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Simulating Space Habitation: Habitats, Design and Simulation Missions (6)

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COMPARISON BETWEEN SPACE ANALOGS FOR FUTURE SPACE MISSIONS

Abstract

Future human spaceflight missions to nearby celestial bodies, such as the Moon and Mars, are currently being planned to take part in the following decades. In order to understand and prepare towards the challenges these missions will present, a number of initiatives are being executed to gather new insights regarding the future human presence in these environments. In this aspect, analog missions are one of the main activities where candidates can conduct experiments and tests while being immersed in Mars-like or Moon-like environments, with the respective physical and mental impact these simulations cause.

From 2016 to 2021, a Latin-American crew from different academic backgrounds have been part of space analog missions in locations like The Mars Society's Mars Desert Research Station, Mars Ocean Analog's Schooner Anne and NASA's funded Inflatable Lunar-Mars Analog Habitat at University of North Dakota. On those missions, experiments from a number of academic and space institutions were conducted, involving EVA's spacesuits testing, and mental, cognitive, physical and biological experiments, among others.

A comparison between different analog programs and facilities will be covered to present the advantages and disadvantages between them in order to further choose which analog would be appropriate for a certain initiative. Insights and results that were obtained in these analogs are also covered.