ROSETTA / PHILAE
The History of a One-of-a-Kind Mission

ESA/ROSETTA/MPS for OSIRIS Team
MPS/UPD/LAM/IAA/SSO/INTA/UPM/DASP/IDA

March 2, 2004: Launch

March 4, 2005: Earth Swing-By

February 25, 2007: Mars Swing-By

November 13, 2007: Earth Swing-By

September 5, 2008: Fly-By of Asteroid Šteins

November 13, 2009: Earth Swing-By

July 10, 2010: Fly-By of Asteroid Lutetia

June 8, 2011: Begin of Deep Space Hibernation

January 20, 2014: End of Deep Space Hibernation

August 6, 2014: Approach of 67P within 100 km Reached, Deceleration to 1 m/s Relative Velocity

September 10, 2014: First Orbit of Comet at 30 km Distance

October 10, 2014: Orbit of Comet at 10 km Distance

November 12, 2014: PHILAE Lands on the Comet

August 13, 2015: 67P Reaches Perihelion (Closest Approach to Sun)

September 2016: End of Mission

DLR at a glance

DLR is the national aeronautics and space research centre of the Federal Republic of Germany. Its extensive research and development work in aeronautics, space, energy, transport and security is integrated into national and international cooperative ventures. In addition to its own research, as Germany's space agency, DLR has been given responsibility by the federal government for the planning and implementation of the German space programme. DLR is also the umbrella organisation for the nation's largest project management agency.

DLR has approximately 8000 employees at 16 locations in Germany: Cologne (headquarters), Augsburg, Berlin, Bonn, Braunschweig, Bremen, Goettingen, Hamburg, Juelich, Lampoldshausen, Neustrelitz, Oberpfaffenhofen, Stade, Stuttgart, Trauen, and Weilheim. DLR also has offices in Brussels, Paris, Tokyo and Washington D.C.

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ESA/ROSETTA/
PHILAE/ROLIS/DLR

Research connects

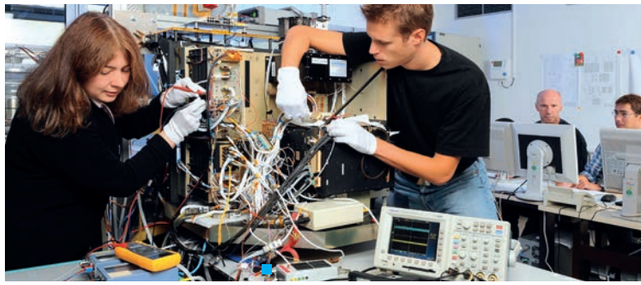
MUSC – Microgravity User Support Center

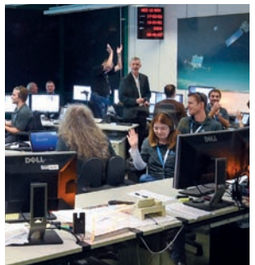
A project, like the ROSETTA/PHILAE mission, can only be mastered in cooperation. Many individuals contribute the pieces through their work and expertise, and only together is it possible to succeed in attaining such an unprecedented purpose. We have a clear goal in sight and are working day by day to reach it. Every person contributes only their best – regardless of where they come from or what their nationality. It is a wonderful experience seeing this collaboration work over such a long time.

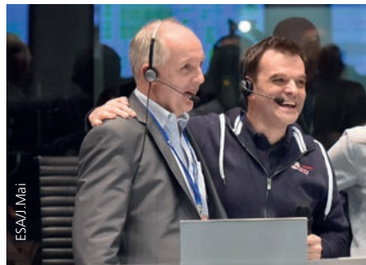
"It is just amazing, being a part of this and working with all of these scientists. Being able to work with people like these… this is it." "

Long before ROSETTA was launched, in 2004, countless people worked in cooperation on this project. They researched together, analyzed, shared their knowledge and, as a result, created the foundation for this unique mission.

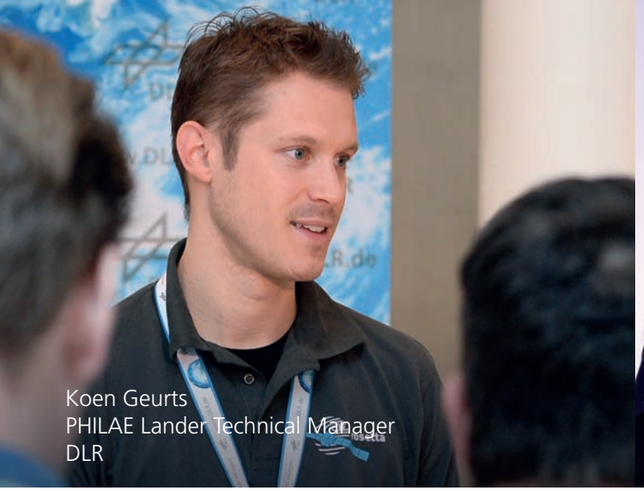
The fact that it has never been possible to realize such a project before naturally spurs us on and motivates us. Setbacks and mastering challenges bind us together, just as first achievements do. Research unites – we live it every day.







ESA/J.Mai



Koen Geurts
PHILAE Lander Technical Manager
DLR

Valentina Lommatsch
PHILAE Control Center
DLR

Cinzia Fantinati
PHILAE Operations Manager
DLR

Stephan Ulamec
PHILAE Project Manager
DLR

„Everything is planned and tested so extensively, it simply has to work!“

It's not just a job. It's much more for the men and women working on the ROSETTA/PHILAE project. Over the course of a decade they have dedicated their career to the realization of this mission, together with a large international team. Strategies were proposed, elaborated and refined in a continuous process in order to maximize the chances for mission success.

Experts shared their experience and know-how with other specialists, in order to implement and realize this unique project. All of them are aware that such a project can come only once, perhaps twice in their career; that's why everyone is so proud to be a part of it. It is a huge challenge in every aspect. We are all working to achieve a mutual goal: it's all to obtain unprecedented comet science.

Koen Geurts studied in the Netherlands (Fontys) and the UK (University of Bath, Master of Science in Aerospace Engineering) and pursued his Ph.D. in Aerospace Engineering at the University of Pisa, Italy. Geurts is the Technical Manager for Philae and had a key role during the landing on comet 67P/Churyumov Gerasimenko.

„We have a great responsibility: not only to the Lander and the science experiments onboard – but also to the hard work that our colleagues have invested over the years…“

Landing a spacecraft on a comet is unparalleled – a first in space exploration. The data that the Lander, PHILAE, is sending could give us insight into the composition of comets and even the origin of our solar system.

In many ways, we are entering unchartered territories with this mission and every step must be perfect. Everything must be carefully analyzed and planned ahead of time; even the smallest deviation could change everything. The burden is immense – responsibility for the technical and scientific success, but also for the invested time and money.

Valentina Lommatsch studied in the USA (The Ohio State University, BS in Mechanical Engineering) and Germany (Aachen University of Applied Sciences, MS in Aerospace Engineering). She completed her master's thesis on Philae's solar generator in 2013 and remained at DLR as an Operations Engineer afterwards.

When so many different people with different temperaments work together on a project, it can become a big challenge but also a big chance, because of the diversity of the people working together. And maybe that is what makes our team so strong. Everybody has the same objective: to give their best. We want to make the most out of the project. Sometimes we don't all agree on every detail, and that can result in some hot tempered debate, but in the end we all respect each other. We have to come to compromises and accept the ideas of

„There is a lot of excitement here, and the enthusiasm is immense.“

the other team members. Once a decision is taken, the whole team supports it, since we know it is for an important and unique objective. Working in a team is a continuous challenge that has to be taken day by day, but we all know that only by working together can we reach our objective. Sometimes it's not easy, but in the end, the results of the ROSETTA mission show what can be attained by working together in an international environment.

Cinzia Fantinati studied Computer Science Engineering in Italy (Politecnico Milano). She joined the Philae Mission Team in 1999, when the Lander assembly had just started, and participated in the Lander launch preparation campaign. After the mission launch, she worked on planning and executing the Philae in-flight operations. Since the beginning of 2012, she has been leading the Philae Operations Team as Operations Manager, coordinating the activities that led to Philae's cometary landing and subsequent insitu science campaign execution.

„It´s my deeply rooted enthusiasm, which is necessary, …when working on such a project for so many years.“

Space research combines a multitude of fields, which cannot be covered by a single person. Thus, team work is essential, so everyone can contribute their particular competence and special personality. Only as a community is it possible to tread this path successfully. Trust is essential. One has to rely on each other's capabilities.

Endurance is also important. Since every detail must be planned, it can take a long time until we see the results of our work. We were confident, that all this effort would be rewarded. There is one positive result we experience every day: research connects people and makes it possible for us all to be a part of this unique mission.

Stephan Ulamec studied Geophysics in Graz, where he finished his PhD at the Karl-Franzens University in 1991. After this he worked as a Research Fellow at ESA/ESTEC preparing missions like MarsNet or Rosetta. Since 1994 he has been at the German Aerospace Center, DLR, in Cologne, working as Systems Engineer and Project Manager of the Rosetta Lander, Philae. He is also involved in MASCOT, a small Lander for the Japanese Hayabusa 2 mission to an asteroid, as well as in the preparation of future space missions to comets and asteroids.