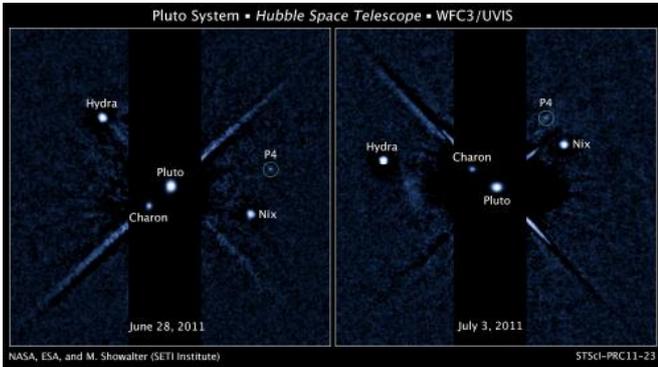


Hubble Space Telescope detects fifth moon of Pluto (Update)

11 July 2012, by Ray Sanders



These two images, taken about a week apart by NASA's Hubble Space Telescope, show four moons orbiting the distant, icy dwarf planet Pluto. The green circle in both snapshots marks Pluto's fourth moon, temporarily dubbed P4, found by Hubble in June 2011. Image Credit: NASA/ESA/M.Showalter

(Phys.org) -- Nearly one year ago, Pluto made headlines as the discovery of a fourth moon (shown above), dubbed "P4" was announced by a team which included Alan Stern, Principal Investigator for the New Horizons mission enroute to Pluto. Today, via twitter, Alan Stern has announced the discovery of a fifth moon by the Hubble Space Telescope: *"Just announced: Pluto has some company-- We've discovered a 5th moon using the Hubble Space Telescope!"*

Additionally, the IAU Central Bureau for Astronomical Telegrams # 9253 reports the discovery. Below is a short abstract, including some orbital parameters:

"M. R. Showalter ([SETI Institute](#)), H. A. Weaver (Applied [Physics Laboratory](#), Johns Hopkins University), S. A. Stern, Andrew Steffl, M. W. Buie, W. J. Merline (Southwest Research Institute), M. J. Mutchler, R. Soummer ([Space Telescope Science Institute](#)) and H. B. Throop (NASA Headquarters)

report the discovery of a fifth satellite of Pluto. The object, provisionally designated S/2012 (134340) 1 and referred to as "P5", was detected in 14 separate sets of images taken by the [Hubble Space Telescope](#) WFC3/UVIS. Each image set comprises 11-12 three-minute exposures. Upon co-adding, S/N = 5-8 in five sets and S/N = 3-5 in nine sets where the detection was somewhat degraded by P5's close proximity of Pluto II (Nix).

Times and positions are as follows:

- June 26.51-26.67 UT, 3 sets, 1".99 from Pluto at p.a. 158 deg
- June 27.78-27.94 UT, 3 sets, 1".71 from Pluto at p.a. 182 deg
- June 29.64-29.80 UT, 3 sets, 1".44 from Pluto at p.a. 219 deg
- July 7.42- 7.58 UT, 3 sets, 1".76 from Pluto at p.a. 352 deg
- July 9.41- 9.51 UT, 2 sets, 1".42 from Pluto at p.a. 31 deg



This image, taken by NASA's Hubble Space Telescope, shows five moons orbiting the distant, icy dwarf planet Pluto. The green circle marks the newly discovered moon, designated P5, as photographed by Hubble's Wide Field Camera 3 on July 7. Image Credit: NASA/ESA/M. Showalter

The research team members are: M. Showalter (SETI), H.A. Weaver (Johns Hopkins University), and S.A. Stern, A.J. Steffl, and M.W. Buie (SwRI).

More information:

[Press release](#)

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The satellite's mean magnitude is $V = 27.0 \pm 0.3$, making it 4 percent as bright as Pluto II (Nix) and half as bright as S/2011 (134340) 1. The diameter depends on the assumed geometric albedo: 10 km if $p_v = 0.35$, or 25 km if $p_v = 0.04$. The motion is consistent with a body traveling on a near-circular orbit coplanar with the other satellites. The inferred mean motion is 17.8 ± 0.1 degrees per day ($P = 20.2 \pm 0.1$ days), and the projected radial distance from Pluto is 42000 ± 2000 km, placing P5 interior to Pluto II (Nix) and close to the 1:3 mean motion resonance with [Pluto I](#) (Charon)."

According to a Space Telescope Science Institute (STScI) press release, "P5" is provisionally designated as S/2012 (134340) 1, and was detected in nine separate sets of images taken by Hubble's Wide Field Camera 3 during late June/early July 2012. HST is being used to detect potential hazards to the New Horizons spacecraft. At a speed of over 13 kilometers per second, New Horizons could easily be destroyed if it were to collide with debris in the Pluto-Charon system.

Harold Weaver (Johns Hopkins University) mentioned, "The discovery of so many small moons indirectly tells us that there must be lots of small particles lurking unseen in the Pluto system."

Data from the Hubble Space Telescope will allow scientists to better steer NASA's New Horizons spacecraft through the Pluto system in 2015, when the spacecraft is scheduled to make a historic, high-speed flyby of Pluto.

"The inventory of the Pluto system we're taking now with Hubble will help the New Horizons team design a safer trajectory for the spacecraft," added New Horizons Principal Investigator Alan Stern (Southwest Research Institute).

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