

# Spotlight shining on Pluto on cold outskirts of solar system

July 14 2015, by Marcia Dunn

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This July 13, 2015 image provided by NASA shows Pluto 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)

The spotlight is bright enough to thaw even Pluto.

Well, not quite, but the tiny, icy world is getting front-page, prime-time attention for its first visit by a spacecraft—NASA's New Horizons.

Tuesday morning's 31,000-mph flyby—with closest approach at 7,700 miles, the approximate distance between Seattle and Sydney, or New York and Mumbai—is expected to open up new ground on the last unexplored planetary territory of our solar system.

"Turning little dots, little points of light into planets," is what New Horizons, on the road for 9½ years and 3 billion miles, is all about, principal scientist Alan Stern said Monday.

Here's a rundown on Pluto, a 20th-century discovery about to become the 21st-century darling of astronomers:

## DISCOVERY

Pluto is the only planet (OK, now former planet) in our solar system discovered by an American. Astronomer Clyde Tombaugh spotted the dot in 1930 from Lowell Observatory in Flagstaff, Arizona. The name Pluto came from a British schoolgirl, Venetia Burney, then 11, based on the mythological god of the underworld.

Tombaugh died at age 90 in 1997, nine years before New Horizons took flight. A smidgen of his ashes is on board. Burney died in 2009, also at age 90. A student-built dust counter aboard New Horizons—from the University of Colorado at Boulder—is named after her.

Both of Tombaugh's two children, now in their 70s, were at the New Horizons mission operations center in Maryland for Tuesday's celebration.



In this 1931 file photo, Clyde Tombaugh poses with the telescope through which he discovered the Pluto at the Lowell Observatory on Observatory Hill in Flagstaff, Ariz. On Tuesday, July 14, 2015, NASA's New Horizons spacecraft, carrying a small canister with his ashes, is scheduled to pass within 7,800 miles of Pluto which he discovered 85 years ago. (AP Photo)

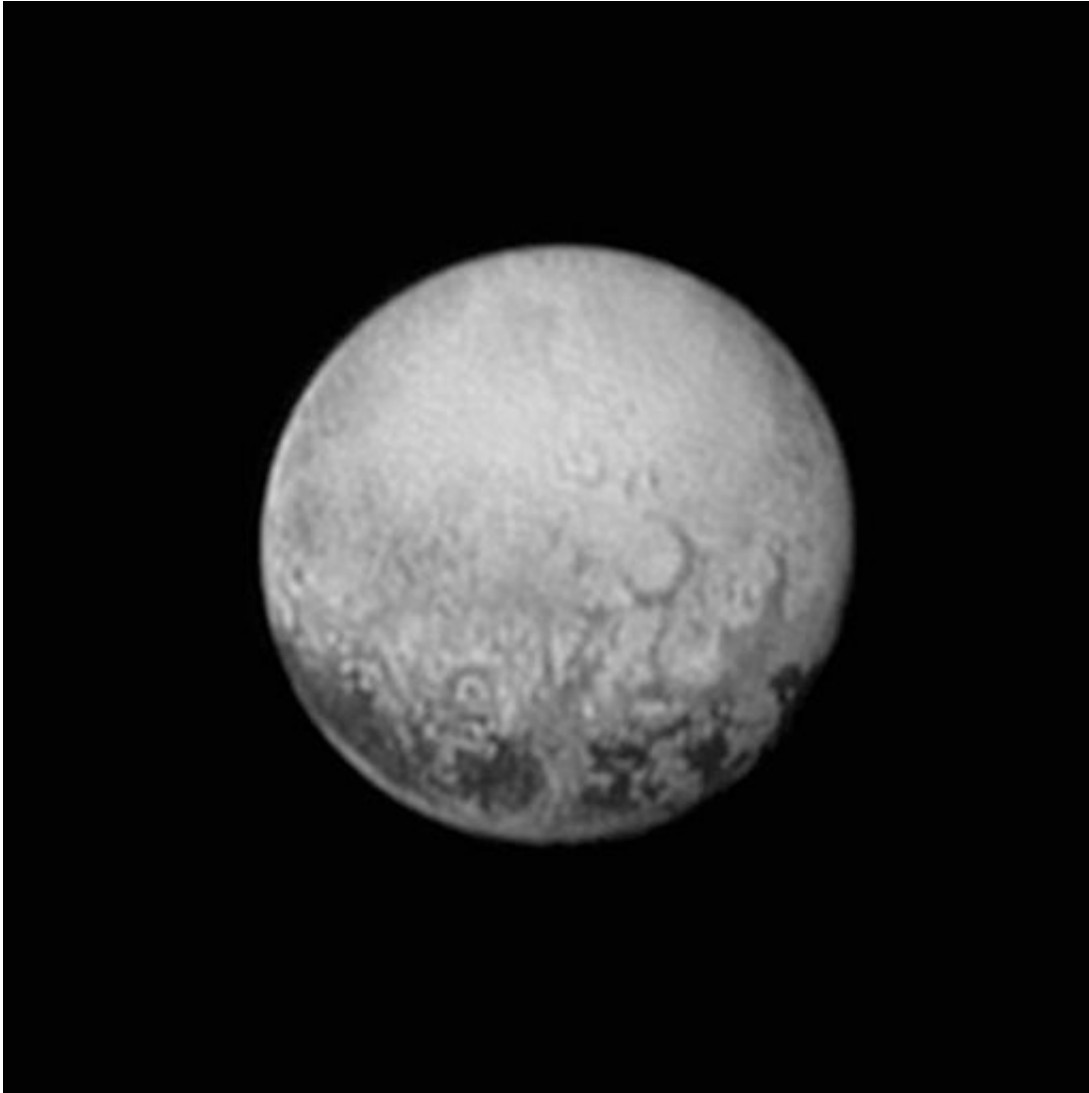
## FIVE MOONS

Big moon Charon was discovered in 1978 by Americans using the U.S. Naval Observatory in Flagstaff, followed by little moons Nix and Hydra in 2005, Kerberos in 2011 and Styx in 2012. The Hubble Space Telescope revealed all four baby moons. Astronomers stuck to underworld undertones when it came to the names.

New Horizons will hunt for more moons, but at this point, they would have to be pretty elusive—scientists guess probably less than a mile across. The Pluto empire, complete with six bodies, at least for now, is like its own mini solar system.

## FORGET THE SUNGLASSES

Pluto is so far from the sun—between 2.8 billion and 4.6 billion miles—that twilight reigns. At high noon on Pluto, it looks as though it would be dawn or dusk on Earth. And let's not forget the frigid weather, given its distance from the sun. Temperatures can plunge to minus-400 degrees.



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)

Pluto's orbit is extremely oblong, plus it's tilted. It takes 248 years for Pluto to orbit the sun. Thus, it's only made it about one-third of the way around the sun since its discovery in 1930. Every so often, Neptune's orbit exceeds Pluto's, putting Neptune slightly farther out.

## FIRST A PLANET, THEN IT'S NOT

Pluto is the only planet to get kicked out of the solar system club.

Just seven months after New Horizons rocketed away from Cape Canaveral, Florida, in 2006, the International Astronomical Union declassified Pluto as the ninth planet for technical reasons. Instead, it became a dwarf planet. The decision left the solar system with eight full-fledged planets, with Mercury replacing Pluto as the smallest.

The latest measurements made by New Horizons put Pluto a little bigger than anyone imagined: 1,473 miles in diameter.

New Horizons scientists, as well as NASA's leaders, are hoping the new pictures will restore Pluto's planet status.

## THE TWILIGHT ZONE

Pluto is the biggest object in the icy Kuiper Belt, also known as the third zone after the inner rocky planets and outer gaseous giants. It's also called the Twilight Zone because of its great distance from the sun.

The Kuiper Belt (pronounced KIE-per) is full of comets and other small frosty objects. It's named after the late Dutch-American astronomer Gerard Kuiper, who proposed a bevy of small bodies beyond Neptune back in the 1950s. The New Horizons team hopes to go after a smaller Kuiper Belt object following the Pluto flyby, provided a mission extension is approved.

**More information:** Johns Hopkins University: [pluto.jhuapl.edu/](http://pluto.jhuapl.edu/)

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