 lunar rover on the moon. ISRO



India's Chandrayaan-3 lunar lander on the moon, August 30, 2023. ISRO



Journalists film the live telecast of spacecraft Chandrayaan-3 landing on the moon at ISRO's Telemetry, Tracking and Command Network facility in Bengaluru, India, Wednesday, Aug. 23, 2023. AP/Aijaz Rahi

2023

June 1 – China's Chang'e 6 lunar lander lands on the far side of the moon. Chang'e collects about 2 kilograms (4.4 pounds) of samples and deploys a small rover. An ascent vehicle later brought the samples to an orbiter/return vehicle in lunar orbit. The samples are returned to Earth on June 25, marking the first samples from the far side of the moon returned to Earth.

Aug. 23 – India's Chandrayaan-3 lunar lander and rover land in the moon's south polar region.

Sept. 24 – The U.S. spacecraft OSIRIS-REx, which launched in 2016, returns to Earth to drop off a capsule with material from asteroid Bennu, becoming the first U.S. mission to collect a sample from an asteroid. After dropping off the sample, the spacecraft is renamed OSIRIS-APEX and sent on a new mission to explore asteroid Apophis.

2024

June 5 – Boeing launches two astronauts to the ISS aboard the Starliner spacecraft. The Starliner is designed to carry crew to low Earth orbit, joining the Russian Soyuz and SpaceX Dragon spacecraft.

Sept. 12 – Two civilians – tech entrepreneur Jared Isaacman and SpaceX engineer Sarah Gillis – conduct the first private spacewalk on a commercial SpaceX flight.

Timeline sources: Encyclopædia Britannica; ISS National Laboratory; NASA; National Archives; New York Times; Reuters; Sea and Sky

The material contained in this document is based upon work supported by a National Aeronautics and Space Administration (NASA) grant or cooperative agreement. Any opinions, findings, conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of NASA.



Boeing's Starliner spacecraft atop United Launch Alliance's Atlas V rocket at the launch pad of Space Launch Complex-41 at Cape Canaveral Space Force Station in Florida. NASA



The New Shepard booster comes in for a smooth landing at Launch Site One on November 22, 2024. Blue Origin

2025 AND BEYOND



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