

IAF HUMAN SPACEFLIGHT SYMPOSIUM (B3)
Human Spaceflight Global Technical Session (9-GTS.2)

Author: Dr. Irene Lia Schlacht
Italy, irene.schlacht@mail.polimi.it

HUMAN FACTORS FOR SPACE

Abstract

Nowadays various governmental and commercial agencies are planning ambitious human space missions to the cis-lunar space, Mars and the asteroid belt. These missions, if realized, will lay the astronauts, among other difficulties, into prolonged isolation and confinement in microgravity condition. As the Russian academician I.B. Ushakov, director of IBMP, mentioned, in this endeavour “the human factor becomes the main priority, and humans become the most valuable and vulnerable unit of the mission, to a great extent determining the possibility of realization of the project in general.” Considering that the aim of space missions is not the mere survival of individuals, but the execution of mentally challenging and physically demanding tasks, human factors challenges related to social/environmental confinement are a major obstacle to our capability to undertake these missions.

During 2017, a team of researchers from the Mars Planet conducted innovative researches in the field of Human Factors to improve the safety and performance of operators during long-term missions in extreme environments.

In particular, the following aspects were investigated:

- Not intrusive analysis of psycho-physiological parameters in extreme mission;
- Human factors investigation of space system usability;
- Virtual space mission simulation and training system application;

The results show that the support of human reliability and safety need to be considered as a preliminary factor in the operating scenario of a space mission. In particular new methodology that support the “autonomy” of the user in long duration mission have been investigated. These first results can be applied to increase performance in Mars missions as well as in common and scientific contexts.