

## **Astronomy Talk 13<sup>th</sup> January 2018**

### **New Horizons - Voyage to the Outer Solar System**

Chris Starr came from Wells & Mendip Astronomical Society to give us this talk. He started by referring to "Planet 9" which probably exists as a Neptune sized planet far out in the Kuiper Belt (aka Edgeworth belt). We then traced the development of thing about the size of the solar system, with the discoveries of Uranus in 1781, Neptune in 1846 and Pluto in 1930. Pluto was initially thought to be Earth size, but we now know it's only 2/1000 of Earth's mass.

We then looked at Trojans and Centaurs, followed by the Kuiper Belt objects, plutinos, cubewanos (QB1-os) and twotinos, all objects in some sort of resonance with Neptune. With so many similar objects out there, Pluto was demoted to a "dwarf planet" in 2006.

It was thought Pluto would be a solid frozen object, but our observations of the moons of Jupiter and Saturn showed this wasn't so. Perhaps it was like triton with volcanoes?

New Horizons went on a 9-year journey, travelling 5 billion km, and arrived at Pluto only 1 minute behind ETA. Pluto turned out to be an active world with canyons and smooth frozen nitrogen lakes. Its temperature is around 40 K. Its smoothness implies some of the surface is very recent, and there is probably an internal heat source that enables glacial movement. The surface also has dark patches thought to be tholins (complex organic molecules).

Charon has crevasses indicating past activity, and also orange tholin patches.

It's thought the moons all formed in a single collision event around 4 billion years ago.

And now New Horizons is moving on to another KBO, 2014 MU69, which needs a name (!), which it will reach on 1<sup>st</sup> January 2019.