

## United Kingdom National Space Centre

### Detailed description of presentation : “Comets – harbingers of doom or agents of life?”

#### On behalf of BNSC and the Space Academy project

- Anu Ojha, Director (Education and Space Communications) -National Space Centre
- Dr Sarah Hill, Space Academy Project Manager-National Space Centre
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Since humanity first looked skyward, comets have been regarded as beautiful spectacles but portents of doom. During the last thirty years the roles of comets in mass-extinction events on Earth has been dramatically confirmed through analyses of the K-T boundary layer and mapping of the Yucatan peninsula. The plausibility of this scenario has also been greatly strengthened through observations of the Shoemaker-Levy impacts into Jupiter in 1994 and the identification of more than 150 “astroblemes”, or “star-wounds” here on Earth. Ranging in size from towns (Barringer crater – 1.2 km) to whole nations (Vredefort – 300km) these have given dramatic extra weight to the argument that comet impact events have changed the course of life on Earth. Working with colleagues at JPL and Neodydys, part of the role of the UK National Space Centre is to monitor newly-discovered Near-Earth Objects, assess future impact risks to Earth and report to the UK Government on this issue.

Perhaps comets have had too much bad press, however. Spectroscopic studies have shown that comets are rich in water and organic molecules – perhaps it was impact events in our planet’s early history that actually brought the ingredients necessary for life to a barren young Earth. In November 2014 the European Space Agency’s Rosetta mission will complete its ten year odyssey, including 4 planetary gravity-assist flybys and two close asteroid passes, when the “Philae” probe will become the first spacecraft to harpoon onto the surface of a comet nucleus, soft-land and conduct scientific observations to try to understand these schizophrenic relics of the early Solar System better.

***Using our understanding of comets in relation to the work of the National Space Centre and one of ESA’s flagship Solar System missions as contexts, the UK National Space Centre presentation will highlight creative and curriculum-relevant ways of enhancing student understanding and engagement as well as boosting participant subject knowledge.***

The UK National Space Centre is the lead organisation in the UK “Space Academy partnership”, harnessing the expertise of the UK’s leading University space research groups with the National Science Learning Centre network (which leads science teacher Continuing Professional Development in the UK) and outstanding educators in a programme that aims to inspire students and educators using space and climate change as contexts.

Both the session education presenters are Space Academy “Lead Educators” in recognition of their outstanding teaching ability across the full range of student ability. They will lead the presentation sessions at SEEC 2010 and the Director of the UK National Space Centre will also highlight the latest developments in European Space education as well as outlining further details of the Rosetta mission on behalf of EADS Astrium, Europe’s largest spacecraft manufacturer and prime contractor for Rosetta. Our aim is for attendees and ultimately students to be further inspired by the limitless opportunities provided by space exploration, and specifically the Rosetta mission, as contexts for the encouragement of students of all abilities in the physical sciences.