COSPAR

Panel on Planetary Protection (PPP)

15 April 2026

About Planetary Protection and the COSPAR Policy

Protecting scientific investigation is essential in the quest to discover life—both extant and extinct—within our Solar System and beyond. This search, along with efforts to understand the origin and evolution of our Solar System, remains a central motivation for space exploration. Planetary protection measures have advanced since the early 1960s based on peer-reviewed scientific findings implemented in the studies and recommendations made by COSPAR at the international level, particularly to the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS).

The COSPAR Panel on Planetary Protection (PPP) gives scientific advice on the avoidance of organic-constituent and biological contamination introduced by planetary missions. It develops, maintains and promotes the COSPAR Policy on Planetary Protection, a voluntary non-legally binding standard for the

of spacefaring nations to guide compliance with the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (Outer Space Treaty) of 1967. The membership of PPP comprises both representatives of space agencies and independent scientific and engineering experts. This is the only international mechanism set up in response to the call in Article IX of the Outer Space Treaty for appropriate measures against forward and backward contamination.

Planetary Protection measures are based on two rationales:

1. The scientific investigation of the process of chemical evolution and/or the origin of life must not be compromised;
2. Earth must be protected from the potential hazard posed by extraterrestrial matter carried by a spacecraft returning from a planetary mission.

Therefore, requirements for all entities conducting space activities beyond Earth orbit to control organic-constituent and biological contamination apply in accordance with these rationales. The range of planetary protection measures under a categorisation system with implementation guidelines depends on the target body of a specific mission (e.g. Moon, asteroids, Venus, Mars, Europa, Enceladus, etc) and the type of mission (e.g. gravity assist, orbiter, lander, sample return). With continuous new scientific results, the COSPAR Policy on Planetary Protection and associated guidelines need to be adapted regularly, which means that requirements can change with time.

Please see the most recent (2026) Planetary Protection Policy document at: https://cospar.kinoki.fr/wp-content/uploads/2026/01/SRT_224_Editorial_PPP-Nov-2025.pdf

Today, missions to Mars, Europa and Enceladus have to adhere to stringent planetary protection measures to meet the first rationale for planetary protection. Missions that return to Earth with samples from Mars, Europa or Enceladus have to meet not only planetary protection requirements for the outgoing part of the mission but, in line with the second rationale for planetary protection, also strict constraints on the return of samples to Earth.

It is important to point out that no technical planetary protection constraints apply to one-way missions to the Moon or sample-return of lunar resources, although more thorough documentation and organic inventory request applies for missions to the lunar polar regions and to Permanently Shadowed Regions (PSRs) on the Moon.

No planetary protection constraints apply to missions in Earth orbit. Similarly, the COSPAR Policy on Planetary Protection does not apply to the protection of the Moon and other celestial bodies for their own sake, planetary environments or cultural heritage sites, and impact of man-made space objects (i.e. space debris) or large asteroids or comets (i.e. planetary defense).

Find more information in the Sections hereafter.

- **Panel membership**
- **Scope and objectives of the panel on planetary protection**
- **Panel operations**
- **Meetings and associated documents**
- **Documents related to the panel's role and acrtivities**
- **Other informative and related links**
- **PPP Report Archive**

COSPAR Policy on Planetary Protection, approved by the COSPAR Bureau on 7 November 2025.

Current Planetary Protection Standards

COSPAR Panel on Planetary Protection briefing on "**The role of the COSPAR Panel on Planetary Protection**".

Planetary Protection for Safe and Sustainable Space Exploration
Theme Issue of the Royal Society Philosophical Transactions A
Vol 384, Issue 2314, 12 February 2026

Follow the Panel on Planetary Protection on **Facebook**.

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1. Panel Membership

The Panel, led by a Chair with the support of two Vice Chairs, consists in equal numbers, on one hand, of appointed members who represent the national or international authority responsible for compliance with the UN Outer Space Treaty of 1967, and on the other hand, of representatives of COSPAR Scientific Commissions B – Space Studies of the Earth-Moon System, Planets and Small Bodies of the Solar Systems, and F-Life Sciences as Related to Space. The COSPAR Bureau formally appoints the Panel leadership and members.

The Chair of the Panel may not represent a national or international authority responsible for compliance with the UN Outer Space Treaty of 1967, but is chosen for his or her stature as an established leader of international space science, and ability to oversee the expeditious execution of the Panel's responsibilities in such manner that COSPAR is recognized as fulfilling its responsibilities to provide accepted guidelines on planetary protection to guide compliance with the wording of the UN Outer Space Treaty of 1967 and other international agreements. The appointment of the Chair is for four years, and is renewable once.

The two Vice Chairs of the Panel are as follows: one is chosen for his or her detailed knowledge of planetary protection issues and may concurrently represent a national or international authority responsible for compliance with the UN Outer Space Treaty of 1967; one is appointed by the UN Office for Outer Space Affairs (UNOOSA) to ensure that COSPAR is fulfilling its responsibilities under the UN Outer Space Treaty of 1967. The appointment of each Vice Chair is for four years and is renewable once.

Current Membership:

Chair:

- **Athena Coustenis** (Laboratoire d'Etudes Spatiales et d'Instrumentation en Astrophysique, Paris Observatory, CNRS, Meudon, France), 2022 – 2028*, planetology

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Vice-Chairs:

- **Peter Doran** (Dept. of Geology and Geophysics, Louisiana State Univ., Baton Rouge, LA, USA), 2022 – 2028, Hydrogeology, Extreme Environments
- **Niklas Hedman,** 2022 – 2028*, space law

Members Appointed by Space Agencies:

- **Omar Hassan Al Shehhi** (UAE Space Agency, Abu Dhabi, UAE), engineering
- **Eleonora Ammannito** (Italian Space Agency, Rome, Italy), planetology
- **Masaki Fujimoto** (Japan Aerospace Exploration Agency, Institute of Space and Astronautical Science, Kanagawa, Japan), space plasma physics
- **Timothy Haltigin** (Canadian Space Agency), planetary sciences
- **Anand Jain** (Indian Space Research Organisation, Bengaluru, India), engineering science

- **Nataliya Khamidullina** (ROSCOSMOS, Russia), radiation conditions
- **Christian Mustin** (French Space Agency, CNES, France), astrobiology
- **Karen Olsson-Francis** (UK Space Agency, Swindon, United Kingdom), astrobiology, microbiology
- **Jing Peng** (China National Space Administration, Beijing, China), engineering
- **Petra Rettberg** (German Aerospace Center, Institute of Space Medecine, Radiation Biology Dept., Research Group Astrobiology, Cologne, Germany), microbiology, astrobiology
- **Elaine Seasly** (National Aeronautics and Space Administration, Washington, DC, USA), spacecraft contamination control
- **Silvio Sinibaldi** (European Space Agency), astrobiology

Scientists Representing COSPAR Scientific Commissions B and F:

- **Olivier Grasset** (SC B / Nantes Univ., Nantes, France), 2022 – 2026*, geodynamics, planetology
- **Alex Hayes** (SC B / Cornell Univ., Ithaca, NY, USA), 2022 – 2026*, planetology
- **Viacheslav Ilyin** (SC F / Russian Federation State Research Center Institute for Biomedical Programs, Russian Academy of Sciences, Moscow, Russia), 2022 – 2026*, microbiology, medecine
- **François Raulin** (SC F / LISA, Univ. Paris Est, CNRS, Univ. Paris, PSL, Créteil, France), 2022 – 2026*, chemistry, planetology
- **Mark Sephton** (SCs B and F / Dept. of Earth Science and Engineering, Imperial College London, United Kingdom), 2024 – 2028, organic geochemistry
- **Yohey Suzuki** (SC B / Dept. of Earth and Planetary Science, Graduate School of Science, University of Tokyo, Japan), 2022 – 2026, microbiology
- **Jeremy Teo** (SCs B and F / New York University, Abu Dhabi, United Arab Emirates), 2024 – 2028, mechanical and bioengineering
- **Lyle Whyte** (SCs B and F / Faculty of Agricultural and Environmental Sciences, McGill Univ., Canada), 2023 – 2027, polar microbiology or cryomicrobiology, astrobiology, metagenomics
- **Kanyan Xu** (SC F / Laboratory of Space Microbiology, Shenzhou Space Biotechnology Group, Chinese Academy of Space Technology, Beijing, China), 2022 – 2026*, microbiology, biochemistry
- **Maxim Zaitsev** (SC B / Planetary Physics Dept., Space Research Inst. of Russian Acad. of Sciences, Moscow, Russia), 2022 – 2026*, astrochemistry, organic chemistry
- **María Paz Zorzano Mier** (SC B and F / Planetology & Habitability Dept., CAB-INTA, Torrejón de Ardoz, Madrid, Spain), 2025 – 2029, planetology and habitability

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Member Ex-officio:

- **T. Arul Mozhi** (Space Studies Board, US National Academies of Sciences, Engineering, and Medecine)
- **Romana Kofler** (Office for Outer Space Affairs, United Nations, Vienna, Austria)
- **John Reed** (representing the COSPAR Committee on Industry Relations)

**** (after officer term) = second and final term in the office indicated***



COSPAR Panel on Planetary Protection Meeting Participants Visit DLR, Köln, Germany, 14- 16 April 2025

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2. Scope and Objectives of the Panel on Planetary Protection

The Panel on Planetary Protection (PPP) is concerned with biological interchange in the conduct of solar system exploration and use, including: (1) possible effects of contamination of planets other than the Earth, and of planetary satellites within the solar system by terrestrial organisms; and (2) contamination of the Earth by materials returned from outer space carrying potential extraterrestrial organisms. The primary objective of the Panel within COSPAR is to develop, maintain, and promulgate clearly delineated policies that provide specific requirements as to the standards that must be achieved to protect against the harmful effects of such contamination. These policies must be based upon the most current, peer-reviewed scientific knowledge, and should be based upon the principle that COSPAR planetary protection policies should enable the exploration and use of the solar system, not prohibit it. It is not the purpose of the Panel to specify the means by which adherence to the COSPAR planetary protection policy is achieved; the best and most cost effective means to adhere to the COSPAR planetary protection requirements is reserved to the engineering judgment of the organization responsible for the planetary mission, subject to certification of compliance with the COSPAR planetary protection requirements by the national or international authority responsible for compliance with the UN Outer Space Treaty. However, the Panel should make every effort, through symposia, workshops, and topical meetings at COSPAR Assemblies, to provide an international forum for the exchange of information on the best practices for adhering to the COSPAR planetary protection requirements. Through COSPAR the Panel will inform the international community, e.g., the Committee on the Peaceful Uses of Outer Space (COPUOS) of the United Nations, as well as various other bilateral and multilateral organizations, of policy developments on planetary protection.

"**The COSPAR Panel on Planetary Protection Role, Structure and Activities**," published in *Space Research Today*, Number 205, August 2019

What is planetary protection ?

See the relevant **Open University page**.

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3. Panel Operations

Overview of Panel on Planetary Protection (PPP) Activities

The Chair of the Panel will convene all official meetings of the Panel, the purpose of which is to continuously consider and evaluate the best available scientific knowledge of the risks of forward and backward contamination and the most expeditious means to avoid such contamination, and to discuss and propose to the Bureau and Council for adoption, as needed, updates and revisions of the COSPAR Planetary Protection Policy. The Chair will determine the agenda for the meeting, soliciting inputs from the Vice Chair(s) and members. The announcement of an official meeting of the Panel will be made at least two months in advance, and when possible will occur in concert with COSPAR Assemblies, Symposia, and/or Bureau meetings to encourage maximum attendance. In special circumstances, meetings, and the discussions and determination of recommendations, can be held electronically. When possible, the official meetings of the Panel will be held in conjunction with an open meeting at which experts on planetary protection who are drawn from representatives of COSPAR's National Scientific Institutions, International Scientific Unions, and COSPAR Scientific Commissions, as well as any interested scientists, engineers and industry representatives, can discuss and offer their opinions on matters being considered by the Panel. When decided by the Panel, the official Panel meeting will also be held in a closed session in addition to the open session. The COSPAR Executive Director can be invited *ex officio* to the official meeting of the Panel.

The Chair of the Panel is also responsible for ensuring that the Panel informs the international community, e.g., the Committee on the Peaceful Uses of Outer Space (COPUOS) of the United Nations, as well as various other bilateral and multilateral organizations, of the COSPAR Planetary Protection Policy.

Reports of Panel activities, and any recommendations for modification of the COSPAR Planetary Protection Policy, are made to the COSPAR Bureau and Council.

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4. Meetings and Associated Documents

Upcoming Meetings:

- **46th COSPAR Scientific Assembly** Planetary Protection events:

COSPAR-26-PPP.1: Planetary Protection Policy

COSPAR-26-PPP.2: Planetary Protection Research and Development

COSPAR-26-PPP.3: The Future of Planetary Protection for Mars

Recent Past Meetings:

- **COSPAR Planetary Protection Week, Athens, Greece, 20-22 January 2026.**

  The COSPAR Planetary Protection Panel and other PP Officers and representatives from 11 space agencies, along with private companies assembled in Athens, Greece, 20-22 January 2026 to discuss Planetary Protection issues.

  The COSPAR Planetary Protection Meeting, included open and closed sessions, and hybrid attendance. More than 100 participants attended both in person and on-line. The meeting was hosted by the Hellenic Space Center (HSC): .https://hsc.gov.gr/en/home/ and co-sponsored by the National Observatory of Athens (https://www.noa.gr/) and the Evgenides Foundation where it was located (https://www.eef.edu.gr/en/).

  Program

  Presentations:

  CNSA:

  Chinas Mars Sample Return Mission(TW-3)

  CSA:
  2026-01 PPP IMEWG MSSPAH Overview_R1
  2026-01-PPP_CSA-Activities_pdf

  ESA:
  ESF MSR study 2025 1_for publication to COSPAR
  3.Metagenomics_ESA_
  ESA_updates_COSPAR_Pdf
  Testing the hypothesis ‘planetary protection is expensive’_Pdf

  HSC:

  2026-01-20-HSC Overview

  JAXA:
  2026_0115_1-1_JAXA_PP_Review_Organization
  2026_0115_2-1_Status_for_pre-launch_PP_Review
  2026_0115_2-2_PP activity for outward request (risk reduction activities)

2026_0115_2-3-a_PP activity for return request status of regolith contamination and probability analyses_

2026_0115_2-3-b_PP activity for return (ISTandRST)

2026_0115_3-1_MMX_PP_MTG_PP Clean Room_Kimura

NASA:

NASA Sample Return and Curation Activities COSPAR Jan 2026_v2

COSPAR NASA PRA Approach_Jan 2026_v2

COSPAR PPP – NASA Update – Jan 2026

Spry COSPAR PPP Spring 2026 Final

NASEM:

COSPAR PPP Briefing Slides Jan 2026

Individual:

PP_DNA_Zorzano

260121 COSPAR PPP_Schrogl

COSPAR PP Panel 21 Jan 2026_Tennen

- COSPAR Panel on Planetary Protection Meeting, 14 – 16 April 2025, open and closed sessions, Köln, Germany
    - Presentations:
        - Athena Coustenis – **Chair's Presentation**
- COSPAR Panel on Planetary Protection, virtual **Executive Meeting**, members and invited guests only, Thursday 12 December 13.30-19.00 CET
    - Presentations:
        - Athena Coustenis – **Chair's Presentation**
        - Timothy Haltigin – **CSA Updates**
- **Sessions** at the 45th COSPAR Scientific Assembly, 13 – 21 July 2024, Busan, South Korea
- **COSPAR Planetary Protection Week,** 22-25 April 2024, the Royal Society, London UK, hosted by AstrobiologyOU and funded by the UK Space Agency as part of the International Bilateral Fund. See also the Open University page on the **International Planetary Protection Week** for additional background.
    - Silvio Sinibaldi – **ESA Planetary Protection Updates**
    - Athena Coustenis – **Recent activities of the COSPAR Panel on Planetary Protection**
    - Peter Doran – **Planetary Protection of Icy Worlds**
    - Peter Doran – **Limits of Life (LOL)**
    - Kanyan Xu – **Planetary Protection in China's Deep Space Exploration**
    - Jing Peng – **The Latest Updates of China Deep Space Exploration**
- COSPAR Panel on Planetary Protection Meeting, 6 – 7 December 2023, open and closed sessions, Vienna, Austria

    - **Agenda**, open session
    - **Minutes**
    - Presentations:
        - **COSPAR PPP Activities**
        - **JUICE Mission Overview and Planetary Protection Approach**
        - **EXOMARS Planetary Protection Implementation**
        - **Planetary Protection of Icy Worlds**
        - **Planetary Protection Requirements for Future Exploration of Ceres: State of Understanding after the Dawn Mission**
        - **Report of the NASEM Committee on Planetary Protection**
        - **ISRO'S Planetary Programs**
- COSPAR Panel on Planetary Protection, Executive Meeting, members and invited guests only, 25-26 April 2023, Vienna, Austria
    - **Agenda**
- COSPAR Panel on Planetary Protection Meeting, 19 – 20 December 2022, open and closed sessions, hybrid, Vienna, Austria
    - **Minutes**
- COSPAR Panel on Planetary Protection Meeting, 20 – 22 July 2022, Athens, Greece
    - **Minutes**
- COSPAR Panel on Planetary Protection, Executive Meeting, 22 February 2022. Executive (closed) session only.
- COSPAR Panel on Planetary Protection, Plenary Meeting, 20 October 2021
    - Meeting Presentations
        - **COSPAR_PPP_Oct2021 – Chair's Presentation**
        - **NASA Status Report**
        - **NASA Planetary Protection Status**
        - **Venus Presentation**
        - **NASA Venus Missions**
        - **Evolution of Planetary Protection Requirements for Missions to Mars_COSPAR PPP_October 2021**
        - **Evaluation of Mars Bioburden Requirements – CoPP – COSPAR-Briefing**
- COSPAR Panel on Planetary Protection, Plenary Meeting, 15 February 2021
- COSPAR Panel on Planetary Protection, Executive Meeting, 13 November 2020
- COSPAR Panel on Planetary Protection, Plenary Meeting, 17 June 2020
- COSPAR Panel on Planetary Protection, Plenary Meeting, 3-4 December 2019
    - **Minutes**
    - **Recommendations**
- COSPAR Panel on Planetary Protection, Plenary Meeting, 23-24 January 2019
    - **Minutes**
    - **Recommendations**



COSPAR Panel on Planetary Protection Meeting, Köln, Germany, 14- 16 April 2025

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5. Documents Related to the Panel's Role and Activities:

- **Coustenis, A., Hedman, N., Doran, P.T., Al Shehhi, O., Ammannito, E., Fujimoto, M., Grasset, O., Groen, F., Hayes, A., Ilyin, V., Kumar, K. P., Morisset, C-E., Mustin, C., Olsson-Francis, K., Peng, J., Prieto Ballesteros, O., Raulin, F., Rettberg, P., Sinibaldi, S., Suzuki, J., Xu, K., Zaitsev, M.,** 2023. Planetary Protection: an international concern and responsibility. *Front. Astron. Space Sci*. 10:1172546. doi: 10.3389/fspas.2023.1172546
- **Doran, P., Hayes, A., Grasset, O., Coustenis, A., Prieto-Ballesteros, O., Hedman, N., Al Shehhi, O., Ammannito, E., Fujimoto, M., Groen, F., Moores, J.E., Mustin, C., iaccis, K., Peng, J., Praveenkumar, K., Rettberg, P., Sinibaldi, S., Ilyin, V., Raulin, F., Suzuki, Y., Xu, K., Whyte, L.G., Zaitsev, M., Buffo, J., Kminek, G., Schmidt, B.,** 2024**.** The COSPAR planetary protection policy for missions to Icy Worlds: A review of history, current scientific knowledge, and future directions. *LSSR*, **41**, 86–99. DOI: **https://doi.org/10.1016/j.lssr.2024.02.002**.

- Editorial to the New Restructured and Edited COSPAR Policy on Planetary Protection. **Ehrenfreund, P., Worms, J.-C., Coustenis, A., Doran, P., Hedman, N., Al Shehhi, O., Ammanito, E., Fujimoto, M., Grasset, O., Groen, F., Hayes, A., Ilyin, V., Kumar Kuttanpillai, P., Moores, J., Mustin, C., Olsson-Francis, K., Peng, J., Prieto Ballesteros, O., Raulin, F., Rettberg, P., Sephton, M., Sinibaldi, S., Suzuki, Y., Teo, J., Whyte, L., Xu, K., Zaitsev, M.,** 2024. *Space Research Today* **220**, July 2024, 10-13. COSPAR Policy : **https://issuu.com/cosparspaceresearchtoday/docs/space_research_today_220**. pp. 14-36.
- **Zorzano Mier, M. P., Olsson-Francis, K., Doran, P., Rettberg, P., Coustenis, A., Ilyin, V., Raulin, F., Kminek, G., Hedman, N., Al Shehhi, O., Ammannito, E., Bernardini, J., Fujimoto, M., Grasset, O., Groen, F., Hayes, A., Gallagher, S., Kumar, P., Mustin, C., Nakamura, A., Seasly, E., Suzuki, Y., Peng, J., Prieto Ballesteros, O., Sinbaldi, S., Xu, K., Zaitsev, M.**, 2023. The COSPAR Planetary Protection Requirements for Space Missions to Venus. *Life Sciences in Space Research,* Vol. 37, 18–24. **https://doi.org/10.1016/j.lssr.2023.02.001**
- **Olsson-Francis, K., Doran, P., Ilyin, V., Raulin, F., Rettberg, P., Kminek, G., Zorzano Mier, M. P., Coustenis, A., Hedman, N., Al Shehhi, O., Ammannito, E., Benardini, J. N., Fujimoto, M., Grasset, O., Groen, F., Hayes, A., Gallagher, S., Kumar, P., Mustin, C., Nakamura, A., Seasly, E., Suzuki, Y., Peng, J., Prieto Ballesteros, O., Sinbaldi, S., Xu, K., Zaitsev, M.**, 2023. The COSPAR Planetary Protection Policy for missions to Mars: ways forward based on current science and knowledge gaps. *Life Sciences in Space Research,* Vol. 36, p. 27-35. **https://doi.org/10.1016/j.lssr.2022.12.001**
- **Meet a team of scientists working to prevent interplanetary pollution that could pose a threat to life on Earth and other planets**, Frontiers, 4 July 2023
- **Planetary protection: an international concern and responsibility**, Frontiers, 30 May 2023, Volume 10 – 2023
- **Coustenis, A., Hedman, N., Doran, P.T., Al Shehhi, O., Ammannito, E., Fujimoto, M., Grasset, O., Groen, F., Hayes, A., Ilyin, V., Kumar, P., Morisset, C-E., Mustin, C., Olsson-Francis, K., Peng, J., Prieto Ballesteros, O., Raulin, F., Rettberg, P., Sinibaldi, S., Suzuki, J., Xu, K., Zaitsev, M.**, 2023. Planetary Protection: updates and challenges for a sustainable space exploration. *Acta Astronautica*, 210, 446-452. **https://doi.org/10.1016/j.actaastro.2023.02.035**
- **COSPAR Panel on Planetary Protection Briefing to the NASEM CoPP on 30 November 2021 : Presentation**
- **Fisk, L., Worms, J.-C., Coustenis, A., Hedman, N., Kminek, G., Ammanito, E., Doran, P., Fujimoto, M., Grasset, O., Green, J., Hayes, A., Ilyin, V., Kumar, P., Nakamura, A., Olsson-Francis, K., Peng, J., Prieto Ballesteros, O., Raulin, F., Rettberg, P., Viso, M., Xu, K., Zaitsev, M., Zorzano Mier, M.-P.**, 2021. Introductory Note to the June 2021 and Update of the COSPAR Policy on Planetary Protection. *Space Research Today* 211, Août 2021, 9-25, **https://doi.org/10.1016/j.srt.2021.07.009** and Policy : **https://doi.org/10.1016/j.srt.2021.07.010**
- **Coustenis, A., Kminek, G., Hedman, N.,** 2019. **The Challenge of Planetary Protection**. *ROOM Journal,* issue #2(20), June 2019, 44-48.

- **Coustenis, A., Kminek, G., Hedman, N., Ammanito, E., Deshevaya, E., Doran, P.T., Grasset, O., Green, J., Hayes, A., Lei, L., Nakamura, A., Prieto-Ballesteros, O., Raulin, F., Rettberg, P., Sreekumar, P., Tsuneta, S., Viso, M., Zaitsev, M., Zorzano-Mier, M.-P.,** 2019. The COSPAR Panel on Planetary Protection role, structure and activities. *Space Res. Today* 205**, https://doi.org/10.1016/j.srt.2019.06.013**.
- **Raulin, F., Coustenis, A., Kminek, G., Hedman, N.,** 2019. Preface to the special issue "Planetary protection: New aspects of policy and requirements". *Life Sci. Space Res.* 23, 1-2. And also see the whole issue.
- **Fisk, L., Worms, J-C., Coustenis, A., Hedman, N., Kminek, G.,** 2020**.** Introduction to the new COSPAR Policy on Planetary Protection. *Space Res. Today* 208, August 2020.
- **The COSPAR Panel on Planetary Protection**, 2020. COSPAR Policy on Planetary Protection. *Space Res. Today* 208, August 2020, Pages 10-22. **https://doi.org/10.1016/j.srt.2020.07.009**.
- **The COSPAR Panel on Planetary Protection,** 2020. **Planetary Protection Policy: For sustainable space exploration and to safeguard our biosphere**. *Research Outreach* 118, 126-129. DOI: 10.32907/RO-118-126129.
- **Planetary Protection Category & Requirements for Missions to the Moon**

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6. Other Informative and Related Links:

- "**Planetary Protection: an international concern and responsibility**", Frontiers, May 2023
- "**Fly me to the moon: Securing potential lunar water sites for research**," Open Access Government, September 2021
- **To boldly go where no germs will follow: The role of the COSPAR Panel on Planetary Protection**," Open Access Government, July 2021
- Watch the new video from COSPAR's Planetary Protection Panel:

- Planetary Protection of Outer Solar System (PPOSS project) PP handbook: **background** and **handbook**
- **International Space Exploration Coordination Group (ISECG) Science White Paper**
- **NASA-OSMA planetary protection web page**
- **NATURE article on planetary protection for the Moon, January 2021**

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7. PPP Report Archive

Click here to view PPP report archive

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