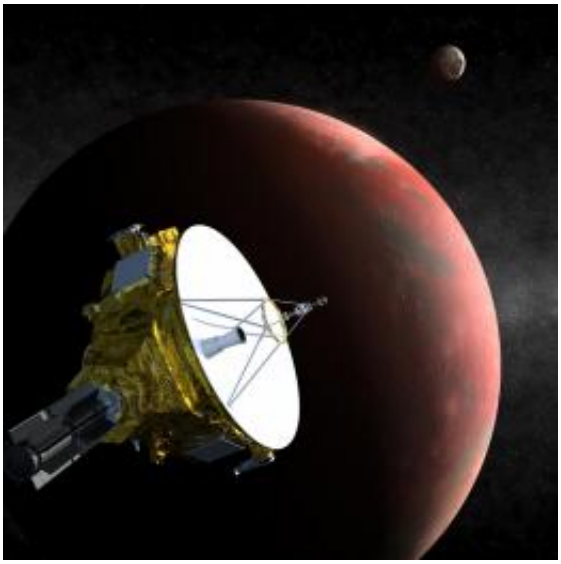
The Rings of Pluto?

January 25 2012



An artist's concept of the New Horizons spacecraft as it visits Pluto in 2015. Instruments will map Pluto and its moon, Charon, providing detail not only on the surface of the dwarf planet, but also about its shape, which could reveal whether or not an ocean lies beneath the ice. Credit: NASA/Johns Hopkins University Applied Physics Laboratory/Southwest Research Institute

Like other bodies in the outer Solar System, Pluto may have have rings orbiting it. Finding these rings could be important for the safety of NASA's New Horizons mission - currently en route to the tiny world.

In the distant outer Solar System, rings are nearly ubiquitous. Jupiter, Saturn, Uranus, and Neptune all have rings, leaving Pluto as the only outer planet without rings.

But PSI Senior Scientist Henry Throop would love to change that. Using both giant telescopes on Earth, and a small spacecraft currently on its way to Pluto, Throop is searching for signs that Pluto may have rings orbiting it, just like its neighbors. Astronomers expect that Pluto could well have rings – they've just never been discovered.

Throop presented results from one study at the Division for Planetary Sciences meeting in Nantes, France in October 2011. In the study, Throop and his co-authors used data from the four-meter Anglo-Australian Telescope in Australia.

"From the ground, Pluto's rings would be too faint and too small to see directly. But occasionally, Pluto passes in front of a distant star, and that lets us study it in exquisite detail," Throop said. "As Pluto passes in front of the star, the star's light blinks out, like a moth blocking out the beam from a flashlight. We searched through the observations to try to find any hint that the star light was being blocked by rings of Pluto."

So far, they haven't found any rings. But Throop will keep looking. He is working with NASA's New Horizons mission, which is sending a spacecraft to Pluto, to arrive in 2015. When it passes by Pluto, one of New Horizons' goals will be to conduct a search for rings, at much greater sensitivities than can be done from the Earth.

And ironically, Throop's search now will actually help plan the encounter in 2015. "Rings are made of tiny dust grains, and we want to be sure that New Horizons will not collide with anything at Pluto," he said. "By knowing where there aren't rings, we help assure a safe path where the spacecraft will fly."

When New Horizons reaches the Pluto system, the spacecraft will provide a wealth of new data about this mysterious region of the Solar System. Studying worlds like Pluto can teach astrobiologists about how

dwarf planets form and evolve. This information can ultimately help us determine the types of planets that could exist throughout the Universe. Scientists are still unsure of what we will find at Pluto. Some research suggests that deposits of primordial organic matter might lie on the tiny world's surface - and liquid water may exist a hundred miles below ground.

Provided by Planetary Science Institute