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ROCKET REALITIES: NAVIGATING SOCIAL AND ECOLOGICAL TRIALS IN THE NEW SPACE ERA

Abstract

Rockets, the bread and butter of the space industry. Without them our lives would be vastly different, all known benefits of space simply science fiction. Their iconic aesthetic and purpose recognized around the globe, holding a cultural significance that instills a sense of comradery amongst those passionate about such. The rocket is a pervasive symbol, one that glorifies triumphant achievements of the human endeavor.

As we sit perched on the precipice of a New Space Age, we are witnessing space-related activities becoming cheaper, faster and better. Resulting in rocket launches occurring more frequently than ever seen before. However, is our cultural and technological reliance on space blind sighting us from their social, environmental and ethical pitfalls?

A 2022 paper authored by Loïs Miraux showed that space commercialization is currently and will continue to remarkably proliferate environmental degradation. Whilst equally creating firm obstacles for future space activities and therefore all space actors. The commercial sector of space is not only expanding but diversifying from traditional space ventures. As these advancements occur, they come with oversights about how increased rocket production and launching poses challenges to Earth's ecology and long-term economic models. Launches have been shown to cause ozone depletion, air acidification, climate change exacerbation, and more. We are seeing unparalleled expansion with New Space and therefore have to deepen our understanding of the space sectors influence.

Alongside this, is a myriad of social concerns relating to the establishment of launch sites on lands with a history of colonization or military activity. This is known to be culturally destructive against First Nation's and local populations, a topic often neglected within industry discourse. Ecological and social repercussions of rocket activities should be known, as impacts can be avoided and amended through thorough evaluation of potential and existing risks. Creating better long term ethical models for the industry. However, the current literature and research taking place in this regard is scarce. This paper underscores the need amplify these insights, whilst directing further resources and funding into these areas.

Humans have been space-faring for two generations, thanks to incredible technological mutations in the name of space exploration. Despite this, the global space sector remains in its infancy. Therein lies an opportunity, not simply for innovation and growth, but to set precedence as an industry that foresees its faults before they become consequences, and to build a space culture truly worthy of human presence.