

Ames celebrates the 40th anniversary of Pioneer 10

March 1 2012, By Ruth Dasso Marlaire

Launched on March 2, 1972, Pioneer 10 was the first spacecraft to travel through the Asteroid belt, and the first spacecraft to make direct observations and obtain close-up images of Jupiter. Famed as the most remote object ever made through most of its mission, Pioneer 10 traveled more than 8 billion miles through space in 25 years. (On Feb. 17, 1998, Voyager 1's heliocentric radial distance equaled Pioneer 10 at 69.4 AU and thereafter exceeded Pioneer 10 at the rate of 1.02 AU per year.)

Pioneer 10 made its closest encounter to Jupiter on Dec. 3, 1973, passing within 81,000 miles of the cloudtops. This historic event marked humans' first approach to Jupiter and opened the way for exploration of the [outer solar system](#) - for Voyager to tour the outer planets, for Ulysses to break out of the ecliptic, for Galileo to investigate Jupiter and its satellites, and for Cassini to go to Saturn and probe Titan. During its Jupiter encounter, Pioneer 10 imaged the planet and its moons, and took measurements of Jupiter's magnetosphere, radiation belts, magnetic field, atmosphere, and interior. These measurements of the [intense radiation](#) environment near Jupiter were crucial in designing the Voyager and [Galileo spacecraft](#).

Pioneer 10 made valuable scientific investigations in the outer regions of our solar system until the end of its [science mission](#) on March 31, 1997. Pioneer 10's weak signal continued to be tracked by the Deep Space Network (DSN) as part of an advanced concept study of communication technology supporting NASA's future interstellar probe mission.

After more than 30 years, it appears the venerable Pioneer 10 spacecraft has sent its last signal to Earth. Pioneer's last, very weak signal was received Jan. 23, 2003. The power source on Pioneer 10 finally degraded to the point in 2003 where its signal to Earth dropped below the threshold for detection. NASA's Deep Space Network (DSN) did not detect a signal during a contact attempt on Feb. 7, 2003. The previous three contacts, including the Jan. 23, 2003 signal, were very faint, with no telemetry received. The last time a Pioneer 10 contact returned telemetry data was April 27, 2002.

Pioneer 10 will continue to coast silently as a ghost ship through deep space into interstellar space, heading generally for the red star Aldebaran, which forms the eye of Taurus (The Bull). Aldebaran is about 68 light years away and it will take Pioneer more than 2 million years to reach it.

More information: For more information about the Pioneer Project History, see: [www.nasa.gov/centers/ames/miss ... archive/pioneer.html](http://www.nasa.gov/centers/ames/miss...archive/pioneer.html)

Provided by JPL/NASA

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