How many planets in our solar system: 8 or 9?

Many reasons to disagree with demotion of Pluto

BY DINO MILANI

Growing up, we learned there are nine planets: Mercury, close to the sun; Venus next; Earth, where we live; the red planet, Mars; the largest planet, Jupiter; Saturn, with its rings; the light-blue planet, Uranus; Neptune; and the most distant, Pluto.

Pluto was discovered in February 1930, by Clyde Tombaugh while he was at the Lowell Observatory. In 1906, Tombaugh was born in Streator. His family moved to Burdett, Kan., in 1922. In 1929, he moved to Flagstaff, Ariz., to work at the Lowell Observatory and worked there until 1945.

He also discovered many asteroids, comets, variable stars, star clusters, galaxy clusters and a galaxy supercluster. He was active in presenting astronomy to the public throughout his life.

In 1992, Jet Propulsion Laboratory scientist Robert Staehle called Tombaugh and requested permission to visit his planet. "I told him he was welcome to it," Tombaugh later said, "though he's got to go one long, cold trip." With that call, the JPL created the New Horizons space probe to Pluto.

Tombaugh died Jan. 17, 1997, well before the New Horizons probe left the ground. The probe was launched in January 2006; it would be nearly 10 years before it arrived at Pluto, 4.577 billion miles away.

A small portion of Clyde's ashes were placed aboard the New Horizons spacecraft. The container has this inscription: "Interned (sic) herein are remains of American Clyde W. Tombaugh, discoverer of Pluto and the solar system's 'third zone.'"

In 2006, Pluto was removed as a planet by the International Astronomical Union, a group of astronomers who decide on types and names for new objects found in space. That year the IAU created three rules about what is a planet:

NASA/via AP

This image made available by NASA on July 24, 2015, shows Pluto made by combining several images from two cameras on the New Horizons spacecraft. The images were taken when the spacecraft was 280,000 miles away from Pluto.

1. A planet needs to orbit around the Sun.

2. It should have sufficient mass to assume hydrostatic equilibrium (a round shape).

3. It should "clear the neighborhood" around its orbit (add moons or expel objects).

The IAU then voted to reclassify Pluto. It was a fairly close vote, but the reason for removing Pluto's planet status was the last rule.

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The IAU assumed that Pluto did not clear the neighborhood, and Pluto became a "dwarf planet."

A dwarf planet circles the sun, is round, is bigger than a comet or an asteroid, but is too small to be a planet.

Was the IAU decision right? I was disheartened when Pluto was removed. Then I thought of something that made some sense.

Imagine you are watching the TV show "The Big Bang Theory." One of the show's characters, Sheldon, is always arguing about science and tries to force the rest to accept his theories. Eventually, the other characters concede; it doesn't matter if it's right or wrong, they agree just to stop Sheldon's arguing.

Instead of four characters, the IAU has thousands of members. But a member with a strong opinion may force the rest to listen and concede — whether it's right or wrong.

Some famous astronomers have publicly apologized for the change, including Neil deGrasse Tyson, director of the Hayden Planetarium in New York. You may remember him from when he hosted the TV show "Cosmos." He even apologized (again) about Pluto when he appeared as a guest on "The Big Bang Theory."

New Discoveries for Pluto

When the IAU made its decision, New Horizons was years away from Pluto. There have been new discoveries since then and Pluto does not seem to be what scientists thought.

The outer planets — Jupiter, Saturn, Uranus and Neptune — all have and acquire moons.

We have known Pluto has a moon since 1978 when James Christy discovered Charon. Then two more moons were discovered in 2005, Nix and Hydra. (They were named by the IAU, of course)

Getting ready for New Horizon's arrival at Pluto, NASA viewed Pluto with the Hubble Space Telescope and discovered two more moons, Styx and Kerberos. It certainly seems that Pluto does clear its neighborhood.

In 2015, the New Horizons space probe reached Pluto and found it much larger than expected. Pluto has an atmosphere. It has an active surface with hills, rifts, canyons, frozen lakes, mountains made of ice and very few craters. Many older craters are covered or eroded away. It has liquid water under its surface, 60 to 120 miles deep. It has a solid, rocky core. It has large temperature changes, so the surface ices "melt" or sublimate when it's warmer.

New Horizon's data and photographs of Pluto and its moons are remarkable. In the next few years, much more will be found out about Pluto.

Even with this new information, the IAU has not changed Pluto back to a planet. But it is being considered. The ninth planet again? Let's see what happens!

DINO MILANI is a member of the Popular Astronomy Club. The club meets at 7 p.m. on the second Monday each month in Augustana College's John Deere Planetarium in Rock Island. The club also has public observing sessions the night of the third Saturday each month from March through November at Niabi Zoo in Coal Valley.