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RESULTS FROM HI-SEAS LONG DURATION MARS ANALOG SIMULATIONS

Abstract

HI-SEAS (Hawai'i Space Exploration Analog and Simulation) is a Habitat on an isolated Mars-like site on the Mauna Loa side of the saddle area on the Big Island of Hawaii at approximately 8200 feet above sea level. Multiple psychological studies have been conducted over five missions of long duration ranging from 4 to 12 months with six crew members HI-SEAS is unique, in addition to its setting in a distinctive analog environment with crew selection to meet our research needs. The conditions (Habitat, mission, communications, etc.) are explicitly designed to be similar to those of a planetary exploration. Longer-duration isolated and confined environment studies than at other locations the Mars-like environment provides for high-fidelity analog tasks, such as geological field work carried out by human explorers and/or robots. HI-SEAS has a robust system of high-latency communication between Crew and Mission Support that imposes a Mars-like 20-minute delay on message reception each way. HI-SEAS is an environment where communication latency and other mission parameters can be varied according to study requirements. Results of the primary studies such as Team Processes and Team Effectiveness, Effectiveness of a Shared Social Behavioral Task as a Team-Building Exercise in Isolated, Confined, and Extreme Environments, Crew communication, and mission operational autonomy.