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MAPPING ANALOGUES

Abstract

Simplified human activities run in hostile conditions on the ground simulate a possible future scenario of human life on celestial bodies. Primarily known as analogue missions, such activities resemble specific aspects of human-crewed missions (like environmental conditions and crew's lifestyle) analogous to that on Mars or the Moon. Analogues are becoming a trendy way to carry out in-field activities by offering researchers and space enthusiasts the chance to materialize their vision about planning and executing incoming surface exploration activities. Analogues could also support or manifest alternative ways to execute official exploration roadmaps. Analogues are effective platforms for showing the variabilities of such visions. Yet, this field is far from being considered a rigorous way to conduct scientific activities due to the lack of official standards and guidelines. Also, the high variability between analogues makes any mission unique, meaning that others cannot reproduce all aspects. Consequently, variability is also the core limiting factor of a mission's impact. Profit ad non-profit entities run analogues primarily for delivering the experience to play an active role in shaping an individual or community-driven vision only. Most entities rely on limited funds (mainly private funds) because opportunities under Research Councils or Space Agencies are limited worldwide. As of now, analogues cannot reach a Technology Readiness Level greater than six because in-flight validation will be possible only if human spaceflights to the Moon or Mars will be a reality. This work is a feasibility study about connecting analogues with specific use cases, like in a map (so *mapping*). The rationale lies in leveraging the diversity of analogues and increasing their impact. The objective is to use interoperability (as the ability to operate in conjunction with each other) to reduce limiting aspects while enabling new ones, such as the reproduction of a mission concept. Mapping analogues could make this sector stable while encouraging governmental entities to use commercial analogues as platforms for supporting and executing the objectives of their exploration roadmap.