

New Horizons: Pluto probe survives encounter, then calls home

15/07/2015 13:38 by admin

Cape Carnival: NASA's New Horizons spacecraft got humanity's first up-close look at Pluto on Tuesday, sending word of its triumph across 3 billion miles to scientists waiting back home.

Confirmation of mission success came 13 hours after the actual flyby and, after a day of both jubilation and tension, allowed the New Horizons team to finally celebrate in full force.

Early indications had been encouraging, and a cheering, flag-waving celebration swept over the mission operations center in Maryland at the time of closest approach Tuesday morning. But until New Horizons phoned home Tuesday night, there was no guarantee the spacecraft had buzzed the small, icy, faraway - but no longer unknown - world.

The unprecedented encounter was the last stop on Nasa's grand tour of the planets over the past half-century. New Horizons' journey began 9 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. It was programmed to then go past the dwarf planet and begin 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 had cautioned everyone to "stay tuned" until New Horizons contacted home.

It takes 4.5 hours for signals to travel one-way between New Horizons and Earth. The message went out late in the afternoon during a brief break in the spacecraft's data-gathering frenzy. The New Horizons team kept up a confirmation countdown, noting via Twitter when the signal should have passed the halfway point, then Jupiter's orbit.

The uncertainty added to the drama. "This is true exploration," cautioned Stern, a Southwest Research Institute planetary scientist. "New Horizons is flying into the unknown."

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

The scene repeated itself a little before 9pm EDT.

This time, the flight control room was packed compared with earlier, when it was empty because New Horizons was out of touch and operating on autopilot.

"We have a healthy spacecraft. We've recorded data of the Pluto system and we're outbound from Pluto," announced mission operations director Alice Bowman. She was drowned out by cheers and applause; Stern ran over to give her a

hug.

Joining in the daylong hoopla were the two children of the American astronomer who discovered Pluto in 1930, Clyde Tombaugh. (Some of his ashes are aboard the spacecraft.) Other celestial-minded VIPs included James Christy, discoverer of Pluto's big moon Charon, and Sylvia Kuiper, daughter of Dutch-American Gerard Kuiper for whom the mysterious zone surrounding Pluto is named.

Earlier in the day, 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 US 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 January 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 a frozen, pockmarked world, peach-colored with a heart-shaped bright spot and darker areas around the equator. It drew oohs and aahs.

"To see Pluto be revealed just before our eyes, it's just fantastic," said 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. After turning toward Earth to send down a snippet of engineering data acknowledging everything was fine, the spacecraft was going to get right back to science work.

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.

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.

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

The last one, issued in 1991, consisted of 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.

- AP