

IAA, Paris, Feb 2009

-1-

Instructions and application form: see: "Scientific Activity" section at <http://iaaweb.org/content/view/256/393/>

Proposal for Forming an IAA Study Group

Title of Study: Global Human Exploration – The Next Steps

Proposer(s): Wendell Mendell, Maria Antonietta Perino, Christian Sallaberger

Primary IAA Commission Preference: Commission 3

(From Commission 1 to Commission 6)

Secondary IAA Commission Interests: Commissions 5, 1, and 2

(From Commission 1 to Commission 6)

Members of Study Team

Chairs:

Wendell Mendell (co-chair)

Maria Antoinette-Perino (co-chair)

Secretary:

To be identified

Other Members:

Christian Sallaberger

Scott Hovland

John Logsdon

S. Ramakrishnan

Alain Dupas

Giuseppe Reibaldi

John C. Mankins

Others to be identified*

* Note: the study group will make a particular effort to involve younger professionals in the effort.

IAA, Paris, Feb 2009

-2-

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Short Description of Scope (including a brief background for the study effort)

A general consensus exists that human exploration of the solar system is the next great challenge to the international community of space agencies. One important school of thought holds that a program of lunar exploration and development can be the first stage of expansion of human activities into the solar system. The principal objectives of the study will be to outline and define issues with planning for human exploration beyond low Earth orbit, comprising (a) technical issues, (b) human health and capability related issues, and (c) law and policy related issues.

The report will begin with a discussion of the rationales and drivers associated with the justification of extended human exploration. The history of plans and projects will be reviewed. Programmatic objectives will be categorized and discussed, including such characteristics as serving national political goals.

Possible system architectures will be identified and the attributes of each assessed. The advantages and disadvantages of each will be expressed in the context of potential programmatic objectives. The architectures will include space transportation systems, lunar surface elements, and philosophies of operations. Attributes will include mass flow, operational cost, difficulty of establishing the initial configurations, and the effect of advances in certain key technologies. The utilization of the International Space Station for human research and potential in-space operations will be included.

Also important are discussion of the agents of exploration, i.e., governmental entities or commercial entities. Should the effort succeed in producing an ongoing and steady flow of activities, coordination and/or regulatory regimes will be necessary. With a stable (albeit small) population of humans and machines on the surface of the Moon or in cislunar space, commercial and economic issues can arise such as the exploitation of material resources. With international involvement legal issues come to fore, and examples of these will be discussed. Lessons learned from the ISS program will be incorporated.

Overall Goal:

(clearly state the expected scientific or practical benefit of the study group's efforts)

The principal goal of this effort will be production of a documented baseline reference on the characteristics of a program of human exploration and the consequences of various technical choices, with an emphasis on the next steps – near term actions necessary to realize an ambitious future of human exploration beyond LEO. Conversations between nations on mutual cooperation and interaction can be made more efficient if all parties work from an understood set of assumptions.

Intermediate Goals:

The organization of the study will be modular, initially separating various elements for analysis. Each of the major elements (e.g., transportation, lunar surface operations, legal regimes) will form the subject of conference sessions, thereby inviting broad participation from various communities of specialization. Once the modules are mature in their concepts and content, they will be integrated into a narrative that will provide a top-level

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-3-

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presentation of the overall problem with references to more detailed discussions in the conference literature or the historical literature.

Methodology:

An outline of the final report will be prepared, and the major topical elements will be identified. Each element will be assigned to lead editor, who will be responsible for coordinating inputs, including membership of other IAA Commissions. At a time to be determined in the process, each element will be the topic either for a session at a major professional conference or for a small topical workshop. Based on the inputs of the conferences or workshops, the module will be updated, using proceedings as a reference source for detailed future research. A final workshop will be organized to prepare the final draft of the complete report over two and a half days of dedicated time. The report draft will be delivered to the IAA for review.

Time Line:

First Draft – October 2010
Study Group Workshop No. 1 – Spring 2010
Study Group Workshop No. 2 – Spring 2011
Final Report – October 2011

Final Product (Report, Publication, etc.):

The final product will be an IAA publication.

Target Community and Expected Effects:

The target community consists of international space agencies, government space policy specialists, and private sector entrepreneurs.

Support Needed:

Some modest support will be required; details will be provided subsequently.

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-4-

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Potential Sponsors:

Potential sponsors will include NASA, ESA, JAXA, ISRO, other space agencies and various space companies.

To be returned to the IAA Secretary General Paris by fax: 33 1 47 23 82 16 or by email: sgeneral@iaamail.org

Date:

No Signature required if document authenticated.

IAA, Paris, Feb 2009

-5-

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Follow-up Section for IAA use only

Initial Phase	
Application received:	
Commission Approved:	
SAC Approved:	
Web Site Section opened:	
Members Appointed:	

Final Phase	
Peer Review by Commission Completed:	
Recommended by the Commission:	
Final Report Received:	
SAC Approved:	
BOT Accepted:	
Publisher Selected:	
Study Published:	