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A CASE STUDY OF HUMAN FACTOR & ANTHROPOLOGICAL INVESTIGATIONS IN SPACE
MISSION SIMULATIONS AND ANALOGS.

Abstract

We present in this paper the results of a human factor study conducted during an analog Moon mission simulation at HI-SEAS Habitat in Hawaii in February and March 2019. The mission was a part of the EuroMoonMars campaign of the International Lunar Exploration Working Group (ILEWG). The mission was organized at the HI-SEAS Habitat, a facility used previously by the University of Hawaii and NASA for mostly psychological studies related to future missions to Mars.

During the 15 day mission, a team of 6 people, including the first author himself, lived in complete isolation and in semi-confinement to simulate a Moon mission. Daily tasks included for example the rigid procedure of extra vehicular activities, such as the process of waiting in the airlock while wearing helmets and the life support system to simulate decompression before to being able to exit the station.

The first author coordinated during the mission human factor anthropological investigations. Those investigations consisted of: A free creative and artistic activity. This activity aims to broaden the application of space exploration from the scientific and engineering side also to the cultural one. A holistic group discussion to record the lessons learned from the team called human factors debriefing. An anthropological diary to record the whole mission from a holistic and cultural perspective. An investigation on Performance and Stress in Isolation (PSI) aimed to find out new non intrusive methodology to countermeasure stress in isolation and to implement it on smart environment and robotic to enhance Human Performances in future long terms interplanetary Missions.

We present in this paper the results of those investigations.

First Author Description: Mr Benjamin is a PhD Candidate in Anthropology, Arts and Architecture, professional explorer and fellow International of the Explorers Club, he has been taking part to various I.C.E environments expeditions, that brought him from the northernmost human settlement on Earth to it's driest desert and the slopes of volcanoes in Hawaii, Iceland and Chile.