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Symposium	2 SYMPOSIUM ON SPACE DEVELOPMENT
Theme	2.1 Space Safety: protecting human life and health in space, space debris recovering and reuse, space weather, defense from asteroids
Abstract Title	Simulation-based training with exponential technologies to maintain health and wellness for analog astronauts living in ice and viability in austere environments
Abstract Code	SRIC3-SDE-2.1.02-034
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Abstract

Space is hard for life. Space medicine, human factors and “psycho-sociological” risks and challenges must be address with solutions integrating innovative concepts, paradigms, and exponential technologies before humanity can realistically live and thrive in extreme environments to finally become a multi-planetary species. The recent successful onboarding of commercial space industries has increased the interest for human space exploration within the professional, academic and citizen scientist sectors resulting in increased funding and engagement in analog research, in particular, analog astronautics. This expansion has birthed a new type of astronaut mission that is becoming more common, available, and reliable to various communities, such as, MMAARS (Mars-Moon Astronautics Academy & Research Sciences) Space Medics Missions (MMM), a unique scientific training program offered on a monthly basis in various fidelity analog scenarios. The aim is to offer experiential simulation-based learning in a full immersive environment and to support selection of highly trained analog astronauts for MMAARS mid- and high-fidelity scientific Mars analog missions. Analog studies aims to test group cohesion, collaboration, communication and conflict-resolution strategies that might help predicts team performance; establish baselines for a wide range of human cognitive, social and emotional factors; test viability of exponential technologies, such as VRAR and mixed reality, as novel tools in a multi-countermeasure program to mitigate or reduce stress and anxiety living in I.C.E. Such studies can show how multi-disciplinary and international crews will perform on long-duration space exploration and missions to Mars and off-world settlements. The data collected from analog sims will assist recommendations/strategies for crew composition and support for crews living in Space, Moon and Mars. We will discuss results and future work.

A short bio

Susan Ip-Jewell MD, DCEG is a Space Medicine Physician-Scientist, Analog Astronaut, exponential technologist, entrepreneur. Recently appointed an official "SPACE COACH" for AFWERK empowered by USA SPACE FORCE and US Air Force and received a "knighthood" as Dame Commander in Order of the Eagle of Kingdom of Georgia from Royal House of Georgia. Research focuses on space medicine, health, wellness, human factors and exponential technologies. CEO/Co-Founder of MMAARS Inc, (Mars-Moon Astronautics Academy & Research Science) training commercial analog astronauts and developing the first Mars-Moon Settlement training facility in Mojave Desert in California, USA. MMAARS is offering fully immersive experiences in analog missions and conduct R&D in remote, Isolated, confined Environments (I.C.E) integrating experiential learning with exponential technologies. She is co-founder AvatarMEDIC.space, a vision to create a new paradigm y converging XR/AR/AI. haptics, tele-robotics and telemedicine