

The New Horizons (NH) mission was selected by NASA in November 2001 to conduct the first in situ reconnaissance of Pluto and the Kuiper belt. The NH spacecraft was launched on 2006 January 19, received a gravity assist from Jupiter during closest approach on 2007 February 28, and flew 12,500 km above Pluto's surface on 2015 July 14. NH carried a sophisticated suite of seven scientific instruments, altogether weighing less than 30 kg and drawing less than 30 W of power, that includes panchromatic and color imagers, ultraviolet and infrared spectral imagers, a radio science package, plasma and charged particle sensors, and a dust counting experiment. These instruments enabled the first detailed exploration of a new class of solar system objects, the dwarf planets, which have exotic volatiles on their surfaces, escaping atmospheres, and satellite systems. New Horizons has transformed Pluto from a pixelated blob (as seen from Earth) into a complex and diverse world with water-ice mountains as high as the Rockies on Earth and exotic nitrogen-ice sheets with glacier-like flows. Charon has chasms larger than the Earth's Grand Canyon and a giant hood of dark material covering its north pole. New Horizons has resolved Pluto's small satellites (Styx, Nix, Kerberos, and Hydra) for the first time, showing them to be highly elongated objects with high albedo surfaces. NASA recently approved an extended mission phase for NH, the highlight of which is the flyby of a small (~30 km) KBO on 2019 Jan 01, enabling the study of an object in a completely different dynamical class (cold classical) than Pluto.