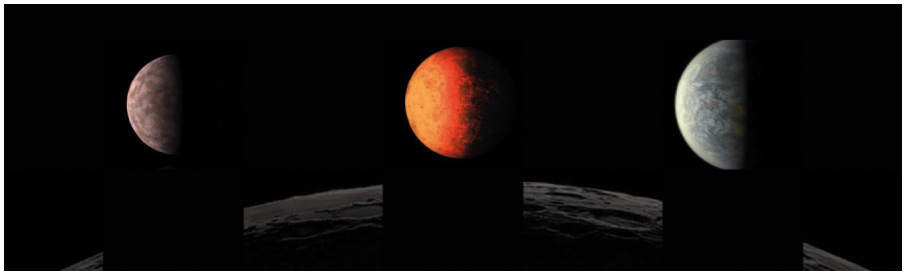

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Do we really need to save Earth, If Space will save us?

Friday 24 October 2025 18:00 (1 hour)

The concept of sustainable development has long been considered a central framework for addressing environmental and economic challenges on Earth. Yet, the accelerating progress in space technologies raises an important and controversial question: does the expansion of humanity into space make sustainability obsolete? The prospect of asteroid mining eliminating the scarcity of rare earth elements, the potential of nuclear fusion as both a terrestrial and extraterrestrial energy source, or the colonization of Mars as a "Planet B"seems, at first glance, to undermine the very rationale of sustainability as a constraint.

This paper argues, however, that space exploration and sustainability should not be perceived as mutually exclusive. On the contrary, they can be mutually reinforcing. Historical precedents, such as the development of Earth observation satellites during the space race, have already demonstrated how space technologies contribute directly to environmental monitoring and climate science. Looking ahead, asteroid mining could secure resources for renewable technologies, while In-Situ Resource Utilization (ISRU) concepts may inspire novel approaches to carbon management on Earth.

The paper concludes by suggesting that space exploration may not signify the end of sustainability but rather its transformation—towards a broader, interplanetary paradigm of sustainable development.

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