

Pluto up close: Spacecraft apparently makes successful flyby

July 14 2015, by Marcia Dunn



This July 13, 2015 image provided by NASA shows Pluto, seen from the New Horizons spacecraft. The United States is now the only nation to visit every single planet in the solar system. Pluto was No. 9 in the lineup when New

Horizons departed Cape Canaveral, Fla, on Jan. 19, 2006 (NASA via AP)

In a day of both jubilation and tension, scientists anxiously waited Tuesday for NASA's New Horizons spacecraft to send word across 3 billion miles and confirm it got humanity's first up-close look at Pluto.

All indications were that the craft successfully made its flyby, and a cheering, flag-waving celebration swept over the [mission operations center](#) in Maryland. But confirmation was not expected to reach Earth from the edge of the solar system for another 13 hours, or about 9 p.m. EDT.

The unprecedented encounter was the last stop on NASA's grand tour of the planets over the past half-century. New Horizons arrived at the small icy world after an epic journey that began 9½ years ago, back when Pluto was still considered a full-fledged planet.

"This is truly a hallmark in human history," said John Grunsfeld, NASA's science mission chief. "It's been an incredible voyage."

According to NASA, the spacecraft the size of a baby grand piano swept to within 7,700 miles of Pluto at 31,000 mph. The countdown to confirmation began as New Horizons went past the dwarf planet and began studying its far side.

To commemorate the moment of closest approach, scientists released the best picture yet of Pluto, taken on the eve of the flyby.

Even better images will start "raining" down on Earth beginning Wednesday, promised principal scientist Alan Stern. But he cautioned everyone to "stay tuned" until New Horizons contacted home.

It takes 4½ hours for signals to travel one-way between New Horizons and Earth. The message was due to go out late in the afternoon during a brief break in the spacecraft's data-gathering frenzy.



In this photo provided by NASA, New Horizons Principal Investigator Alan Stern of Southwest Research Institute (SwRI), Boulder, Colo., left, Johns Hopkins University Applied Physics Laboratory (APL) Director Ralph Semmel, center, and New Horizons Co-Investigator Will Grundy of the Lowell Observatory hold a print of a U.S. stamp with their suggested update since the New Horizons spacecraft made its closest approach to Pluto, at the Johns Hopkins University Applied Physics Laboratory (APL) in Laurel, Md. on Tuesday, July 14, 2015. At center right under the stamp is Annette Tombaugh, daughter of Pluto's discoverer, Clyde Tombaugh. (Bill Ingalls/NASA via AP)

"We're counting" on good news, said Stern, a Southwest Research Institute [planetary scientist](#). "But there's a little bit of drama because this

is true exploration. New Horizons is flying into the unknown."

Jim Green, NASA's planetary science director, admitted to being "on pins and needles" while waiting for New Horizons to tell [flight controllers](#), "I made it!"



This July 11, 2015, image provided by NASA shows Pluto from the New Horizons spacecraft. On Tuesday, July 14, NASA's New Horizons spacecraft will come closest to Pluto. New Horizons has traveled 3 billion miles over 9½ years to get to the historic point. (NASA/JHUAPL/SWRI via AP)

Among the possible dangers: space debris that could destroy the mission. But with the chances of a problem considered extremely low, scientists assembled at Johns Hopkins University's Applied Physics Laboratory erupted in jubilation when the moment of [closest approach](#) occurred at 7:49 a.m. EDT. The lab is the spacecraft's developer and manager.

Joining in the hoopla were the two children of the late American astronomer who discovered Pluto in 1930, Clyde Tombaugh. (Some of his ashes are aboard the spacecraft.)

The White House and Congress offered congratulations, and physicist Stephen Hawking was among the scientists weighing in.

"Hey, people of the world! Are you paying attention?" planetary scientist Carolyn Porco, part of the New Horizons' imaging team, said on Twitter. "We have reached Pluto. We are exploring the hinterlands of the solar system. Rejoice!"

The U.S. is now the only nation to visit every planet in the solar system. Pluto was No. 9 in the lineup when New Horizons left Cape Canaveral, Florida, on Jan. 19, 2006, but was demoted seven months later to dwarf status.

Scientists in charge of the \$720 million mission hope the new observations will restore Pluto's honor.

Stern and other so-called plutophiles posed for the cameras giving nine-fingers-up "Pluto Salute."

The picture of Pluto taken on Monday showed an icy, pockmarked world, peach-colored with a heart-shaped bright spot and darker areas around the equator. It drew oohs and aahs.



Guest and New Horizons team members count down to the spacecraft's closest approach to Pluto, Tuesday, July 14, 2015 at the Johns Hopkins University Applied Physics Laboratory (APL) in Laurel, Maryland. The moment of closest approach for the New Horizons spacecraft came around 7:49 a.m. EDT Tuesday, culminating an epic journey from planet Earth that spanned an incredible 3 billion miles and 9½ years. (Bill Ingalls/NASA via AP)

"To see Pluto be revealed just before our eyes, it's just fantastic," said mission operations manager Alice Bowman.

The Hubble Space Telescope had offered up the best pre-New Horizons pictures of Pluto, but they were essentially pixelated blobs of light.

Flight controllers held off on having New Horizons send back flyby photos until well after the maneuver was complete; they wanted the seven science instruments to take full advantage of the encounter.

New Horizons is also expected to beam back photos of Pluto's big moon,

Charon, and observe its four little moons. It will take 16 months, or until late 2016, for all the data to reach Earth.



Members of the New Horizons science team react to seeing the spacecraft's last and sharpest image of Pluto before closest approach later in the day, Tuesday, July 14, 2015, at the Johns Hopkins University Applied Physics Laboratory (APL) in Laurel, Maryland. NASA's New Horizons spacecraft was on track to zoom within 7,800 miles (12,500 kilometers) of Pluto on Tuesday. (Bill Ingalls/NASA via AP)

On the eve of the encounter, NASA confirmed that Pluto is, indeed, the King of the Kuiper Belt. New measurements made by the spacecraft show that Pluto is 1,473 miles in diameter, or about 50 miles bigger than estimated.

That's still puny by [solar-system](#) standards. Pluto is just two-thirds the size of Earth's moon. But it is big enough to be the largest object in the Kuiper Belt, a zone rife with comets and tens of thousands of other small bodies.



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Stern and his colleagues wasted no time pressing the U.S. Postal Service for a new stamp of Pluto.

The last one, issued in 1991, presented an artist's rendering of the faraway world and the words: "Pluto Not Yet Explored." The words "not yet" were crossed out in a poster held high Tuesday for the cameras.

More information: NASA:

www.nasa.gov/mission_pages/newhorizons/main/

Johns Hopkins University: pluto.jhuapl.edu

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