

Hubble Discovers Another Moon Orbiting Pluto

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Hubble Space Telescope's keen vision has found yet another moon orbiting the distant, icy dwarf planet Pluto. This discovery expands the size of Pluto's known satellite system to four moons. The tiny, new satellite — temporarily designated P4 — was uncovered in a Hubble survey searching for rings around the frigid dwarf planet.

The new moon is the smallest moon yet discovered around Pluto. It has an estimated diameter of 8 to 21 miles (13 to 34 km). By comparison, Charon, Pluto's largest moon, is 746 miles (1,200 km) across, and the other moons, Nix and Hydra, are in the range of 20 to 70 miles in diameter (32 to 113 km).

"I find it remarkable that Hubble's cameras enabled us to see such a tiny object so clearly from a distance of more than 3 billion miles (5 billion km)," said Mark Showalter of the SETI Institute in Mountain View, Calif., who led this observing program with Hubble.

On the tactile file, the news release image has been made into a labeled diagram. Pluto is the largest object near the center of the image. P4 lies at far right center, above and slightly to the right of Nix. Hydra appears in the top left quadrant of the image. Charon appears very near Pluto, just below and to the left of it.

The finding is a result of ongoing work to support NASA's New Horizons mission, scheduled to fly through the Pluto system in 2015. The mission is designed to provide new insights about worlds at the edge of our solar system. Hubble's mapping of Pluto's surface and discovery of its satellites have been invaluable to planning for New Horizons' close encounter.

"This is a fantastic discovery," said New Horizons' principal investigator Alan Stern of the Southwest Research Institute in Boulder, Colorado. "Now that we know there's another moon in the Pluto system, we can plan close-up observations of it during our flyby."

The new moon is located between the orbits of Nix and Hydra, which Hubble discovered in 2005. Charon was discovered in 1978 at the U.S. Naval Observatory and first resolved by Hubble, in 1990, as a separate body from Pluto.

The dwarf planet's entire moon system is believed to have formed by a collision between Pluto and another planet-sized body early in the history of the solar system. The smashup flung material into orbit around Pluto, which then coalesced into the family of satellites now seen.

Lunar rocks returned to Earth from the Apollo missions led to the theory that our Moon was the result of a similar collision between Earth and a Mars-sized body 4.4 billion years ago. Scientists believe material blasted off Pluto's moons by micrometeoroid impacts may form rings around the dwarf planet, but the Hubble photographs have not detected any so far.

“This surprising observation is a powerful reminder of Hubble’s ability as a general purpose astronomical observatory to make astounding, unintended discoveries,” said Jon Morse, astrophysics division director at NASA Headquarters in Washington.

P4 was first seen in this photo, taken with Hubble’s Wide Field Camera 3, on June 28, 2011. It was confirmed in subsequent Hubble pictures taken on July 3 and July 18. The moon was not seen in earlier Hubble images because the exposure times were shorter.

For more information on Tactile Astronomy projects from the Space Telescope Science Institute in Baltimore, Maryland, go to the following page at the Web site, Amazing Space:

<http://amazing-space.stsci.edu/tactile-astronomy/>