

# NEW HORIZONS

## The First Mission to the Last Planet

NASA's New Horizons is designed to help us understand worlds at the edge of our solar system—making the first reconnaissance of Pluto and its moon, Charon—and venturing deeper into the distant, mysterious Kuiper Belt.

### Science at the Frontier

Pluto is the largest body in the "third zone" of our solar system known as the Kuiper Belt, populated by smaller, icy objects different from the rocky inner planets or the outer gas giants. The National Academy of Sciences named the exploration of this zone—particularly Pluto-Charon—as a high priority.

### Ancient Relics

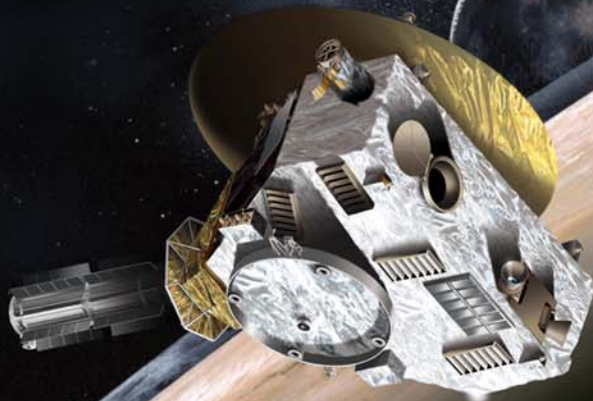
Known as "ice dwarfs," Kuiper Belt worlds are planetary embryos, ancient relics that formed more than 4 billion years ago. Because they are literally the bodies out of which the larger planets accumulated, the ice dwarfs can teach us much about planetary formation—and New Horizons plans to investigate those building blocks.

### Binary Planet

Charon is half the size of Pluto; together they form a "binary planet" whose gravitational balance point is between the two bodies. Although binary planets and stars are thought to be common in the galaxy, New Horizons would be the first mission to any binary object.

### Seeds of Life

The Kuiper Belt is a major source of comets, which have impacted Earth throughout its history. New Horizons can shed light on the number and size of such "impactors" by cataloging the various craters on Pluto, Charon and other Kuiper Belt Objects. Those objects are known to contain organic molecules and water ice—the raw materials out of which life evolves. New Horizons seeks to explore the composition of this material on the surfaces of Pluto, Charon and Kuiper Belt Objects.



### Pluto's Atmospheric Escape

Pluto's atmosphere is escaping to space like a comet—but on a planetary scale. Nothing like this exists anywhere else in the solar system. Scientists believe Earth's original hydrogen/helium atmosphere was lost to space this way. By studying Pluto's atmospheric escape, we can learn a great deal about the evolution of Earth's atmosphere.

### The Need to Explore

As the first voyage to a new class of planets on the solar system's farthest frontier, New Horizons would be a historic mission of exploration. The United States is the only nation to reach every planet from Mercury to Neptune with a space probe; New Horizons would allow the United States to complete the reconnaissance of the solar system.

### A Team Approach

Principal Investigator Alan Stern, director of the Southwest Research Institute (SwRI) Space Studies Department, leads a mission team that includes The Johns Hopkins University Applied Physics Laboratory (APL), Ball Aerospace Corporation, the Boeing Company, NASA Goddard Space Flight Center, NASA Jet Propulsion Laboratory, Stanford University, KinetX, Inc., Lockheed Martin Corporation, University of Colorado, Department of Energy and a number of other firms, NASA centers and university partners.

A NASA New Frontiers Mission  
To learn more about New Horizons, visit  
<http://pluto.jhuapl.edu>



Artist's concept of the New Horizons spacecraft (baseline design) and Pluto-Charon

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