

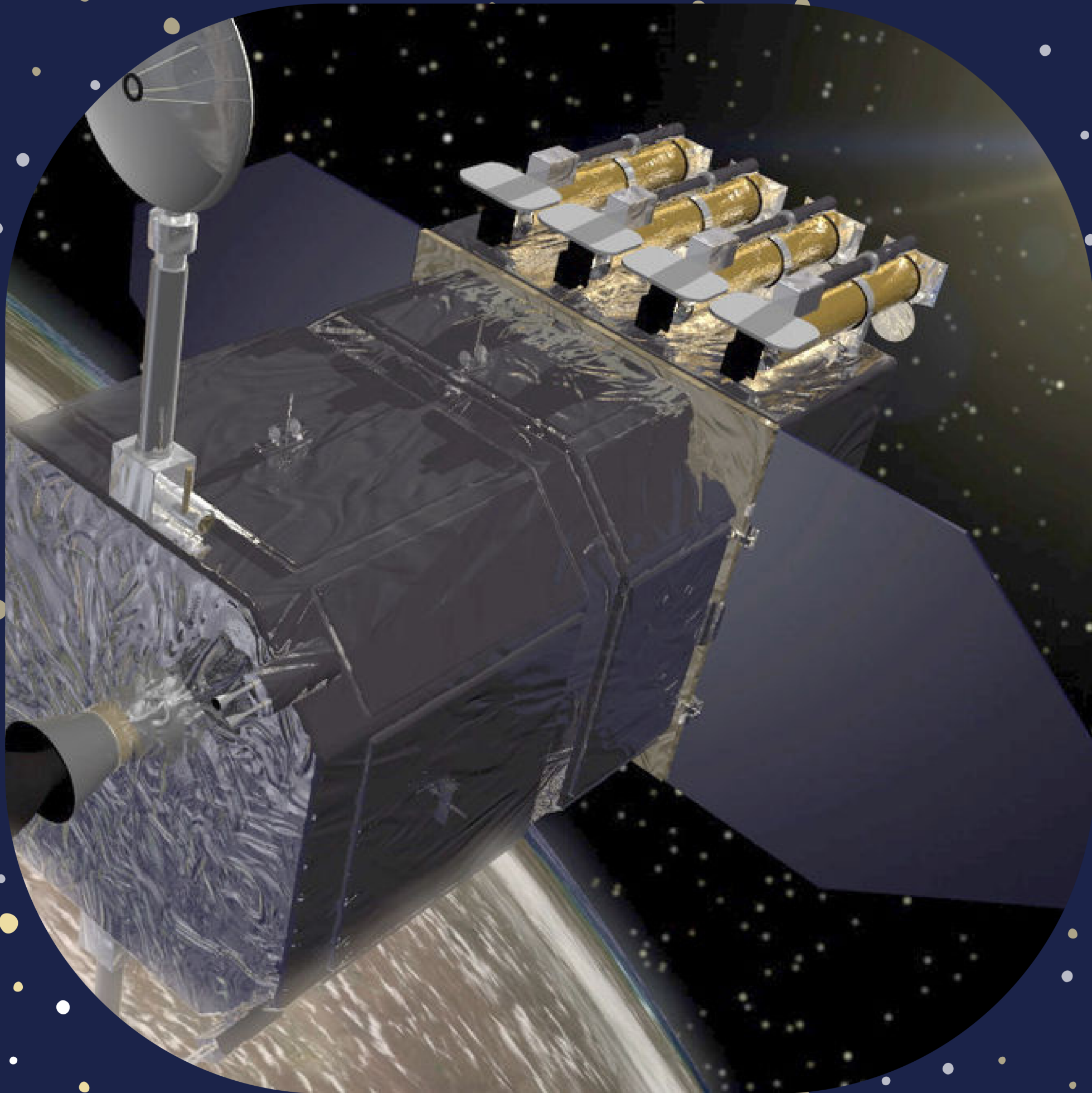
Parker Solar Probe

NASA's Parker Solar Probe is on a mission to "touch the Sun." The spacecraft is flying closer to the Sun's surface than any spacecraft before it. The mission will revolutionize our understanding of the Sun.

- Parker will fly more than seven times closer to the Sun than any spacecraft.
- Over seven years, the spacecraft will complete 24 orbits around the Sun.
- At its closest approach, the spacecraft will come within about 3.9 million miles (6.2 million kilometers) of the Sun.

Learn more:

<https://solarsystem.nasa.gov/missions/parker-solar-probe/in-depth/>

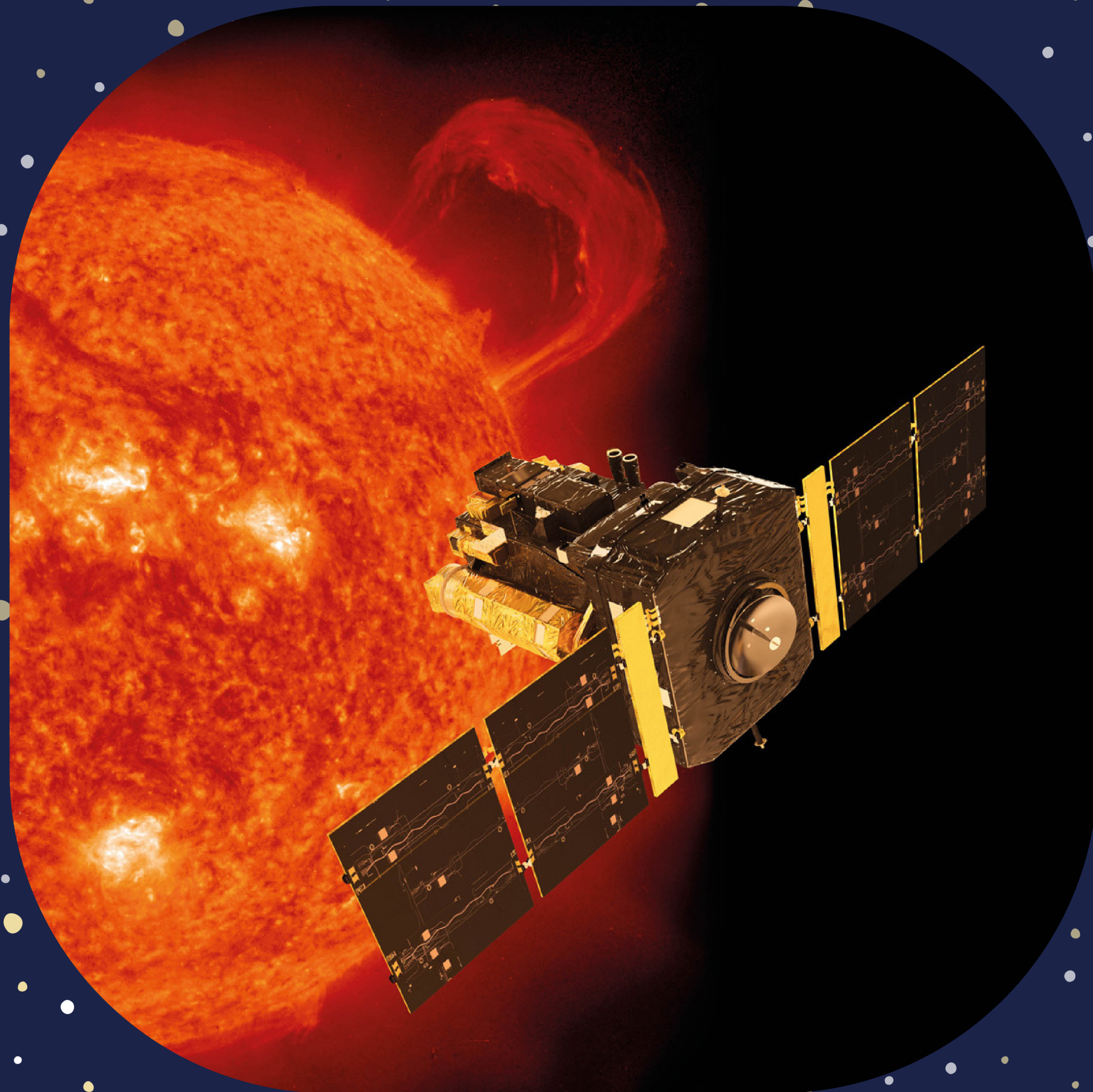


Solar Dynamics Observatory

SDO: The Solar Dynamics Observatory is the first mission to be launched for NASA's Living With a Star (LWS) Program, a program designed to understand the causes of solar variability and its impacts on Earth. SDO is designed to help us understand the Sun's influence on Earth and Near-Earth space by studying the solar atmosphere on small scales of space and time and in many wavelengths simultaneously.

Learn more:

<https://sdo.gsfc.nasa.gov/mission/>



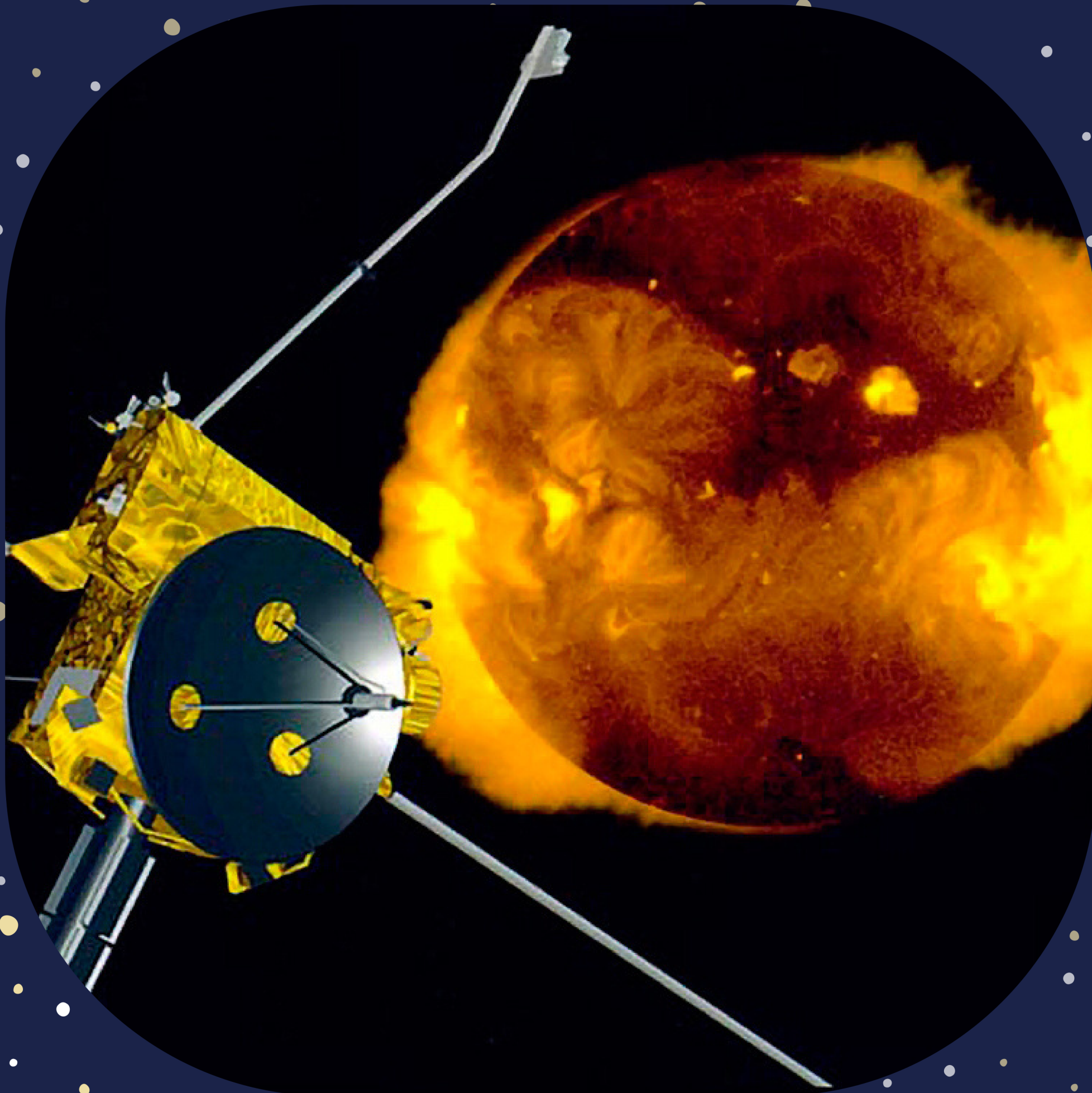
SOHO

SOHO is the longest-lived Sun-watching satellite to date. Numerous mission extensions have enabled the spacecraft to observe two 11-year solar cycles and to discover thousands of comets.

- During its pioneering career, SOHO has returned a wealth of new information about the Sun—from its core to its outer atmosphere and the solar wind.
- SOHO monitors the effects of space weather on our planet, and it plays a vital role in forecasting potentially dangerous solar storms.

Learn more:

<https://solarsystem.nasa.gov/missions/soho/in-depth/>



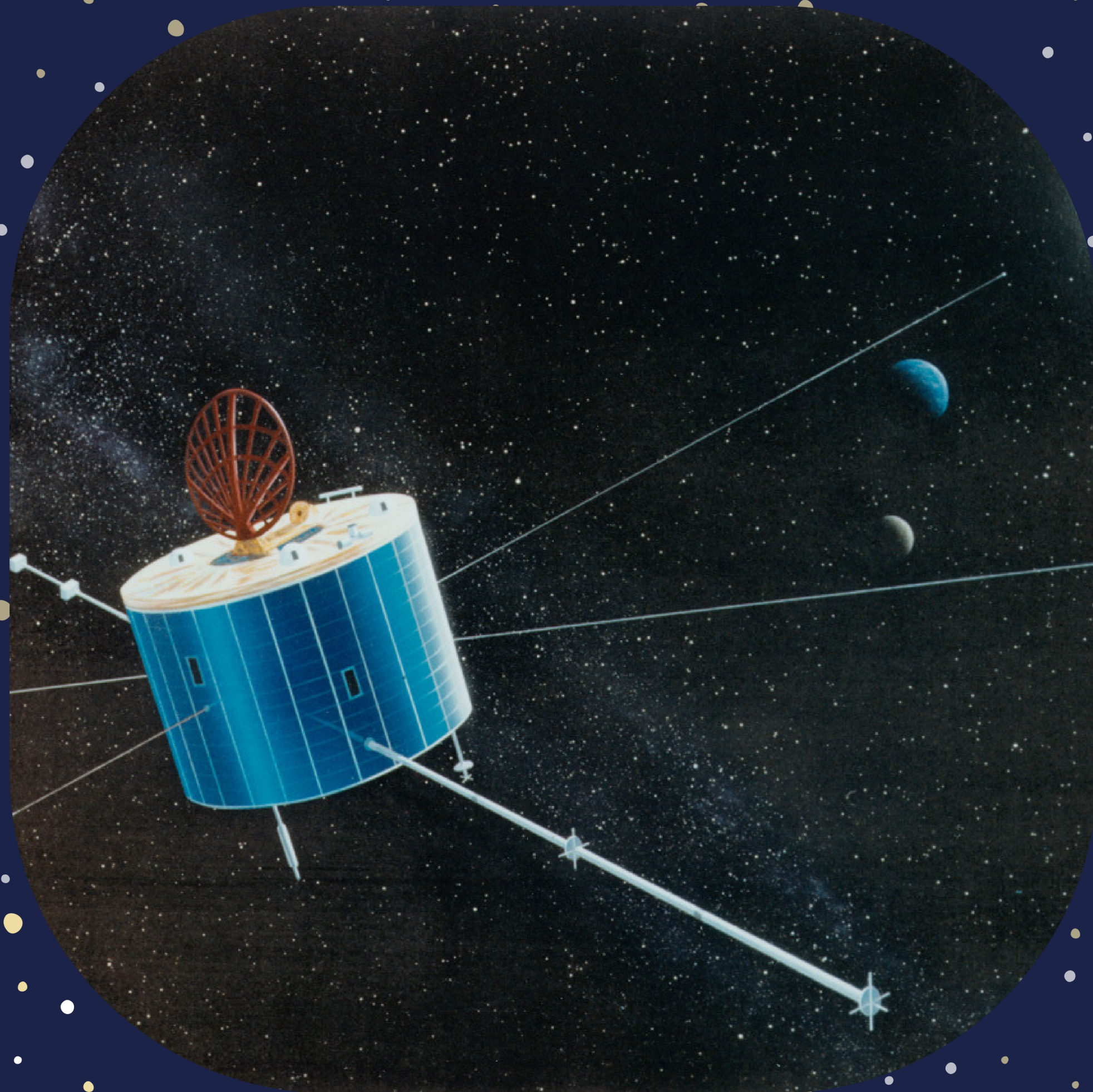
Ulysses

The joint ESA-NASA Ulysses mission made nearly three complete orbits of the Sun during more than 18 years in service. The probe operated more than four times its expected lifetime and made many important discoveries.

- Data from the mission indicated the solar magnetic field at the Sun's poles is much weaker than previously assumed.
- Ulysses helped determine that the Sun's magnetic field "reverses" in direction every 11 years.

Learn more:

<https://solarsystem.nasa.gov/missions/ulysses/in-depth/>



Geotail

Geotail provides information about the way the magnetic envelope surrounding Earth, called the magnetosphere, responds to incoming material and energy from the Sun.

- Surviving more than six times longer than planned, Geotail continues to send back crucial data.

Learn more:

<https://solarsystem.nasa.gov/missions/geotail/in-depth/>



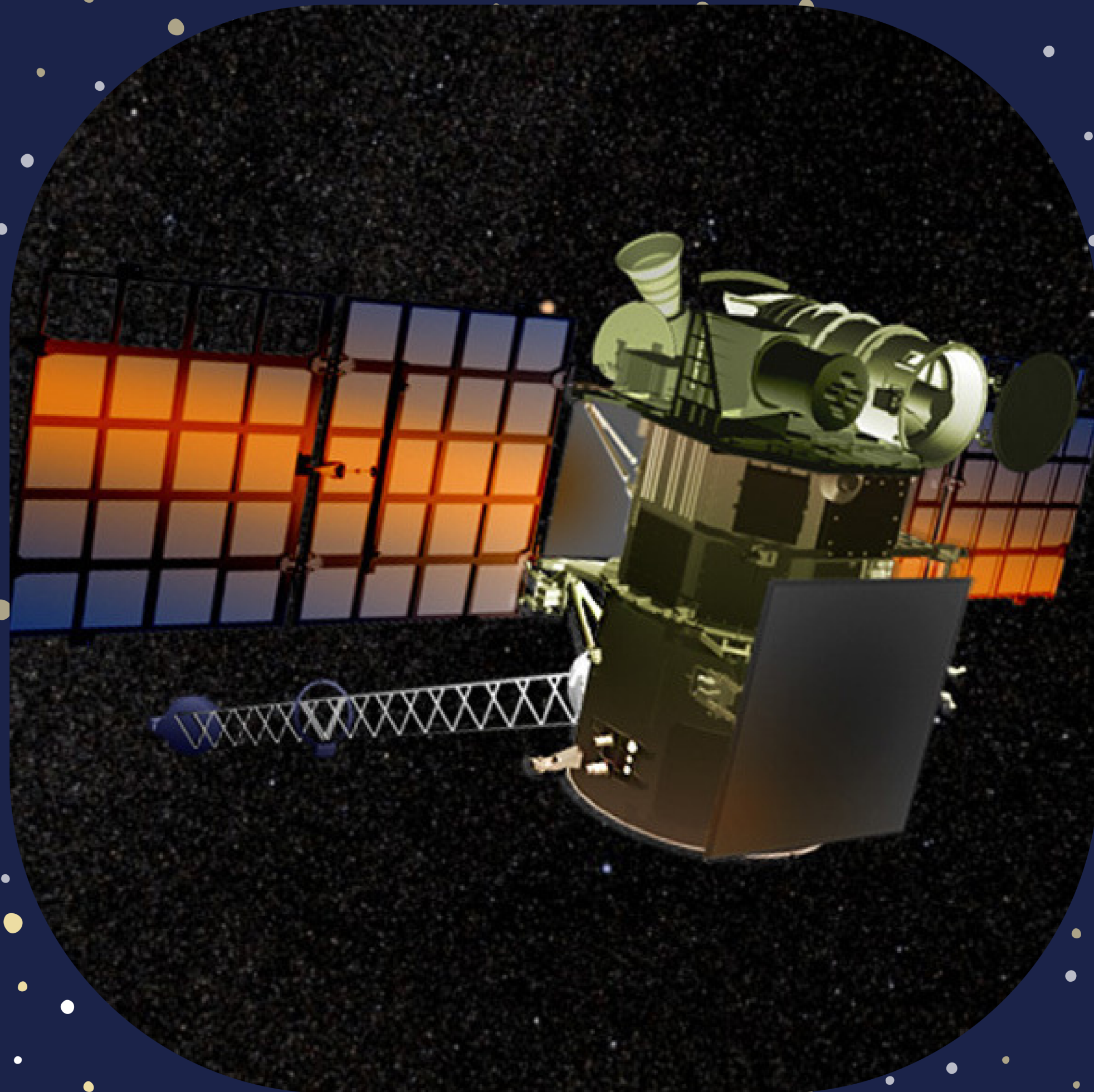
ACE

NASA's Advanced Composition Explorer (ACE) collects and analyzes particles of solar, interplanetary, interstellar and galactic origins. The data contributes to our understanding of the Sun, its interaction with Earth, and the evolution of the solar system.

- ACE continues to provide space weather reports and warnings of geomagnetic storms that can disrupt communications on Earth and harm astronauts in space.
- The spacecraft has operated far beyond its expected lifetime.

Learn more:

<https://solarsystem.nasa.gov/missions/ace/in-depth/>



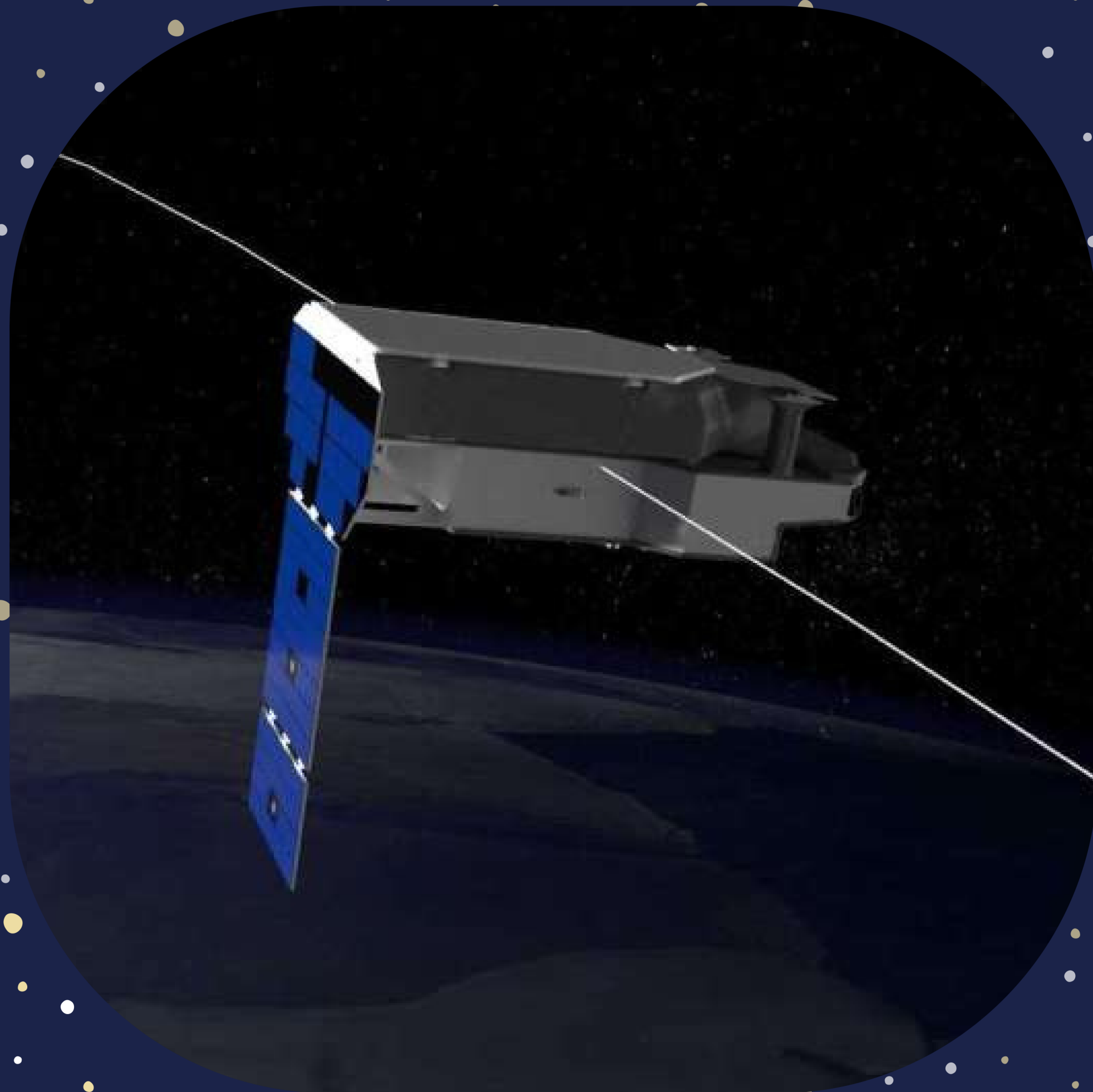
DSCOVR

DSCOVR (Deep Space Climate Observatory) is an American space weather station that monitors changes in the solar wind, providing space weather alerts and forecasts for geomagnetic storms that could disrupt power grids, satellites, telecommunications, aviation and GPS.

- DSCOVR orbits about a million miles from Earth in a unique location called Lagrange point 1, which basically allows it to hover between the Sun and our planet.
- The spacecraft's EPIC camera takes a new picture of Earth every two hours.

Learn more:

<https://solarsystem.nasa.gov/missions/DSCOVR/in-depth/>

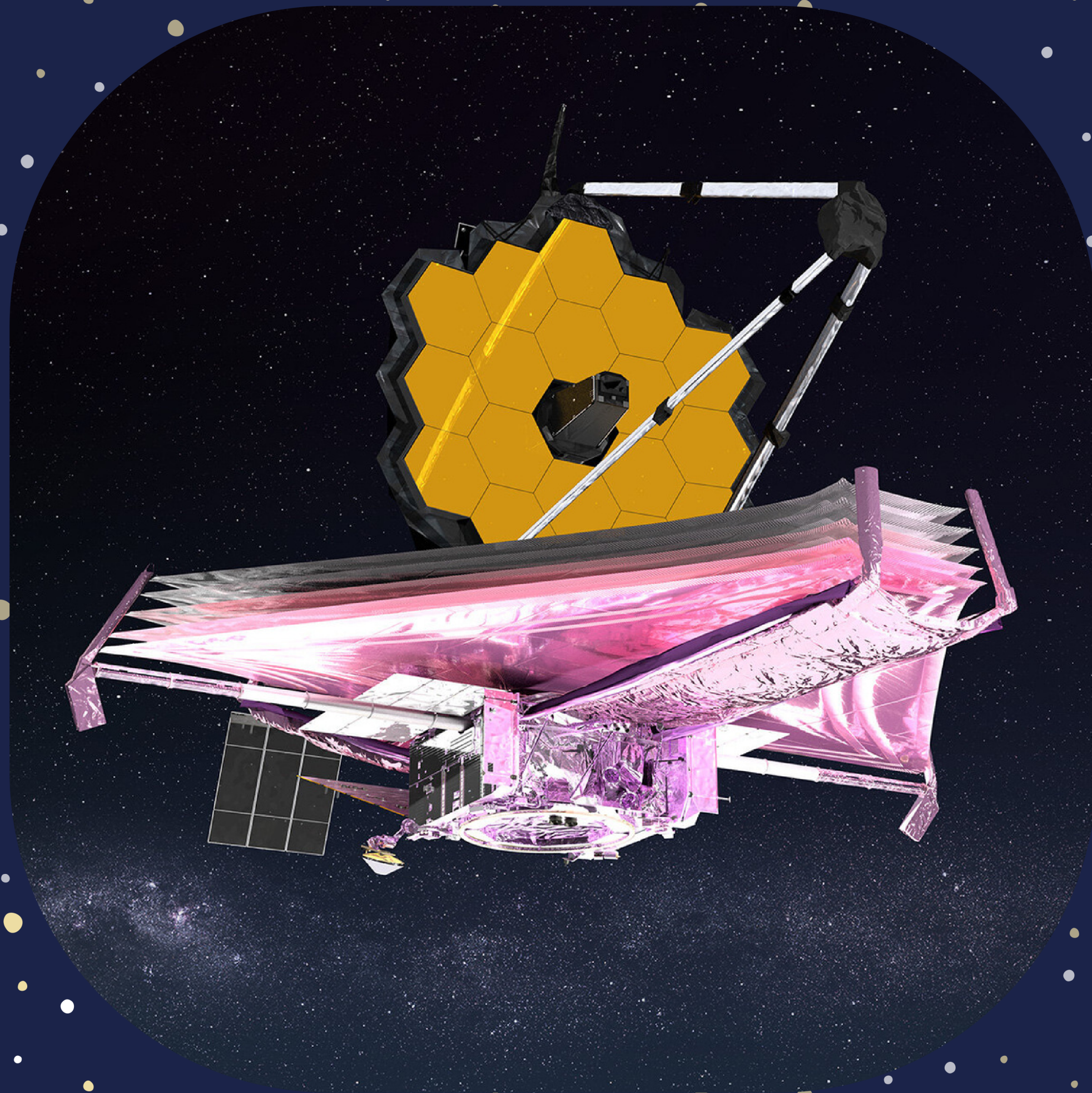


PUNCH

PUNCH is a NASA Small Explorer mission that will make global, 3D observations of the young solar wind, from the outermost solar atmosphere to the inner heliosphere. Images of unprecedented quality will help to close a 60-year gap in measurement and understanding of what occurs in this region of space. The mission consists of a constellation of four small satellites in Sun-synchronous, low Earth orbit. PUNCH is scheduled to launch in April of 2025.

Learn more:

<https://punch.space.swri.edu/index.php>



James Webb Space Telescope

The James Webb Space Telescope is an infrared observatory orbiting the Sun about 1 million miles from Earth to find the first galaxies that formed in the early universe and to see stars forming planetary systems. It will complement and extend the discoveries of the Hubble Space Telescope, with longer wavelength coverage and greatly improved sensitivity.

Learn more:

<https://solarsystem.nasa.gov/missions/james-webb-space-telescope/in-depth/>



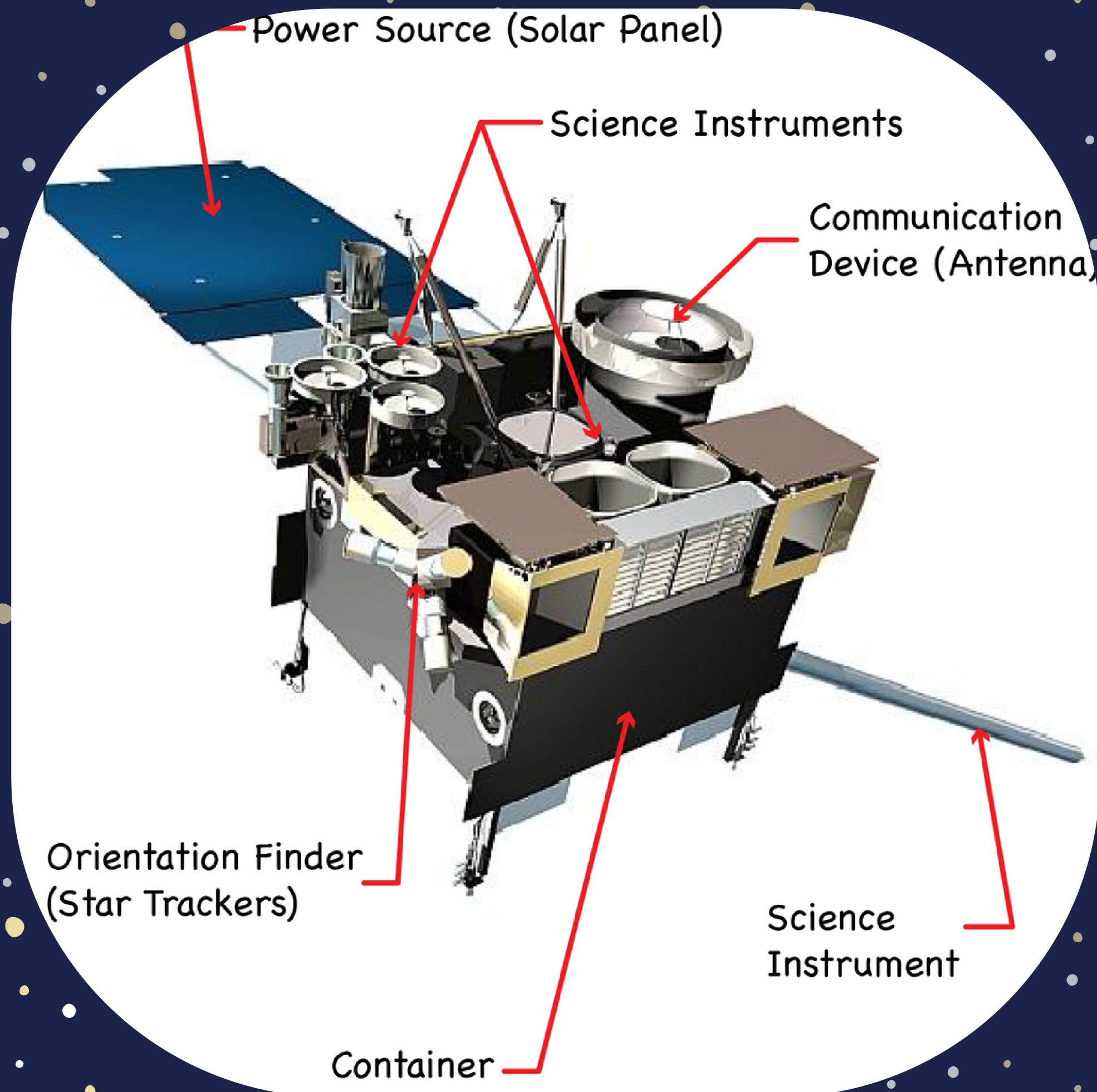
Hubble Space Telescope

NASA's Hubble Space Telescope is the first astronomical observatory placed into orbit around Earth with the ability to record images in wavelengths of light spanning from ultraviolet to near-infrared. Hubble continues to operate high above the blurring effects of Earth's atmosphere.

- Hubble orbits about 350 miles (560 kilometers) above Earth's surface.
- The spacecraft completes 15 orbits per day – approximately one every 95 minutes.

Learn more:

<https://solarsystem.nasa.gov/missions/hubble-space-telescope/in-depth/>



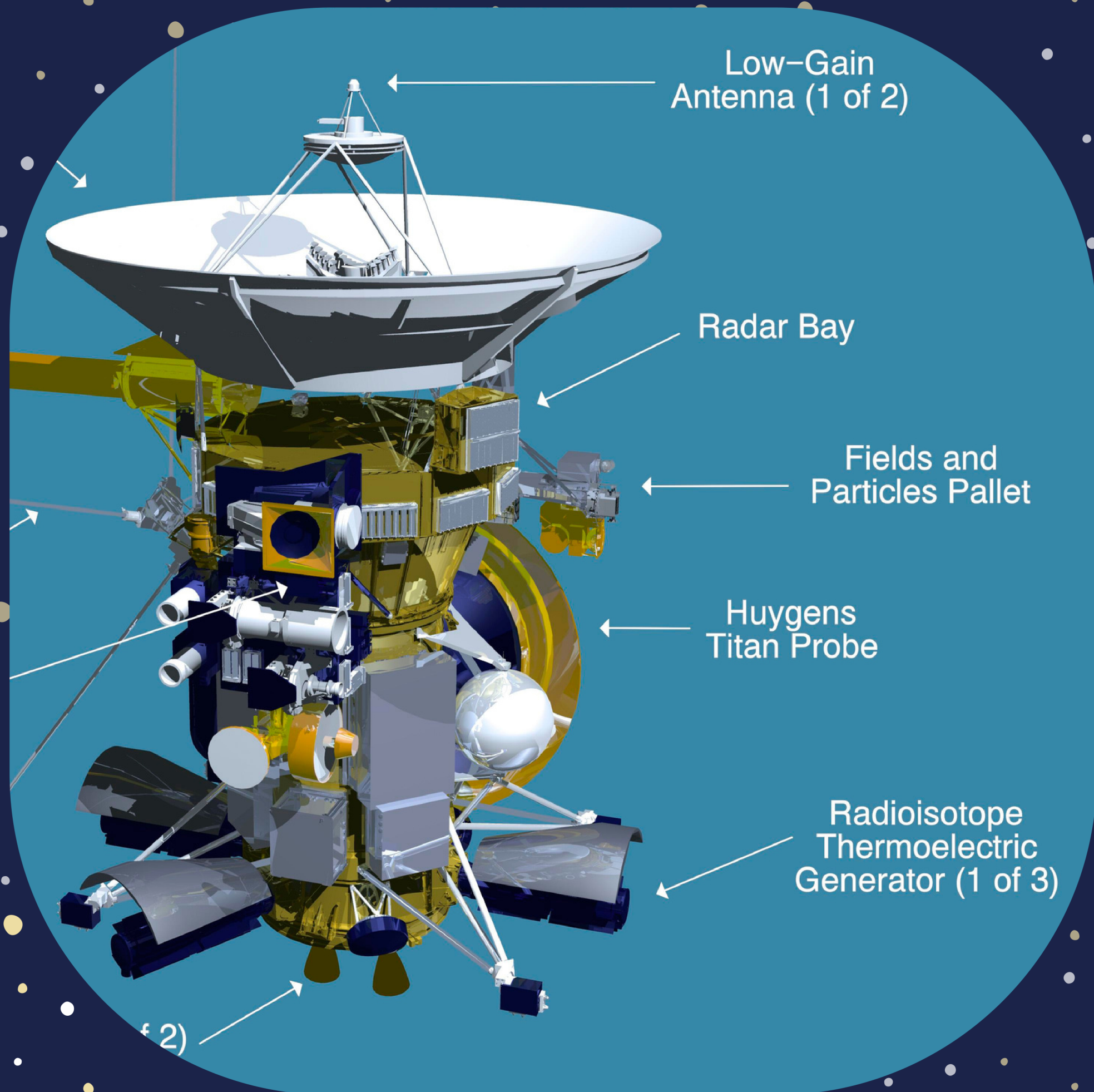
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Cassini

For more than a decade, NASA's Cassini spacecraft shared the wonders of Saturn and its family of icy moons—taking us to astounding worlds where methane rivers run to a methane sea and where jets of ice and gas are blasting material into space from a liquid water ocean that might harbor the ingredients for life.

Cassini carried a passenger to the Saturn system, the European Huygens probe—the first human-made object to land on a world in the distant outer solar system.

Learn more:

<https://solarsystem.nasa.gov/resources/12943/diagram-of-the-cassini-spacecraft/>