

ROSETTA-PHILAE: FIRST LANDING ON A COMET

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ABSTRACT

Rosetta is a Cornerstone Mission of the ESA Horizon 2000 programme. In August 2014 it reached comet 67P/Churyumov-Gerasimenko after a 10 year cruise. Both its nucleus and coma have been studied with its orbiter payload of eleven PI instruments, allowing the selection of a landing site for Philae. The landing on the comet nucleus successfully took place on November 12th, 2014.

Philae touched the comet surface seven hours after ejection from the orbiter. After several bounces it came to rest and continued to send scientific data to Earth. All ten instruments of its payload have been operated at least once. Due to the fact that the Lander could not be anchored, the originally planned first scientific sequence had to be modified. Philae went into hibernation on November 15th, after its batteries ran out of energy.

During the first days on the comet, images from the surface could be transmitted to Earth, organic molecules were detected and the physical properties of surface material as well as the interior of the nucleus were determined. Some organic components have never before been observed in a cometary environment and are of possible relevance for the formation of life. The images taken during the descent and at the final landing site show unexpected surface structures with high resolution. The presentation will address these first results obtained in November 2014.

Re-activation of the Lander was expected for May/June 2015, when Churyumov-Gerasimenko would be closer to the sun and, indeed, radio contact with the Lander was re-established on June 13th and for (so far) seven more occasions.

Rosetta is an ESA mission with contributions from its member states and NASA. Rosetta's Philae lander is provided by a consortium led by DLR, MPS, CNES and ASI with additional contributions from Hungary, UK, Finland, Ireland and Austria.