Press Release

29.4.2016

MOONWALK - Simulation - Rio Tinto

MISSION ACCOMPLISHED

MOONWALK is an exciting step further into the future of human space exploration, where humankind pairs with technology to transcend known boundaries.

The MOONWALK team has completed a two week long Mars Simulation campaign in Rio Tinto near Seville, Spain between 16 and 29 April 2016.

This was one of the very few **integrated mission simulations conducted on European grounds**. The Rio Tinto tests present the next step further in preparing exploration to extra-terrestrial planetary surfaces such as Mars and moon.

Special features demonstrated and tested in Rio Tinto included **SHEE, a Self-Deployable Habitat for Extreme Environments**. SHEE was utilized in each simulation. It's **suitport** (an airlock in which the astronaut can step into the spacesuit) allowed the simulation astronauts (10 from France, Austria, Belgium, Italy, Spain, United States of America and Germany) to step into the suit before undocking and exploring the surface. SHEE also included the local mission control, which was connected to the **Mission Control Centre** located in Zaventem near Brussels. In addition SHEE hosted an **astrobiology lab** where the samples taken on the astronaut excursions could be analysed.

The main scenarios tested included surface excursions to two different sites, one of which presented a cave which was explored by the rover. **Astronaut-astronaut** and **rover-astronaut** scenarios were conducted with the different simulation astronauts and with the rover guided through gesture control. The astronauts wore a new **space simulation suit** based on the NASA Z1 series and used different tools to gather solid samples and loose material. The **tools** such as a pantograph scoop and a foldable pick-up claw **could be used single-handed**. The astronauts had to follow very specific procedures that were communicated to the astronauts via a touch pad mounted on the space simulation suit. All astronauts were equipped with a **bio-monitoring system**, which observed their heart rate and would have indicated any destabilisation of their health. The rover was equipped with a 360 camera and controlled by the arm movements of the astronaut. It also carried the tools and samples for the astronaut in a payload box.

Experiments from **external invited researchers** in Europe and the US were conducted including 360 degree video panning, a bio-monitoring system, takeover of mission Control from the US and a psychologically oriented survey about human robot perception.

More than 300 visitors in addition to three school classes came to view the simulations on the public day. The children competition winner was present and spoke her first sentence to be said on Mars while being in the space simulation suit:

"Today Mars, tomorrow the stars."

Press reports from all over the world including Europe, North and South America and others in print and on TV including Spanish news documented the last two weeks.

SHEE habitat; credit photo: Bruno Stubenrauch, 2016

ASTRONAUT-ASTRONAUT cooperation; credit: Moonwalk consortium, photo: LIQUIFER Systems Group, 2016

ASTRONAUT-ASTRONAUT cooperation, all female crew; Moonwalk consortium, photo: FH-WS, 2016

NEXT SIMULATION MISSION: MOON

Subsea Marseilles, France

The second test campaign will be conducted from 28. May - 12. June, at the ***Subsea Marseilles Lunar Analogue site*** in France.

PRESS

Press Conference

All members of the press are invited for ***open interviews and access to project and project site.*** Specific dates will be announced on the project's website under 'participate.'

PUBLIC

Project MOONWALK will be opened to the public and will host an outreach activity. Specific dates will be announced on the project's website under 'participate.'

International Analogue Mission Control Centre, Brussels

PRESS

All members of the press are invited as observers to the ***International Analogue Mission Control Centre in Brussels, Belgium*** during the extent of the simulations.

Register for press and public visit in Marseilles

Consortium	German Centre for Artificial Intelligence (DFKI) Bremen, Germany COMEX Marseilles, France Airbus Group Newport, UK LIQUIFER Systems Group Vienna, Austria Space Applications Services Zaventem, Belgium NTNU Centre for Interdisciplinary Research in Space Trondheim, Norway Instituto Nacional de Técnica Aeroespacial (INTA) - Centro de Astrobiological (INTA-CSIC) Madrid, Spain
Project Coordinator	Dr. Thomas Vögele DFKI, Bremen, Germany thomas.vogele@dfki.de
Technical Manager	Dr. Peter Weiss COMEX, France p.weiss@comex.fr

PRESS RELEASE CONTACT

Dr. Barbara Imhof
LIQUIFER Systems Group, Vienna, Austria
barbara.imhof@liquifer.com
+43 1 218 85 05

External research experiments

ADAPA 360 - 360-Degree VR Video Camera System for Space Suit and Helmet

Team: Ali Zareiee, ADAPA, Norway

Cave Explorer - Assessment of performance for the wearable electro-optical diagnostic health assistant system

Team: Human Spaceflight Department, OHB System AG; Medical Engineering Department, IMES University of Applied Sciences Würzburg-Schweinfurt

SCALE: Shared Cognitive Architecture for Long-term Exploration

Team: Leslie DeChurch (Georgia Tech), Noshir Contractor (Northwestern), Jeff Johnson (U. of Florida); United States (NASA Behavioral Health & Performance)

Psychobot: Human Psychological Relationship with a Planetary Exploration Robot

Team: Yvett Mikola, PhD student, Complutense University of Madrid (UCM). Madrid, Spain

Project **MOONWALK**, is a 3-year cooperative Research & Development project funded by the European Commission under the *Space* theme of the 7th Framework Programme and aims to compare the performance of different compositions of ***astronaut-robot teams*** over multiple tasks and operational scenarios, in two ***Analogue environments.***

www.projectmoonwalk.net

SHEE - Self deployable Habitat for Extreme Environments was co-funded by the European Commission under the *Space* theme of the 7th Framework Programme and was concluded Dec. 2016.

www.shee.eu

Our mailing address is:
LIQUIFER Systems Group GmbH
Obere Donaustraße 97/1/62
Vienna 1020
Austria