Spacecraft flyby brings discoverer close to Pluto
New Horizons to carry former NMSU instructor’s ashes past dwarf planet Tuesday

By Robin Martin
The New Mexican

A New Mexican scientist will be the first human to leave the solar system.

Some of astronomer Clyde Tombaugh’s ashes are aboard the spacecraft New Horizons, due Tuesday to zip by Pluto — the dwarf planet he discovered — on its way to outer space.

New Horizons is the fastest spacecraft ever. Smaller than a grand piano, it was launched in 2006 from Cape Canaveral, Fla. Flying at about 31,000 miles per hour, it will come within 7,500 miles of Pluto. The 3 billion-mile trip has taken more than nine years.

Until now, photos of the dwarf planet have been fuzzy, even with the Hubble Space Telescope’s powerful optics. The photos received from New Horizons during the past few days show a surface that has colors and geological features. As the craft flies closer to Pluto, these features will become clearer.

Scientists divide our solar system into three zones: Mercury, Venus, Earth and Mars, rocky planets nearest the sun; Jupiter, Saturn, Uranus and Neptune, giants of gas and ice; farthest out, the Kuiper belt, containing dwarf planets such as Pluto, Eris, Haumea and Makemake.

Pluto was the first Kuiper belt object discovered — in 1930 by Tombaugh. In 1997, the astronomer died at the age of 91 in Las Cruces, where he had retired after serving on the faculty of New Mexico State University.

Growing up on an Illinois farm, Tombaugh built his first telescope with automobile and farm machinery parts. Drawings he made of Mars and Jupiter, using that and other homemade telescopes, landed him a job at the Lowell Observatory in Flagstaff, Ariz., in 1929. There, he searched for “Planet X” by comparing hundreds of photographs to see if any bright spots were traveling across the background of fixed stars.

Scientists predicted the existence of a ninth planet because they had found the orbits of Uranus and Neptune were disturbed in ways they couldn’t otherwise explain. After about a year of searching, Tombaugh discovered “Planet X.” It was named Pluto after the Roman god of the underworld, a name suggested by an English schoolgirl.

After the discovery, Tombaugh won a scholarship to the University of Kansas, where he earned an undergraduate and a master’s degree. Until World War II, he continued searching the heavens at Lowell Observatory, documenting star clusters, asteroids, comets and more than 29,000 galaxies. During the war, he taught navigation for the Navy. Later, he moved on to the White Sands Proving Ground in Southern New Mexico. In 1955, he joined the faculty at NMSU, where he worked until retirement in 1973.

As their calculations became more sophisticated, astronomers realized Pluto is much smaller than they had originally thought, a small object in a dance with many moons. Then they began to discover other objects of a similar size in the Kuiper belt.

In 2006, the same year that New Horizons was launched from Cape Canaveral, Pluto was demoted to a dwarf planet.

NASA estimates Pluto’s diameter is about 1,500 miles. Its largest moon, Charon, is about half that size, and also will be studied by instruments on New Horizons.

Pluto is so far away from Earth that signals from the flyby of New Horizons will take almost 4½ hours to reach us. And the bandwidth of transmission is so slow that it will be a year before all the data reaches us.

The spacecraft is powered by only 202 watts, equivalent to a few light bulbs.

Using data from the flyby, scientists will study the geology of Pluto and its moon Charon, the composition of their surfaces and atmospheres, and their temperatures. Perhaps they may even find Saturn-like rings and other moons. People can follow the discoveries at nasa.gov/newhorizons.

On Tuesday, Tombaugh will be as close to Pluto as any man ever has, before the spacecraft carrying his ashes continues to outer space.