

IAA Commission 1 ‘Space Physical Sciences’ Meeting
Sunday, 1 October 2006, 9:00 am, Valencia, Spain
Minutes of meeting

Meeting Attendance:

Stamatios Krimigis (chair), Nickolay Smirnov (secretary), Marie-Lise Chanin, Robert Farquhar, Bernard Foing, Ralph Jaumann, Valery Korepanov, Vladimir Kuznetsov, Claudio Maccone, Ralph McNutt, K. Tono Uesugi, Francisco Valero, Ji Wu, Koujun Yamashita.

Agenda:

1. Welcome, apologies and adoption of agenda Chair
2. Minutes from Paris meeting March 2006 and Beijing meeting July 2006
3. Report on IAA Day at COSPAR , Beijing, July 2006 Chair
4. Program for 57th IAC, Valencia, Spain, October 2006 All
- Highlight Lectures/Plenary events
5. Study Group activities
 - 5.1 Ongoing studies: SETI (S1.3) SETI representative
 - 5.2 Ongoing studies: ‘The Next Steps...’(S1.4) Bob Farquhar
 - 5.3 Ongoing studies: Mars Radiation Envir.(S1.5) Susan McKenna-Lawlor
6. Status of any plans for IAA Conferences in 2007 – 2008 All
7. Strategic discussion:
 - 7.1 Engaging more members in IAA activities
 - 7.2 Engaging new elected members
 - 7.3 Acquiring younger potential members
8. Discussion of Commission 1 officer succession for Oct 2007 All
9. Next meeting in Paris, March 2007
10. Any Other Business

1. Welcome

Stamatios Krimigis was chairing the meeting due to absence of Commission 1 Chair and Vice-Chair. He warmly welcomed the attendees. Participants introduced themselves.

2. Minutes from Paris meeting March 2006 and Beijing meeting July 2006

Minutes from Paris meeting were approved. There were no minutes from Beijing because Commission 1 meeting did not take place there.

3. Report on IAA Day at COSPAR , Beijing.

That was approved.

4. Program for 57th IAC, Valencia, Spain, October 2006.

An LBN (Late Breaking News) session was organized for the Congress on Smart-1 mission and Lunar impact with Commission 1 members Bernard Foing as a key lecturer and Nickolay Smirnov as session coordinator on the stage of the event preparation.

5. Study group activities

5.1. Ongoing studies: SETI (S1.3) Permanent Study Group.

Claudio Maccone reported. The study is going on. Two main questions under investigation should be emphasized.

First, is it necessary to respond if we detect a message from some place of the Universe? As the old saying says “When being alone in the forest, it is better to listen than to shout”.

Second, if we could have a radio-telescope located on the far side of the Moon, it would be shielded by the Moon from Earth radiation in the radio frequency band, which usually makes radio-telescopes half blind. **Thus Claudio Maccone suggested to write a position paper on the necessity of “protecting the far side of the Moon for scientific purposes”.**

In a follow on discussion Bernard Foing pointed out the necessity of emphasizing the constraints associated with this issue for future orbital missions at the Moon, and accumulating scientific recommendations from COSPAR and other bodies.

Robert Farquhar pointed out the necessity to announce frequencies, which should not be used by other missions to avoid interfering radio-telescope activities.

Tom Krimigis suggested an action item for Dr. Maccone to collect more information on the topic and report it at the next meeting in Paris in March 2007.

5.2 Ongoing studies: “The Next Steps for Human Space Exploration: What are the Alternatives?” (S1.4)

Report on the current status was prepared by Bob Farquhar.

The precursor IAA Study was “The next steps in exploring deep space”, which began in 2000. First interim report was presented at the IAA Plenary in Houston in October 2002. There was a special session held in Bremen IAC, October 2003. Final report was completed in July 2004. Published in Acta Astronautica in April 2006.

The current study was proposed in March 2006 as a follow on project.

The Primary IAA Commission Preference: Commission One, Space Physical Sciences

Secondary IAA Commission Interests: Commission Three, Space Technology & System Development; Commission Four, Space System Operation & Utilization.

Members of Study Team:

Chair: Robert Farquhar*

Joe Veverka (Science Lead)	Cornell University
Ben Clark*	Lockheed Martin
David Dunham	Applied Physics Laboratory
Alain Dupas	College de Polytechnique (Paris)
Bernard Foing*	ESA
Tom Jones	NASA Astronaut (retired)
Ernst Messerschmid*	University of Stuttgart
Jim McAdams	Applied Physics Laboratory
Ralph McNutt*	Applied Physics Laboratory
Doug O’Handley*	NASA/Ames Research Center
Alan Stern	Southwest Research Institute
Douglas Stetson	Jet Propulsion Laboratory
Kuninori Uesugi	Japan Aerospace Exploration Agency (JAXA) (retired)
Jozef van der Ha	European Space Agency (retired)
Bobby Williams	Kinetx Corporation
Hiroshi Yamakawa	Japan Aerospace Exploration Agency (JAXA)

* - IAA member.

Overall Goal:

To compare two different approaches for human exploration beyond low Earth orbit leading ultimately to the human exploration of Mars. Both concepts utilize evolutionary architectures to achieve the Mars goal. One concept, proposed by U.S. President George W. Bush in January 2004, and subsequently adopted by NASA, would utilize the Moon for testing operational techniques and the demonstration of technologies needed for Mars. An alternative concept, described in an IAA Cosmic Study entitled, “The Next Steps in Exploring Deep Space”, would use the Sun-Earth L2 libration point and near-Earth asteroids as stepping stones to Mars. The primary factors that are used to evaluate the two concepts are:

- (1) Science value
- (2) Cost effectiveness
- (3) Mission risk (as far as human participation is concerned)
- (4) Extension to other exploration destinations
- (5) Sustainability

(6) Flexibility

Intermediate Goals:

- (1) Define program of astronomical missions at Sun-Earth L2 that would be enabled by human construction and servicing.
- (2) Determine architecture requirements for SE-L2/NEA approach (e.g., would a launch vehicle with a capability of delivering 125 metric tons to low Earth orbit be required).
- (3) Define potential areas of international participation.

Assumptions: Study assumes that

- Human Space exploration will continue
 - NASA will develop the following systems:
 - (1) Crew Exploration Vehicle (CEV) (ORION)
 - (2) Crew launch vehicle with a capability of delivering 25 to 32 metric tons to low Earth orbit.
 - (3) Expendable Earth departure stage
- The study will then determine what hardware elements are needed for the two alternative approaches.

Schedule:

July 2006: Team meeting (Cornell University)
October 2006: Team meeting (IAC, Valencia)
December 1, 2006: Presentation at Applied Physics Laboratory Colloquium
March 2007 Presentation at IAA Meeting in Paris
Fall 2007: Presentation of interim report at IAA Day (IAC, India)
Fall 2008: Special Session at IAC (Glasgow, Scotland)
December 2008: Submit Final Report to IAA

Final Product:

IAA Final Report
Publication in Acta Astronautica

Target Community:

International Space Organizations (IAA, ESA, JAXA, NASA,)
NASA's Exploration Systems Mission Directorate

5.3 Ongoing studies: Mars Radiation Envir.(S1.5) The Study Group proposal on 'Particle Radiation Hazards en route to, and in orbit about, Mars' was prepared and presented by Susan McKenna, following the discussion during the Commission 1 meeting in Paris, March 2005. As Susan McKenna-Lawlor was absent at the meeting in Valencia, the discussion on S1.5 group activities was postponed. **It was decided to send an e-mail to Susan McKenna-Lawlor requesting for an interim report.**

In the general discussion of study groups activities Nickolay Smirnov mentioned, that data distributed by the Academy before the meeting does not contain sufficient information on Commission 1 study group activities. **Stamatios Krimigis suggested that information on the current activities and all events should be posted by group leaders on the IAA web site.**

6. Status of any plans for IAA Conferences in 2007 – 2008

- 6.1. June 26-28, 2007 a meeting in Pasadena CA will be held on Low cost planetary missions.
 - 6.2. Bernard Foing suggested participation of the IAA in the International Lunar Conference to be held in September-October 2007 in the south of Italy (Capri).
- Next Lunar conference is scheduled for October 2008 in Florida, USA.

7. Strategic discussion:

- 7.1 Engaging more members in IAA activities
- 7.2 Engaging new elected members
- 7.3 Acquiring younger potential members

The new elected IAA members participated in the present Commission 1 meeting: Jauman Ralph, Kuznetsov Vladimir, McNutt Ralph, Wu Ji, Yamashita Koujun.

It was decided that all the Commission members should send their suggestions to Tom Krimigis concerning young members of IAA. The suggestions should be sent to Commission 1 Chairs concerning involving new elected members in the work of the Commission.

8. Discussion of Commission 1 officer succession for Oct 2007

It was suggested that Gerhard Haerendael should be the next Chair.

9. Next meeting in Paris, March 2007

9.1. All Commission 1 members should get ready with their suggestions on Plenary events and Lectures for the 58 IAC in Hyderabad, October 2007.

9.2. Reports from Study groups S1.3, S1.4 and S1.5 leaders are expected.

9.3. Commission 1 members were requested by Nickolay Smirnov to make suggestions for the candidates to write essential review papers for Acta Astronautica.

10. Any Other Business

Stamatis Krimigis thanked all participants for their participation and wished fruitful work since Monday in the frame of the 57th IAC.

Action Items

1. Dr. Maccone (S1.3 Chair) should collect more information on the necessity of “protecting the far side of the Moon for scientific purposes” and report it at the next meeting in Paris in March 2007. The investigation should result in a position paper.
2. Dr. Smirnov (C1 Secretary) should send an e-mail to Susan McKenna-Lawlor requesting for an interim report.
3. S1.3, S1.4 and S1.5 Chairs should post information on the current activities of their Study Groups and on all relevant events on the IAA web site.
4. All the Commission 1 members should send their suggestions to Tom Krimigis concerning young members of IAA.