

SPACE LIFE SCIENCES SYMPOSIUM (A1)
Behaviour, Performance and Psychosocial Issues in Space (1)

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PSYCHOSOCIAL INTERACTION DURING A 90-DAY ISOLATION MISSION IN LUNAR PALACE 1

Abstract

As the most important and critical group in space missions, crew's emotions and interpersonal interactions have gained attentions. With the increase of mission duration, several psychosocial issues have been identified by previous researches. Confined isolated environment, limited communication with outside and unpredictable risks may lead to the aggravation and acceleration of depression, displacement and interpersonal conflicts, which can deteriorate astronauts' effectiveness and safety.

Therefore, the aim of the study is to identify possible change rules over time of emotional states, cohesion and other group dynamics in 90-day isolation period. To be noteworthy, it is the first time that an analogue experiment of space psychology is conducted in China and the crew completely composed of Chinese member. The experiment is conducted in an analogue space station in Beihang University called LUNAR PALACE 1, which forms 100 percent of carbon and oxygen cycle closed environment, containing one comprehensive cabin and one plant cabin. Three healthy crew members are selected in the research, and they are assigned to tasks every day to imitate astronaut schedule. In our experiment, all crew members and mission control personnel will complete a questionnaire named profile of mood states (POMS) every week and two group climate scales every two weeks, which are the group environment scale (GES) and the work environment scale (WES). Considering the limitation of questionnaire survey, we employ another method of automatic analysis. We set a network camera in the staff room (for meal and entertainment) in comprehensive cabin, and the videos will be analyzed through FaceReader, commercial facial expressions recognition software, to indicate their emotions and behaviors. After the experiment isolation period interviews will be conducted too. Besides, in LUNAR PALACE 1 we used open network environment to increase crews' communication with family or friends and provide them digital camera to record their daily life as a kind of recreation.

From all these measures, we will focus on psychosocial issues that may occur and develop new appropriate countermeasures to reduce negative emotions.