

IAF SYMPOSIUM ON COMMERCIAL SPACEFLIGHT SAFETY ISSUES (D6)
Commercial Space Flight Safety and Emerging Issues (1)

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COST REDUCTION SOLUTIONS IN REGARDS TO PLANETARY PROTECTION FOR
COMMERCIAL COMPANIES

Abstract

For more than sixty years, mankind has reached out to the stars and begun to expand its grip throughout the solar system. This period has seen accomplishments as sweeping as the advent of manned spaceflight and the eventual first footsteps on the moon along with the creation of telescopes and space stations capable of researching the origins of the universe itself. Less often in the public consciousness, but just as important, are the probes, landers, and robotic explorers which have advanced space research to the position it is in today. In exploring the solar system, each and every one of these robotic adventurers has undergone examinations and often sterilizations to ensure they comply with planetary protection guidelines. First invented to ensure the safety of life-examining experiments, these voluntary guidelines put forth by the Committee on Space Research (COSPAR) are currently legally upheld by Article IX of the Outer Space Treaty (OST).

These guidelines were designed in an era where exploration was the sole domain of government entities, with the financial resources to ensure the guidelines could be effectively followed. In recent years, the advent of the commercial space industry has seen small companies starting to develop the ability to conduct exploration themselves, but which face a regulatory burden to comply with the international obligations of avoiding harmful contamination. As these companies' inch closer and closer to launching their first missions, planetary protection has entered a new phase of scrutiny to address the question of both the requirements for, and execution of, planetary protection.

In answer to these questions, new methodologies for spacecraft sterilization are being developed concurrently with a reexamination of current planetary protection guidelines. While governments are being joined by commercial entities in the exploration of the solar system, it is imperative that cost effective methods for protecting the scientific integrity of current and future payloads be maintained. This study began with research into current planetary protection guidelines and their methods of execution. Having established a basis of knowledge, outreach was performed to industry members involved with planetary protection (including regulatory bodies, producers, and purchasers) in the form of surveys or phone interviews. The gathered data was then collated and accounted for, with the objective of determining industry attitudes towards current guidelines and execution methodologies. Final analysis of our research will provide relevant information on the current effect on industry of planetary protection regulation.