

The National Academies of
SCIENCES • ENGINEERING • MEDICINE

DIVISION ON ENGINEERING AND PHYSICAL SCIENCES
SPACE STUDIES BOARD

Committee on Planetary Protection
Meeting No. 4 on Planetary Protection for Missions to Small Bodies

March 2, 2022

Virtual Meeting

ALL TIMES IN US EASTERN STANDARD TIME (UTC-4:00)

This agenda is a draft, subject to change, and was last updated on 3/1/2022 10:04 AM

AGENDA

WEDNESDAY, MARCH 2, 2022

OPEN SESSION

Open to Public Viewing

Livestream Link: <https://livestream.com/accounts/7036396/events/10196798>

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|-----------------|--|---|
| 12:00 PM | Welcome and Introductions | <i>Mr. Joseph K. Alexander, CoPP Co-Chair /
Dr. Amanda Hendrix, CoPP Co-Chair</i> |
| 12:05 PM | Trajectory Analysis and Planetary Protection*
(20-minute presentation and 15-minute discussion) | <i>Mr. Brent Buffington, Deputy Section Manager,
Mission Design and Navigation, CalTech/JPL</i> |
| 12:40 PM | Panel 1: Astrobiology and Astrochemistry Contamination Concerns for Small Bodies Science
(10-minute presentation each and 40-minute discussion)
Panelists: | <i>Dr. Charles Cockell, Co-Director, UK Centre for Astrobiology (TBC)
Dr. Jason Dworkin, Senior Scientist, NASA-GSFC
Dr. Alexandra Pontefract, Affl. Professor, Dept. of Biology, Georgetown U.
Dr. Harrison Smith, Research Scientist, Earth-Life Science Institute (TBC)</i> |
| 2:00 PM | <i>Meeting Adjourns to Closed Session (or at a time at the discretion of the Co-Chairs)</i> | |

The following information is provided for any members of the general public who may be in attendance:

This meeting is being held to gather information to help the committee in its charge. This committee will examine the information and material obtained during this, and other public meetings, in an effort to inform its work. Although opinions may be stated and lively discussion may ensue, no conclusions are being drawn nor will recommendations be made. Observers who draw conclusions about the committee's work based on this meeting's discussions will be doing so prematurely.

Furthermore, individual committee members often engage in discussion and questioning for the specific purpose of probing an issue and sharpening an argument. The comments of any given committee member may not necessarily reflect the position he or she may actually hold on the subject under discussion, to say nothing of that person's future position as it may evolve in the course of the project. Any inference about an individual's position are therefore also premature.

NOTES FOR PRESENTERS

Your presentation may not include unpublished data, ITAR controlled and/or other sensitive information.

At some point a staff member will be asking you to sign a consent form allowing us to use your presentation, specifically to post it on our website.

STATEMENT OF TASK

Task Initiated on 18 November 2021

The Committee on Planetary Protection (CoPP) of the Space Studies Board (SSB) shall conduct a study on planetary protection categorization of outbound-only missions to small bodies that addresses the following topics. In what follows, an “identifiable population” of solar system small bodies refers to a subset of solar system small bodies defined by ranges of measurable known parameters, such as (a) orbital elements, (b) spectroscopic classification, (c) activity, (d) composition, and/or (e) size. Objects yet to be discovered, whose properties fall into the defining ranges, are to be considered members of the corresponding identifiable population.

1. Are there identifiable populations of solar system small bodies that are sufficiently numerous, of sufficiently similar accessibility, and/or of sufficiently low relevance to the study of chemical evolution related to the search for extraterrestrial life that the contamination of *one* object in the population would reasonably be expected to have no tangible effect on the potential for scientific investigation using *other* objects in the population? If so, provide a list of these identifiable populations and their defining parameters;
2. For the populations identified in #1, is it appropriate to categorize all missions to objects in these as planetary protection Category I?
3. If, after the publication of the study, new information indicates that a previously defined identifiable population is sufficiently inhomogeneous with regard to planetary protection to warrant reassessment, what protocols should be followed in order to revise the defining parameter ranges and corresponding planetary protection categorizations?

The implications of the report findings will be consistent with the budget limitations provided by NASA at the time of study initiation. The study will gather input from stakeholders, including the planetary and astrobiology science communities, government agencies dealing with spaceflight and exploration, and the aerospace industry, including emerging commercial entities.

TENTATIVE SCHEDULE FOR REPORT COMPLETION (AT PROJECT INITIATION)

Early November 2021	Task Initiation and Kick-Off Meetings
December 2021 - April 2022	Committee Virtual Meetings to Discuss Task, Gather Information and Input from Experts, Discuss, Deliberate, and Draft Report
15 April 2022	Target Draft Report Completion Date; Send Draft Report to Reviewers
3 May 2022	Reviews Due from Reviewers
14 June 2022	Target Date for Response to Review Submission to DEPS Report Review Officer
28 June 2022	Target Signoff Date
7 July 2022	Approved Report to DEPS Editor
15 July 2022	Deliver Report to NASA in Prepublication Format