

Engaging new scientific horizons

Next week, the New Horizons spacecraft will reconnoiter Pluto and its system of moons on the ragged edge of our planetary system. It may then fly by icy bodies in the Kuiper Belt, more than a billion kilometers beyond Neptune's orbit. These will become the farthest worlds ever explored, ushering in a new era of discovery.

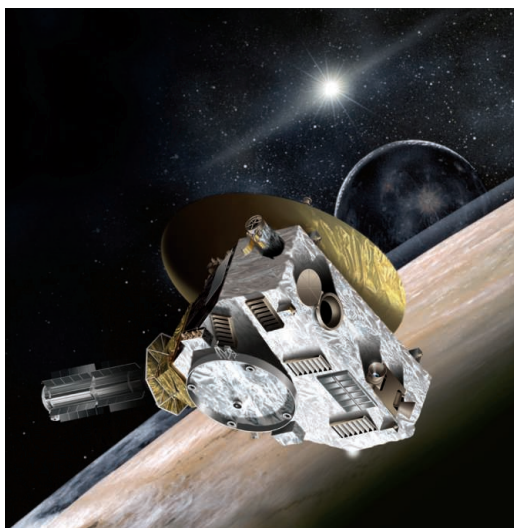
Although information from previous planetary probes has helped scientists understand the origin of the inner rocky planets (Mercury, Venus, Earth, and Mars) and the gas giants (Jupiter, Saturn, Uranus, and Neptune), as well as their moons, this will be the first opportunity to undertake a close-up study of the dwarf planets that are so common beyond Neptune.

The U.S. National Aeronautics and Space Administration (NASA) launched New Horizons in January 2006 after 5 years of development at a cost of \$723 million. The spacecraft carries seven scientific instruments to probe the surface properties, geology, interior makeup, and atmospheres of these planetary bodies. It is the first journey of science and exploration to venture to the outer reaches of our planetary system since the Voyager explorations of Uranus and Neptune in the late 1980s.

Exploration is fundamental to the human spirit. The promise of wonders unimagined from New Horizons has reawakened public and media interest that is rarely seen in science these days but is reminiscent of the early days of space exploration. Some of this attention is no doubt because little Pluto and its system of moons are distant enigmas; some because of the mysteries that beckon from the Kuiper Belt; and some because a distant space voyage of pure exploration has not happened in so long—since the 1980s—and another is not even in the planning stage by any space agency.

All of this presents an important opportunity to catalyze broader support for education in science, technology, engineering, and mathematics (STEM) fields,

engage the public in informal science learning, motivate young people to pursue STEM careers, and ignite general excitement about the capacity to still make big discoveries. Efforts by the New Horizons project to educate and encourage young people to pursue STEM careers range from providing pre-college lesson plans and hosting teacher workshops, to promoting a “Pluto-Palooza” campaign at museums, science centers, planetariums, and other facilities during the Pluto flyby. It will be the first planetary mission in NASA history to carry a scientific instrument built by students.



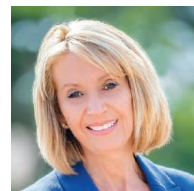
“This is a moment...to share the passion for discovery that drives each of us to explore.”

Paleontologist and Drexel University professor Kenneth Lacovara recently remarked (to A. Stern) of New Horizons, “This is a moment for every scientist to be reminded of and to share the passion for discovery that drives each of us to explore.” Indeed, all who believe that our horizons will never be limited as long as we continue to explore should spread the word about New Horizons. By doing so, enthusiasm about the mission can be translated into support for future projects that capture public imagination for doing exploratory science across nu-

merous frontiers—from plumbing the ocean depths, to examining the diversity within the human microbiome, to space missions involving humans and robots on far-away worlds. What other projects within the next decade can raise a level of excitement that spurs waves of popular interest in the research enterprise and in research careers? There will be many, if we sow the seeds now.

With sufficient public engagement in New Horizons and a thirst for more discoveries, New Horizons need not be the last voyage of space discovery, but rather the first to explore the Kuiper Belt. But that will take some effort. Excitement about exploration is infectious. Let's point more attention to the exploration that New Horizons will undertake in July and enlist some new supporters in the thrill of scientific discovery.

— Marcia McNutt and Alan Stern



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