



Video: Chasing a Comet – the Rosetta Mission

20 January 2014

Among the most fascinating projects in the exploration of the Universe is the European Space Agency's Rosetta mission, launched in 2004 to investigate the comet 67P/Churyumov–Gerasimenko. For the first time, a spacecraft will follow a comet as it approaches the Sun and land on its nucleus.

[//www.youtube.com/embed/5b7u6stKgfs?feature=player_detailpage](http://www.youtube.com/embed/5b7u6stKgfs?feature=player_detailpage)

As a result of its great distance from the Sun and the consequential low power output of the solar generator, Rosetta is currently in a state of hibernation with minimal energy consumption, from which the spacecraft will awaken on 20 January 2014. The highlight of the mission will take place in November 2014, when the small, autonomous daughter craft, Philae, lands on the comet itself. Philae was designed and built by an international consortium led by the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR).

The landing on 67P/Churyumov–Gerasimenko will allow scientists to conduct experiments on a cometary surface for the first time. Comets are considered to be witnesses to the formation of the Solar System. The questions as to whether the comet's surface is actually in a kind of 'original state' and whether comets harbour prebiotic molecules and water – making it likely that they could have played a role in the origin of life on Earth – are expected to be answered with the help of the Rosetta mission.

In this video "Chasing a Comet – the Rosetta Mission", some of the scientists and engineers involved present the Rosetta mission and discuss the open questions they hope will be answered and which will not only provide a further insight into comets, but also studying them in greater detail.

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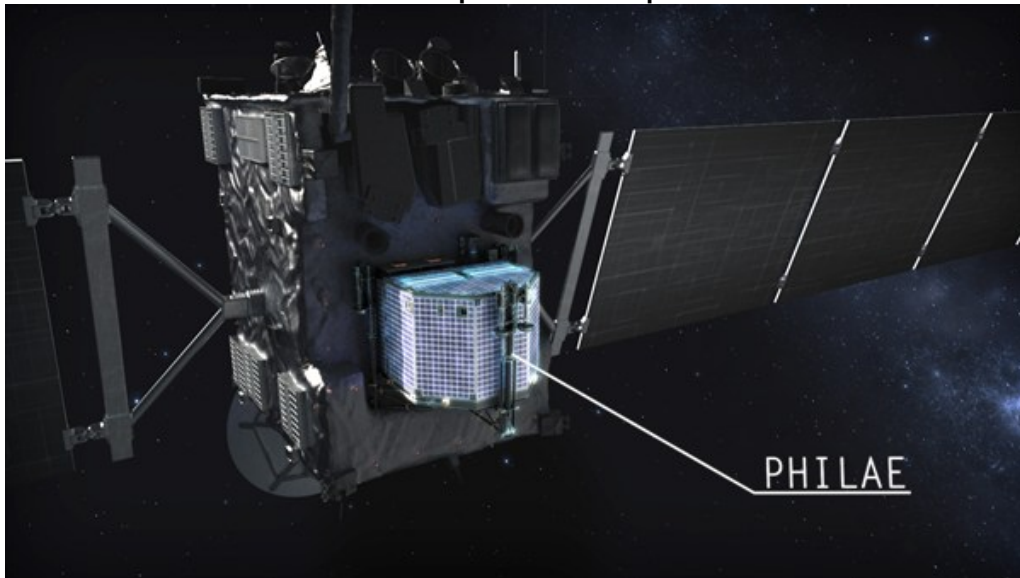
The target – comet 67P/Churyumov-Gerasimenko



The comet, which was discovered in 1969, has a diameter (nucleus) of four kilometres. (Frame from 'Chasing A Comet – The Rosetta Mission'.)

Credit: DLR (CC-BY 3.0).

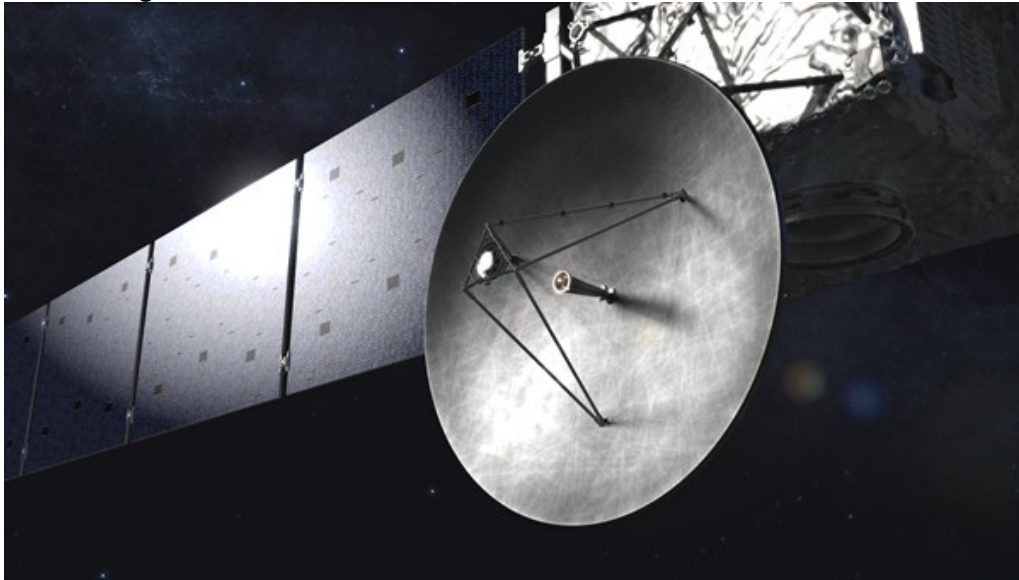
The Philae lander on board the European Rosetta spacecraft



Since its launch in 2004, Rosetta has been 'protecting' the small Philae lander from all the harsh conditions encountered in interplanetary space. (Frame from 'Chasing A Comet – The Rosetta Mission'.)

Credit: DLR (CC-BY 3.0).

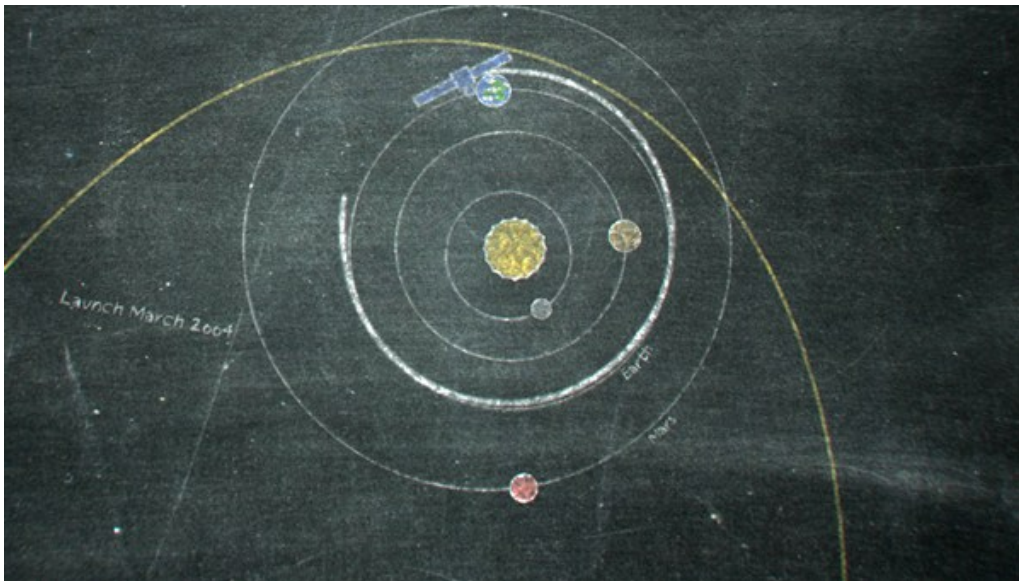
Rosetta aligns its antenna



The transmission of signals from the Rosetta spacecraft to the ground station takes about 30 minutes. (Frame from 'Chasing A Comet – The Rosetta Mission'.)

Credit: DLR (CC-BY 3.0).

Rosetta was launched in March 2004 from the European spaceport in French Guiana



The European Rosetta spacecraft has already travelled a long way. Since 2 March 2004, the probe has been making its way through the Solar System. (Frame from 'Chasing A Comet – The Rosetta Mission'.)

Credit: DLR (CC-BY 3.0).

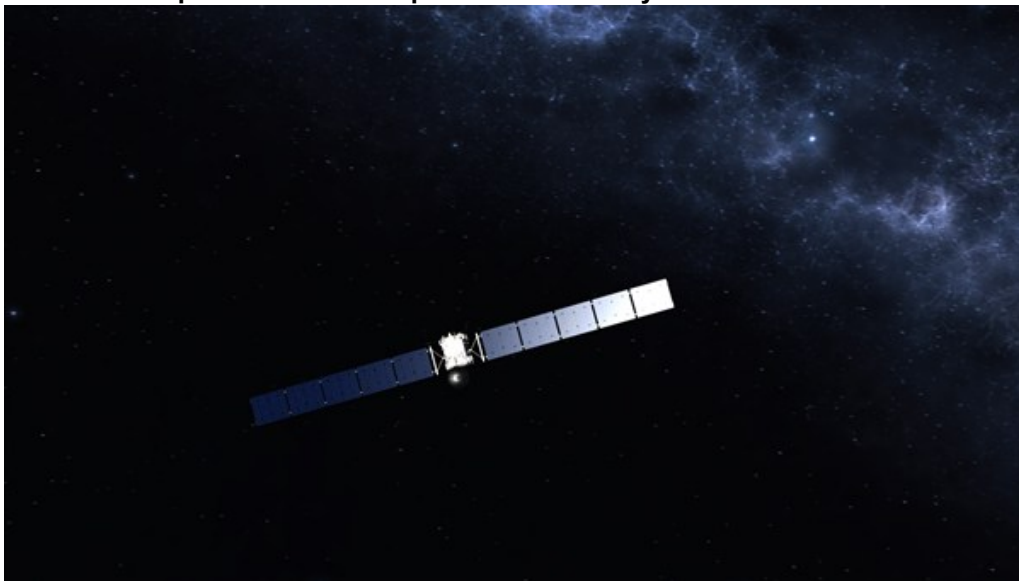
Planned arrival at comet 67P/Churyumov-Gerasimenko



Comets are considered to be witnesses to the formation of the Solar System. The questions as to whether the comet's surface is actually in a kind of 'original state' and whether comets harbour prebiotic molecules and water – making it likely that they could have played a role in the origin of life on Earth – are expected to be answered with the help of the Rosetta mission. (Frame from 'Chasing A Comet – The Rosetta Mission'.)

Credit: DLR (CC-BY 3.0).

The Rosetta spacecraft in the depths of the Solar system



Rosetta has travelled a distance of about seven billion kilometres. (Frame from 'Chasing A Comet – The Rosetta Mission'.)

Credit: DLR (CC-BY 3.0).

Rosetta's flyby of Mars in February 2007



Rosetta has been assisted by the gravitational fields of two planets to complete its long journey. In the night of 24-25 February 2007, it successfully conducted a critical swing-by manoeuvre at Mars. (Frame from 'Chasing A Comet – The Rosetta Mission'.)

Credit: DLR (CC-BY 3.0).

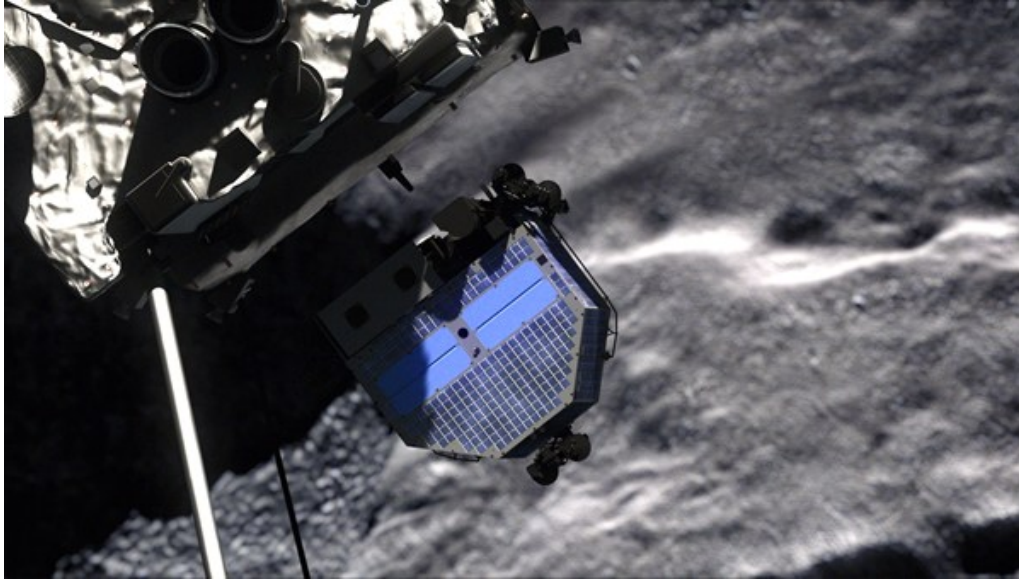
Landing of Philae on the comet



In mid-November 2014, the Philae lander will descend onto the target comet, 67P/Churyumov-Gerasimenko. (Frame from 'Chasing A Comet – The Rosetta Mission'.)

Credit: DLR (CC-BY 3.0).

The Philae lander separates from the Rosetta spacecraft



The landing on 67P/Churyumov-Gerasimenko will allow scientists to conduct experiments on a comet for the first time. (Frame from 'Chasing A Comet – The Rosetta Mission'.)

Credit: DLR (CC-BY 3.0).

A suitable landing site will be selected before landing



A suitable landing site will be chosen only after the instruments on board Rosetta have conducted a full inspection of the comet. (Frame from 'Chasing A Comet – The Rosetta Mission'.)

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