

National Aeronautics and
Space Administration



Update on Planetary Protection @ NASA

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Current State of Planetary Protection @ NASA

ROSES – Planetary Protection Research (PPR)

- Selections for PPR ROSES-2018 announced on November 8, 2019
 - 20% selection rate maintained despite a large increase in proposals as compared to previous years
- Currently selected research areas include:
 - Studying the capability of the deep UV fluorescence and Raman mapping for organic and microbial detection
 - Determining bioburden associated with solid rocket motor insulation and other spacecraft materials
 - Studying sterilization techniques against prion surrogate protein biological indicators
- Currently not planning to solicit PPR until ROSES-2021
 - Goal is to eventually have a yearly cadence

Current State of Planetary Protection @ NASA

Office of Planetary Protection

- Office of Planetary Protection (OPP) is updating the NASA Procedural Requirement (NPR) that lays out planetary protection measures for human and robotic missions
 - Updates should be published later in CY2020
- Coordination with additional NASA Mission Directorates (HEOMD, STMD)
 - Setting up a NASA HQ cross-directorate Steering Committee

Recent Planetary Protection Activities:

Planetary Protection Independent Review Board

- NASA chartered the Planetary Protection Independent Review Board (PPIRB) in July 2019 to:
 - Review NASA's planetary protection policies
 - Provide recommendations for updating/streamlining NASA's approach
- Chaired by Dr. Alan Stern and included members of the academic, government, and commercial aerospace communities
- Report from PPIRB briefed to NASA HQ and NAC October 2019
 - 77 findings and recommendations

Recent Planetary Protection Activities:

Planetary Protection Independent Review Board

- NASA is working diligently to address PPIRB findings and recommendations, including:
 - Drafting updates to NASA policies for missions to Earth's Moon, Mars and other locations throughout the Solar System
 - Developing new policies to guide future crewed missions to Mars
 - Initiating studies at NASEM to assess science behind potential changes to NASA policies
- NASA will work with all stakeholders to ensure new policies are grounded in science

Addressing PPIRB Recommendations: New NASEM Discipline Committee in Works

- NASA has formally requested that the Space Studies Board create the Committee on Planetary Protection (CPP)
- Committee will be able to more quickly respond to requests for reviews and studies coming from implementation of the PPIRB recommendations
 - Scope of CPP would include all areas relevant to planetary protection
 - Provide an independent, authoritative forum for the all stakeholders to identify and discuss emerging issues in planetary protection

Addressing PPIRB Recommendations: Proposed NASEM Study on Lunar Planetary Protection

- A DRAFT Statement of Task for the newly established CPP to study lunar planetary protection scientific and policy requirements is being worked
 - A Study of the Scientific Value of Protecting the Surface and Subsurface Regions of Earth's Moon from Organic and Biological Contamination
- The study would address the PPIRB major recommendation related to designating areas of the Moon's surface and subsurface at Category I versus Category II

Addressing PPIRB Recommendations: Proposed NASEM Study on Lunar Planetary Protection

- The study would focus on:
 - Current scientific understanding, value, and potential threat of organic and biological contamination to:
 - Permanently Shadowed Regions (PSRs)
 - Historical sites
 - Prebiotic chemical evolution and the origin of life
 - A coherent and consistent traceability of recommended research to minimize that threat
 - Regions of the Moon's surface/subsurface that need protection from contamination
- Full inclusion of the science community
- Recommendations for planetary protection guidelines and policies

Addressing PPIRB Recommendations: NASA Interim Directive (NID) for Lunar Robotic/Crewed Missions in Works

- NID is focused on all robotic and crewed missions to Earth's Moon and is currently going through Agency approvals
- Should the NID be approved, the planetary protection categorization for robotic missions to the Moon would be NASA Mission Planetary Protection Category I, with exceptions for sensitive locations, such as Permanently Shadowed Regions (PSRs) and Apollo landing sites

Addressing PPIRB Recommendations: Additional Activities

- COSPAR Meeting
 - Activities at upcoming COSPAR Meeting will include planetary protection panels and presentations on NASA implementation of PPIRB recommendations
 - Abstracts have been submitted
- Upcoming work on Mars Sample Return
 - Plan for setting the scientific requirements for receiving and analyzing returned samples is in works
 - Communication plan for MSR should be available in April

The image features a central dark blue horizontal band with the word "Questions?" written in a light blue, sans-serif font. Above and below this band are two horizontal panels of a starry night sky. The top panel shows a dark blue and black sky with a prominent, bright blue nebula on the right side. The bottom panel shows a sky with a gradient from orange on the left to blue on the right, with numerous bright yellow and white stars scattered throughout.

Questions?