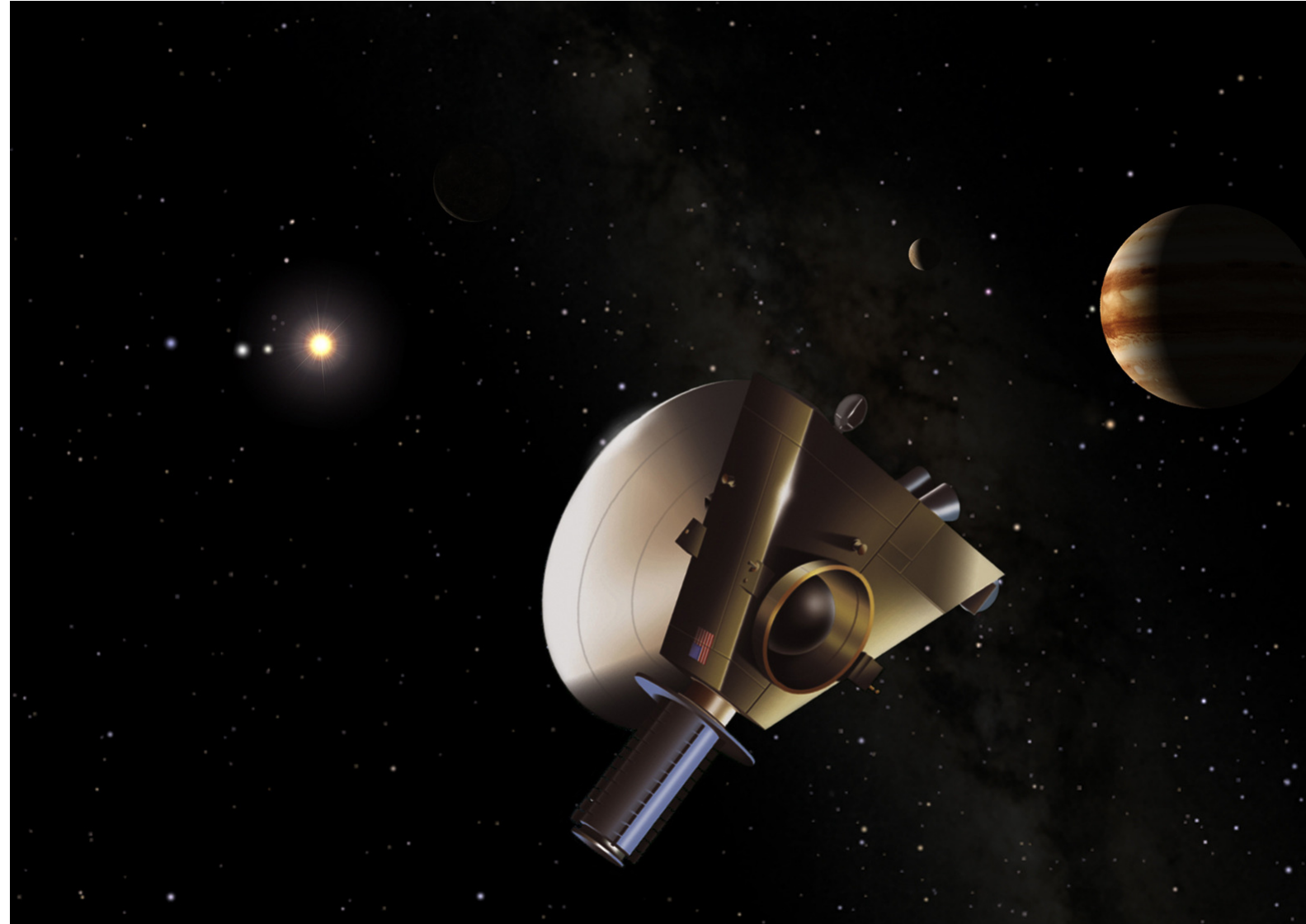


## New Horizons Slingshots Past Jupiter on its Way to Pluto

Posted by [Guy Pirro](#) on 2/27/2007 5:55 PM



Although the main mission of the New Horizons spacecraft is to explore the Pluto system and the Kuiper Belt of icy objects, it will first slingshot past Jupiter to gain extra velocity. In this artist's rendering, New Horizons is just past its closest approach to the planet. Near the Sun are Earth, Venus, and Mercury. The dim crescent shape to the upper left of Jupiter is Callisto, the outermost of Jupiter's four largest moons. To the lower left of Jupiter is Europa. (Image Credit: Southwest Research Institute - Dan Durda a Physics Laboratory - Ken Moscati)

Feb. 28, threading its path through an "aim point" 1.4 million miles (2.3 million kilometers) from the center of Jupiter. Jupiter's gravity will accelerate New Horizons away from the Sun by an additional 9,000 miles per hour — half the speed of a space shuttle in and hurling it toward a pass through the Pluto system in July 2015.

At the same time, the New Horizons mission team is taking the spacecraft on the ultimate test drive — using the flyby to put the probe's systems and seven science instruments through the paces of a planetary encounter. More than 700 observations of Jupiter planned from January through June, including scans of Jupiter's turbulent atmosphere and dynamic magnetic cocoon (called the magnetosphere), mappings of the composition and topography of the large moons (Io, Europa, Ganymede, and Callisto), and an un on Io.

The flight plan also calls for the first-ever trip down the long "tail" of Jupiter's magnetosphere, a wide stream of charged particles that extends tens of millions of miles beyond the planet, and the first closeup look at the "Little Red Spot," a nascent storm south of Earth, and operational intensity. Like at Pluto, much of the data from the Jupiter flyby won't be sent back to Earth until after closest approach, because the spacecraft's main priority is to observe the planet and store data on its recorders before transmitting info

"Our highest priority is to get the spacecraft safely through the gravity assist and on its way to Pluto," says New Horizons Principal Investigator Dr. Alan Stern, of the Southwest Research Institute, Boulder, Colo. "But we also have an incredible opportunity to co test to wring out our procedures and techniques for Pluto, and to collect some valuable science data."

The Jupiter test matches or exceeds the mission's Pluto study in duration, data volume sent back to Earth, and operational intensity. Like at Pluto, much of the data from the Jupiter flyby won't be sent back to Earth until after closest approach, because the spacecraft's main priority is to observe the planet and store data on its recorders before transmitting info

"We designed the Jupiter encounter to prove out our planning tools, our simulation capabilities, our spacecraft and our instrument sensors on a real planetary target, well before the Pluto encounter," says Glen Fountain, New Horizons project manager at the Johns Hopkins Applied Physics Laboratory (APL), Laurel, Md., which built and operates the spacecraft. "If the team needs to adjust anything before Pluto, we'll find out about it now."

New Horizons lifted off from Cape Canaveral Air Force Station, Florida, last Jan. 19, 2006. The spacecraft has undergone a full range of system and instrument checkouts. With closest approach to Jupiter coming 13 months after launch, New Horizons will reach seven previous visitors. Pioneers 10 and 11, Voyagers 1 and 2, Ulysses, and Cassini all used Jupiter's gravity to reach other destinations. NASA's Galileo orbited the planet from 1995-2003.

New Horizons also provides the first close-up look at the Jovian system since Galileo, and the last until NASA's Juno mission arrives in 2016. "The Jupiter system is incredibly dynamic," says New Horizons Jupiter Encounter Science Team lead Dr. Jeff Moore, of NASA's Jet Propulsion Laboratory. "Constant changes in Jupiter's magnetosphere and atmosphere, to the evolving surfaces of moons such as Io, you get a new snapshot every time you go there."

After an eight-year cruise from Jupiter across the expanse of the solar system, New Horizons will conduct a five-month-long study of Pluto and its three moons in 2015, characterizing their global geology and geomorphology, mapping their surface compositions and atmospheric composition and structure. Then, as part of a potential extended mission, New Horizons will conduct similar studies of one or more smaller worlds in the Kuiper Belt, the region of rocky and icy bodies far beyond Neptune's orbit.

For more information:

[http://www.nasa.gov/mission\\_pages/newhorizons/main/index.html](http://www.nasa.gov/mission_pages/newhorizons/main/index.html)

[http://www.astromart.com/news/news.asp?news\\_id=436](http://www.astromart.com/news/news.asp?news_id=436)

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