

Proposal for Forming an IAA Study Group **SG 3.20**

Title of Study:

**Expanding Options for Implementing Planetary Protection
during Human Space Exploration**

(This is Project 1.5.3 within the Human Spaceflight Coordinating Group)

Proposer(s):

Catharine A. Conley, Ph.D., NASA Headquarters, Washington DC

Primary IAA Commission Preference:

Commission 3: Space Technology & Systems Development,

Secondary IAA Commission Interests:

Commissions 2, 5

Members of Study Team

Chair(s):

Catharine A. Conley, NASA Headquarters, Washington, DC, USA

Secretary:

Margaret Race, SETI Institute, Mountain View, CA, USA

Other Members:

Accepted:

Richard Heidmann, France

Andy Spry, NASA-JPL, USA

John. D. Rummel, East Carolina University, NC, USA

Gao Zhaohui, CALT, China

To be confirmed:

Petra Rettberg, DLR, Germany

Charles Cockell, Open University, England

John B. Charles, NASA-JSC, USA

François Raulin, University of Paris, France,

Pascale Ehrenfreund, GWU Space Policy Inst, Austria

additional members anticipated

Short Description of Scope of Study

Overall Goal:

(Expected scientific or practical benefit of the study group's efforts)

The vast majority of objects in the solar system are not able to be contaminated by Earth life, and therefore operations at those objects are not constrained by planetary protection: the known exceptions are Mars, Europa, and Enceladus. Guidelines for planetary protection on human missions to Mars have been established by the Committee on Space Research of the International Council for Science; however, detailed engineering constraints and processes for implementation of these guidelines have not yet been developed. Planetary protection for human missions will often be supportive of other mission needs, such as maximizing closed-loop and recycling capabilities to minimize mass required, and minimizing exposure of humans to planetary materials for multiple health reasons – in addition to minimizing contamination of planetary samples and environments for science purposes. The overall objective of this study is to engage human mission developers in exploring approaches by which planetary protection objectives can be accomplished through engineering or operational constraints, to the greatest extent possible in synergism with other mission constraints.

Intermediate Goals:

A near-term objective of this study will be to provide input to the 2014 Heads of Agencies Summit regarding potential options to develop of technical and engineering capabilities for implementation of planetary protection in the context of mission operations. Agreement at international level regarding implementation activities is necessary to ensure that one organization does not release contamination that could interfere with other agencies' interests, in accordance with the 1967 Outer Space Treaty.

Methodology:

(Email works, workshops, stand alone conferences, interim publications, etc.)

Hold regular electronic meetings of the study group. Agree to specific assignments and deadlines once the work outline has been finalized. The study is a volunteer effort, but will be managed by the Study Chair and Secretary, with clear understanding and acceptance of roles and responsibilities

Time Line:

(Cannot exceed three years)

Preparatory study March, 2013 to Dec. 2013—with report reviewed and accepted in advance of Head of Agencies Summit, Jan. 2014, Washington DC
Follow-on study, Feb. 2014-Dec 2015

Final Product (Report, Publication, etc.):

Study Report on Planetary Protection and Human Space Exploration—to be published by IAA or other sponsor
Publication of report information in appropriate journal(s)
Interim information to be presented at IAC 2013 in Beijing

Target Community:

- Commercial space, scientific, technical and business communities
- Space policy makers and officials responsible for assuring compliance with COSPAR policies beyond LEO and GEO
- Engineering, technical, medical and operations groups associated with human mission planning beyond Earth orbit (Moon and other celestial bodies)

Support Needed:

None identified at this time.

Potential Sponsors:

TBD

To be returned to the IAA Secretary General Paris

by email: sgeneral@iaamail.org

Date: Feb. 26, 2012

(No Signature required if document authenticated).

Follow-up Section for IAA use only

Initial Phase

Application received:

27 February 2013

Commission Approved:

27 February 2013

SAC Approved:

Web Site Section opened:

Members Formally Appointed by IAA:

Final Phase

Peer Review by Commission Completed:

Recommended by the Commission:

Final Report Received:

SAC Approved:

BOT Accepted:

Publisher Selected:

Study Published: