

IAF SPACE EXPLORATION SYMPOSIUM (A3)
Space Exploration Overview (1)

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SATELLITE REQUIREMENTS FOR OBSERVATION OF CLOSE PROXIMITY CELESTIAL BODIES

Abstract

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Celestial bodies of our solar system represent new possibilities for exploration on a larger scale, having natural resources with useful implications for humanity in various fields, exploration missions in order to know the history and evolution of our solar system, as well as settlements beyond Earth for the future of humanity. Observation allows the understanding of the conditions of each of the celestial bodies, understanding the interaction of their environment and space, through the use of technology such as sensors and satellite constellations for mapping, investigation of the composition of the atmosphere, surface and environmental variations. A satellite constellation is essential for these tasks, although it requires a payload with certain requirements to carry out the observations and investigations. This scientific essay resume the main objective of analysis for the nearest neighbors of the solar system (Moon, Mars), while adding an analysis on Earth through the use of sensors in two scenarios proposed in mountain environments and at surface level, establishing a distribution in the location of the sensors according to the results obtained by the simulations. In this way, the proposals will be evaluated through discussions to determine the best communication frequency and distribution of the embedded systems along a specific range. Finally, the importance of this proposal will be discussed as a step for the future technological development in space exploration, the creation of human settlements on celestial bodies and the future of communication as a preamble to the interplanetary internet.