

COSPAR

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COMMITTEE ON SPACE RESEARCH

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COSPAR PANEL ON PLANETARY PROTECTION

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<https://cosparhq.cnes.fr/scientific-structure/panels/panel-on-planetary-protection-ppp/>

COSPAR Panel on Planetary Protection Meeting

(During the COSPAR GA, Athens, Greece)

20-22 July 2022

The COSPAR PPP convened several Sessions around the theme of Planetary Protection during the General Assembly dates of 20-22 July:

PPP.1 Policy (Conveners: A. Coustenis & N. Hedman):

20 July 2022, 14:30 - 16:00 (Chair: A. Coustenis)

20 July 2022, 16:30 - 18:00 (Chair: P. Doran)

21 July 2022, 09:30 - 11:00 (Chair: G. Kminek)

21 July 2022, 11:30 - 13:00 (Chair: N. Hedman)

Also, PPP.1 included discussion parts on 21 July, 2022

PPP.2 PP Mission Implementation and Status: 22 July from 9:30-13:00 (Conveners: M. Fujimoto & G. Kminek)

PPP.3 Research and Development: 22 July from 14:30-18:00 (Conveners: P. Rettberg & P. Doran)

Further, COSPAR organized a PPP Meeting, with an Open and a Closed session on 21 July and a Business Meeting on 22 July 2022. Some notes from these meetings are included hereafter.

PPP Meeting. Thursday 21 July (14:30-16:30)

Open Session

PARTICIPANTS

PANEL MEMBERS

Attending in person

Athena COUSTENIS, Panel Chair
Niklas HEDMAN, Panel Vice-Chair
Peter DORAN, incoming Panel Vice-Chair
Sarah GALLAGHER
Alex HAYES
Praveen KUMAR KUTUANPILLAI
Karen OLSSON-FRANCIS
Petra RETTBERG
Colleen HARTMAN, Ex-Officio Member
Frank GROEN
Silvio SINIBALDI

Attending remotely

Christian MUSTIN
Francois RAULIN
Kanyan XU
Jing PENG
Michael NEWMAN, Ex-Officio Member
María Paz ZORZANO MIER
Olga PRIETO BALLESTEROS

INVITED GUESTS/SPEAKERS

Nick BENARDINI
Elaine SEASLY
Amanda HENDRIX, CoPP Co-Chair
Jean-Claude WORMS, COSPAR Executive Director

ATTENDEES

COSPAR 2022 GA participants

1. Introduction and purpose of the meeting

A. Coustenis opened the meeting, welcoming all participants, and presented some recent activities of the PPP to inform the community and set the scene for more discussion.

A presentation is available on the COSPAR web site.

Coustenis thanked the past Chair and Vice-Chair of the Panel, Gerhard Kminek, and gave him the floor to say a few words of advice and expertise. She introduced the new Vice-Chair, Peter Doran who also presented himself.

2. Lunar new PP Policy

In particular, the Chair mentioned the new sub-categories for the Moon, to prevent landers from contaminating the poles and the PSRs. This topic was supported by ESA and NASA representatives. The Panel responded to questions from the audience concerning the PP requirements for the Artemis Mission and other commercial/private sector projects.

N. Hedman and M. Newman presented information from the COPUOS perspective and also information on the Space resources activities.

The audience enquired about requirements that would be put in place after habitation of the Moon, but this topic requires more studies by the space agencies.

3. Mars exploration and PP requirements

P. Doran and K. Olsson-Francis presented the recent Panel considerations of available scientific inputs for martian robotic missions. An article was submitted for the Panel's findings to LSSR.

The audience had many questions on human exploration knowledge gaps which is being discussed in a COSPAR-NASA co-sponsored series of workshops, organized by A. Spry, B. Siegel and G. Kminek and which will issue a report later in the year.

4. Venus exploration

The Panel presented a study of current scientific knowledge of Venus clouds possible habitability led by M-P. Zorzano Mier which does not favor this theory.

Indeed, M-P Zorzano Mier recalled the report of September 2020 on potential phosphine in the cloud decks of Venus and she reviewed, inter alia, water and temperature as habitability requirements. She also reported that the water level is orders of magnitude lower than any known terrestrial limit for life. The PPP subcommittee finds that Venus poses no concern for planetary protection because "life as we know" from Earth could not proliferate there.

The finding is based on the existing measurements Venus clouds are not special regions. Due to the low level of water in the clouds where the temperatures are mild enough, life as we know, would not be able to replicate there even if there were nutrients available (and protection from radiation, sulfuric acid etc). The recommendation is: Unless there are new measurements that demonstrate water activity > 0.6 (RH $> 60\%$), Venus clouds are not a concern for planetary protection. They are of course extremely interesting for planetary science, including atmospheric chemistry, P cycle, etc. which should be studied by future missions, but that there is no need to change the current categorisation of Venus missions and the related requirements.

The audience offered a comment on some additional information about the water activity that could be included in the models coming from Pioneer data.

Since then, a paper was published in LSSR on the findings of the Panel.

5. Icy Moons

A new study is being conducted within the Panel by a subcommittee appointed by the Panel and led by P. Doran for adapting the PP Policy for Icy moons based on recent discoveries. The subcommittee will investigate possible adaptation of the COSPAR PP Policy for some of the outer solar system moons, but not affecting Titan or Ganymede or any of the already flying or close to launch missions.

The audience evoked the status of Ceres which needs to be investigated further. As concerns Europa Clipper, the suggestion was made to look more into the bioburden requirements.

6. Other matters and future prospects

The Panel informed the attendance of the next COSPAR GA meeting in Busan in 2024 where PPP will continue to convene the sessions related to PP and invited suggestions from the participants for new sessions or topics.

The Panel also mentioned its future meetings in 2022 and 2023 (both Open and Executive meetings).

PPP Business meeting : **Friday 22 July 13:00-14:30 (approx)**

The Panel Business meeting assembled a good number of attendees and the agenda that was presented and the topics of discussion included:

- members and policy updates
- role of COSPAR and COPUOS
- report on the sessions
- planning for future sessions / workshops

The Panel's activities had been presented in Session PPP.1

Interested attendees offered comments in particular for the PPP sessions and possible future studies and workshops.

A. Coustenis thanked everyone for their engaged participation and closed the meeting.

Presentations from the meetings can be found at the Panel's web site:

<https://cosparhq.cnes.fr/scientific-structure/panels/panel-on-planetary-protection-ppp/>