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
Ms. Valentina Lommatsch
DLR (German Aerospace Center), Germany, valentina.lommatsch@dlr.de
Dr. Koen Geurts
Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, koen.geurts@dlr.de
Mr. Michael Maibaum
Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany, michael.maibaum@dlr.de
Mr. Cedric Delmas
Centre National d'Etudes Spatiales (CNES), France, cedric.delmas@cnes.fr
Mr. Eric Jurado
Centre National d'Etudes Spatiales (CNES), France, Eric.Jurado@cnes.fr
Dr. Holger Sierks
Max Planck Institute, Germany, sierks@mps.mpg.de
Mr. Laurence O'Rourke
European Space Agency (ESA), Spain, Laurence.O'Rourke@esa.int
Dr. Carsten Güttler
Max Planck Institute, Germany, guettlerc@mps.mpg.de
Dr. Cecilia Tubiana
Max-Planck-Institut für Solar System Research, Germany, tubiana@mps.mpg.de

ROSETTA LANDER - PHILAE: OPERATIONS ON COMET 67P/CHURYUMOV-GERASIMENKO, ANALYSIS OF WAKE-UP ACTIVITIES AND FINAL STATE

Abstract

Philae a comet Lander which is part of the ESA Rosetta mission successfully landed on comet 67P/Churyumov-Gerasimenko on November 12th, 2014. After several (unplanned) bounces it performed a First Scientific Sequence (FSS), based on the energy stored in it's on board batteries. All ten instruments of the Philae payload have been operated at least once. Due to the fact that the final landing site was poorly illuminated, Philae went into hibernation on November 15th, but signals from the Lander were received again in June and July 2015. However, various attempts to re-establish reliable and stable communications links, failed.

Analysis of the data gained during FSS, and during the contacts in June and July 2015 allows conclusions on the state of Philae. By the time of the conference, images from the OSIRIS camera aboard the Rosetta Orbiter should have allowed the identification of the exact position of Philae and its attitude, relative to the local surface terrain. The paper also gives an overview of the implications of Philae results for future engineering comet models, required particularly for the design of in-situ (landing) or sample

return missions.

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