

SPACE EXPLORATION SYMPOSIUM (A3)
Small Bodies Missions and Technologies (4)

Author: Dr. Stephan Ulamec

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, stephan.ulamec@dlr.de

Dr. Jens Biele

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, jens.biele@dlr.de

Mrs. Cinzia Fantinati

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, cinzia.fantinati@dlr.de

Mr. J.-F. Fronton

Centre National d'Etudes Spatiales (CNES), France, jean-francois.fronton@cnes.fr

Mr. Philippe Gaudon

Centre National d'Etudes Spatiales (CNES), France, philippe.gaudon@cnes.fr

Dr. Koen Geurts

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, koen.geurts@dlr.de

Mr. Christian Krause

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, christian.krause@dlr.de

Mr. Oliver Kuechemann

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, oliver.kuechemann@dlr.de

Mr. Michael Maibaum

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, michael.maibaum@dlr.de

Mrs. Brigitte Pätz

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, brigitte.paetz@dlr.de

Mr. R. Roll

MPS, Germany, roll@linmpi.mpg.de

Dr. Guido Sangiovanni

Agenzia Spaziale Italiana (ASI), Italy, assegnoricerca3.OSU@est.asi.it

Dr. Rainer Willnecker

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, rainer.willnecker@dlr.de

ROSETTA LANDER - AFTER SEVEN YEARS OF CRUISE, PREPARED FOR HIBERNATION

Abstract

Rosetta is a Cornerstone Mission of the ESA Horizon 2000 programme. It is going to rendezvous with comet 67/P Churyumov-Gerasimenko after a 10 year cruise and will study both its nucleus and coma with an orbiting spacecraft and a landed platform. The latter, named Philae, has been designed to land softly on the comet nucleus and is equipped with 10 scientific instruments to perform in-situ studies of the cometary material. Philae has been provided by a large international consortium. Rosetta was successfully launched on March 2nd, 2004 from Kourou in French Guyana. Philae is operated by the Lander Control Centre (LCC) at DLR, Cologne and the Science Operations and Navigation Centre (SONC) at CNES, Toulouse via the European Spacecraft Operations Center (ESOC) in Darmstadt. The scientific lead is at the Max Planck Institute for Solar System Science (Katlenburg-Lindau, Germany) and the Institut d'Astrophysique Spatiale (Paris).

Since launch, the Lander has been operational during commissioning, several checkouts, two planetary

swing-bys at the Earth and one at Mars, fly-bys at asteroids Šteins and Lutetia as well as some additional activities for calibration and failure investigation. Payload checkout PC13 was the last Lander activation prior to a deep space hibernation phase of Rosetta, starting in June 2011 and lasting until approaching the comet in 2014.

The paper will describe the various Lander activities over the last seven years and give an outlook of near- and on-comet operations. Landing is foreseen in November 2014 at a heliocentric distance of 3 AU. Prior to that, detailed characterization of the comet nucleus has to be performed with the Rosetta Orbiter instruments.