Report of the NASEM Committee on Planetary Protection

Amanda Hendrix, Co-Chair
Len Fisk, Co-Chair

COSPAR Panel on Planetary Protection Open Meeting

6 December 2023

Committee Membership

- Len Fisk, University of Michigan, Co-Chair
- Amanda R. Hendrix, Planetary Science Institute, Co-Chair
- Angel Abbud-Madrid, Colorado School of Mines
- Joseph K. Alexander, Independent Consultant
- Anthony Colaprete, NASA Ames Research Center
- Michael J. Daly, Uniformed Services University of the Health Sciences
- David P. Fidler, Council on Foreign Relations
- Andrew D. Horchler, Astrobotic Technology, Inc.
- Eugene H. Levy, Rice University
- Robert E. Lindberg, Jr., Independent Consultant
- Gerhard H. Schwehm, European Space Agency (retired)
- Trista J. Vick Majors, Michigan Technological University

Staff

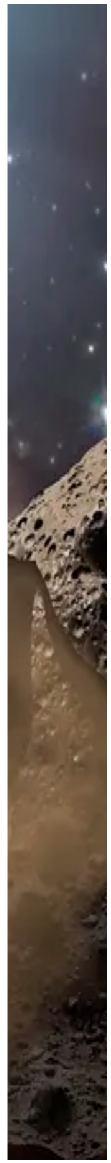
- Kelsie Krafton, Study Director, SSB
- Nancy Connell, Senior Scientist, BLS
- Colleen Hartman, Board Director
- Gaybrielle Holbert, Program Assistant

A Committee of the Space Studies Board

Board on Life Sciences

and

Aeronautics and Space Engineering Board



The Committee on Planetary Protection (CoPP)

CoPP has two primary tasks:

Monitor progress in implementing the planetary protection guidelines associated with priority missions and programs identified in the most recent planetary science decadal survey, and other relevant reports issued by NASEM; and

Serve as a source of information and advice on those measures undertaken by robotic spacecraft and human exploration missions to protect the biological and environmental integrity of extraterrestrial bodies for future scientific studies and the means to preserve the integrity of Earth's biosphere when spacecraft return potentially hazardous extraterrestrial materials to Earth.

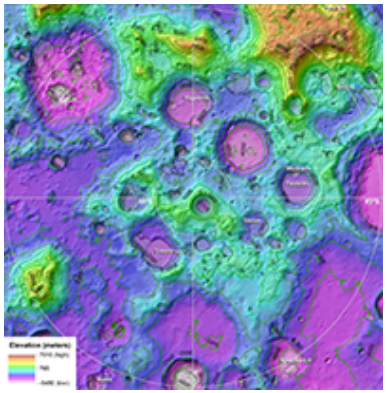
When requested by NASA and as approved by NASEM in accordance with its procedures the committee may write reports detailing progress in areas relating to NASA's planetary protection guidelines or new scientific and technical developments.

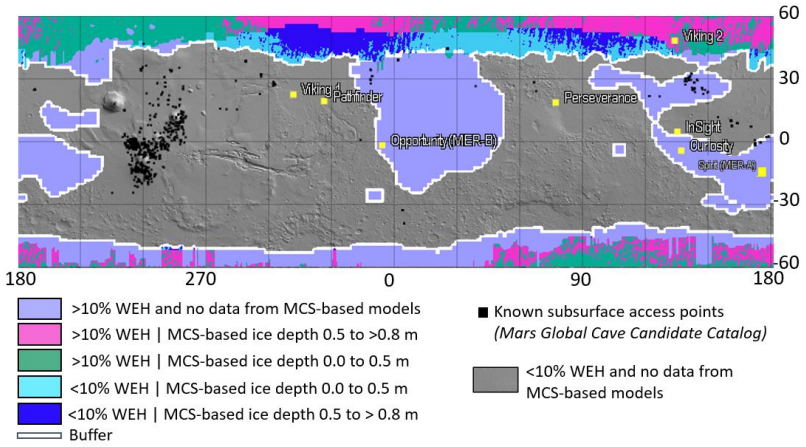
CoPP has secondary functions, among which is:

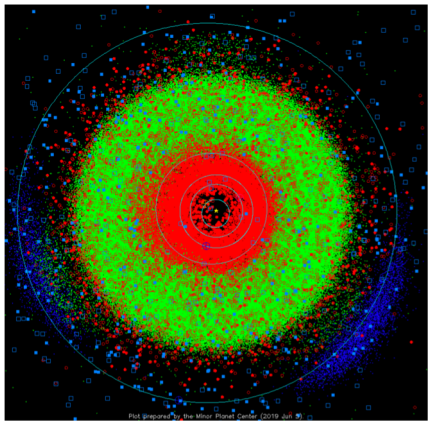
Provide a forum for interactions with the International Science Council's Committee on Space Research

CoPP has completed three studies:

- Planetary Protection for the Study of Lunar Volatiles (2020)
- Evaluation of Bioburden Requirements for Mars Missions (2021)
- Planetary Protection Considerations for Missions to Small Bodies in the Solar System (2023)







October 2023 CoPP meeting

- Report from NASA Office of Planetary Protection
  - Culture change: shift from prescriptive- to performance-based requirements
  - Mission teams propose a categorization and implementation plan
    - OCS report on Dragonfly (J. Green)
- Mars Planetary Protection
  - MSR Independent Review Board (O. Figueroa & L. Pratt)
  - Mars PP & potential connections between MSR & human program (M. Meyer, M. Rucker)
  - MSR PP (B. Clement, M. Ansdell, R. Cook, M. Wadhwa)
    - Thorough concepts for UV sterilization
  - With MSR 'on pause,' we are in a holding pattern vis a vis PP plans
    - What will PP for MSR look like?
    - IRB report points out that UV sterilization is not the industry standard
- Other Planetary Protection-related topics
  - Research (S. Green, D. Smith)
  - COSPAR PPP: icy worlds language + other topics

Topics of interest for next year

- March meeting
  - OPP status on new Standard and other topics
  - Proposed new COSPAR language on icy worlds
  - Current status of MSR
  - PP policies for Mars
    - Including knowledge gaps
  - US regulatory policies
    - Including recent congressional and WH language related to commercial space legislation
- April
  - Participate in PPP workshops