

# Space Missions Deck

## International Space Station (ISS)

Data as of Jan 4, 2024

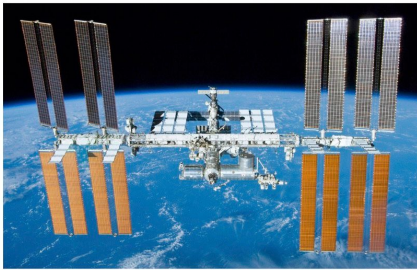


Photo taken by STS-132 crew member on board the Space Shuttle Atlantis, May 2010. Credit: NASA/Crew of STS 132.



Photo taken by ISS crew members during the approach, capture, and docking of the SpaceX Dragon resupply vehicle, March 3, 2013. Credit: NASA



NASA astronaut Jessica Watkins holding a Plate Habitat (PHAB) aboard the ISS, preparing to test a new bioreactor technology for growing high-protein food on the ISS, July 22, 2022. Credit: NASA

# of uncrewed missions to it	161
# of crewed missions to it	117
Duration that crews stayed here	6 to 354 days
Travel time to it (minimum of all missions)	0.2 days (4 hours)

Dimensions	0.109 km x 0.52 km (109 m x 52m)
Minimum distance from Earth	370 km
Temperature inside	22°C (72°F)

Notable future mission(s)

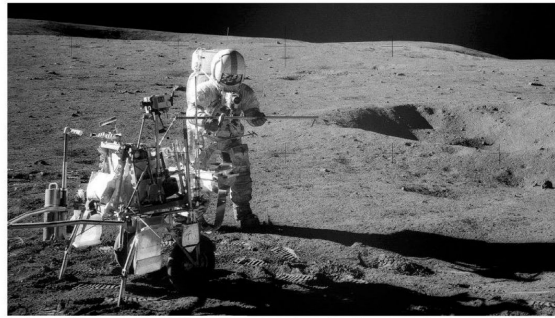
- Regular resupply and crew rotation missions are planned until 2030, which is when the ISS is scheduled to be permanently retired. Cost to date by all member nations is approximately \$100 billion.

# Earth's Moon

Data as of Jan 4, 2024



This image of Earth's moon is based on data from NASA's Lunar Reconnaissance Orbiter spacecraft. Credit: NASA



An image of Astronaut Alan B. Shepard Jr. on the surface of Earth's moon during the Apollo 14 mission. This is a composite of multiple smaller images stitched together (like a panorama shot). February 5, 1971. Credit: NASA

# of uncrewed missions to it	141
# of crewed missions to it	6
Duration that crews stayed here	7 to 75 hours
Travel time to it (minimum of all missions)	2.9 days

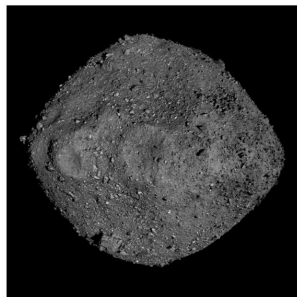
Average diameter	3,475 km
Minimum distance from Earth	~ 360,000 km
Surface temperature	-250°C to 120°C (-410°F to 250°F)

## Notable future mission(s)

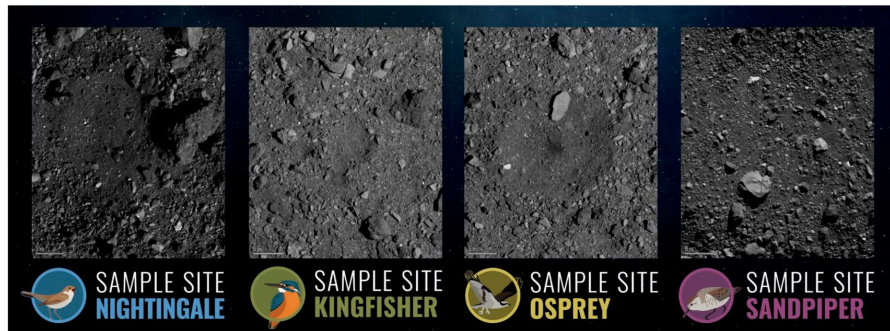
- **Artemis 3, NASA, 2025.** This mission is planned to deliver “the first woman and the next man” to the Moon as a step toward establishing a permanent base camp. The 30-day mission is estimated to cost over \$4 billion.

# Bennu (asteroid)

Data as of Jan 4, 2024



This mosaic of Bennu was created using observations made by NASA's OSIRIS-REx spacecraft that was in close proximity to the asteroid for over two years. Credit: NASA/Goddard/University of Arizona



OSIRIS-REx images of the four candidate sample collection sites on asteroid Bennu: Nightingale, Kingfisher, Osprey and Sandpiper. Credit: NASA/Goddard/University of Arizona

# of uncrewed missions to it	1
# of crewed missions to it	0
Duration that crews stayed here	n/a
Travel time to it (minimum of all missions)	816 days

Average diameter	0.484 km (484 m)
Minimum distance from Earth	482,000 km
Surface temperature	-37°C to 6°C (-35°F to 49°F)

## Notable future mission(s)

- The first mission to Bennu, OSIRIS-REx, returned to Earth with samples in September 2023.
- The China National Space Administration is planning to launch a mission in 2024 to collect and return a sample of another asteroid, Kamo'oaewa.
- Future plans include potentially mining asteroids based on what we find there.

# Venus

Data as of Jan 4, 2024

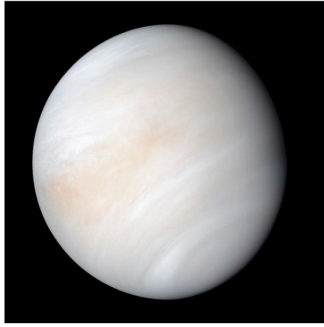


Image of Venus taken from the Mariner 10 spacecraft, 1974.  
Credit: NASA



Image of Venus's surface taken from Venera 13, an uncrewed Soviet lander, March 1, 1982. It includes parts of the lander and is a composite of multiple smaller images stitched together (like a panorama shot). Credit: Russian Academy of Sciences, Ted Stryk

# of uncrewed missions to it	46
# of crewed missions to it	0
Duration that crews stayed here	n/a
Travel time to it (minimum of all missions)	109 days

Average diameter	12,104 km
Minimum distance from Earth	61,000,000 km
Surface temperature	438°C to 482°C (820 F to 900 F)

## Notable future mission(s)

- Shukrayaan-1, Indian Space Research Organization. An uncrewed orbiter and atmospheric balloons are planned to launch in 2024 or 2026.

# Mercury

Data as of Jan 4, 2024



Image of Mercury taken from the uncrewed MESSENGER spacecraft, October 9, 2008.  
Credit: NASA/Johns Hopkins University Applied Physics Laboratory/Carnegie Institution Of Washington

# of uncrewed missions to it	2
# of crewed missions to it	0
Duration that crews stayed here	n/a
Travel time to it (minimum of all missions)	147 days

Average diameter	4,879 km
Minimum distance from Earth	77,300,000 km
Surface temperature	-193°C to 427°C (-315 F to 801 F)

## Notable future mission(s)

- BepiColombo, European Space Agency and Japan Aerospace Exploration Agency. This uncrewed mission is planned to enter orbit around Mercury in 2025.
- Mercury-P, Roscosmos (Russia). This uncrewed lander is planned to launch after 2030.



# Mars

Data as of Jan 4, 2024

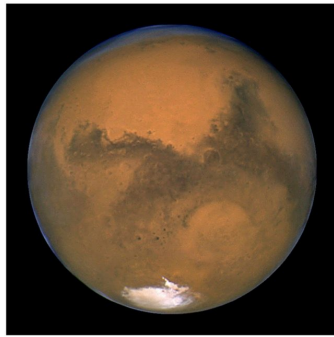


Image of Mars taken from Hubble Space Telescope, August 27, 2003. Credit: NASA/ESA, J. Bell (Cornell U.) and M. Wolff (SSI)



Image of Mars's surface taken from the uncrewed Mars Perseverance Rover, April 29, 2021. Credit: NASA/JPL-Caltech/ASU/MSSS



Image of Mars's surface taken from the uncrewed Mars Perseverance Rover, January 10, 2022. Image Credit: NASA/JPL-Caltech/ASU

# of uncrewed missions to it	49
# of crewed missions to it	0
Duration that crews stayed here	n/a
Travel time to it (minimum of all missions)	155 days

Average diameter	6,792 km
Minimum distance from Earth	54,600,000 km
Surface temperature	-110°C to 35°C (-166°F to 95°F)

## Notable future mission(s)

- NASA and the European Space Agency plan to launch an uncrewed lander in 2026. It will return samples back to Earth that were previously collected by Perseverance, an uncrewed rover.
- Several agencies have proposed missions to take humans to Mars in the 2030s and 2040s.

# Europa (moon of Jupiter)

Data as of Jan 4, 2024

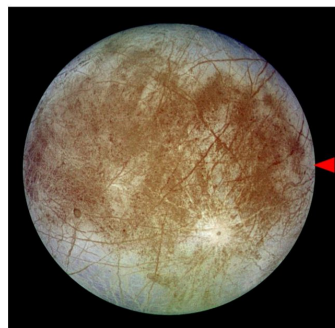


Image of Europa taken from the Galileo uncrewed spacecraft on September 7, 1996. Credit: NASA/JPL/DLR

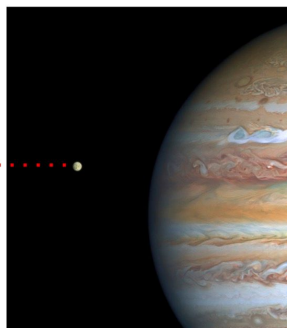


Image of Europa (on the left) and Jupiter (on the right) taken from the Hubble Space Telescope on August 25, 2020. Credit for image: NASA, ESA, A. Simon (Goddard Space Flight Center), and M. H. Wong (University of California, Berkeley) and the OPAL team.

# of uncrewed missions to it	8
# of crewed missions to it	0
Duration that crews stayed here	n/a
Travel time to it (minimum of all missions)	546 days

Average diameter	3,122 km
Minimum distance from Earth	628,100,000 km
Surface temperature	-223°C to -148°C (-370°F to -234°F)

## Notable future mission(s)

- NASA's Europa Clipper is an uncrewed orbiter and lander that is planned to launch in October 2024 and will arrive at Europa in 2030.
- China's CNSA Tianwen-4 is planned to launch around 2030 for a similar mission.

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