

IAF/IAA SPACE LIFE SCIENCES SYMPOSIUM (A1)
Astrobiology and Exploration (6)

Author: Dr. James Benardini
NASA Headquarters, United States, James.N.Benardini@nasa.gov

Dr. Elaine Seasly
NASA Headquarters, United States, elaine.e.seasly@nasa.gov

Dr. J Andy Spry
SETI Institute, United States, aspry@seti.org

NASA'S PLANETARY PROTECTION PROGRAM TO ASSURE MISSION SAFETY AND SUCCESS

Abstract

NASA's planetary protection program seeks to understand and control harmful contamination of solar systems targets of exploration by terrestrial contamination and prevent harmful biological contamination of the Earth-Moon system by extraterrestrial life, should it exist. To accomplish these objective's NASA has developed a balanced safety and mission assurance strategy that leverages COSPAR Policy guidelines, workshops, scientific consensus, partnerships and international working groups to develop policy and implementation guidelines. Upcoming crewed missions to the Moon and Mars, as well as robotic missions to small solar system bodies, Europa, Titan and Mars are some of the driving activities of astrobiological interest that continue to emphasize the importance of planetary protection throughout the project life cycle.

Development of a responsive and updated agency planetary protection policy has been a focus area in supporting upcoming mission opportunities for exploration to include Mars sample return and crewed mission concepts. An extensive update of this policy is underway which encompasses crewed and robotic procedural polices, a general technical requirements standard, and an implementation handbook. During this timeframe NASA has been working with the international community to develop scientific consensus, and to identify and fill in knowledge gaps for developing balanced policy guidelines, incorporation of risk informed decision making and quantitative technical standards. NASA has developed a planetary protection roadmap as a technology management strategy to track and monitor the development of each knowledge gaps. The Committee of Space Research (COSPAR) Policy on Planetary Protection and the National Academies of Science, Engineering, and Medicine's Committee of Planetary Protection are used to inform updates to the planetary protection polices and guidelines. This integrated strategy for planetary protection seeks to provide a transparent, structured approach for enabling missions, providing guidance for NASA and NASA partnered missions, and being responsive to the increased interest and activities in space exploration whilst maintaining an understanding and control of harmful contamination.