

Designing a Mobile Space Habitat Analog

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Human Factors and Applied Psychology Conference: Research Abstract

With new focus on traveling to Mars, a primary area of concern has been selecting the proper crew for such a mission. The crew selection process has previously been straightforward, but this new endeavor presents a more unique problem as a long-duration exploration mission. A Mars mission will consist of a crew of four to six astronauts confined to a single spacecraft for upwards of eight months one-way. Crew members will be at risk for behavioral health decrements as they face confinement, isolation, and imminent boredom, which may significantly impact team dynamics, team performance or the mission. To combat these issues, researchers use analog facilities to simulate various aspects of space exploration in order to study psychosocial factors. Recently, students and faculty at Embry-Riddle Aeronautical University have been developing a new and unique analog, the Mobile Extreme Environment Research Station (MEERS). This transportable test-bed is currently being designed with preference towards dual-use architecture for each of its functional areas. This will simulate a multi-modal, mission-specific, small-team space habitat in which a team of two to six crew members will be able to live in for up to two weeks and conduct experiments fully self-sustained in a remote area. The purpose of this paper is to demonstrate the relevance of MEERS as an analog facility, and bring light to the extent of potential research applications.