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BENEFICIAL ENVIRONMENTAL IMPACTS OF SPACE ELEVATORS

Abstract

This is the transportation story of the 21st century. Reliable, routine, safe, and efficient access to space is close at hand. The Space Elevator is an essential part of a global and interplanetary transportation infrastructure. Of course, one of the essential strengths of Space Elevators is its ability to improve the Earth's environment. In the community of off-planet movement with NASA's newest move to put boots on the Moon by 2024, Space Elevators must be in the discussions. Daily, routine, inexpensive, massive movement of payloads to GEO and beyond are its strengths. Release from multiple, or nearly infinite, locations on the Space Elevator will allow high speed launches to other bodies within our solar system. The question to be addressed is: how can the strengths of Space Elevators enable missions of all types, while having little or no negative environmental effects on our planet? We believe that not only can it do this, but it can also allow activities in space that will improve Earth's environment. This study hopes to show the beneficial environmental effects of building, and daily use, of Space Elevators and what kind of missions can be accomplished to improve the Earth's environment. The reality is that as humanity has decided to conduct off-planet activities, there is a tremendous need for logistical support for the movement of manufactured goods as well as the transportation of people [especially at low cost and routine or daily liftoffs]. With this tremendous need goes the responsibility to ensure low environmental impacts while also providing positive environmental benefits from space elevator services.