

Whatever Happened to Pluto?

By Kyle Schaeffer, Docent CPRC Community Observatory

These days it seems nothing is safe from instant replay. Just ask Pluto.

It was as if the International Astronomical Union emerged from the replay booth in August of 2006 and declared: “upon further review, the title of *planet* awarded to the astral body of Pluto has been found to be out of bounds due to violating classification rules that we just made up.”

Okay, I’ll admit it was slightly more scientific, but you get the idea. Pretty bizarre to an entire generation that grew up under the assumption there were *nine* planets orbiting the Sun. How did this happen? Did the science book publishing lobby get to the IAU?

It turns out the controversy surrounding Pluto’s status was part of a larger conundrum facing the astronomical community. Until this decision there was never a universally accepted definition of what a planet is. That might be important as we continue to discover new planetary objects not only in our neighborhood but also in systems orbiting other stars as well. Thanks to advances in optical imaging more objects worthy of planetary consideration have been discovered than at anytime in human history. And still more remain undiscovered – perhaps not for much longer.

The year 2005 proved to be the tipping point for this issue. A southern California-based team discovered what was then known as Xena (later renamed Eris), a “planet” which resides about three times the distance from the Sun than Pluto with a mass more than a quarter larger. The chorus for planetary inclusion grew louder for another spherical object among the much closer asteroid belt. The object known as Ceres contains roughly a third of the mass of the asteroid belt. More discoveries have followed. Clearly a consensus needed to be reached lest we end up with an ever-changing number of planets in future textbooks and further confusion.

So in 2006 the best and brightest minds convened to hash out the issue. After much debate the IAU arrived at a decision. Not everybody was happy with the outcome. According to the new definition, a planet: a) is an object with sufficient mass to have made its self-gravity maintain hydrostatic equilibrium (in English it means the object has enough mass for its gravity to squash it into a spherical shape), b) orbits a star, c) has cleared its orbit of all other objects, d) is neither a star, nor a satellite of a planet.

So there we had it. Not only are the newly discovered objects not planets, but Pluto got thrown into that mix as well and was unfortunately “demoted” to the status of “dwarf planet” along with Eris, Ceres and a few others. Perhaps for reasons having more to do with nostalgia than cosmology, this rubbed many scientists and astronomers the wrong way. However, it makes sense when you consider how odd Pluto really is.

In comparison to other recognized planets in our solar system, Pluto is a bit of an oddball. Consider: Pluto’s orbital path around the sun is so eccentric that it at times is *closer* to

our planet than Neptune. Not only that, but as all the other classical planets orbit the Sun on relatively even plane, Pluto revolves off-axis by 17 degrees. Sometimes it appears to orbit above the solar system plane and other times below it. Clearly it has a different agenda than other planets.

Given Pluto's size, shape, and orbital eccentricities, it has even been suggested that Pluto should never have been classified as a planet following its discovery in 1930. Perhaps we were too quick to award such a title when further debate was necessary.

So I suppose the question remains: was this use of instant replay a good thing? Pluto fans may protest, but science has always reminded us that everything is subject to examination from every angle until the correct call is made. At least we have something to debate.

While Pluto is visible to only the largest of telescopes, feel free to examine the heavens for yourself and engage in the many other debates or simply let your curiosity wander the sky with other fans. www.communityobservatory.com