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Space Architecture: Habitats, Habitability, and Bases (1)

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DIVERSIFYING THE CONCEPT OF ANALOGUE MISSIONS TO EXPLORE AND EVALUATE NEW CONCEPTS FOR FUTURE SPACE MISSIONS

Abstract

A range of analogue missions has been designed and used to explore and evaluate different aspects of future space mission e.g. HI-SEADS, MELiSSA, BioSphere 2. They have been successful in exploring aspects of team working, nutrition, testing space suits, psychological impact of confinement, restriction and loneliness. In this presentation, we introduce, discuss and compare three different environments that use sustainability or artistic practices that provide possibilities to expand and diversify the concept of analogue mission. This presentation uses a literature review and observations to identify possibilities for reciprocal learning and collaboration between currently run analogue space missions and the following projects, in which the author team has been involved in as a participant or as a researcher: ecovillages, b) virtual futuristic space mission workshops called CTIM, c) a community developed art installation called SEEKER. The relevance of this comparative exercise comes from the fact that all these scenarios inquire into how to create conditions for the sustenance of human and non-human life in adverse environments: disrupted terrestrial ecosystems and the life-threatening conditions of outer space. It's these extreme contexts that force us to rethink accepted relationships between living organisms, humans and their environment, and come up with new configurations. Ecovillages provide a unique environment in which to explore long term human interactions in re-generating or recreating ecosystems, through the promotion of circular feedback systems including biological and mineral entities. They help to explore how families and communities develop in these scenarios in timeframes and with organizational frameworks that are not possible in standard analogue missions. SEEKER is an artistic installation that members of community build their own starship and can run isolation mission in them. It gives opportunities for individuals to experiment and shape their spaceship and push the boundaries of experimentation. It also provides a sense of ownership that can affect how individuals interact with the environment and others during the mission. Finally, CTIM involves a futuristic space mission workshop that uses role playing and immersion to get people to imagine events in future space missions and response to them. It provides an opportunity to push discussions on how to innovate system building and methodological innovation with an interdisciplinary group. These three scenarios can provide complimentary inform discussions on how to prepare for different aspects of short term or long term future space missions.