Astronomy Talk 4th June 2016
Comet 67P Churyumov-Gerasimenko

Prof. Andrew Coates from Mullard Space Science Laboratory (MSSL) gave us this talk, standing in for Kim Birkett. We first looked at history and comets, and then at the formation of the solar system.

Comets' tails have been observed to contain water, CO_2, ammonia, organic molecules and silicate dust, as well as heavy organic compounds, and as they are as old as the solar system they can tell us much about what its formation was. E.g. interstellar grains can tell us about supernova activity in our region.

Rosetta and its lander Philae came to 67P and alas the several things to hold Philae to the surface failed. It was launched 2/3/2004, and reached 67P on 5/8/2014. The mission will end in September 2016.

Despite bouncing 3 times when landing on 12/11/2014, and ending up in a cleft, Philae did manage 9 experiments that have been extremely informative. It ran on its battery for 70 hours and achieved 90% of its objectives.

What have we found? It isn't a possible source of water for Earth. The ration of N_2 to CO tells us it formed very far out from the Sun – in the Kuiper belt at least. It isn't magnetised on large sales, which tells us magnetism wasn't relevant to its formation. It's 2 comets that have coalesced.

Lots of different molecules have been detected, including water, phosphorus, sulphur and most notably the amino acid glycine.

As a final experiment, an attempt will be made to land Rosetta on 67P on 30/9/2016, at the end of its mission.