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INVESTIGATING HUMAN FACTORS IN ANALOG ASTRONAUT MISSIONS: HOW ISOLATION AND DARKNESS SHAPE CREW INTERACTIONS AND TIME PERCEPTION

Abstract

This presentation explores the findings from the EMMPOL 21 and 22 analogue astronaut missions conducted in May 2025 in Poland. The study examines how communication and group cohesion develop in isolated mission settings, focusing on both structured interactions, like morning briefings, and informal moments, such as shared meals. A key observation is that crews gradually shift from formal, role-defined exchanges to more informal, spontaneous interactions, fostering mutual support and emotional well-being. The research compares two crews with different communication styles, revealing how emotional climate and hierarchical roles, evolve during isolation. Additionally, the study considers how the absence of external time cues subtly influences crew interactions and the perception of time. While structured interactions remain essential for mission organization, informal moments grow in importance for maintaining group cohesion. These findings offer valuable insights for the design of future space missions and habitats on the Moon, Mars, and beyond.