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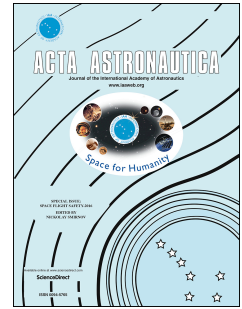
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Surviving Global Risks Through the Preservation of Humanity's Data on the Moon

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Abstract: Many global catastrophic risks are threatening human civilization, and a number of ideas have been suggested for preventing or surviving them. However, if these interventions fail, society could preserve information about the human race and human DNA samples in the hopes that the next civilization on Earth will be able to reconstruct *Homo sapiens* and our culture. This requires information preservation of an order of magnitude of 100 million years, a little-explored topic thus far. It is important that a potential future civilization discover this information as early as possible, thus a beacon should accompany the message in order to increase visibility. The message should ideally contain information about how humanity was destroyed, perhaps including a continuous recording until the end. This could help the potential future civilization to survive. The best place for long-term data storage is under the surface of the Moon, with the beacon constructed as a complex geometric figure drawn by small craters or trenches around a central point. There are several cost-effective options for sending the message as opportunistic payloads on different planned landers.

Keywords: Global catastrophic risks, existential risks, moon, time-capsule, METI

1. Introduction

Global catastrophic risks (GCRs), which have received increasing attention in recent years, are those risks that have the potential to harm our long-term future [1,2]. Many authors [3,4] think that there are significant chances of a global catastrophe from one or more of ten possible causes, including asteroid impacts, nuclear war, supervolcanic eruption, molecular nanotechnology, engineered pathogens, and dangerous artificial intelligence (AI) [5].

There are many ideas for preventing such catastrophes, such as using international cooperation or benevolent superintelligence. Additionally, the catastrophe could be survived using space bunkers [6], underground refuges [7,8], or retrofitted nuclear submarines [9]. Moreover, Seth Baum explored the value of space exploration from a consequentialist ethics point of view [10].

A more radical idea involves preserving data about human civilization for the next civilization to appear on Earth, which may arise if the global catastrophe kills off only humans but not all life on Earth. The most suitable place for such preservation may be the Moon.

The idea of preserving information about humanity on the Moon has attracted the attention of researchers before. Mautner suggested using Moon polar craters to cryopreserve the

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