IAA Commission 1 'Space Physical Sciences' Meeting
22 March 2011 (Tuesday) 09h00-11h00, 6 rue Galilee (Metro Boissière) Paris, France

Minutes of the meeting

Meeting Attendance:
Gregg Vane (vice-Chair), Nickolay Smirnov (secretary), Stamatios Krimigis, Claudio Maccone, Antonio Viviani, Bernard Foing.

Agenda:
1. Welcome and adoption of agenda
2. Minutes from 26 September 2010 meeting in Prague, Czech Republic, see homepage.
3. Study Group activities: status, progress reports, cancelled studies.
4. Proposals for new Study Groups
5. Discussion on strengthening ties of Commission 1 with COSPAR through Academy Day program, and also through joint-sponsorship of COSPAR symposia of mutual interest.
6. Commission 1 relevant sessions at 62th IAC in South Africa, October 2011. Plenary events.
7. Proposals for 63d IAC in Naples, 2012. Symposia Recommendations & call for papers changes. Technical Session Recommendations.
8. Next meetings
9. New business

The following topics were discussed at the Commission 1 meeting.

1. Welcome and adoption of agenda

That was adopted.

2. Minutes from 26 September 2010 meeting in Prague, Czech Republic, (see homepage)

That was approved.

3. Committee and Study Group activities: status, progress report.

SETI Committee.

The group was represented by Claudio Maccone. The group arranged a SETI Conference to be held in June 27-30, 2011 in St. Petersburg, Russia, with a field trip in "Svetloe", where a great telescope is located.

1.4. The next steps for human Space explorations. What are the alternatives?

The study was terminated by the IAA. It was discussed the possibility to revive the study.

1.5. Particle radiation hazard en route to and at Mars.

Susan Mckenna-Lawlor was absent, but the report was submitted and delivered to the audience by the Secretary.

Status report on the Commission I book
The Particle Radiation Hazard en route to and at Mars
Susan McKenna-Lawlor
Space Technology Ireland, National University of Ireland, Maynooth, Co. Kildare

1. Introduction.

It is a pleasure to confirm that ALL the invited authors have now worked to prepare their Chapters (fourteen in all) for the book. Our Commission I Secretary (Nikolay Smirnov) should be especially thanked for his effort to encourage Prof. Petrov to finally submit his contribution – which is a very long and interesting one.
I have personally introduced a "house style" to all the manuscripts (Abstract, headings, references) and corrected each text when the English was puzzling so that the meaning of the authors/s (as I understand it) could be made clear. In several cases this took quite a long time to complete !
Our Chairman appointed Dr. David Kendall as the internal Academy referee for the book and the refereeing process is currently in progress.
This task is taking considerably longer than anyone anticipated. The Chapters are long and complex and, following review, it is necessary to wait for the response of the author/s to the comments made. However, the system has the advantage that one person sees every chapter and can look out for such problems as repetition/conflict of opinion etc.

2. Individual Chapters and their status

The following chapters (in no particular order) have already been refereed.

1. ***Consequences of the radiation hazard en route to/at Mars for spacecraft design and component selection***
   by E. Daly et al.
   Status; The authors responded to the comments of the Academy referee and a corrected manuscript has been returned to Dr. Kendall for final checking.

2. **A Science Case for the Human Exploration of Mars and the Moon – a European view**

   by J. C. Worms.
   Status; The author responded to the comments of the Academy referee and a corrected manuscript has been returned to Dr. Kendall for final checking.

3. **Assessing Radiation Hazards for the U.S. Exploration of Mars**
   by S. Guetersloh et al.
   Status; The author acknowledged the comments of the Academy referee and has promised to provide a corrected manuscript when the problems caused by a fire in his lab. have been overcome.

4. **MGS measurements of solar storms and their effects**
   by D.A. Brain et al.
   Status; The author acknowledged the comments of the Academy referee and has promised to provide a corrected manuscript. He already communicated with me several times in this regard.

5. **Modelling of the radiation environment of Mars**
   by G. de Angelis and L. R. Dartnell

Status; With the internal Academy referee

6. **Assessment of how solar related particle disturbances can affect the Martian environment**
   by O. Malandraki et al.
   Status; with the internal Academy referee
7. **Strategies for mitigation based on increased knowledge of the particle radiation hazard en route to/at Mars for spacecraft systems and for astronauts/cosmonauts.**
   by T. P. Armstrong et al.
   Status; Waiting to forward to the internal referee.
8. **The MARSREM Project: Mars radiation environment models and active shielding studies for interplanetary missions**
   by P. Gonçalves et al.
   Status; Waiting to forward to the internal referee.
9. **Particle radiation measurements from recent and future Mars missions**
   by B. H. Foing
   Status; Waiting to forward to the internal referee.
10. **Radiation dosage and radiation hazards pertaining to cosmonauts/astronauts en route to/at Mars**
    by V. Petrov et al.
    Status; Waiting to forward to the internal referee.
11. **China-Russia Joint Mars Exploration Program YH-1**
    by J. Wu et al.
    Status; Waiting to forward to the internal referee.
12 **Scientific and technical aspects of the ESA Mars NEXT Mission**
   by A. Chicarro et al..
   Status; Waiting to forward to the internal referee.
13. **The radiation hazard to humans on a mission to Mars**
   by G. Reitz
   Status; Waiting to forward to the internal referee.
14. **The particle radiation hazard en route to and at Mars**
   by S. McKenna-Lawlor et al.
   Status; Waiting to forward to the internal referee.

3. Summary

- Fourteen chapters have been prepared for the Academy book.
- Four chapters have already been considered by the internal Academy referee and, of these, two have been revised by the authors and returned while work is in progress on the other two.
- Two further manuscripts are presently with the referee.
- Eight chapters remain to be processed.

The efforts of Susan Mckenna-Lawlor were highly appreciated by commission members. David Kendall agreed to serve as a Reviewer. Nickolay Smirnov informed the Commission members of the Last recommendations of the publication Committee of the Academy to have external reviewers. Despite this fact, Commission 1 supports David Kendall as a Reviewer.

1.6. Protected antipode circle of Lunar farside.

Claudio Maccone – the group leader – was reporting. Technical draft of the International Treaty will be developed by the study group. Claudio Maccone will go in Vienna to attend UN COPUOS in June 6-8, 2011 to present the draft of the Treaty, after further review and consolidation.

Gregg Vane inquired, why it was necessary to have so big circle. The answer was that was the area protected by the shade from Earth radiation and optional radiation from libration points. Bernard Foing suggested that some management of radio activities should be established in that zone, so that vehicles working in than zone should be allowed to communicate at some time, but it should be under control, so as not to prevent observations.

4. Proposals for new Study Groups

The Commission decided to launch an announcement for the new Study Groups call.

5. Discussion on strengthening ties of Commission 1 with COSPAR through Academy Day program, and also through joint-sponsorship of COSPAR symposia of mutual interest.

It was suggested, that the Commission members should discuss with relevant COSPAR Committees Chairs and jointly contact COSPAR leaders to suggest IAA co- sponsorship of relevant Symposia. Then IAA would nominate representatives into the board of respective Symposia.

Gregg Vane was requested to come to the COSPAR Program Committee meeting with a suggestion to have Academy day in the mid of the week 14-22 July 2012 Mysore, India.

6. Commission 1 relevant sessions at 62th IAC in South Africa, October 2011. Plenary events.

a) Microgravity science and processes Symposium,

b) Ralf McNutt can make a lecture on Academy Day in Cape Town on the topic “Messenger in Mercury orbit – highlights of the mission”.

7. Proposals for 63d IAC in Naples, 2012. Symposia Recommendations & call for papers changes. Technical Session Recommendations.

Claudio Maccone informed of his organizing the 4-th IAA Symposium on “Searching for life signatures in San-Marino Sept 25-28 prior 1 week to the Congress in Naples. Busses will be arranged to take participants from airport in San-Marino, and then bring from San-Marino to Naples.

9. Next meetings

Next meeting will be held in October 2011 in Cape Town during the Academy Day.

10. New business.

SETI Committee is establishing contacts with China to have a SETI IAA Symposium 1 week prior to the Congress in 2013.