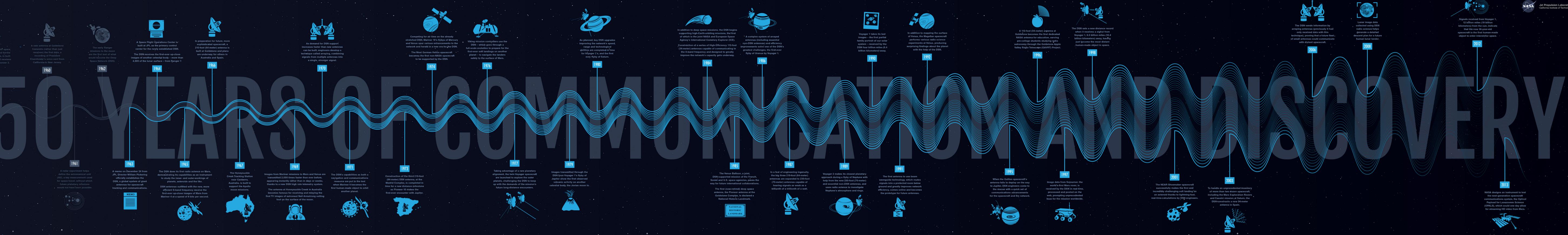


# NASA DEEP SPACE NETWORK

The Deep Space Network is our connection to space. Consisting of giant antennas positioned at 120-degree intervals around the world for a complete view of the sky, it is the largest and most sensitive spacecraft communication network in existence. Since 1963, it has directed NASA's intrepid explorers on their journeys to the planets and all the way to the edge of our solar system, capturing their sights, sounds and discoveries in its parabolic embrace and sharing them with the world.



**1961**

A radar experiment helps define the astronomical unit (AU), a key measurement used for space travel, without which future planetary missions would not have been possible.

**1963**

A memo on December 24 from JPL Director William Pickering officially establishes the DSN, a global system of giant antennas for spacecraft tracking and communications.

**1965**

The DSN does its first radio science on Mars, demonstrating its capabilities as an instrument to study the inner- and outer-workings of planets, asteroids and the like.

**1967**

The Honeyuckle Creek Tracking Station near Canberra, Australia, is built to support the Apollo moon missions.

**1969**

Images from Mariner missions to Mars and Venus are transmitted 2,000 times faster than ever before, appearing instantly rather than in days or weeks, thanks to a new DSN high rate telemetry system.

**1971**

The antenna at Honeyuckle Creek in Australia becomes famous for receiving and relaying the first TV images of astronaut Neil Armstrong setting foot on the surface of the moon.

**1973**

Construction of the third 210-foot (64-meter) DSN antenna, at the Madrid Complex, is completed in time for a new distance milestone as Pioneer 10 makes the first-ever encounter with Jupiter.

**1977**

Taking advantage of a rare planetary alignment, the twin Voyager spacecraft are launched to explore the outer planets, challenging the DSN to keep up with the demands of the mission's future long-distance encounters.

**1979**

Images transmitted through the DSN from Voyager 1's flyby of Jupiter show the first observed volcanic activity on another celestial body, the Jovian moon Io.

**1985**

The Venus Balloon, a joint, DSN-supported mission of the French, Soviet and U.S. space agencies, paves the way for future international collaborations.

**1987**

In a feat of engineering ingenuity, the big three 210-foot (64-meter) antennas are expanded to 230-foot (70-meter) antennas capable of hearing signals as weak as a billionth of a trillionth of a watt.

**1989**

Voyager 2 makes its closest planetary approach during a flyby of Neptune with help from the new 230-foot (70-meter) and essential non-DSN antennas, and uses radio science to investigate Neptune's atmosphere and rings.

**1991**

The first antenna to use beam waveguide technology, which routes signals into a protected room below ground and greatly improves network efficiency, comes online and becomes the prototype for future antennas.

**1995**

When the Galileo spacecraft's antenna fails to deploy on the way to Jupiter, DSN engineers come to the rescue with a quick set of communications advancements for the spacecraft and the network.

**1997**

Image data from Sojourner, the world's first Mars rover, is received by the DSN in real-time, processed and posted on the web, prompting unprecedented buzz for the mission worldwide.

**2001**

The NEAR Shoemaker spacecraft successfully makes the first and incredibly challenging soft landing on an asteroid thanks to lightning-fast, real-time calculations by DSN engineers.

**2003**

To handle an unprecedented inventory of more than two dozen spacecraft, including the Mars Exploration Rovers and Cassini mission at Saturn, the DSN constructs a new 34-meter antenna in Spain.

**MEMO**

A memo on December 24 from JPL Director William Pickering officially establishes the DSN, a global system of giant antennas for spacecraft tracking and communications.

**NATIONAL HISTORIC LANDMARK**

The first (now-retired) deep space antenna, the Pioneer antenna at the Goldstone Complex, is declared a National Historic Landmark.