

Mission: Pluto

Pluto gets booted from the list of planets, but that isn't stopping a spacecraft from zooming toward it.

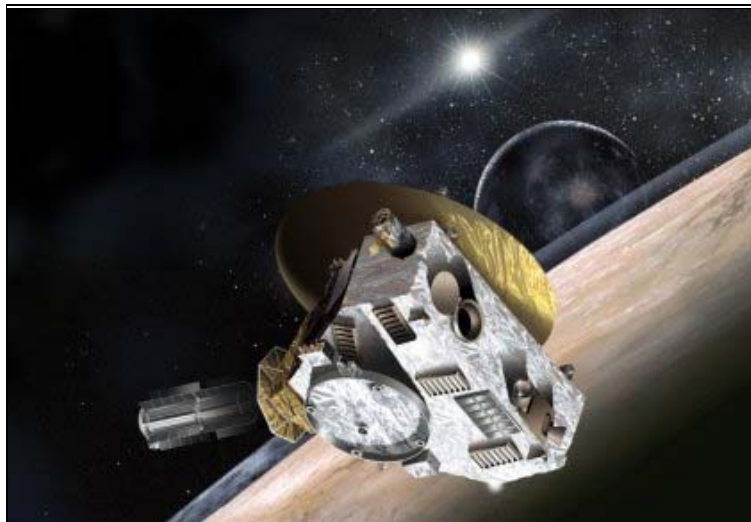
If you have a textbook with the solar system in it, you've probably crossed out Pluto by now. That small, icy object in our solar system was kicked out of the planet family on August 24, 2006.

Planet or not, Pluto and its frigid mysteries are now the destination of *New Horizons*. The spacecraft blasted off toward Pluto in January 2006 and is expected to fly by the former planet in 2015. The 1,054-pound spacecraft, about the size of a grand piano, will get as close as 6,200 miles from Pluto's surface.

Officials at NASA, the U.S. space agency, say the craft will give humans a first look at Pluto and the other objects in the **Kuiper (KIGH-per) belt**. The Kuiper belt is a wide band of icy and rocky objects circling the sun just beyond the orbit of Neptune.

New Horizons will map the objects, measure their atmospheres, and examine their surfaces. The spacecraft will capture images and beam them to Earth.

New Class System



nasa.gov

This drawing shows the spacecraft *New Horizons* as it nears

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Pluto and its moons. *New Horizons* is the fastest spacecraft ever built.

As *New Horizons* zoomed ahead, the world's top astronomers voted to **demote**, or lower the status of, Pluto. The decision was made at a convention of the International Astronomical Union (IAU) in Prague, Czech Republic. Now there are eight "classical" planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune.

Why did the astronomers boot Pluto from the planet family? For starters, the astronomers agreed on a new definition of a planet. A planet must be nearly round and must orbit the sun. Its orbit should not cross the orbit of another planet. Pluto's orbit crosses Neptune's path.

Astronomers have long suspected that Pluto was different from the other planets. Its orbit is very **elliptical** (oval-shaped). It takes Pluto 248 Earth years to circle the sun. Pluto also is quite small—not even as large as Earth's moon.

Orbit and size weren't the only problems. Pluto is also made up of different material from the other planets. Pluto isn't composed of just rocky material, as Earth and Mars are, or of gases, as Jupiter and Saturn are. Pluto was the only planet made mostly of ice, leading some to call it an "ice dwarf." The average temperature on Pluto's surface is -382 degrees Fahrenheit.

Dwarf Planets

Don't pity Pluto, though. It still has a place in space. Pluto is now one of a distinct class of smaller objects called **dwarf planets**. Along with Pluto, the newest members of the dwarf-planet category are Ceres (SIHR-eez), the largest asteroid; and 2003 UB313 (nicknamed "Xena"), which lies beyond Pluto's orbit.

More dwarf planets are expected to be announced by the IAU as more objects are discovered that fit into the category. "These dwarf planets are popping up everywhere," astronomer Alan Stern, who is leading the *New Horizons* mission, told *WR News*.

2003 UB313

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In 2003, Pluto's fate as a planet was probably sealed with the discovery of 2003 UB313, a Kuiper belt object larger than Pluto. Faced with that discovery and the possibility of discovering more large objects, astronomers began to talk about reclassifying the objects in our solar system.

"We might be demoting [Pluto] from the list of eight classical planets, but we're promoting it by making it the head of its own special class," says U.S. astronomer Owen Gingerich of Harvard University, who chaired the IAU panel.

Onward Mission

Scientists hope that the *New Horizons* mission will provide clues to how our solar system was created about 4.6 billion years ago. Many scientists believe that objects in the Kuiper belt are leftovers from the formation of our solar system.

Pluto's downsized rank isn't stopping scientists from studying it. "We will continue pursuing exploration of the most scientifically interesting objects in the solar system, regardless of how they are categorized," says Paul Hertz, chief scientist for NASA's Science Mission Directorate.

A Look Back at Pluto

Pluto was the only planet discovered in the 20th century, long after the other planets had been found. It was also the only planet to be discovered by an American, Clyde Tombaugh (1906-1997). Eleven-year-old British schoolgirl Venetia Burney suggested that the new planet be named Pluto, after the Roman god of the underworld. The name appealed to Tombaugh and others at the Lowell Observatory in Flagstaff, Arizona, where Pluto was discovered in 1930.

Think Critically

Do you agree with the IAU's decision to demote Pluto to a dwarf planet? Why or why not?