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STRATEGIC COMMUNICATION NETWORK INFRASTRUCTURE PROPOSAL FOR EARTH STATION ON MARS

Abstract

In the context of a world characterized by constant technological advances, global communication has reached extraordinary levels of accessibility and speed. These achievements are due to the existence of established communication protocols and devices capable of providing high-quality services at affordable costs, even in domestic environments. This phenomenon inspires the exploration of similar applications in the space field, specifically on Mars, where the creation of a communication network through a base station is seen as an intriguing possibility. This proposal addresses the conceptualization and design of a communication network on the Martian terrain, structuring it through the proposal of a specific topology. The analysis starts from a reference point on Mars to the essential devices necessary to ensure their efficient operation. In a context of continuous advances in space exploration, the objective is to demonstrate the viability of establishing a communication network in an environment as challenging as Mars. This work not only seeks to establish the necessary technical infrastructure, but also to validate the reliability and effectiveness of the proposed network. The exploration of Martian terrain represents a unique opportunity to test and perfect communication technologies in hostile conditions, thus contributing to the sustainable development of space exploration.