

HUMAN SPACE ENDEAVOURS SYMPOSIUM (B3)
Astronauts: Those Who Make It Happen (5)

Author: Ms. Åse Svendsen
Norway

Dr. Irene Lia Schlacht
Politecnico di Milano / Technische Universitaet Berlin, Italy
Mr. Kent Nebergall
Chicago Society for Space Studies, United States
Ms. Ayako Ono
Tohoku University Graduate School of Medicine, Japan
Ms. Paula Crock
North Dakota University, United States
Ms. Audrey Bruneau
Ecole Nationale Superieure de Cognitique, France
Ms. April Davis
MiraCosta College, United States
Ms. Tristan Holotnak
University of Manchester, Canada
Dr. Melissa M. Battler
University of Western Ontario (UWO), Canada
Mr. Dennis Oltheten
Vrije Universiteit Amsterdam, The Netherlands
Prof. Bernard Foing
European Space Agency (ESA/ESTEC), The Netherlands

SAFETY, PERFORMANCE AND COMFORT ON EUROMOONMARS MDRS MISSION SIMULATION

Abstract

This paper presents the results of studies on living and working activities from the ILEWG EuroMoon-Mars campaign 2013 carried out at the Mars Desert Research Station (MDRS) in Utah to test exploration procedures in Analogue Moon/Mars Base Infrastructure. Inside the station the feasibility and limitations of human and robotic planetary exploration were investigated by two teams of six members (crew 124-125) for a period of two weeks.

The focus of this paper will be on presenting the analysis performed in 2013 by the crews on safety, performance, and comfort on living and working activities.

- The living conditions were investigated with:
 - Debriefing workshop in order to increase the crew's well-being and performance in isolation.
 - Impact of food cooked at MDRS on comfort.
- The working activities of the crew included:
 - The ergonomics and balance of transport and access to heavy hand tools on the simulation space suit.

- Development of an Arduino-based Device for Monitoring Internal EVA Helmet Temperature During EVA to Assess Crewmember Comfort and Safety.
- Testing and Perception of risk, realistic risk of injury, and knowledge of emergency procedures in a simulated Mars environment.
- Geo-scientific exploration and navigational methodology at a Mars simulated environment.
- Design and development of geological field equipment for use in space suit.
- ATV capability assessment at MDRS.

The campaign was organized by the International Lunar Exploration Working Group (ILEWG) with the support of Mars Society, VU Amsterdam, George Washington U NASA Ames.