

I.A.A. Commission III

IAA SPRING MEETINGS - MARCH 2011 MINUTES

Meeting Date(s) : March 21st/22nd, 2011 Page 1/13

Venue : ESA HQ., Rue Mario Nikis, PARIS/
IAA Office, Rue Galilee, PARIS

Participants (on March 21st):

1. JOHN C MANKINS	AIMS	Chairman
2. GIUSEPPE REIBALDI	ESA	Vice Chairman
3. S. RAMAKRISHNAN	ISRO	Secretary
4. WENDELL MENDELL	NASA	
5. CHRISTOPHE BONNAL	CNES	
6. ANDREAS RITTWEGER	ASTRIUM EADS	
7. HORST RAUCK	GMK	
8. CHRISTIAN SALLABERGER	MDA CORPN	
9. CLAUDIO BRUNO	UNIROMA	
10. PETER BAINUM	HOWARD	
11. WILLIAM SIEGFRIED	BOEING (Rt)	
12. PAIVI JUKOLA	HUT, FINLAND	
13. IJAR DA FONSECA	INPE/BRAZIL	
14. PAVEL TRIVAILO	RMiT UNI/AUSTRALIA	

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Participants (*on March 22nd*):

- | | | |
|----------------------|--------------------|---------------|
| 1. JOHN C MANKINS | AIMS | Chairman |
| 2. GIUSEPPE REIBALDI | ESA | Vice Chairman |
| 3. S. RAMAKRISHNAN | ISRO | Secretary |
| 4. WENDELL MENDELL | NASA | |
| 5. ANDREAS RITTWEGER | ASTRIUM EADS | |
| 6. HORST RAUCK | GMK | |
| 7. CLAUDIO BRUNO | UNIROMA | |
| 8. PAIVI JUKOLA | HUT, FINLAND | |
| 9. PAVEL TRIVAILO | RMiT UNI/AUSTRALIA | |
| 10. ALAIN DUPAS | ADIC | |

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Objective : *Progress Review preparatory to Presentation to SAC at IAA Spring Meeting .*

AGENDA

1. Review of Actions from September 2010 Meeting
2. Composition of Commission-III
3. Study Group Status Review:
 - # SG 3.9 Private Human Access to Space – Christophe Bonnal
 - # SG 3.10 Interstellar Precursor Missions – Claudio Bruno
 - # SG 3.11 Solar Energy from Space – John Mankins
 - # SG 3.12 Global Human Exploration of Space – Wendell Mendell
 - # SG 3.13 Space Elevators Concept & Technologies – Peter Swan
4. Status of IAC-2011 Symposia
5. Symposia Key Note Papers for IAC 2011
6. Symposia outlook for IAC-2012
7. Role of Commission-III in IAA Sponsored Conferences
8. Report to SAC
9. AoB

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Minutes :

Subject/Description	Action	Due Date
<p>Chairman welcomed the Members of Commission-III and other invitees for the meeting and briefed the Agenda for the Session-I which essentially covers all the relevant subjects under the purview of Commission-III activities. The second session planned on 22nd forenoon was to finalize the report to SAC.</p> <p>1. Review of Actions from meeting held during IAC-2010 (Prague)</p> <p>Status of actions on the ongoing studies (SG 3.9, SG 3.10, SG 3.11, SG 3.12 & SG 3.13) were briefed to the Members (Annexure-I)</p> <p>It was noted that while SG 3.1 on Advanced Propulsion Perspective stands closed, other Study Groups have made significant progress (To be reviewed under Agenda 3).</p> <p>2. Composition of Commission-III</p> <p>The current (2009-11) composition</p>		

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<p>and the proposed new team (2011-13) were displayed (Annexure-II & Annexure-III).</p> <p>It was noted that Dr. Yu Lu of China will be a new Member replacing Mr. Roger Lenard (USA). The Vice Chair of the Commission is to be identified.</p> <p>3. Study Groups Status: #SG 3.9 Private Human Access to Space: Progress Report was presented to the Commission by Christophe Bonnal (Annexure-IV).</p> <p>2nd IAA Symposium on Private Human Access to Space scheduled for 30th May to 1st June at Arcachon/France & Draft programme released.</p> <p>First complete Draft of the study Report to be ready for review by Commission during IAC-2011, Cape Town.</p> <p>Final Study Report draft readiness</p>	<p>Christophe Bonnal</p>	<p>Sept 2011</p> <p>April 2012</p>
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Report publication.		Sept 2012
#SG 3.10 Technologies for Interstellar Precursor Missions		
The Final draft report has been sent to Commission-III members for review & comments.	Members Commission-III	15th Apr 2011
Release of Report for IAA Peer review	Claudio Bruno	15th May 2011
Initiation of IAA Peer review	Chairman/ Co-Chair Commission-III	1st June 2011
End of IAA Peer Review		1st Aug 2011
Report ready for SAC/Board of Trustees Approval	Claudio Bruno	15th Sept 2011
#SG 3.11 Solar Energy from Space:		
The Commission noted that this study report has matured and is ready for final approval by IAA SAC		

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and Board of Trustees for publication.

This is the first international study report on this subject of immediate relevance.

The peer review process has been completed and the final report of 270 pages incorporating review recommendations is made ready along with an abridged booklet of about 50 pages.

The Commission noted that this technically rigorous study report addresses all the aspects of harnessing and utilization of Solar energy from Space.

The Members recommended that this study report should be publicized and widely disseminated among the Space and Energy community including professionals and policy makers in the government.

The Commission also suggested that this study report may be presented at Global Energy Forum which regularly meets in Middle East.

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<p>#3.12 Global Human Exploration of Space:</p> <p>The Commission noted that baseline input for this study group is available from the IAA 50th Anniversary study report on Future Human Space Flight.</p> <p>The Study Group plan is still under consolidation process and little progress is made so far.</p> <p>Revised SG 3.12 constituents and the study outline to be communicated to Commission Members.</p> <p>Study completion target date postponed to Oct 2013, to be confirmed.</p> <p>#3.13 Technology challenges of Space Elevators Concept:</p> <p>The status report from Peter A. Swan was presented to the Commission (Annexure-V).</p>	<p>Wendell Mendell</p>	<p>30 Apr 2011</p>
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<p>The Members noted that this study is progressing well. The team has been identified and draft outline for the study report chapters and composition laid out. Draft report to be ready by Aug/Sept 2012 and final report for IAA publication by March 2013.</p> <p>The commission recommended that in this study group, a Member from Italian Space Agency with expertise/experience on Space Tethers may be included.</p> <p>The Commission noted that while one study (SG 3.1) was closed, the study on solar Energy from Space (SG 3.11) has been successfully completed. Three more study groups (SG 3.10, SG 3.12, & SG 3.13) are active and making progress.</p> <p>New study topics for Commission-III are to be proposed for approval by IAA.</p> <p>4. Status of IAC 2011 Symposia:</p> <p>The status of abstracts for relevant sessions was reviewed (Annexure-VI).</p>	Peter A Swan	30 April 2011
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It was noted that sessions **D4.2** and **D4.3** had poor response.

It was suggested that **D4.2** & **D4.3** may be combined into one workshop session on **Public Private partnerships in Human Space Flight**.

It was proposed to move some papers from **D3.1** to **D4.1**.

5. Symposia key notes for IAC 2011:

It was noted that this new initiative is under review for implementation in **IAC 2011**. A few keynote speakers and topics have already been proposed.

6. Symposia Outlook for IAC 2012:

Commission-III proposes to restructure **D3** and **D4** symposia on new topics –

#D3 Symposium on building blocks for future space exploration

#D4 Public-Private Initiatives in Human Space Flight. This, however, was revised later.

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<p>7. Role of Commission-III in IAA sponsored conferences:</p> <p>It was proposed that a Member/ Nominee from Commission-III should be made Co-Chair of all IAA sponsored scientific conferences.</p> <p>8. Report to SAC:</p> <p>To be discussed and finalized in the meeting on 22nd March FN</p> <p>9. AoB:</p> <p>The Commission proposes nomination/ induction of Associate members to give recognition and encourage active contributors to the commission activities.</p>		
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Subject/Description	Action	Due Date
<p>SESSION ON 22ND March FN</p> <p>Final Report to SAC:</p> <p>The Commission-III report to SAC was reviewed (Annexure-VII) and approved by the Members.</p> <p>The restructured D3 & D4 Symposia and broad outline of the specific sessions under them was discussed and accepted as depicted in the report to SAC</p> <p>New Study groups on following topics mooted:</p> <ul style="list-style-type: none">• Public/Private innovative initiatives in Human Space Flight• Building blocks for future space exploration• Transformational Space Access• Potential benefits of future space activities in addressing global challenges• Space capabilities and disaster management/lessons learned.		

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Proposals are invited for Teams & Team leaders to undertake above studies.	Commission-III Members & Academicians	September 2011
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REVIEW OF SEPT 2010 MEETING ACTIONS

ACTION	STATUS
<p>SG 3.1 Advanced Propulsion Perspective:</p>	
<p>Study to be closed. Report to be modified as a technical monograph for ACTA Astronautica Publication</p>	<p>Closed.</p>
<p>SG 3.9 Private Human Access to Space:</p> <p>Part-I Study report covering sub-orbital flights</p>	<p>2nd IAA Conference on this subject scheduled from 30th May to 1st June 2011, study report status will be presented.</p>
<p>SG 3.10 Interstellar Precursor Missions:</p> <p>Revised study report to be ready for review</p>	<p>Final Revised Report sent to Commission-III Members</p>

REVIEW OF SEPT 2010 MEETING ACTIONS (Contd....)

ACTION	STATUS
SG 3.11 Solar Energy from Space:	
Completion of Peer Review process & submission of final report	Peer review completed. Final report ready.
SG 3.12 Global Human Exploration of Space:	
Presentation of Study Report outline & plans	To be presented
SG 3.13 Space Elevators:	
Report on progress made	Team formed & Draft Report chapters and authors identified. Final Draft report readiness by July 2012

Commission III Composition

- John C. Mankins (USA), Chairman
- Giuseppe Reibaldi (It), Vice Chairman
- S. Ramakrishnan (In), Secretary
- Tetsuo Yasaka (J), Past Chair
- Christophe Bonnal (F), Member
- Hans E. W. Hoffmann (D), Member
- Wendell Mendell (USA), Member
- Claudio Bruno (It), Member
- Junjiro Onoda (J), Member
- Roger Lenard (USA), Member
- Christian Sallaberger (Ca), Member

Proposed Commission III Roster 2011-2013

- **Giuseppe Reibaldi (It), Chairman**
- **TBD, Vice Chairman**
- **S. Ramakrishnan (In), Secretary**
- **John C. Mankins (USA), Past Chair**
- **Christophe Bonnal (F), Member**
- **Hans E. W. Hoffmann (D), Member**
- **Wendell Mendell (USA), Member**
- **Claudio Bruno (It), Member**
- **Junjiro Onoda (J), Member**
- **Valeriy Korepanov (Ukr), Member**
- **Yu Lu (Chn), Member**
- **Christian Sallaberger (Ca), Member**



IAA Commission III meeting
Paris, March 22th , 2011
Christophe Bonnal

**Progress report on
IAA Study Group 3.9 “Private Human Access to Space”**

Proposer(s): H. Rauck – G. Brachet **Chair:** Ch. Bonnal
Primary IAA Commission Preference: Commission 3
Secondary IAA Commission Interests: Commission 5

Overall Goal:

Identify and quantify the key topics associated to Manned Private Access to Space for both Orbital and Sub-orbital missions.

Key words:

- Technical aspects
- Legal and regulatory aspects, safety aspects
- Financial aspects, market analyses, associated business plans
- Motivations of potential customers
- Physiological and Psychological requirements, ergonomic constraints

Expected outcome of the study:

IAA Position Paper giving the keys to the topic and potentially including recommendations.

Subdivision of the study into key chapters, with one “book captain” per chapter ; 7 or 8 members per chapter covering a wide range of origins (countries, agencies, industrials, searchers, operators...)

Time line:

Initially: 3 years following the initial proposal (March 2007)

Revised timeline:

- 1st IAA symposium on Private Human Access to Space (Arcachon)
 - ⇒ 28-30 May 2008
 - Publication of the full CD with all the papers, most of the presentations, pictures, ... Distribution to all participants
 - ⇒ End of September 2008

- Report during IAC Glasgow ⇒ October 2008

- Publication in Acta Astronautica of the 15-20 best papers out of the 68 presented in Arcachon
 - Process undergoing: 15 papers pre-selected
 - 4 rejected
 - 2 withdrawn after review
 - 14 finalized ⇒ Published AA Vol 66, 11-12

- SG: Formal invitation of members of the SG
 - Additional members are welcome, but may lead to problems of coherence and homogeneity (lack of efficiency; depends on the definition of a Working Group !)
 - ⇒ Daejeon, October 2009
- Extended table of contents ⇒ IPC, Paris March 2010

- IAC 2010: presentation of the status of the action
 - Decision taken during the meeting to hold the 2nd IAA Symposium on Private Human Access to Space in 2011

- 2nd IAA symposium on Private Human Access to Space
 - Numerous demands for a new edition of the symposium
 - Arcachon with Avantage Aquitaine again (very positive feedback last time)
 - Selected slot: 30, 31 May, 1st June 2011
 - ⇒ Draft Program finalized (see following pages)

- Associated proposal to delay the preparation of the Position Paper. Already discussed with IAA SG
 - ⇒ Report of the conference expected in CapeTown, September 2011
 - ⇒ First complete draft expected for IAC 2011 in CapeTown
 - ⇒ Final draft expected for Paris meeting March 2012
 - ⇒ Final paper ready for publication by IAC 2012 in Naples

Cosmic Study 3.13 Space Elevator Feasibility

Date: 12 March 2011
Subject: Status Report of 3.13
To: Academy Study Information

1. The team has been formed and the draft outlines for each chapter has been laid out. The key is that many of the authors have agreed to write the chapters and have shown the purpose of each chapter and what it should include. The next few pages show the schedule of the process and the chapter title and author. In addition, the list of authors is included.
2. There will be a meeting in Paris on March 21st at the Academy location at 1530 hrs.

3. The schedule is:

<i>Meeting</i>	<i>Date</i>	<i>Where</i>	<i>Actual</i>
Cosmic Study Approved	27-Mar-10	Paris Redmond	1-Oct-10
First Mtg at Space Elev Conference	12-15 Aug 2010	Wash	small mtg
Meeting at Int. Astro Fed Congress	3rd Wk in Sept	Prague	small mtg
Meeting in Paris	3rd wk in Mar 2011	Paris Redmond	draft outlines due
Mtg at Space Elev Conference		Aug-11 Wash	discuss chapters
Meeting at Int. Astro Fed Congress	1st week in Oct	Capetown	draft outlines final
Meeting in Paris	3rd wk in Mar 2012	Paris Redmond	draft chapters
Mtg at Space Elev Conference		Aug-12 Wash	draft chapters
Meeting at Int. Astro Fed Congress	1st week in Oct July - Dec 2012	Naples, Italy	chapters due red team
		Mar-13	publish

Peter A. Swan, Ph.D
Co-chair of Report

Chpt	Title	Chapter Captain	co-Captain	Writers	Outline due	Draft due	Final Draft	Status
	Preface	Pete	Ted		1-Apr-11	1-Mar-12	15-Jul-12	
	Executive Summary	Pete	Skip		1-Apr-11	1-Mar-12	15-Jul-12	
1.0	Introduction	Pete	David		15-Jan-11	15-Jan-11	15-Jun-12	draft in
2.0	Major Challenges	Pete	Ben	Klettner/ Martin	15-Mar-11	15-Sep-11	15-Jun-12	
2.1	Systems Approach	Pete	Skip	Bryan, Klettner	15-Mar-11	15-Sep-11	15-Jun-12	
2.2	Ribbon Material	Ben	Bryan		15-Mar-11	15-Sep-11	15-Jun-12	
2.3	Ribbon Riders	Bryan	Ben		15-Mar-11	15-Sep-11	15-Jun-12	
2.4	Power for the System	Ben	Bryan	Martin	15-Mar-11	15-Sep-11	15-Jun-12	
2.5	Base Station Infrastructure	Pete	Bryan	Knapman Martin, Uchiyama, Takeichi, Watanabe, Yasaka, Perek, Mashayekhi,	15-Mar-11	15-Sep-11	15-Jun-12	
2.6	Dynamics of Operational Ribbon	Fujii	Misra	zhongrui	15-Mar-11	15-Sep-11	15-Jun-12	
2.7	Ribbon Deployment	Fujii	Uchiyama	Uchiyama, Takeichi, Watanabe, Gassend, Mashayekhi, zhongrui	15-Mar-11	15-Sep-11	15-Jun-12	
2.8	Systems Design Issue - Environment	Pete	skip	Martin	15-Mar-11	15-Sep-11	15-Jun-12	
2.9	Systems Design Issue - Space Debris	Skip	Pete		15-Mar-11	15-Sep-11	15-Jun-12	
2.10	Systems Design Issue –Ops Concept	Skip	Pete		15-Mar-11	15-Sep-11	15-Jun-12	
2.11	Systems Design Issue - Roadmap	Akira	Laine	Pete,	15-Mar-11	15-Sep-11	15-Jun-12	
3.0	Legal Perspective	Kai	Ted		15-Mar-11	15-Sep-11	15-Jun-12	

Last Name	First Name	Email	Phone	Chptr Captain	Chptr help
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Penny	Skip	skipjane@hotmail.com		Editor, 2.9	2.1., 5, 6
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Kai	Sunao	kaisunao@mpd.biglobe.ne.jp			3
		-			-

IAC 2011 IAA Symposia

Symposium Title/ Session Title	Co-ordinator (Symp)/ Chairman (Session)	Status
A 5. Human Exploration of the Moon & Mars Symposium	W. Mendell, C. Sallaberger	
A 5.1 Near-term Strategies to establish Lunar Infrastructure	M-E Perino, W. Mendell, B Foing (R)	10 Abstracts received
A 5.2 Long –term scenarios for Human Moon-Mars presence	U. Apel, W.h. Siegfried, N. Ghafoor (R)	10 Abstracts received
A 5.3/B 3.6 Human and Robotic partnerships to realise space Exploration goals	U. Apel, W.H. Siegfried, N. Ghafoor (R)	11 Abstracts received
A5.4 Going beyond the Earth-Moon System: Human missions to Mars, Liberation points, and NEO's	G. Gargir, E. Messerschmid, G. Schwehm (R)	11 Abstracts received

IAC 2011 IAA Symposia (Contd...)

Symposium Title/ Session Title	Co-ordinator (Symp)/ Chairman (Session)	Status
C.3 Space Power Symposium	J.C. Mankins	
C 3.1 Space-based Solar Power architectures – New Governmental and Commercial concepts and ventures	N. Kaya, J. Mankins, J.T. Howell, L. Summerer (Rs)	8 Abstracts received
D 3. Symposium on Stepping Stones to the Future: Strategies, Architectures, Concepts and Technologies	J.C. Mankins, A. Pradier	
D 3.1 Strategies, Architectures to establish a “Stepping Stone” Approach to our Future in Space	J.C. Mankins, W. Prisniakov, W.H. Siegfried (R)	18 Abstracts received
D 3.2 Novel Concepts and Technologies for the Exploration and Utilization of Space	J.T. Howell, H. Yamawaka, M.a. Perino, N. Suzuki (Rs)	13 Abstracts received

IAC 2011 IAA Symposia (Contd...)

Symposium Title/ Session Title	Co-ordinator (Symp)/ Chairman (Session)	Status
D 3.3 Infrastructures and Systems to Enable Ambitious future exploration and Utilisation of Space	W.H. Siegfried. S. Hovland, G. Woodcock (Rs)	3 Abstracts received
D. 3.4 Space Technology and System Management Practices and tools	P.A. Swan, P. Jukola, C. Moore (R)	13 Abstracts received
D 4. Symposium on Far Futures (Visions and Strategies for Far futures)	Hans E.W. Hoffmann, G. Reibaldi	
D 4.1 Human exploration in Deep Space	A. Dupas, P. Jukola, O.de Weck (R)	5 Abstracts received
D. 4.2 Interstellar Precursor Missions	R.X. Lenard, C. Bruno, D. Andrews (R)	1 Abstract only
D. 4.3 Access to space in the Far Future	H. Rauck, A. Pradier, P. Jukola (R)	- Nil -
D 4.4 Space Elevator and Tethers	P.A. Swan, R.E. Penny, D. Raitt (R)	9 Abstracts received

ANNEXURE-VII

International Academy of Astronautics

Commission III Report to the SAC



22 March 2011

IAA Meetings @ Paris, France



IAA COMMISSION-III MEETING

Monday-Tuesday, 21-22 March 2011

AGENDA

- Introduction & Commission III composition
- Status of Commission III (2011-2013)
- Status of Study Group reports progress & way forward
 - SG 3.9 Private Human Access to Space – Christophe Bonnal
 - SG 3.10 Interstellar Precursor Missions – Claudio Bruno
 - SG 3.11 Solar Power from Space – John Mankins
 - SG 3.12 Global Human Exploration of Space – Wendell Mendell
 - SG 3.13 Space Elevators Concept & Technologies – Peter Swan
- Status of Symposia for IAC 2011
- Status of Symposia Keynote papers for IAC 2011
- Outlook of Symposia for IAC 2012
- Role of Commission III in IAA-sponsored future conferences
- AoB



Commission III 2009-2011 Composition and March 2011 Meeting

- Commission 3 Members

○ John C. Mankins (USA), Chairman	21-Mar	22-Mar
○ Giuseppe Reibaldi (It), Deputy Chairman	21-Mar	22-Mar
○ S. Ramakrishnan (In), Secretary	21-Mar	22-Mar
○ Tetsuo Yasaka (J), Past Chair	-----	-----
○ Christophe Bonnal (F), Member	21-Mar	-----
○ Claudio Bruno (It), Member	21-Mar	22-Mar
○ Hans Hoffmann (D), Member	-----	-----
○ Roger Lenard (USA), Member	-----	-----
○ Wendell Mendell (USA), Member	21-Mar	22-Mar
○ Junjiro Onoda (J), Member	-----	-----
○ Christian Sallaberger (Ca), Member	21-Mar	-----



Commission III 2009-2011 Composition and March 2011 Meeting (cont.)

- Other Attendees
 - Peter Bainum (USA)
 - Alain Dupas (F)
 - Ijar Da Fonseca (Br)
 - Paivi Jukola (FIN)
 - Horst Rauck (D)
 - Andreas Rittwejer (D)
 - William Siegfried (US)



Commission III 2011-2013 Composition Proposed / Potential

- Proposed Commission 3 Roster 2011-2013
 - Giuseppe Reibaldi (It), Chairman
 - TBD, Vice-Chair
 - S. Ramakrishnan (In), Secretary
 - John C. Mankins (USA), Past Chair
 - Christophe Bonnal (F), Member
 - Claudio Bruno (It), Member
 - Hans Hoffmann (D), Member
 - Valeriy Korepanov (Ukr), Member
 - Yu Lu (Chn), Member
 - Wendell Mendell (USA), Member
 - Junjiro Onoda (J), Member
 - Christian Sallaberger (Ca), Member



Commission 3 Study Group Status (1 of 2)

- SG 3.9 – ‘PRIVATE HUMAN ACCESS TO SPACE’ (C.BONNAL)
 - Study Status reviewed in brief at Meeting
 - ✓ Final Draft Report April 2012; Final Report for Publication September 2012
 - Second Symposium in Spring 2011 :
 - ✓ “2nd International IAA Conference on Private Human Access to Space” (Date: 30 May 2011 to 01 June 2011; Arcachon/France)
- SG 3.10 – ‘INTERSTELLAR PRECURSOR MISSIONS’ (CLAUDIO BRUNO)
 - Final Draft document sent to Commission III members for review
 - ✓ Commission III comments due by 15 April
 - Peer Review to be Started by May
 - Study Report ready for publication by September 2011



Commission 3 Study Group Status (2 of 2)

- **SG 3.11 – ‘SOLAR ENERGY FROM SPACE’ (J.MANKINS)**
 - Final at Meeting
 - Study Report Completed; Peer Review Completed
 - Provided to SAC / BoT for Approval / Publication (March 2011)
- **SG 3.12 – ‘GLOBAL HUMAN EXPLORATION OF SPACE’ (W. MENDELL)**
 - Status reviewed at the Meeting
 - Input from IAA 50th Anniversary Study Group provided
 - Some issues identified; Study Group Plan in process of review / revision / consolidation
 - New Schedule: Completion Delayed to October 2013
- **SG 3.13 SPACE ELEVATORS CONCEPTS & TECHNOLOGIES’ (P. SWAN)**
 - Study Group status reviewed at the Meeting
 - Planned for completion by March 2013



Study Groups Status Summary

Study Group No	Studies in Progress Commission 3	Chair	<i>Studies with Problems</i>										Status			
			Proposal received	Commission Approved	SAC Approved	Members appointed	First Draft Available	Final Draft available	Commission Reviewed	Final Report Available	SAC Approved	BOT Approved		Study Published		
3.9	Private Human Access to Space	Bonnal	█													Delayed
3.10	Technologies to enable near term Interstellar Precursor Mission	Bruno / Matloff	█	█												Normal
3.11	Solar energy from space: the first international assessment of opportunities, issues and potential pathways forward	Mankins / Kaya	█	█	█											Normal
3.12	Global Human Exploration of Space - the next seteps	Mendell/Perino	█													Delayed
3.13	Space Elevator Feasibility and Challenges	Swan	█													Normal



New Study Groups

- Discussed preliminary plans for new Commission III study groups
- Candidate topics include:
 - Public / Private Innovation Initiatives in Human Space Flight
 - Building Blocks for Future Exploration, Development and Discovery in Space
 - Transformational Space Access
 - An International Think Tank Approach to Evaluate the Potential Benefits of Future Space Activities in Solving Global Challenges
 - Space Capabilities and Disaster Mitigation / Management: Lessons Learned and Future Directions
 - Others ... to be identified
- Will develop 2-3 proposals for approval by September 2011



STATUS OF IAC SESSIONS

- 2011
 - Generally, Commission III sessions at 2011 IAC look good
 - However, several sessions are “weak”; adjustments being proposed
 - ✓ Proposing to organize a Workshop on Public/Private Partnerships in Human Space Flight (replacing D4.2 and D4.3)
- 2012
 - Commission III will proposed a restructure of D3 and D4 Symposia to reflect /potential new Study Groups
 - And...adjustments in A5 Symposium to support SG C3.12
 - And...continued cooperation with IAF C3 Symposium
 - Revised Call for Papers for 2012 in preparation



IAC 2012 Symposia Outlook

Revision Proposal

D3 Symposium on Building Blocks for Future Science, Exploration and Development of Space

- D3.1 Strategies & Architectures to Enable Building Blocks for Science, Exploration and Development
- D3.2 Infrastructures and Systems for Future Space Building Blocks (including transformational space access, fuel depots, etc.)
- D3.3 The Far Future: Novel Concepts and Technologies (including deep space human exploration, interstellar flight and precursors, space colonization, etc.)
- D3.4 Far Future: Space Elevator Feasibility and Technology
- D3.5 Space Technology and System Management Practices and Tools

D4 Public-Private Innovation Initiatives in Human Space Flight*

- D4.1 Access to Space
- D4.2 Infrastructures
- D4.3 Space Utilization
- D4.4 Space Resources Exploitation

** Will be organized in cooperation with IAF Business Innovation Symposium*



Commission Engagement with IAA Conferences

- Discussed the proposal for Commission III to identify “curators” for appropriate IAA Conferences
 - Assumptions:
 - ✓ Need to be members of Conference Scientific Program Committees
 - ✓ Need to include either C-III members or Representatives
- Generally agreed with the concept, and will support
 - Need to identify which Conferences might be candidates for C-III involvement
 - Need to verify that C-III representatives / members can support
- Will work this new approach with the IAA Secretariat following this meeting



All Other Business

- Concerning UN / COPUOS (June 2011 and beyond)
 - Need information on status: will there be a presentation? Does C-III need to support?
- Concerning special events at 2011 IAC in Cape Town, SA on the Theme: “Space for Africa, Africa in Space”
 - Proposed two options:
 - ✓ Paper : Human Space Flight Prospective in Africa
 - ✓ IAA SG 3.11 (Session C3.1) Keynote
- Concept of “Associated Members” for the Commissions
- Need for younger participants in the activities of the Commissions
- We will be updating the Commission III 2-year Plan at the Cape Town meeting (e.g., with new SGs, new IAC Symposia, “Curated” IAA Conferences, etc.)