

HUMAN EXPLORATION OF THE SOLAR SYSTEM SYMPOSIUM (A5)
Long Term Scenarios for Human Moon/Mars Presence (2)

Author: Mr. Yue Wang
China Astronaut Research and Training Center, China, dennyo.wang@gmail.com

Prof. Bin Wu
Astronaut Center of China, China, wubinacc@sina.com

Mrs. Ping Wu
China, wuping507@163.com

Ms. YueHong Yang
China, yangyuehong_2003@163.com

Mr. ZhiMing Gu
China, guzhiming130@126.com

THE FLUCTUATION OF CREW'S STATE AND APPEARANCE IN LONG-TERM ISOLATION AND
CONFINEMENT - EXPERIMENT REPORT FROM ONE MARS500 CREWMEMBER

Abstract

Human never stops their scientific move on space exploration. After the realization of ISS, human exploratory missions beyond Low Earth Orbit, typically Mars, is widely considered as the next logical step in space on a global scale. The state and appearance of the crew, both physiological and psychological, has been a major concern because of the problems associated with prolonged isolation and confinement. Therefore, Mars500 lasting for 520 days, which is the longest isolated and confined experiment in human's history, initiated by the Institute of Biomedical Problems and accomplished under the international cooperation with ESA, ACC, CSA, etc. Mars500 has the unique simulation environment which includes six special restrictive conditions as following: dimension, resource, workload, physiology, psychology and cultural difference. These combined elements imposed psychological and physiological impacts on six crewmembers cumulatively, result in whose state and general appearance fluctuated in the whole mission. According to the different reactions from the crew, the entire duration is divided into five episodes from the view of one crew member. It is the article that reports the process and traits of each period from Physiology, Behavior, Emotion and Cognitive ability. In order to adapt these situations well, Mars500 crew used team and self-regulation to keep motivation, whose experience would be useful for the long-duration space flight and analogue simulations in the future.