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Visit to Comet 67P – Philae has landed

12 November 2014

On 12 November 2014, the Philae lander touched down on the surface of Comet 67P/ Churyumov-Gerasimenko. This is the first time a man-made device has landed on a comet and collected data directly from the surface. “Philae is talking to us – we are on the comet surface,” said Lander Project Manager Stephan Ulamec from the German Aerospace Center (Deutsches Zentrum für Luft- und Raumfahrt; DLR). At 17:09 CET, the team cheered in the Lander Control Center (LCC) at DLR, which controls and operates the lander.

"With the successful landing of Philae, which was developed and built in Germany, one of the most fascinating chapters in the history of spaceflight, the Rosetta mission, continues its success. For this feat of engineering, I would like to thank all participants and our partners, especially the team at the DLR Lander Control Centre in Cologne,” said Johann-Dietrich Wörner, Chairman of the Executive Board of DLR. “We are all looking forward to the first pictures directly from the surface of a comet and then the subsequent scientific data that will allow us a glimpse into the origin and evolution of the Solar System."

Since 2 March 2004, Philae has been travelling on board the Rosetta spacecraft towards Comet 67P/Churyumov-Gerasimenko. Now – over 500 million kilometres from Earth – it is on the comet’s surface. Within the next few hours, 10 instruments will take turns to study the history of the Solar System. Since comets act like a freezer and preserve primordial material from the time of the formation of the Solar System, the data obtained can allow a view back to its origin.

Philae examines Comet 67P

Last night, Philae kept the team in the LCC holding their breath. The cold gas thruster at the upper side of the lander, which was to push it down during the landing, did not provide the expected telemetry. However, since Philae has two harpoons, which should be triggered immediately upon contact with the ground and anchor the lander in the comet, this should not be a problem. At 10:03 CET the signal that Philae had departed from the Rosetta spacecraft arrived on Earth. During the seven-hour descent, the landing gear deployed and several instruments began their work.

The main task is the on-site analysis of comet material, the oldest and most pristine material in the Solar System. In particular, element and isotope distribution, organic molecules and minerals and ice will be studied. In analysing the structure and properties of the comet nucleus, the most important areas are the surface properties, the physical properties of the nucleus, the layering structure and the overall internal structure. In addition, the effects of temporal variations, caused by the day and night cycle, will be observed, as well as the tail that is expected to develop as the comet approaches the Sun.

Rosetta is a European Space Agency mission with contributions from its Member States and NASA. Rosetta’s Philae lander has been contributed by a consortium led by DLR, the Max Planck Institute for Solar System Research (Max-Planck-Institut für Sonnensystemforschung; MPS), the French space agency, CNES (Centre National d'Études Spatiales), and the Italian space agency, ASI (Agenzia Spaziale Italiana). DLR is responsible for three of the 10 instruments on the Philae lander: the ROLIS camera for observing the comet’s surface during the landing phase, the SESAME experiment for seismic investigation of the comet nucleus and the MUPUS system, designed to measure the thermal and mechanical properties of the comet.

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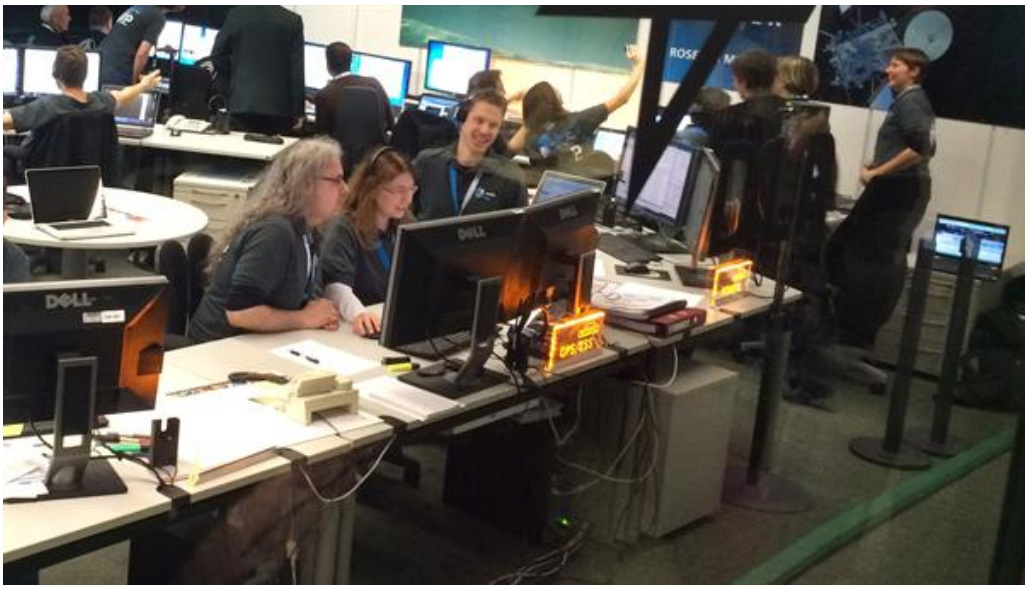
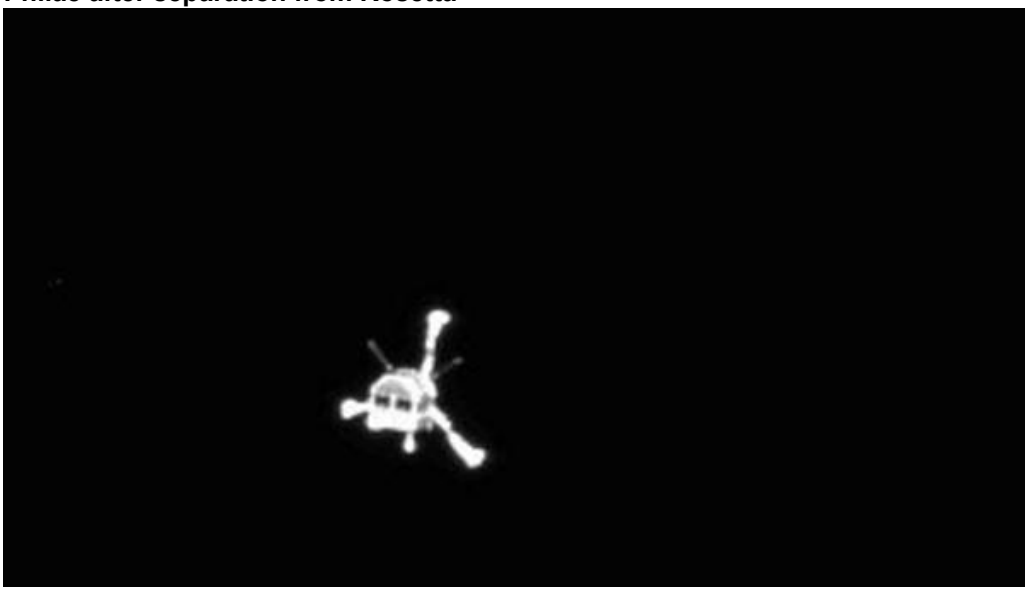
Philae has landed!



The team in the Lander Control Center (LCC) at DLR, which controls and operates Philae, celebrates as confirmation of the landing of Philae on the comet 67P/Churyumov-Gerasimenko is received.

Credit: DLR (CC-BY 3.0).

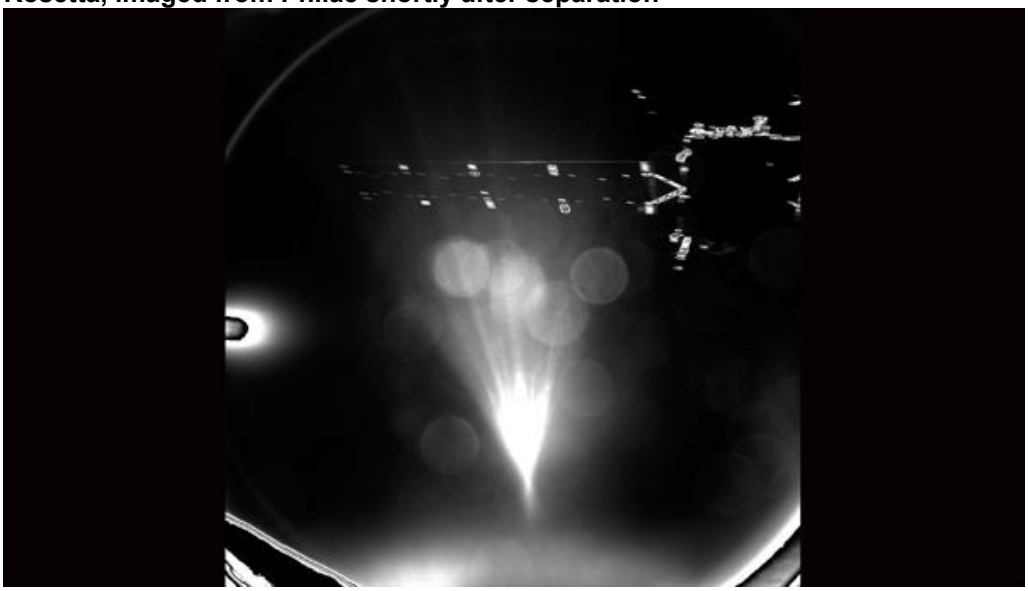
Philae after separation from Rosetta



Rosetta's OSIRIS camera acquired this image shortly after the separation of the Philae lander.

Credit: ESA/Rosetta/MPS for OSIRIS Team MPS/UPD/LAM/IAA/SSO/INTA/UPM/DASP/IDA.

Rosetta, imaged from Philae shortly after separation



The Philae lander acquired this ‘goodbye’ image of the Rosetta spacecraft from a range of about 10 metres, shortly after the successful separation.

Credit: ESA/Rosetta/Philae/CIVA.

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