

Should we send humans to Pluto?

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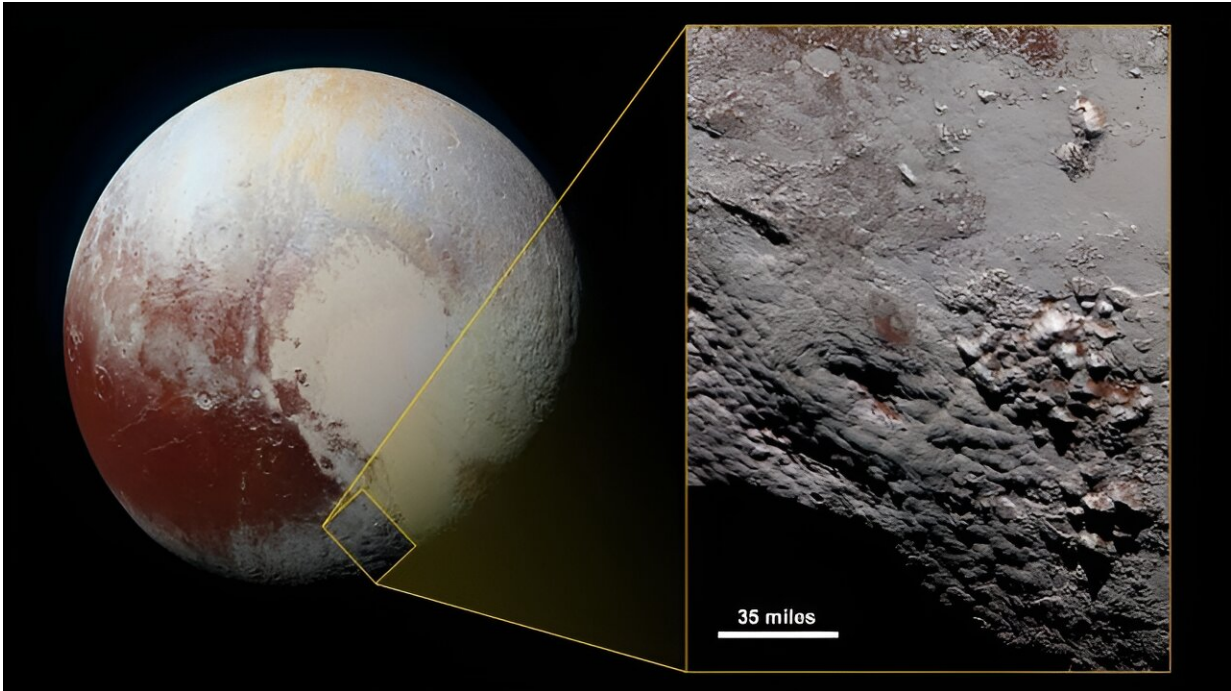


Image of Pluto obtained by NASA's New Horizons spacecraft during its flyby in July 2015, which reveals the smooth, nitrogen plains of Sputnik Planitia (heart-shaped region) and vast, water-ice mountain ranges. (Scale: 35 miles = 56 kilometers). Credit: NASA/Johns Hopkins University Applied Physics Laboratory/Southwest Research Institute

Universe Today has examined the potential for sending humans to Jupiter's icy moon, Europa, the planet Venus, and Saturn's largest moon, Titan, all despite their respective harsh environments and vast distances. These conversations with planetary science experts determined that

humans traveling to these worlds in the foreseeable future could be possible, despite the harsh conditions and travel time, specifically to Titan.

But what if we were to send humans farther out into the [solar system](#), and much farther out than Titan? Here, we will continue this conversation with planetary science experts to determine whether the dwarf planet Pluto could be a viable destination for sending humans, either in the near or distant future. Pluto lacks the harsh environments of Europa and Venus, but like Titan, the extremely vast distance could pose potential concerns for sending humans to this distant world. So, should we send humans to Pluto?

"I think we should send humans everywhere in the solar system, eventually," Dr. Alan Stern, who is the Principal Investigator for NASA's New Horizons mission, tells Universe Today. "But it would be premature to send [human](#) beings to most places in the solar system, including Pluto, today, because we don't know enough about the planet to design such a mission. It's also very far beyond our technical capabilities, and there's no present need to spend the kind of money that it would take. But, you know, a hundred, or 200, or 500 years from now could be entirely different."

Launched in January 2006, NASA's New Horizons spacecraft became the fastest human-made object ever launched from Earth, as it was catapulted away from our home planet at an astonishing 16.26 km/s (10.10 mi/s). Despite this incredible speed, which allowed New Horizons to reach Jupiter in just over one year for a gravity assist, it still took another eight years and five months to reach Pluto, flying past the dwarf planet on July 14, 2015, and coming within 12,472 km (7,750 mi) of Pluto's surface.

This lengthy trip is due to Pluto's vast distance in the outer solar system.

While Titan has an average distance of approximately 1.4 billion kilometers (886 million miles) from the sun, Pluto has an astounding average distance of 5.9 billion kilometers (3.7 billion miles) from the sun, orbiting in the outer solar system within a region of icy objects of known as the Kuiper Belt.

Dr. Mike Brown, who is a Richard and Barbara Rosenberg Professor of Astronomy at Caltech and is known for his social media handle of @plutokiller, tells Universe Today, "It seems pretty clear that we are unlikely to ever send humans to Pluto, to any other object in the Kuiper Belt, or probably anywhere in the outer solar system. I assume no rational group is actually considering this at this time (and will never consider it). Not to say that it is not a fun thing to speculate about, but, only in a here-is-something-that-will-never-ever-ever-ever happen sort of way."

Even with a direct flight trajectory to Pluto, our present technology would still require many years to reach its destination; even an unmanned Pluto orbiter, because of its need to brake into orbit, is estimated to take 20+ years to reach Pluto from Earth with today's technology. But could things be different in a few hundred years with more advanced technology?

Dr. Stern conveyed to Universe Today how Columbus coming to the New World couldn't envision the present-day world with people traveling cross-country in just a few hours for a tiny fraction of their annual paycheck.

"But it's likely to be much easier in the distant future," Dr. Stern tells Universe Today. "And because it'll be easier, it will be less expensive. And so, if something like Star Trek ever happens, going to Pluto is going to be a walk in the park compared to interstellar travel, and I think there'd be a lot of science to be gained from it."

During New Horizons' brief flyby of Pluto, the spacecraft obtained stunning images of the dwarf planet's surface, revealing a wide range of diversity with smooth, nitrogen plains and vast, water-ice mountain ranges. Along with data obtained about Pluto's mostly-nitrogen atmosphere, scientists have hypothesized that Pluto could possess an interior ocean of water-ice. While these findings have helped shape a completely different picture of Pluto compared to previous models, if we could send humans to Pluto, what would be the benefits and drawbacks, and what additional science could be conducted by a human mission compared to a robotic mission?

Dr. Anne Verbiscer, who is a Research Professor in the Department of Astronomy at the University of Virginia, along with being a Deputy Project Scientist and a Co-Investigator on New Horizons, tells Universe Today, "The benefits are that humans are far more efficient explorers than robots and there are myriad drawbacks because of the technical complexities brought on by Pluto's great heliocentric and geocentric distance."

In terms of additional science, Dr. Verbiscer tells Universe Today, "Several in-situ experiments could be conducted by humans that robots would not be able to do. But there is so much that can be done and learned from robotic missions that (several of) these need to be conducted well in advance of sending humans."

This discussion comes as [human space exploration](#), from both worldwide governments and the commercial space industry, is slated to increase in the foreseeable future. In just the next few years, NASA's Artemis program has the goal of landing the first woman and person of color on the [lunar surface](#), Axiom Space hopes to establish the world's first commercial space station in Earth orbit, the China National Space Administration wants to land astronauts on the moon by 2030 as part of its Chinese Lunar Exploration Program, and SpaceX is slowly

developing its Starship heavy-lift launch vehicle with the goal of sending humans to Mars, someday.

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