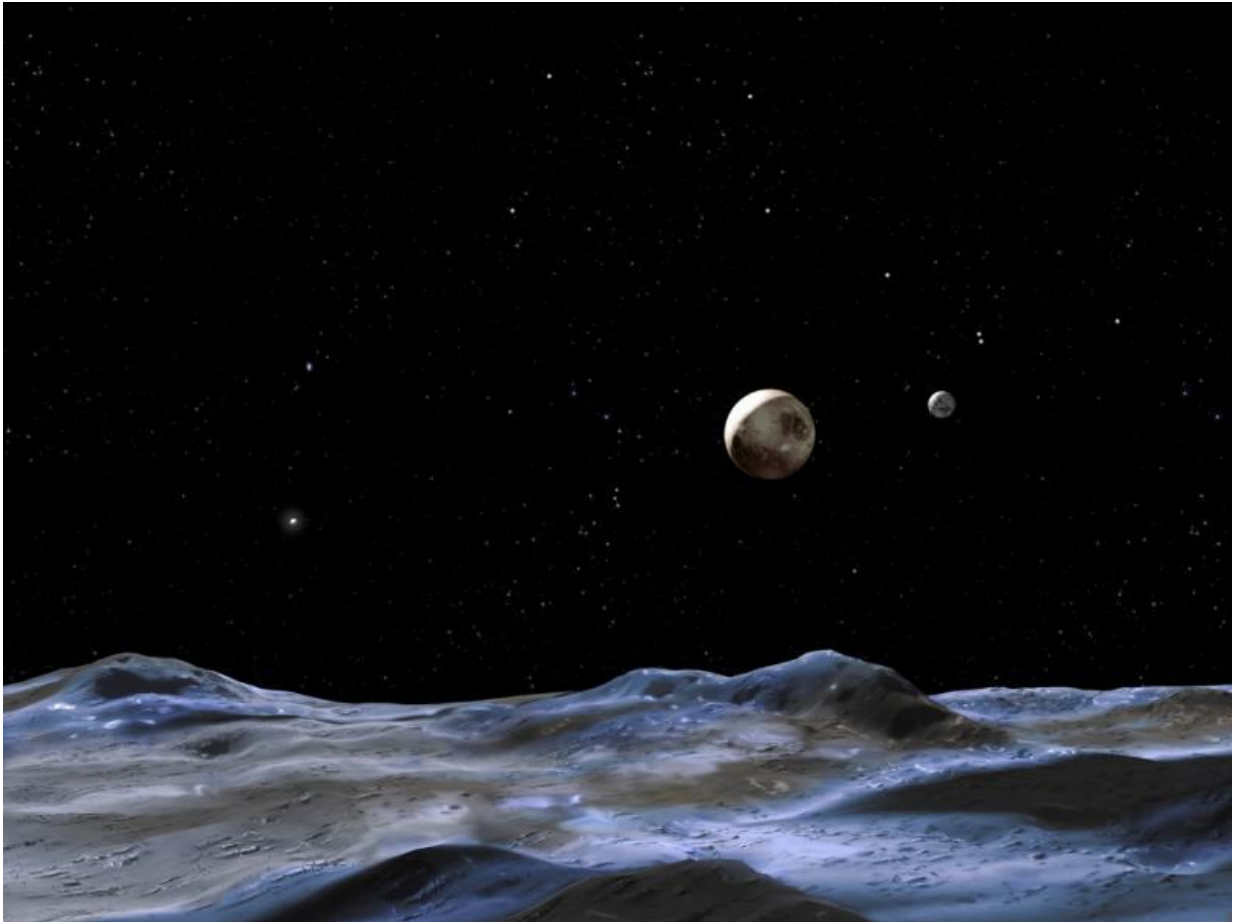


Pluto's moon Hydra

July 14 2015, by Matt Williams



Artist's impression of the Pluto system seen from the surface of Hydra. Credit: NASA

In 1930, Pluto was observed for the first time. For many decades, astronomers thought that the "ninth planet of the Solar System" was a

solitary object. But by 1978, astronomers discovered that it also had a moon roughly half its size. This moon would come to be known as Charon, and it would be the first of many discoveries made within the Pluto's system.

In fact, within the last decade, four additional satellites have been discovered in orbit of Pluto. Of these, the outermost to be observed is the moon now known as Hydra.

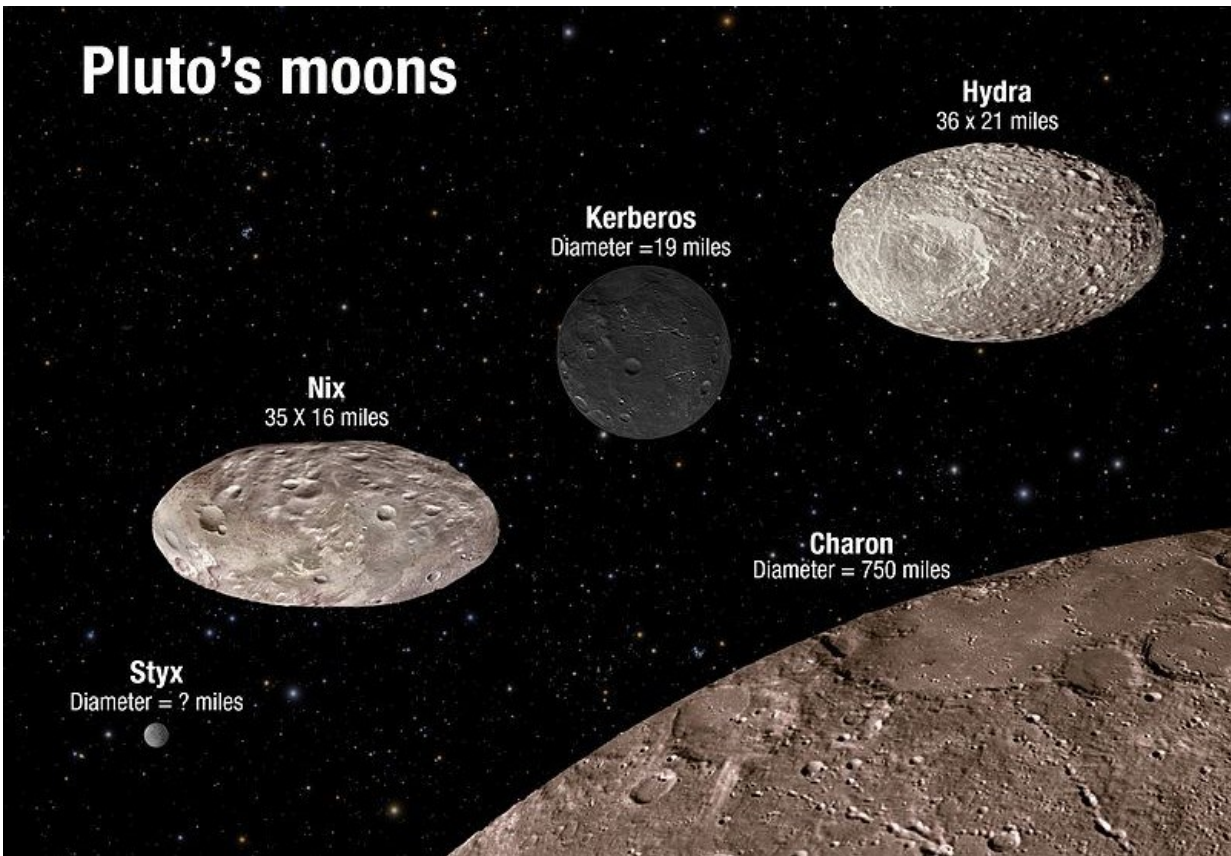
Discovery:

Hydra was first discovered in June 2005 by the Hubble Space Telescope's "Pluto Companion Search Team", using images that were taken on May 15th and 18th of that year. At the time, the team was preparing for the launch of the New Horizons mission to Pluto, seeking to gain as much information as they could about any addition Plutonian moons.

By June, Hydra was again discovered. This time, it was independently observed by two members of the team, along with Nix – another small Plutonian moon. The discoveries were announced on October 31st, 2005, and were provisionally given the designations of S/2005 P 1 and S/2005 P 2 (for Hydra and Nix, respectively).

Name:

By June 21st, 2006, the name Hydra was assigned by the IAU (along with the formal designation Pluto III). The name Hydra, which is derived from the nine-headed serpent of Greek mythology, was selected for two reasons. The letter H refers to the Hubble Telescope, which was used to make the discovery, while the nine-headed serpent referred to Pluto's tenure as the ninth planet of the Solar System.



luto, Charon, Styx, Nix, Kerberos, and Hydra, taken by the Hubble Space Telescope in July 2012. Credit: NASA/ESA/M. Showalter

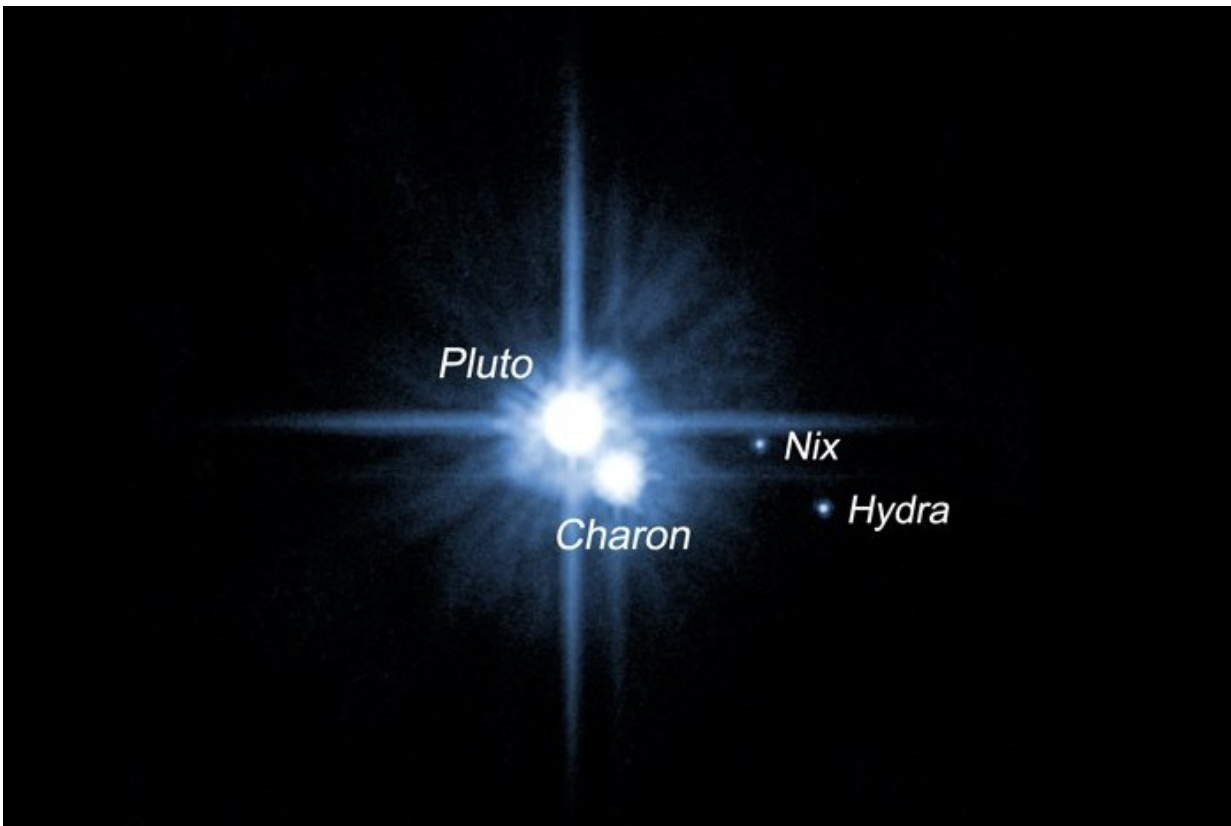
Size, Mass and Orbit:

Although its size has not been directly measured, calculations based on its brightness have indicated that Hydra's diameter is between 40 and 160 kilometers (38 and 104 mi). Similar measurements estimate its mass to be in the vicinity of 4.2×10^{17} kg. Because of the uncertainty in these measurements, Hydra is either comparable in size to either the main moons of Saturn and Neptune, or the inner and irregular moons of Jupiter, Saturn and Uranus.

Hydra orbits Pluto at a distance of about 65,000 km with a very low eccentricity (0.0059) and an orbital inclination of about 0.24° . It orbits in the same plane as Charon and Nix and has an orbital period of 38.2 days.

Composition:

Little is known about Hydra's composition, and its density and albedo are both currently unknown. However, it is believed that if its diameter is towards the lower end of its estimated range (40 km), then it must have a geometric albedo similar to Charons (35%).



Labeled image of Hydra released upon IAU name approval. Credit: NASA/ESA/Hubble

However, assuming it is at the higher end of that range, it would likely have a reflectivity of about 4%, like the darkest Kuiper belt objects. Like all outer bodies in the outer Solar System, and its host planet Pluto, it is possible that Hydra's composition is differentiated into a rocky core and an icy mantle that contains nitrogen and methane in ice form.

At the time of its discovery, Hydra appeared to be brighter than Nix. Observations made with the Hubble Telescope in 2005–06, which specifically targeting the two moons, once again confirmed that Hydra is the brighter of the two. Hydra appears to be spectrally neutral like Charon and Nix (i.e. greyish), whereas Pluto is reddish.

Interesting Facts:

Hydra, not being massive enough to form a spheroid under its own gravity, is believed to be oblong in shape – the same holds true for Pluto's moon of Nix. As with the rest of the Pluto system, Hydra was imaged by NASA's New Horizons spacecraft in February of 2015. When New Horizons conducts its flyby at 7:49:57 a.m. EDT, July 14, 2015, it will provide the most detailed images of Hydra and the Pluto system to date.

Source: [Universe Today](#)

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