

SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
New Worlds - Non-Traditional Space Education and Outreach (7)

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MOON/MARS ASTRONAUTS ANALOGUE SIMULATION: EDUCATIONAL PROJECT FOR
UNIVERSITY AND HIGH SCHOOL.

Abstract

The interest to explore new celestial bodies is growing with the advancements in technology. In the future it will be relevant the international cooperation and the coordination between the human and the robotic partnership to explore Moon and Mars. To land on new worlds is one of the main topics that fascinates more the younger generation. In this paper we want to show the potential of our project to educate and sensitize students about space research activities. The project is divided in: Remote Control, Extravehicular activities (EVA) and data processing, which cover different areas of research. This way students with different backgrounds can interact with each other within an international and multidisciplinary context. Students who take part in the Remote Control group have two main tasks. The first is to manage the lander's on-board laboratory, with particular care for the acquisition of spectroscopic data derived by the spectrometer that allows us to analyse the composition of samples. The second task is to manage the rover as a support during the astronaut's EVA. The tasks of the students who are selected to join the crew of astronauts for the EVA is to make sure that all the tools on board of the lander are operational, resolving problems associated with the equipment, carrying out the remote control instructions and carefully choosing samples for spectroscopic analysis. The third group of students is in charge of analyzing the data obtained during the EVA. Some of these students have to take care of the medical and psychological examinations of astronauts and the other part of students has to process sample data collected during EVAs, providing information/analyses material relevant to the geological interpretations of the area and monitoring the ground for possible biological activity. In this paper we show the results of simulations conducted at ESA/ESTEC (Netherlands) and during the campaign in Eifel (Germany), where we have performed geological and biological analysis and tested human-robotic partnership during the EVAs in different light condition. We show how students are placed in an environment that simulates the working conditions for space exploration, which is a multicultural and multidisciplinary environment. Through this project the students can understand the importance of teamwork and the variety of scientific fields required to conduct science and exploration of celestial bodies.