IAC 2010 PRAGUE

"Space for human benefit and exploration"

61st International Astronautical Congress

27 September – 1 October 2010
Prague, Czech Republic

Final Programme

www.iac2010.cz

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IAC 2010
Booth # B7

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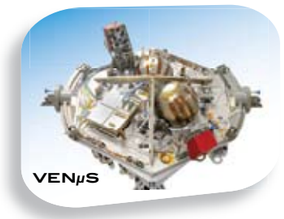

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CSO
CZECH SPACE OFFICE

CZECH SPACE OFFICE

Gate into Czech Space

Czech Space Office (CSO) is a private non-profit organization founded in November 2003 to act as a single contact point for general support and development of space activities in the Czech Republic and to manage national cooperation with the European Space Agency.

Being funded by Ministry of Education, Youth and Sports, CSO provides information and advisory service to government decision makers, Czech R&D organizations, academia and industry to maximize their active participation in space programmes.

CSO Space Exhibition Stand – A13/A14

Presentation of the Czech Space

Exhibition of Czech industry, academia and universities involved in space

Information about Czech space projects

CSO Staff Availability

28th September
Space Technology, Launchers

29th September
Space Science, Exploration and Microgravity

30th September
Navigation & Telecommunication, Earth Observation

1st October
Education

Happy Hour on 29th September

Czech Space Office
Prvního pluku 17
186 00 Praha 8
Czech Republic
tel./fax: +420 224 918 288
info@czechspace.cz
www.czechspace.cz

IAC 2010

1. Welcome messages 4
1.1 Message from the President of the IAF 4
1.2 Message from the Local Organising Committee 4
1.3 Auspices 5

2. General Information 6
2.1 Floor plans of Congress Venue 6
2.2 Contacts and Opening Hours 8
2.3 Useful Information 9

3. Timetable Overview 12
3.1 Opening Ceremony / Closing Ceremony 12
3.2 Programme at a Glance 13
3.3 Congress Sessions by Day 14
3.4 Technical Sessions by Symposium 18
3.5 Committee Meetings 22
3.6 Exhibition 23
List of Exhibitors 24
Exhibitor Badges 39
Exhibition Plan 40
List of Stands & Exhibitors 41

4. Organisers and Associated Events 42
4.1 The International Astronautical Federation 42
IAF Member Organisations 2010 42
Members of the Bureau 46
IAF Secretariat 47
4.2 The International Academy of Astronautics 48
Academy Day 49
4.3 The International Institute of Space Law 50
19th Manfred Lachs Space Law Moot Court Competition 50
4.4 UN/IAF Workshop 51
4.5 IAF Young Professionals Programme 53
4.6 The Student Programme 54
4.7 IAC 2010 Professional Development Programme 56
4.8 IAF Youth Grants Programme 56
4.9 Masters with Masters – knowledge-sharing event 57
4.10 The Local Organising Committee 58

5. Tours and Social Events 60
Tours and Social Events Overview 60
Social Events Details 60
Tour Details 62

6. Technical Programme 64
6.1 Message from the IPC Co-Chairs 64
6.2 Information for Authors 64
6.3 Plenary Events 65
6.4 Highlight Lectures 74
6.5 Second International Cluster Forum 76
6.6 Technical session papers ordered by symposium 77
6.7 Index of Authors 154
Sponsors and Partners 155

Final Programme format information

For convenience of participants, the Final Programme is slimmer and lighter than it used to be in past years. In order to achieve that aim, the selection of data had to be strict. Additional information and data can be found on the websites of

The IAF at www.iafastro.org
The IAA at www.iaaweb.org
The IISL at www.lislweb.org
The LOC at www.iac2010.cz

Information on papers presented at Technical Sessions can be found on the DVD distributed at registration or at www.iafastro.org/index.html?title=IAC2010_Technical_Programme.
An updated list of Committee Meetings is at www.iafastro.org/docs/2010/iac/IAC2010_Meetings.pdf.
An alphabetical index of authors is available at the DVD and at www.iafastro.org/index.html?title=IAC2010_Authors.

1. Welcome messages

1.1 Message from the President of the IAF

The 61st IAC in Prague, the beautiful capital of the Czech Republic, will be a highlight in the series of global space congresses organised by the IAF. Our host country, an ESA member state since 2008, with a growing space industry and user community, has spared no efforts to receive you for an exciting event.

With great satisfaction, I introduce to you the result of hard work completed by the integrated teams of the International Programme Committee, the Local Organising Committee, and the IAF Secretariat. I would like to use this opportunity to thank the IPC, and especially its Co-Chairs, the IPC Steering Committee, and the Plenary Event organisers, for having worked successfully to create a prime quality technical programme guided by the theme "Space for human benefit and exploration".

The 61st IAC offers a comprehensive programme of Technical Sessions and special events. Plenary Events inform you about current space activities and plans worldwide. These include topics of general concern such as climate change, international cooperation and peace as well as the current role of governments and industries in the commercialisation of outer space activities. Oral and interactive Technical Sessions offer contents for specialised audiences of space scientists, engineers, managers and lawyers, also addressing students and young professionals.

In these pages, you will find information about the 20th UN/IAF Workshop on “GNSS Applications for Human Benefit and Development”, eight Plenary Events, four Highlight Lectures and three Late Breaking News. In addition you get details about the exhibition, and innovations such as the International Forum of Aerospace Clusters and Industry Associations, and a global Parliamentarian Event. The contents of all of these will be posted on the IAF website.

For the Technical Programme, more than 2200 abstracts have been submitted. The best 1600 papers were selected during the 2010 Spring Meeting for presentation. These papers and presentations are available on the DVD you will find in your Congress bag.

An extraordinary Technical Programme awaits you. It is your participation that is essential to make of this event a real success.

See you in Prague!

Berndt Feuerbacher
President
International Astronautical Federation

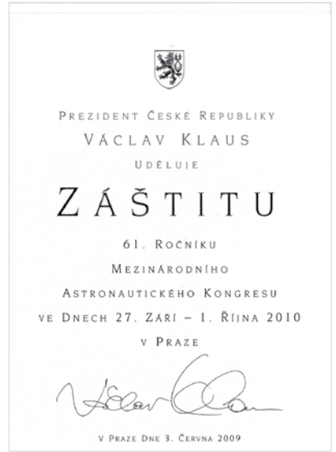
1.2 Message from the Local Organising Committee

On behalf of the Local Organising Committee and the Czech Space Office, I am pleased to invite you to join us at the 61st International Astronautical Congress in Prague. The Congress will be an excellent opportunity for representatives and experts to share and discuss potential collaborations in the field of space exploration and development of new space applications. And it is a good chance to visit and meet your friends and colleagues from all around the world in the cultural and historical environment of Prague city. Members of the Local Organising Committee are working hard to make your stay at the Congress both efficient and pleasant, and we are looking forward to welcome you among the active participants of this outstanding week in September in Prague.

Jan Kolář
Chairman
Local Organising Committee

1.3 Auspices

The 61st International Astronautical Congress will be held under the auspices of the President of the Czech Republic Václav Klaus.



The 61st International Astronautical Congress will be held under the auspices of the Mayor of the City of Prague Pavel Bém.

The 61st International Astronautical Congress will be held under the auspices of the Ministry of Education of the Czech Republic.

MINISTRY OF EDUCATION, YOUTH AND SPORTS

The 61st International Astronautical Congress will be held in cooperation with the Centre for International Services.

DZS Centre for International Services

The 61st International Astronautical Congress will be held under the auspices of the Ministry of Transport of the Czech Republic.

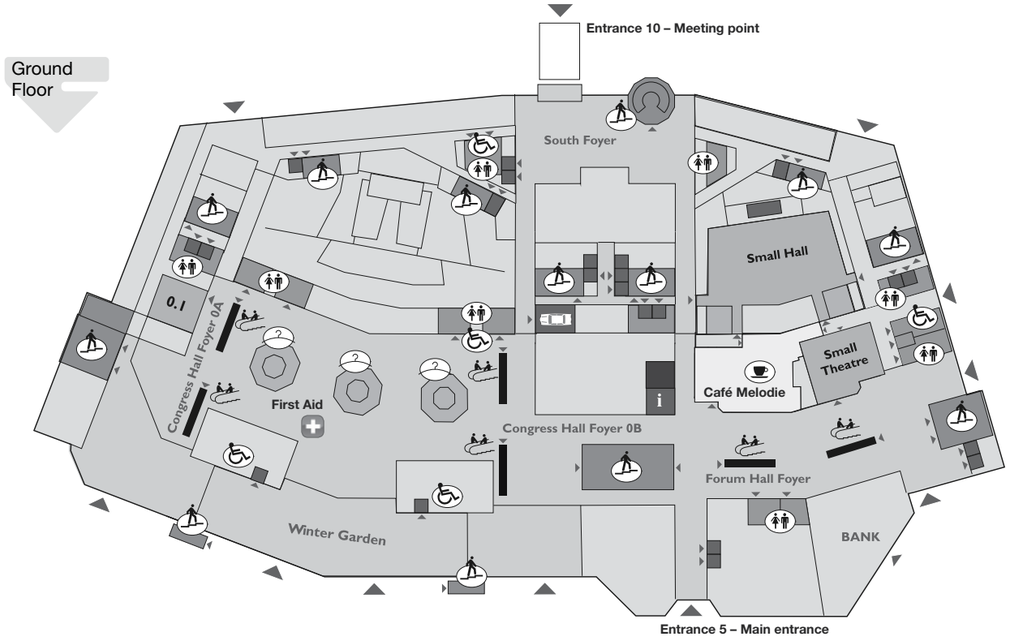
Czech Republic Ministry of Transport

2. General Information

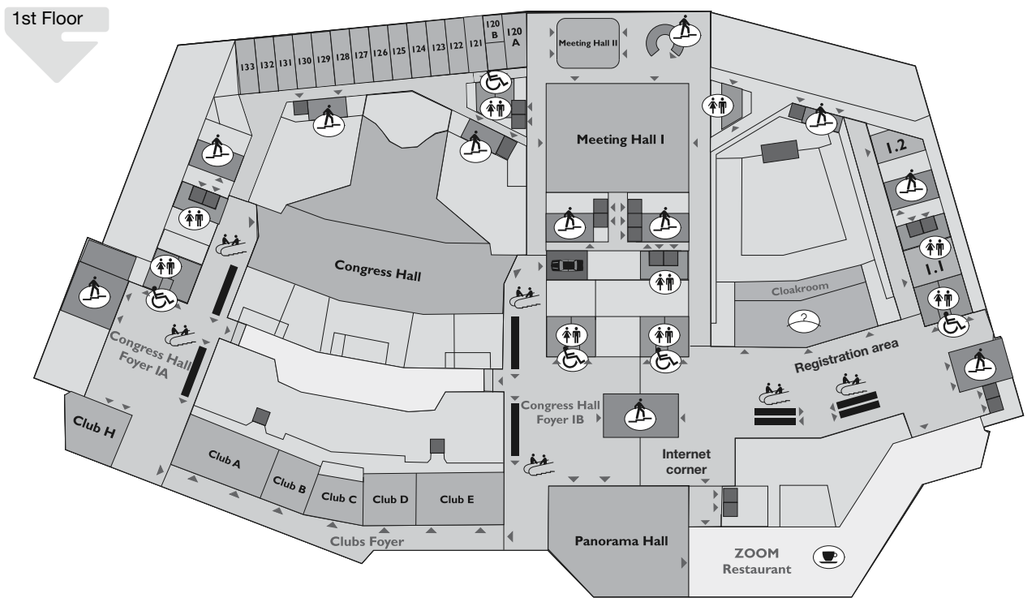
2.1 Floor plans of Congress Venue

The 61st International Astronautical Congress will be held at the Prague Congress Centre (PCC)

Ground Floor

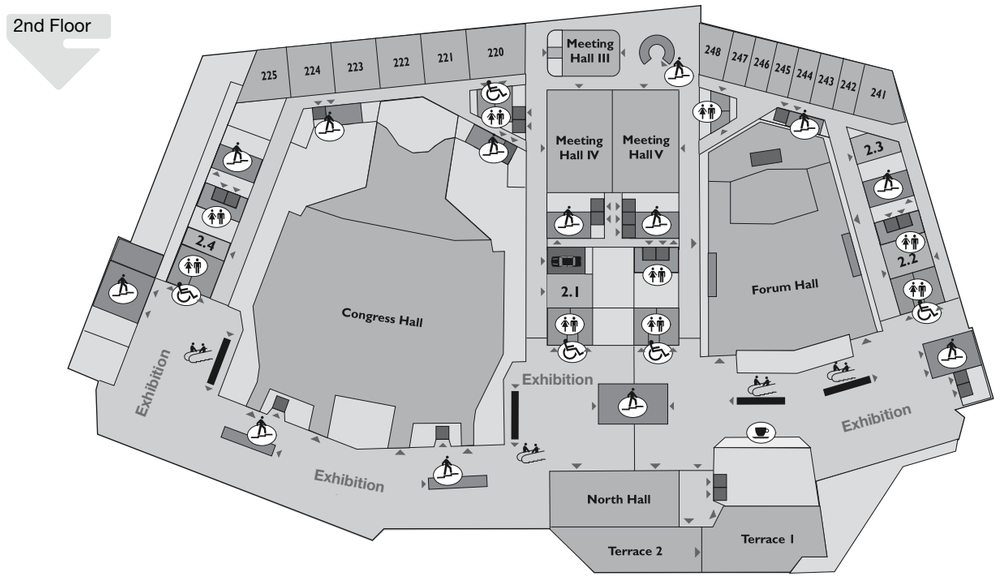


1st Floor

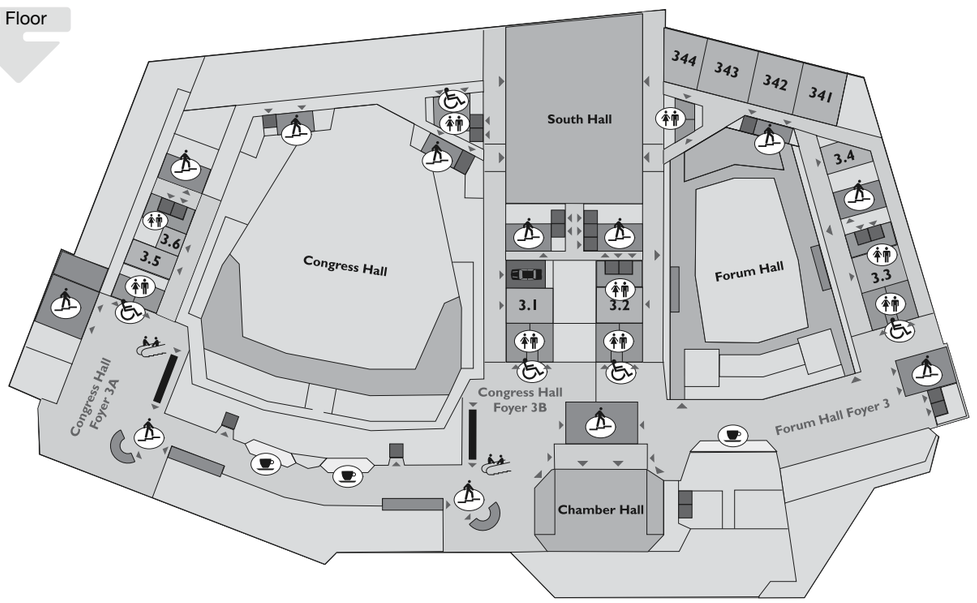


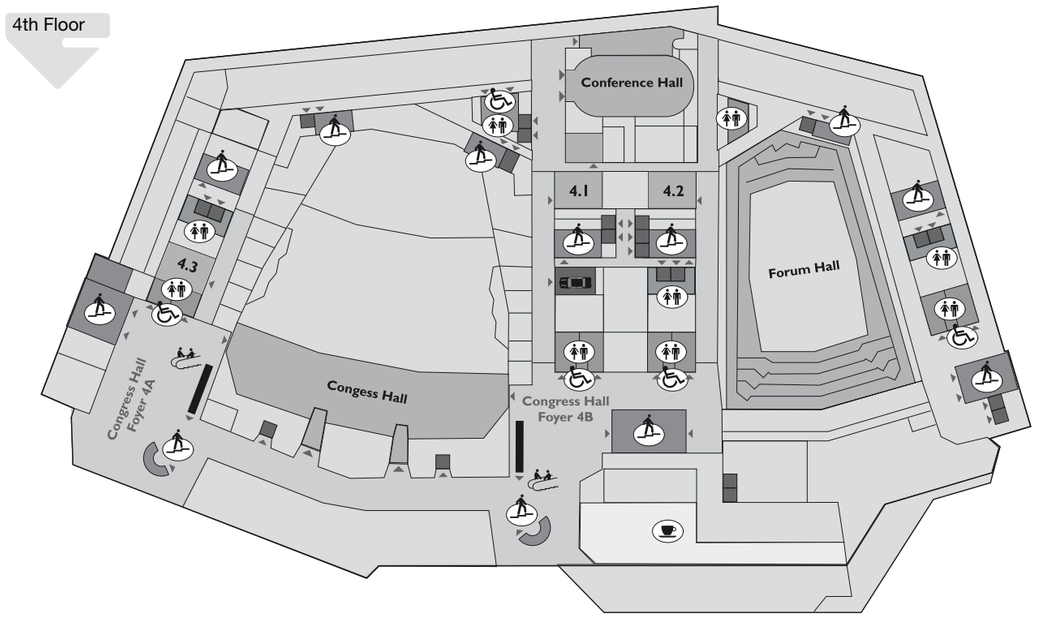
Prague Congress Centre (PCC)
Public transport: metro Line C (red), Vyšehrad station
Třída 5.května 65, 140 21 Prague 4
Czech Republic
www.kcp.cz

2nd Floor



3rd Floor





2.2 Contacts and Opening Hours

IAF Office
Room 220, 2nd Floor, PCC*
Saturday 25 September
14:00 – 18:30
Sunday 26 September – Friday 1 October
08:30 – 18:30

IAA Office
Room 247, 2nd Floor, PCC*
Saturday 25 September – Friday 1 October
08:30 – 17:30

IISL Office
Room 245, 2nd Floor, PCC*
Saturday 25 September – Friday 1 October
08:30 – 17:30

LOC Office
Room 225, 2nd Floor, PCC*
Sunday 26 September – Thursday 30 September
08:30 – 18:00
Friday 1 October
08:30 – 12:00

IAF Members Lounge
Room 2.2, 2nd Floor, PCC*
Monday 27 September
12:00 – 18:00
Tuesday 28 September – Friday 1 October
08:30 – 18:00

Presentation Preparation Room
Room 2.1, 2nd Floor, PCC*
Monday 27 September – Thursday 30 September
07:00 – 18:30
Friday 1 October
07:00 – 16:30

Registration, Message, Info Desk
Corinthia Hotel Prague Lobby
Saturday 25 September
14:00 – 18:00
Sunday 26 September
08:00 – 10:00
1st Floor, PCC*
Sunday 26 September
13:00 – 20:00
Monday 27 September
07:00 – 20:00
Tuesday 28 September – Friday 1 October
08:00 – 18:00

Press Centre
Room 1.1, 2nd Floor, PCC*
Sunday 26 September
13:00 – 17:00
Monday 27 September – Friday 1 October
08:00 – 20:00

Press Briefings
Small Theatre, Ground Floor, PCC*
Sunday 26 September
17:30
North Hall, 2nd Floor, PCC*
Monday 27 September – Friday 1 October
07:30

Exhibition Hall
2nd Floor, PCC*
Monday 27 September
12:00 – 19:00
Tuesday 28 September – Thursday 30 September
10:00 – 18:00
Friday 1 October
10:00 – 17:00

* Prague Congress Centre

Congress Secretariat

GUARANT International spol. s r.o.
Opletalova 22, 110 00 Prague 1
Czech Republic
Tel.: +420 284 001 444
Fax: +420 284 001 448
Email: iac2010@guarant.cz
www.guarant.cz

Registration and Information Desk

The Registration Desk will be located at the Prague Congress Centre. In order to register, please bring along your letter of confirmation, which entitles you to pick up your Congress documents.

Contact number during the congress: +420 725 778 854

OPENING HOURS

Saturday 25 September	Corinthia Hotel lobby	14:00 – 18:00
Sunday 26 September	Corinthia Hotel lobby	08:00 – 10:00
	PCC, 1st floor	13:00 – 20:00
Monday 27 September	PCC, 1st floor	07:00 – 20:00
Tuesday 28 September	PCC, 1st floor	08:00 – 18:00
Wednesday 29 September	PCC, 1st floor	08:00 – 18:00
Thursday 30 September	PCC, 1st floor	08:00 – 18:00
Friday 1 October	PCC, 1st floor	08:00 – 18:00

2.3. Useful Information

REGISTRATION FEES

Registration Category	ON SITE
Full-paying participants	
NON MEMBERS	860 Euros
Full-paying participants	
MEMBERS (IAF, IAA, IISL)	780 Euros
Retired persons	470 Euros
Young professionals	315 Euros
Full-time students (Full-time students must prove their status by providing the photocopies of their student ID and passport to the congress secretariat. Participants must be enrolled in long-term everyday education process)	170 Euros
Accompanying persons (max 1 per Full-paying or Retired Participant)	Free of Charge
Accredited press	Free of Charge

Eligibility and Requirements

Full-paying participants – NON MEMBERS
– Each Full Paying Participant is entitled to enrol ONE accompanying person along with his/her registration at no extra cost

Full-paying participants – MEMBERS (IAF, IAA, IISL)
- Employees or elected officers of an IAF member organisation
- Current members of the IAA
- Current members of the IISL
- Each Full Paying Participant is entitled to enrol ONE accompanying person along with his/her registration at no extra cost

Retired persons
- Retired persons refer to those who were born on or before 27 September 1950 and are full-time retired
- Retired persons must prove their date of birth by providing their ID card to the congress secretariat
- Retired person is entitled to enrol ONE accompanying person along with his/her registration at no extra cost

Young professionals
- Young professionals refer to those who were born on or after 27 September 1976
- Young professionals must prove their date of birth by providing their ID card to the congress secretariat

Full-time students
- Full-time students must prove their status by providing the photocopies of their student ID and passport to the congress secretariat
- Participants must be enrolled in full time education

Accompanying persons
- Registration of one Accompanying person per “Full paying participant” or “Retired person” is free of charge
- Accompanying persons will not have access to the IAC Technical Sessions

Accredited press
- Media accreditation is dealt with directly by the IAF and applications can be made via the IAF website www.iafastro.org
- Journalists must have a recognized accreditation from their country and be able to demonstrate proof of their work
- Onsite registration is possible

What is covered by the fee?

Delegate, student:
- Admission to all congress sessions
- Admission to all industry-supported symposia
- Admission to the Exhibition
- Access to the Opening Ceremony
- Access to the Closing Ceremony
- Admission to the Welcome Reception on 27 September 2010
- Coffee Breaks
- One congress bag including Final Programme and Abstracts DVD

Accompanying person:
- Access to the Opening Ceremony
- Access to the Closing Ceremony
- Admission to the Welcome Reception on 27 September 2010
- Access to Plenaries and Highlight Lectures

Name Badges

Participants and accompanying persons will receive a name badge. Everyone is requested to wear this badge for all Congress activities. Name badges have been colour-coded as follows:

Black:	Organiser (IAF, IAA, IISL, CSO staff)	Grey:	Media
Orange:	Organiser (Guarant International)	Green:	Exhibitor
Blue:	Delegate	Brown:	Young Professional
Yellow:	Accompanying person	Pink:	Student

Posters

Posters will be displayed according to the sessions in the Terrace 2, Meeting Hall IV and in the Chamber Hall.

Language

English is the official language of the Congress. All lectures will be held in English, no translation will be provided.

Climate and clothing

Prague is a city with a continental climate. The weather is usually mild and sunny at the end of September. There might be an occasional rain, and it is therefore advisable to bring a jacket, a sweater and an umbrella.

Currency/Credit cards/Banking

The official currency of the Czech Republic is Czech Crown = Česká koruna (CZK = Kč) which is subdivided into 100 Hellers (h). International credit cards are accepted for payment in most hotels, restaurants and shops. Exchange offices and ATM machines are easily available throughout the city and at the Prague International Airport. ATM machine is also available at the Congress venue right next to the main entrance to Prague Congress Centre (Entrance No. 5).

You can find the official exchange rates on the website of the Czech National Bank www.cnb.cz.

Electricity

The Czech Republic uses a 220V/50Hz system, sockets have the European standard and plugs are three-prong grounded.

Health Care

Vaccinations are not required to enter the Czech Republic. An individual travel and health insurance is recommended.

Insurance

The organisers can accept no liability for personal injuries or for loss or damage to property belonging to Congress participants, either during or as a result of the event.

Coffee Breaks, Lunch

Coffee will be provided both in the morning and afternoon on the 1st & 2nd floor of the Prague Congress Centre (PCC). Water will be available in dispensers on the 1st & 2nd floor of the venue.

Participants are invited to take lunch in Cafe Melodie on the ground floor of the PCC or in the restaurants of the Corinthia Hotel Prague or Holiday Inn that are both located next to the PCC. Lunches are not covered by registration fee.

Time Zone

The Czech Republic is on Central European Time – Greenwich Mean Time (GMT) + 1 hour. From April to October is summer time, i.e. GMT + 2 hours.

Disclaimer

Neither the Czech Space Office nor the Congress Administration accept liability for damages and/or losses of any kind which may be incurred by Congress participants or by any persons accompanying them, both during the official activities and the excursions. The client participates in all tours and events at his/her own risk. Participants are strongly advised to take out insurance against loss, accidents or damage that could be incurred during the Congress. Verbal agreements will not be binding unless they are confirmed in writing. The sole place of jurisdiction is Prague. Czech law is applicable.

Internet Corner

Internet Corner will be available on the 1st floor of the Prague Congress Centre for registered participants.

Useful Telephone Numbers

First Aid **155**; Police **158**; Taxi (Profi) **+420 14 0 15**; Registration Desk **+420 725 778 854**

Public Transport Tickets

The tickets can be purchased in the ticket machine in the metro stations.The participants who have booked their accommodation through IAC 2010 website in a hotel that is not located in a walking distance from the congress venue will obtain 10 free tickets for public transport upon registration.

3. Timetable Overview

3.1 Opening Ceremony/Closing Ceremony

Opening Ceremony

Day: Monday 27 September 2010
Time: 10:00
Place: Congress Hall, Prague Congress Centre

The opening ceremony based on Czech culture takes you through centuries of our history. Medieval music as well as Czech folklore dance and famous Czech compositions are performed by one of the best contemporary Czech violinists. All this and more is included in the Opening Ceremony schedule.

Closing Ceremony

Day: Friday 1 October 2010
Time: 17:30
Place: Forum Hall, Prague Congress Centre

The Closing Ceremony will be held in Forum Hall and provides a formal closing of the activities of the 61st International Astronautical Congress.

At the Closing Ceremony, the IAF will present its annual awards. The IAF sponsors a number of awards that are given annually to individuals and groups that have distinguished themselves in space cooperation and space activities at the global level.

The Allan D. Emil Memorial Award is presented for an outstanding contribution to space science, space technology, space medicine or space law.

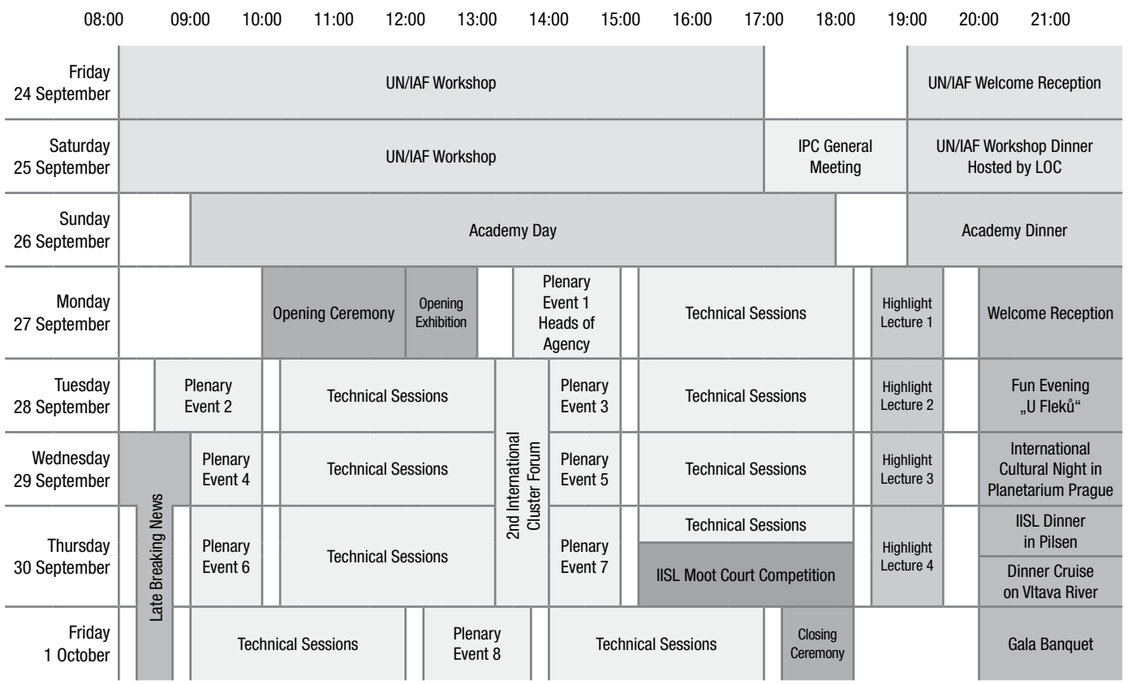
The Frank J. Malina Astronautics Medal is presented to an educator who has demonstrated excellence in taking the fullest advantage of the resources available to him/her to promote the study of astronautics and related space sciences.

The Luigi G. Napolitano Award is presented by the Education Committee of the IAF to a young scientist, below 30 years of age, who has contributed significantly to the advancement of the aerospace science and has given a paper at the IAC on the contribution.

The IAF Student Awards recognise the best papers presented by students at the IAF Congress in undergraduate and graduate categories.

At the end of the ceremony, the Congress flag will be handed over to the next host country – South Africa.

3.2 Programme at a Glance



3.3 Congress Sessions by Day

	Monday 27 September 2010	Room/Floor
10:00	Opening Ceremony	Congress Hall/1st
12:00	Opening of the Exhibition	Foyer 2nd floor
13:30	**Plenary Event 1** – Heads of Agency plenary	Congress Hall/1st
15:15	**Technical Sessions**	**Room/Floor**
A1.1	Behaviour, Performance and Psychosocial Issues in Space	Small Theatre/Ground
A3.2A	Moon Exploration – Part 1	Panorama/1st
A6.1	Measurements	Terrace 2/2nd
B2.1	Advanced Systems	Club B/1st
B3.1	Overview Session (Present and Near-Term Human Space Flight Programs)	Meeting Hall V/2nd
B4.2	Small Space Science Missions	Club H/1st
C1.1	Orbital Dynamics	North Hall/2nd
C2.1	Space Structures I – Development and Verification (Space Vehicles and Components)	Meeting Room 4.2/4th
C4.1	Propulsion Systems I	Club A/1st
D1.1	Innovative and Visionary Space Systems Concepts	Club E/1st
D2.1	Launch Vehicles in Service or in Development	Chamber Hall/3rd
D3.1	Strategies and Architectures to Establish a "Stepping Stone" Approach to our Future in Space	Club C/1st
D4.2	Interstellar Precursor Missions	Meeting Hall IV/2nd
E1.1	Lift off – Primary and Secondary Space Education	Club D/1st
E2.1	Student Conference I	Meeting Room 4.1/4th
E3.1A	New Developments in National and International Space Policies and Programmes I	Terrace 1/2nd
18:30	**Highlight Lecture 1** – The European Vision and Role in Worldwide Space Exploration	Forum Hall/2nd
20:00	Welcome Reception	PCC Foyers /2nd, 3rd
	Tuesday 28 September 2010	**Room/Floor**
08:30	**Plenary Event 2** – Impact of Governments' Space Policy Changes on Industry	Forum Hall/2nd
10:15	**Technical Sessions**	**Room/Floor**
A1.2	Human Physiology in Space	Small Theatre/Ground
A2.1	Gravity and Fundamental Physics	Club B/1st
A3.1	Space Exploration Overview	Panorama/1st
A5.1	Near Term Strategies for Lunar Surface Infrastructure	Meeting Hall V/2nd
B1.1	International Cooperation in Earth Observation Missions	Conference Hall/4th
B4.1	11th UN/IAA Workshop on Small Satellite Programmes at the Service of Developing Countries	Club H/1st
B6.1	Human Spaceflight Operations Concepts	Terrace 1/2nd
C1.2	Orbital Dynamics (2)	North Hall/2nd
C2.2	Space Structures II – Development and Verification (Deployable and Dimensionally Stable Structures)	Meeting Room 4.2/4th
C4.2	Propulsion Systems II	Club A/1st
D1.2	Enabling Technologies for Space Systems	Club E/1st
D2.2	Launch services, Missions, Operations and Facilities	Chamber Hall/3rd
E1.2	On Track – Undergraduate and Postgraduate Space Education	Club D/1st
E2.2	Student Conference II	Meeting Room 4.1/4th
E5.1	Future and current space missions: including and expanding all aspects of human life on-board and in other worlds	Club C/1st
E6.1	Encouragment of Government Purchasing from Commercial Providers: Models and Examples	Terrace 2/2nd
E7.1	Nandasiri Jasentuliyana Keynote Lecture on Space Law & Young Scholars Session	Meeting Hall IV/2nd
14:00	**Plenary 3** – Never Lost Again	Forum Hall/2nd

15:15	**Technical Sessions**	**Room/Floor**
A1.3	Medical Care for Humans in Space	Small Theatre/Ground
A2.2	Fluid and Materials Sciences	Club B/1st
A3.2B	Moon Exploration – Part 2	Panorama/1st
A6.2	Modelling and Risk Analysis	Terrace 2/2nd
B1.2	Future Earth Observation Systems	Conference Hall/4th
B3.2	How Can We Best Apply Our Experience to Future Human Missions?	Meeting Hall V/2nd
B4.3	Small Satellite Operations	Club H/1st
C1.3	Attitude Dynamics	North Hall/2nd
C2.3	Space Structures – Dynamics and Microdynamics	Meeting Room 4.2/4th
C3.1	Joint Session with IAA Commission 3 (Space Technology & System Development) on "Solar Energy From Space"	Club A/1st
D1.3	System Engineering Tools, Processes & Training (I)	Club E/1st
D2.3	Upper Stages, Space Transfer, Entry and Landing Systems	Chamber Hall/3rd
E2.3	Student Conference III	Meeting Room 4.1/4th
E3.1B	New Developments in National and International Space Policies and Programmes II	Terrace 1/2nd
E3.2	Policy and economic aspects of space weather	Terrace 1/2nd
E5.2	Space Expectations: Involving the Public in Space Activities	Club C/1st
E6.2	Space-related Commercial Applications and Markets	Club D/1st
E7.2	30 Years of the Moon Agreement: Perspectives	Meeting Hall IV/2nd
18:30	**Highlight Lecture 2** – Origins, Surprises and Future of GPS	Forum Hall/2nd
	Wednesday 29 September 2010	**Room/Floor**
08:00	**Late breaking news** – Rosetta flight past Lutetia; JAXA's Hayabusa return	Forum Hall/2nd
09:00	**Plenary 4** – Global Sea Level Rise and Its Societal Impacts	Forum Hall/2nd
10:15 hrs	**Technical Sessions**	**Room/Floor**
A1.4	Radiation Fields, Effects and Risks in Human Space Missions	Small Theatre/Ground
A3.2C	Moon Exploration – Part 3	Panorama/1st
A4.1	SETI I : SETI Science and Technology	Meeting Room 4.1/4th
A6.3	Hypervelocity Impacts and Protection	Terrace 2/2nd
B1.3	Earth Observation Sensors & Technology	Conference Hall/4th
B2.2	Fixed and Broadcast Communications	Club B /1st
B3.3	ISS Operations and Utilization	Meeting Hall V/ 2nd
B4.4	Small Satellites Potential for Future Integrated Applications and Services	Club H/1st
B5.1	Integrated Applications End-to-End Solutions	Club C/1st
C1.4	Attitude Dynamics (2)	North Hall/2nd
C2.4	New Materials and Structural Concepts	Meeting Room 4.2/4th
C4.3	Propulsion Technology	Club A/1st
D1.4	Space Systems Architectures	Club E/1st
D2.4	Future Space Transportation Systems	Chamber Hall/3rd
E3.3	The Space Economy in Figures	Terrace 1/2nd
E4.1	IAA 50th Anniversary Half Session 10:15 – 11:45	Club D/1st
E1.6.-E5.4	Water from Space: Societal, Educational and Cultural Aspects Half Session 11:45-13:15	Club D/1st
E5.3	Space Architecture: Exploration and Tourism	Forum/2nd
E7.3	Legal Aspects of Space Security	Meeting Hall IV/2nd
14:00	**Plenary 5** – Next Generation Visions For Space Operations	Forum Hall/2nd
15:15	**Technical Sessions**	**Room/Floor**
A2.3	Microgravity Experiments from Sub-orbital to Orbital Platforms	Club B/1st
A3.3A	Mars Exploration – Part 1	Panorama/1st
A4.2	SETI II : SETI and Society	Meeting Room 4.1/4th
A6.4	Mitigation, Standards, Removal and Legal Issues	Terrace 2/2nd
B1.6	GEOSS and Carbon Monitoring from Space	Conference Hall/4th
B4.5	Access to Space for Small Satellite Missions	Club H/1st
B5.2	Tools and Technology in Support of Integrated Applications	Club C/1st

B6.6.-B3.4	Sustainable Utilization of the ISS Beyond 2015 – Joint Session of the Human Space Endeavors and Space Operations Symposia	Meeting Hall V/2nd
C1.5	Guidance, Navigation, and Control	North Hall/2nd
C2.5	Smart Materials and Adaptive Structures	Meeting Room 4.2/4th
C4.4	Electric Propulsion	Club A/1st
D1.5	Lessons Learned in Space Systems	Club E/1st
D2.5	Future Space Transportation Systems Technologies	Chamber Hall/3rd
D4.3	Access to Space in the Far Future	Small Theatre/Ground
E1.3	Calling Planet Earth – Space Outreach to the General Public	Club D/1st
E6.3	New Space Markets + Investment Opportunities	Terrace 1/2nd
E7.4	The Current Status of the Rule of Law with Regard to Space Activities	Meeting Hall IV/2nd
18:30	**Highlight Lecture 3** – SETI Progress and Prospects	Forum Hall/2nd

	Thursday 30 September 2010	**Room/Floor**
08:15	**Late breaking news** – SpaceX launches Falcon 9	Forum Hall/2nd
09:00	**Plenary 6** – Advancing the Global Exploration Strategy	Forum Hall/2nd
10:15	**Technical Sessions**	**Room/Floor**
A1.5	Astrobiology and Exploration	Small Theatre/Ground
A2.4	Science Results from Ground Based Research	Club B/1st
A3.3B	Mars Exploration – Part 2	Panorama/1st
A5.2	Long Term Scenarios for Human Lunar Presence	Meeting Hall IV/2nd
B1.4	Earth Observation Data Management Systems	Conference Hall/4th
B2.3	Mobile Satellite Communications and Navigation Technology	Terrace 2/2nd
B3.5	Astronauts: Those Who Make it Happen	Meeting Hall V/ 2nd
B4.6A	Design and Technology for Small Satellites	Club H/1st
C1.6	Guidance, Navigation, and Control (2)	North Hall/2nd
C2.6	Space Environmental Effects and Spacecraft Protection	Meeting Room 4.2/4th
C3.2	Space Power Technologies and Techniques	Club E/1st
C4.5	Hypersonic and Combined Cycle Propulsion	Club A/1st
D2.6	Future Space Transportation Systems Verification and In-Flight Experimentation	Chamber Hall/3rd
D3.2	Novel Concepts and Technologies for the Exploration and Utilization of Space	Club C/1st
D5.1	Safety of Vehicules and Ground Segment for Aerospace Missions	Meeting Room 4.1/4th
E3.5.-E7.6	25th IAA/IISL Scientific-Legal Roundtable: The new age of small satellite missions (Invited Papers only)	Terrace 1/2nd
E4.2	Memoirs and Organisational Histories	Club D/1st
14:00	**Plenary 7** – ISS Research – A Decade of Progress and a Decade of Promise	Forum Hall/2nd
15:15	**Technical Sessions**	**Room/Floor**
A1.6	Life Support and EVA Systems	Small Theatre/Ground
A2.5	Facilities and Operations of Microgravity Experiments	Club B/1st
A3.4	Space Based Astronomy	Panorama/1st
B1.5	Earth Observation Applications and Economic Benefits	Conference Hall/4th
B2.4	Space Navigation Systems and Services	Terrace 2/2nd
B3.6.-A5.3	Joint session on Human and Robotic Partnerships to Realize Space Exploration Goals	Meeting Hall V/ 2nd
B4.6B	Design and Technology for Nano-Sats and Cube-Sats	Club H/1st
B6.2	New Operations Concepts	Terrace 1/2nd
C1.7	Guidance, Navigation, and Control (3)	North Hall/2nd
C2.7	Space Vehicles – Mechanical/Thermal/Fluidic Systems	Meeting Room 4.2/4th
C4.7.-C3.5	Nuclear Propulsion and Power	Club A/1st
D1.6	System Engineering Tools, Processes and Training (2)	Club E/1st
D2.7	Small Launchers: Concepts and Operations	Chamber Hall/3rd
D3.3	Infrastructures and Systems to Enable International Future Exploration and Utilization of Space	Club C/1st
D5.2	Knowledge Management and Collaboration in Space Activities	Meeting Room 4.1/4th
E1.4	New Worlds – Innovative Space Education and Outreach	Meeting Hall IV/2nd
E4.3	Scientific and Technical History	Club D/1st
18:30	**Highlight Lecture 4** – Chandrayaan-1 and Water on the Moon	Forum Hall/2nd

	Friday 1 October 2010	**Room/Floor**
08:15	**Late breaking news** – to be confirmed	Forum Hall/2nd
09:00	**Technical Sessions**	**Room/Floor**
A1.7	Biology in Space	Small Theatre/Ground
A2.6	Microgravity Sciences onboard the International Space Station and Beyond	Club B/1st
A3.5	Small Bodies Missions and Technologies	Panorama/1st
B2.5	Near-Earth and Interplanetary Communications	Terrace 2/2nd
B3.7	Enablers for the Future Human Missions	Meeting Hall V/2nd
B4.8	Hitchhiking to the Moon	Club H/1st
B6.3	Training Relevant for Operations, including Human Spaceflight	Terrace 1/2nd
C1.8	Mission Design, Operations and Optimization	North Hall/2nd
C3.4	Space Power Experiments Applications and Benefits	Club E/1st
C4.6	Special Session on "Missions Enabled by New Propulsion Technologies and Systems"	Club A/1st
D2.8	New missions enabled by Extra-large launchers	Chamber Hall/3rd
D3.4	Joint Session on Space Technology and Systems Management Practices and Tools" – Part I	Club C/1st
D5.3	Space Weather Prediction and Effects on Space Missions	Meeting Room 4.1/4th
E1.5	To Boldly go – Space Station Education and Outreach	Meeting Room 4.2/4th
E4.4	History of Contributions to Astronautics of former Czechoslovakia	Club D/1st
E7.5	Recent Developments in Space Law	Meeting Hall IV/2nd
12:15	**Plenary 8** – Czech Space Visions	Forum Hall/2nd
14:00	**Technical Sessions**	**Room/Floor**
A1.8	Public Outreach and Education in Space Life Sciences	Small Theatre/Ground
A2.7	Microgravity Processes onboard the International Space Station and Beyond	Club B/1st
A3.6	Solar System Exploration	Panorama/1st
A5.4	Going Beyond the Earth-Moon system: Human Missions to Mars, Libration points, and NEO's	Terrace 1/2nd
A6.5	Space Surveillance and Space Situational Awareness	Meeting Hall IV/2nd
B1.7	Interactive Session on Earth Observation	Conference Hall/4th
B2.6	Advanced Technologies	Terrace 2/2nd
B3.8.-E7.7	Joint IAF-IISL session on Legal Framework for Collaborative Human Space Missions	Meeting Hall V/2nd
B4.7	Space Systems and Architectures Featuring Cross-Platform Compatibility	Club H/1st
C1.9	Mission Design, Operations and Optimization (2)	North Hall/2nd
C2.8	Specialized Technologies, including Nanotechnology	Meeting Room 4.2/4th
C2.9	Interactive Session on Materials and Structures	Meeting Room 4.1/4th
C4.8	Space Propulsion	Club A/1st
D2.9	Commercial Human Spaceflight Safety	Chamber Hall/3rd
D4.4	Space Elevators and Tethers	Club E/1st
E1.7	Space Workforce Development – Challenges and Opportunities	Club D/1st
E3.4	Protecting the Environment of celestial Bodies	Club C/1st
17:30	Closing Ceremony	Forum Hall/2nd

3.4 Technical Sessions by Symposium

A1 Space Life Sciences Symposium

1 Behaviour, Performance and Psychosocial Issues in Space
2 Human Physiology in Space
3 Medical Care for Humans in Space
4 Radiation Fields, Effects and Risks in Human Space Missions
5 Astrobiology and Exploration
6 Life Support and EVA Systems
7 Biology in Space
8 Public Outreach and Education in Space Life Sciences

A2 MICROGRAVITY SCIENCES AND PROCESSES

1 Gravity and Fundamental Physics
2 Fluid and Materials Sciences
3 Microgravity Experiments from Sub-orbital to Orbital Platforms
4 Science Results from Ground Based Research
5 Facilities and Operations of Microgravity Experiments
6 Microgravity Sciences onboard the International Space Station and Beyond
7 Microgravity Processes onboard the International Space Station and Beyond

A3 SPACE EXPLORATION SYMPOSIUM

1 Space Exploration Overview
2A Moon Exploration – Part 1
2B Moon Exploration – Part 2
2C Moon Exploration – Part 3
3A Mars Exploration – Part 1
3B Mars Exploration – Part 2
4 Space Based Astronomy
5 Small Bodies Missions and Technologies
6 Solar System Exploration

A4 39th SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) – The Next Steps

1 SETI I : SETI Science and Technology
2 SETI II : SETI and Society

A5 HUMAN EXPLORATION OF THE MOON AND MARS SYMPOSIUM

1 Near Term Strategies for Lunar Surface Infrastructure
2 Long Term Scenarios for Human Lunar Presence
3.-B3.6 Joint session on Human and Robotic Partnerships to Realize Space Exploration Goals
4 Going Beyond the Earth-Moon system: Human Missions to Mars, Libration points, and NEO's

A6 SPACE DEBRIS SYMPOSIUM

1 Measurements
2 Modelling and Risk Analysis
3 Hypervelocity Impacts and Protection
4 Mitigation, Standards, Removal and Legal Issues
5 Space Surveillance and Space Situational Awareness

B1 EARTH OBSERVATION SYMPOSIUM

1 International Cooperation in Earth Observation Missions
2 Future Earth Observation Systems
3 Earth Observation Sensors & Technology
4 Earth Observation Data Management Systems
5 Earth Observation Applications and Economic Benefits
6 GEOSS and Carbon Monitoring from Space
7 Interactive Session on Earth Observation

B2 SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM

1 Advanced Systems
2 Fixed and Broadcast Communications
3 Mobile Satellite Communications and Navigation Technology
4 Space Navigation Systems and Services
5 Near-Earth and Interplanetary Communications
6 Advanced Technologies

B3 HUMAN SPACE ENDEAVOURS SYMPOSIUM

1 Overview Session (Present and Near-Term Human Space Flight Programs)
2 How Can We Best Apply Our Experience to Future Human Missions?
3 ISS Operations and Utilization
4.-B6.6 Sustainable Utilization of the ISS Beyond 2015 – Joint session of the Human Space Endeavours and Space Operations Symposia
5 Astronauts: Those Who Make it Happen
6.-A5.3 Joint session on Human and Robotic Partnerships to Realize Space Exploration Goals
7 Enablers for the Future Human Missions
8.-E7.7 Joint IAF-IISL session on Legal Framework for Collaborative Human Space Missions

B4 SMALL SATELLITE MISSIONS SYMPOSIUM

1 11th UN/IAA Workshop on Small Satellite Programmes at the Service of Developing Countries
2 Small Space Science Missions
3 Small Satellite Operations
4 Small Satellites Potential for Future Integrated Applications and Services
5 Access to Space for Small Satellite Missions
6A Design and Technology for Small Satellites
6B Design and Technology for Nano-Sats and Cube-Sats
7 Space Systems and Architectures Featuring Cross-Platform Compatibility
8 Hitchhiking to the Moon

B5 SYMPOSIUM ON INTEGRATED APPLICATIONS

1 Integrated Applications End-to-End Solutions
2 Tools and Technology in Support of Integrated Applications

B6 SPACE OPERATIONS SYMPOSIUM

1 Human Spaceflight Operations Concepts
2 New Operations Concepts
3 Training Relevant for Operations, including Human Spaceflight
5 Flight Control Operations Virtual Forum
6.-B3.4 Sustainable Utilization of the ISS Beyond 2015 – Joint Session of the Human Space Endeavors and Space Operations Symposia

C1 ASTRODYNAMICS SYMPOSIUM

1 Orbital Dynamics
2 Orbital Dynamics (2)
3 Attitude Dynamics
4 Attitude Dynamics (2)
5 Guidance, Navigation, and Control
6 Guidance, Navigation, and Control (2)
7 Guidance, Navigation, and Control (3)
8 Mission Design, Operations and Optimization
9 Mission Design, Operations and Optimization (2)

3. Timetable Overview ▮ 3.4 Technical Sessions by Symposium

C2 MATERIALS AND STRUCTURES SYMPOSIUM
1 Space Structures I – Development and Verification (Space Vehicles and Components)
2 Space Structures II – Development and Verification (Deployable and Dimensionally Stable Structures)
3 Space Structures – Dynamics and Microdynamics
4 New Materials and Structural Concepts
5 Smart Materials and Adaptive Structures
6 Space Environmental Effects and Spacecraft Protection
7 Space Vehicles – Mechanical/Thermal/Fluidic Systems
8 Specialized Technologies, including Nanotechnology
9 Interactive Session on Materials and Structures

C3 SPACE POWER SYMPOSIUM
1 Joint Session with IAA Commission 3 (Space Technology & System Development) on "Solar Energy From Space"
2 Space Power Technologies and Techniques
4 Space Power Experiments Applications and Benefits
5.-C4.7 Joint session on Nuclear Propulsion and Power

C4 SPACE PROPULSION SYMPOSIUM
1 Propulsion Systems I
2 Propulsion Systems II
3 Propulsion Technology
4 Electric Propulsion
5 Hypersonic and Combined Cycle Propulsion
6 Special Session on "Missions Enabled by New Propulsion Technologies and Systems"
7.-C3.5 Nuclear Propulsion and Power
8 Space Propulsion

D1 SPACE SYSTEMS SYMPOSIUM
1 Innovative and Visionary Space Systems Concepts
2 Enabling Technologies for Space Systems
3 System Engineering Tools, Processes & Training (I)
4 Space Systems Architectures
5 Lessons Learned in Space Systems
6 System Engineering Tools, Processes and Training (2)

D2 SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS
1 Launch Vehicles in Service or in Development
2 Launch services, Missions, Operations and Facilities
3 Upper Stages, Space Transfer, Entry and Landing Systems
4 Future Space Transportation Systems
5 Future Space Transportation Systems Technologies
6 Future Space Transportation Systems Verification and In-Flight Experimentation
7 Small Launchers: Concepts and Operations
8 New missions enabled by Extra-large launchers
9 Commercial Human Spaceflight Safety

D3 SYMPOSIUM ON STEPPING STONES TO THE FUTURE: STRATEGIES, ARCHITECTURES, CO CEPTS AND TECHNOLOGIES
1 Strategies and Architectures to Establish a “Stepping Stone” Approach to our Future in Space
2 Novel Concepts and Technologies for the Exploration and Utilization of Space
3 Infrastructures and Systems to Enable International Future Exploration and Utilization of Space
4 Joint Session on Space Technology and Systems Management Practices and Tools” – Part I

D4 SYMPOSIUM ON VISIONS AND STRATEGIES FOR FAR FUTURES
2 Interstellar Precursor Missions
3 Access to Space in the Far Future
4 Space Elevators and Tethers

D5 SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE ACTIVITIES
1 Safety of Vehicules and Ground Segment for Aerospace Missions
2 Knowledge Management and Collaboration in Space Activities
3 Space Weather Prediction and Effects on Space Missions

E1 SPACE EDUCATION AND OUTREACH SYMPOSIUM
1 Lift Off – Primary and Secondary Space Education
2 On Track – Undergraduate and Postgraduate Space Education
3 Calling Planet Earth – Space Outreach to the General Public
4 New Worlds – Innovative Space Education and Outreach
5 To Boldly Go – Space Station Education and Outreach
6.-E5.4 Water from Space: Societal, Educational and Cultural Aspects
7 Space Workforce Development – Challenges and Opportunities

E2 40th STUDENT CONFERENCE
1 Student Conference I
2 Student Conference II
3 Student Conference III

E3 23rd SYMPOSIUM ON SPACE POLICY, REGULATIONS AND ECONOMICS
1A New Developments in National and International Space Policies and Programmes I
1B New Developments in National and International Space Policies and Programmes II
2 Policy and economic aspects of space weather
3 The Space Economy in Figures
4 Protecting the Environment of celestial Bodies
5.-E7.6 25th IAA/IISL Scientific-Legal Roundtable: The new age of small satellite missions (Invited Papers only)

E4 44th HISTORY OF ASTRONAUTICS SYMPOSIUM
1 IAA 50th Anniversary
2 Memoirs and Organisational Histories
3 Scientific and Technical History
4 History of Contributions to Astronautics of former Czechoslovakia

E5 21st SYMPOSIUM ON SPACE ACTIVITY AND SOCIETY
1 Future and current space missions: including and expanding all aspects of human life on-board and in other worlds
2 Space Expectations: Involving the Public in Space Activities
3 Space Architecture: Exploration and Tourism
4.-E1.6 Water from Space: Societal, Educational and Cultural Aspects

E6 BUSINESS INNOVATION SYMPOSIUM
1 Encouragment of Government Purchasing from Commercial Providers: Models and Examples
2 Space-related Commercial Applications and Markets
3 New Space Markets + Investment Opportunities

E7 53rd COLLOQUIUM ON THE LAW OF OUTER SPACE
1 Nandasiri Jasentuliyana Keynote Lecture on Space Law & Young Scholars Session
2 30 Years of the Moon Agreement: Perspectives
3 Legal Aspects of Space Security
4 The Current Status of the Rule of Law with Regard to Space Activities
5 Recent Developments in Space Law
6.-E3.5 25th IAA/IISL Scientific-Legal Roundtable: The new age of small satellite missions (Invited Papers only)
7.-B3.8 Joint IAF-IISL session on Legal Framework for Collaborative Human Space Missions

3.5 Committee Meetings

Saturday 25 September		Room / Floor
09:00 – 18:00	SEOC Working Group Educator Programme	MR 3.3/3rd
09:30 – 12:30	Space & Society Committee	MR 343/3rd
10:00 – 18:00	Option for SEOC Working Group	MR 342/3rd
10:00 – 13:00	Commission 5.5 on Space Debries	MR 3.4./3rd
14:00 – 17:00	Commission 4	MR 3.4/3rd
14:00 – 15:30	IPC Steering Group	MR 343/3rd
14:00 – 19:00	IISL Working Group	MR 3.5/3rd
15:30 – 16:30	TAC	MR 343/3rd
17:00 – 19:30	IPC General Meeting	Corinthia Hotel Prague MR Bellevue / 24th

Sunday 26 September		
08:00 – 10:00	IAF Space Education and Outreach Committee	MR 3.4/3rd
09:00 – 10:30	IAF Finance	Meeting Hall II/1st
10:30 – 14:00	IAF Bureau	Meeting Hall II/1st
11:00 – 13:00	IAF Propulsion TC	MR 3.1/3rd
14:00 – 17:00	Space Transportation TC Meeting	MR 3.2/3rd
14:00 – 17:00	Commercial Spaceflight Safety TC Meeting	MR 3.3/3rd
14:00 – 16:00	WD/YPP Committee	MR 342/3rd
15:00 – 17:00	Earth Observation TC Meeting	MR 3.4/3rd
15:00 – 17:00	IAF regional Group Asia-Pacific	MR 341/3rd
15:00 – 17:00	Space Economy TC Meeting	MR 343/3rd
15:00 – 17:00	Microgravity TC Meeting	MR 3.1/3rd
15:00 – 17:30	IAF regional Group South America	MR 3.5/3rd
16:00 – 18:00	Plenary 5 rehearsal	MR 342/3rd
17:00 – 18:30	EO/GEOSS TC Meeting	MR 3.4/3rd

Monday 27 September		
12:00 – 14:00	Space Power TC Meeting	MR 3.1/3rd
14:00 – 16:00	Flight control Virtual	MR 3.3/3rd
15:00 – 17:00	IAA SAC Meeting	MR 3.1/3rd
16:00 – 19:00	IISL Board of Directors	Meeting Hall II/1st
17:00 – 18:30	IAA IG MASS	MR 3.2/3rd

Tuesday 28 September		
09:00 – 12:00	IAA Board Of Trustees	Meeting Hall II/1st
09:00 – 12:00	ACHA Meeting	MR 3.4/3rd
09:00 – 11:30	CSAC	MR 342/3rd
09:00 – 13:00	Space Generation	MR 343/3rd
10:00 – 12:00	Human Space Endeavours TC Meeting	MR 3.1/3rd
10:00 – 12:00	Space Com & Nav TC Meeting	MR 3.2/3rd
10:00 – 13:00	SETI	MR 341/3rd
11:00 – 15:30	IISL Moot Court Semi finals	MR 3.5/3rd
11:30 – 14:30	Policy Advisory Committee Meeting	MR 342/3rd
13:00 – 14:30	IAA Small Sat	MR 3.3/3rd
14:00 – 16:00	Space Astronomy TC Meeting	MR 3.4/3rd
14:00 – 16:00	Space Ops TC	MR 3.2/3rd
14:30 – 17:00	ISEB Heads of Education	MR 3.3/3rd
16:30 – 18:00	Safety & Quality Management	MR 3.1/3rd
18:00 – 20:00	Space Policy Elsevier	Meeting Hall II/1st

Wednesday 29 September		
08:00 – 10:00	Entrepreneurship and Investment Committee	MR 3.3/3rd
08:00 – 13:00	World Space Week Association	MR 3.5/3rd
09:00 – 11:30	CSAC	MR 342 / 3rd
09:00 – 19:00	Business to Business	Meeting Hall II/1st
09:00 – 18:00	IAF Space Power WS	MR 3.2/3rd
09:00 – 11:00	IAA SG 6.78 50th Anniv. of the space area	MR 341/3rd
09:00 – 17:00	IAA SG 2.9 International Stdt for Bed Rest Studies	MR 343/3rd
10:00 – 13:00	Student Competition Jury	MR 3.1/3rd
10:00 – 13:00	IAF WG Plenary 4	MR 3.3/3rd
11:00 – 13:00	Space Astronomy TC Meeting	MR 3.4/3rd
12:30 – 19:00	Expo Nano SL TBC	MR 342/3rd
12:30 – 14:00	Honors & Awards Committee	MR 341/3rd
14:00 – 16:00	IAA SG 6.7	MR 341/3rd
14:00 – 16:00	Space Policy TC Meeting	MR 3.1/3rd
14:00 – 17:00	Space Security TC Meeting	MR 3.4/3rd
15:30 – 18:30	ISEB Heads of Education	MR 3.3/3rd
16:00 – 18:00	AAS Space Survey	MR 3.1/3rd

Thursday 30 September		
09:00 – 18:00	IADC Inter Agency Debris Committee	MR 3.2/3rd
10:00 – 13:00	IAF B6.4 Virtual session Space Ops	MR 3.3/3rd
10:00 – 12:00	IAA SG 3.1 SET I Sub Group	MR 3.4/3rd
10:00 – 12:00	AIAA	MR 3.5/3rd
10:30 – 14:00	IAF Bureau 2	Meeting Hall II/1st
11:00 – 13:00	IAF CLIODN	MR 343/3rd
13:00 – 14:00	IAA SG 4.10 Space Missions	MR 3.4/3rd
13:00 – 14:00	IAF Dual Use SbCttee	MR 341/3rd
15:00 – 16:00	Acta Astronautica	MR 3.4/3rd
15:00 – 18:00	SG 1.6 Protected Antipode Circle	MR 341/3rd
15:00 – 18:00	IISL Moot Court Finals	Regional Court of Pilsen
17:00 – 19:30	IAF Astrodynamics TC	MR 3.3/3rd
17:00 – 20:00	IAF SEOC WG	MR 3.4/3rd

Friday 1 October		
09:00 – 17:00	IAA SG 2.9 International Stdt for Bed Rest Studies	MR 343/3rd

3.6 Exhibition

Exhibition schedule

Stand Constructions :		**Exhibition Hours:**	
Sunday 26 September 2010	03:00 – 24:00	Monday 27 September 2010	12:00 – 19:00
Monday 27 September 2010	00:00 – 08:00	*Welcome Reception*	*20:00 – 22:00*
		Tuesday 28 September 2010	10:00 – 18:00
Stand Decoration:		Wednesday 29 September 2010	10:00 – 18:00
Monday 27 September 2010	08:00 – 12:00	Thursday 30 September 2010	10:00 – 18:00
		Friday 1 October 2010	10:00 – 17:00
Public day:		**Stand Dismantling**	
Friday 1 October 2010	**14:00 – 17:00**	Friday 1 October 2010	17:00 – 24:00

List of Exhibitors

Thales Alenia Space
Stand: A1

Catherine Blondeel
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European leader in satellite systems and a major player in orbital infrastructures, Thales Alenia Space is a joint venture between Thales (67%) and Finmeccanica (33%).

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)
Stand: A2

DLR – German Aerospace Centre Headquarters
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DLR is Germany's national research centre for aeronautics and space. Its extensive research and development work in Aeronautics, Space, Transportation and Energy is integrated into national and international cooperative ventures. As Germany's space agency, DLR has been given responsibility for the forward planning and the implementation of the German space programme by the German federal government as well as for the international representation of German interests. Furthermore, Germany's largest projectmanagement agency is also part of DLR.

Approximately 6,500 people are employed at thirteen locations in Germany: Koeln (headquarters), Berlin, Bonn, Braunschweig, Bremen, Goettingen, Hamburg, Lampoldshausen, Neustrelitz, Oberpfaffenhofen, Stuttgart, Trauen and Weilheim.
DLR also operates offices in Brussels,Paris, and Washington D.C.

Astrium SAS
Stand: A3

Astrium SAS
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Global space industry leader Astrium, an EADS company, provides civil and defence space systems and services for all sectors.

3. Timetable Overview ▮ 3.6 Exhibition

European Space Agency
Stand: A4

ESA
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For several decades, Europe has been actively involved in spaceflight. Since 1975 the European Space Agency, ESA, has been pooling the resources of its Member States to build a European space capability in order to undertake programmes and activities far beyond the scope of any single European country.
ESA develops the launchers, spacecraft and ground facilities needed to keep Europe at the forefront of global space activities. Today it launches satellites for Earth observation, navigation, telecommunications and astronomy, sends probes to the far reaches of the Solar System, and cooperates in the human exploration of space.
ESA has 18 Member States: Austria, Belgium, the Czech Republic, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom. Canada also sits on the ESA Council and takes part in certain projects under a cooperation agreement. Estonia, Hungary, Poland, Romania and Slovenia participate in a Plan for European Cooperating States.

Surrey Satellite Technology Ltd
Stand: A5

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Aerospace Industry Support Initiative (AISI)
Stand: A6

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IABG mbH
Stand: A6+

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W: www.iabg.de/space

IABG operates one of the ESA coordinated European space test centres at Ottobrunn, Germany. During many demanding tests on spacecraft and other specimen, IABG has proven to be most efficient and reliable.

International Space University (ISU)
Stand: A7

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E: extrelations@isu.isunet.edu
W: www.isu.isunet.edu

ISU offers unique, international and interdisciplinary education programs covering all aspects of space : space science, space engineering, systems engineering, space policy, law, business, management, and space and society.

Active Space Technologies
Stand: A7+

Bruno Ramos de Carvalho
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F: +351 239 700 301
E:bruno.carvalho@activespacetech.com

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F: +49 30 201632829
E: riccardo.nadalini@activespacetech.com
W: www.activespacetech.com

Active Space Technologies offers innovative products and high added-value services in the fields of thermo-mechanical engineering and electronics engineering.

United Space Alliance
Stand: A8

Glen Stromme,
1150 Gemini
Mailcode USH-100D
USA

T: +1 281 282 5612
F: +1 281 282 5449
W: www.unitedspacealliance.com

United Space Alliance is one of the world's leading space operations companies, providing mission operations and support to the International Space Station and U.S. Space Shuttle Programs.

ASI-Italian Space Agency
Stand: A9

ASI- Italian Space Agency
External Relation – Education Office
Giuseppina Pulcrano
Viale di Villa Grazioli 23- 00198 Roma
Italy

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E: formazione.esterna@asi.it
W: www.asi.it

ASI was established in 1988. It has made Italy one of the first countries of the world in space. It operates on the forefronts of science and advanced technology and on advanced services experimentation and promotion in such fields as Telecommunications, Observation of the Universe and of the Earth, included Environmental Monitoring and Management of Natural Disasters. ASI's mission is to work so that collective resources dedicated to space activities are a useful investment for the quality of life.
ASI is the third contributor to ESA and is also engaged in bilateral and multilateral space cooperations.

Semelab Limited
Stand: A10

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W: www.semelab-tt.com

TT electronics Semelab manufacture ultra reliable high performance semiconductor solutions designed to operate in any environment. Experts in custom packaging and screening.

STAR-Dundee
Stand : A11

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University of Dundee
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F: +44 1382 388838
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W: www.star-dundee.com

STAR-Dundee specialise in SpaceWire, providing hardware and software for interfacing, dubugging, and monitoring networks, and also design and training services.

HE Space Operations
Stand: A12

Antje Heuer
HE Space Operations GmbH
Flughafenallee 26
28199 Bremen
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W: www.hespace.com

HE Space Operations provides the space industry and agencies with talented professionals from all over the world.

Berlin Space Technologies GmbH
Stand: A13+

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W: www.Berlin-Space-Tech.com

BST a Spin-Off from TU-Berlin offers turn-key Microsat Systems, Sub-Systems and Training (TTP) based on TU-Berlin's famous TUBSAT satellites.

Czech Space Office
Stand : A13, 14

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The Czech Space Office (CSO) is the national contact point for ESA. CSO coordinates all space-related activities in the Czech Republic.

Robert A. and Virginia Heinlein Prize Trust
Stand: A15

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Houston, TX 77009
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F: +1 713 861 0637
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E: info@heinleinprize.com

Robert and Virginia dreamt of humankind living and working in space. The trust aids commercial endeavors toward making that dream reality.

GomSpace
Stand : A16

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W: www.gomspace.com

GomSpace develops and markets subsystems and complete platform solutions for cubesat and nano-satellite missions based on flight experience.

Geo-Informatics and Space Technology Development Agency (Public Organisation): GISTDA
Stand: B1

Mr.CHINOROST BOONCHERM
120 The Government Complex Commemorating His Majesty The King's 80th Birthday Anniversary
5th December, B.E.2550(2007), Building B 6th and 7th Floor line
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T: +66 2141 4640-1
F: +66 2143 9598
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W: CHINO@gistda.or.th

GISTDA is the Thai focal agency to provide data services relating to satellite imageries and geo-information to users worldwide. Its objectives include the provision of geo-information, technical services, technology transfer, as well as to conduct researches and development for the benefit of the people.

Springer
Stand: B2

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HASTIC (Hokkaido Aerospace Science and Technology Incubation Centre)
Stand: B3

Kenichi Ito, President of HASTIC
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W: www.hastic.jp

Incubation of aerospace science and technology; Microgravity experiments, Hybrid rockets, Micro- satellites, Small-scale supersonic airplane

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Polish Space Technology Platform
Stand: B4

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F: +48 22 8403131
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Among the participants of the Polish Space Technology Platform (PSTP) there are key industrial enterprises, scientific institutions and universities. It has been created in order to establish development strategies and to carry projects for space sector. The coordinator of Platform is the Space Research Centre PAS, the leading institute in Poland fully dedicated to the space technology and space applications. It is supported by the Polish ministries: Science and Economy. PSTP is concentrated on satellites navigation systems and Global Positioning Systems (GPS), active participation in GMES, GEOSS, Galileo, SSA, development and integration of advanced aerospace materials and components, microsatellite construction programs, subsystems for space missions and ground control stations.

ENTERPRISE ESTONIA
Stand: B5

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Mr Urmas Uska
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Mr Mart Vihmand
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Enterprise Estonia is the main business development and R&D funding agency in Estonia, acting also as Estonian Space Office and national contact point for ESA.

RAFAEL – Advanced Defence Systems LTD.
Stand: B7

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Director, Marketing & Business Development
Space Systems Directorate
Mr. Zvika Zuckerman, M.SC., MBA
Director, Marketing & Business Development
Space Systems Directorate
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RAFAEL designs, develops, manufactures and supplies a wide range of advanced defense systems. These leading edge products include space propulsion products, micro-satellites, naval, air and ground precision weapons.

Romanian Space Agency (ROSA)
Stand: B8

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W: www.rosa.ro

Space programmes management; Consultancy and policy in space-related and security; Space technology integrator; Nanosatellite technology; Disaster management and Geo-spatial information; Knowledge management.

Advanced Studies and Research Centre (ASRC)
Stand: B8

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InSAR, PSI, Deformation maps, DEM; Customized Geo-Information Services; Automatic Knowledge Extraction from digital data; Vibration active control.

INCAS – National Institute for Aerospace Research
Stand: B8

Dr. Catalin NAE
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Advanced research in aerospace sciences, wind tunnel testing, aero-thermodynamics, flight dynamics, aerostructures, advanced materials, Grid technology for Earth Observation.

Institute of Space Science (ISS)
Stand: B8

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W: www.spacescience.ro

Fundamental and advanced technological researches covering Astrophysics, Space Technology, Space Applications and related fields.

Next-generation Space Systems Technology Research Association [NESTRA]
Stand: B9 + B11

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Japan

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E-mail: nojiri.yuta@nestra.jp
Website: www.nestra.jp

NESTRA consists of SMEs and venture companies relating to space industry in Japan and aims to establish the industrial base in nano-satellite segment.

GIFAS
Stand: B10 + B12

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E: export@gifas.asso.fr

Founded in 1908, GIFAS, the French aerospace industries association, has 273 members, from major prime contractors and system suppliers to small specialist companies.

ZARM – Centre of Applied Space Technology and Microgravity
Stand: B13

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The Centre of Applied Space Technology and Microgravity (ZARM) is a research centre mainly concentrated on short-term experiments under weightlessness and on developments of space technologies. Our outstanding facility is the Drop Tower Bremen with a total height of 146 m – unique in Europe.

SpaceNed Holland
Stand: B14-B19
ISIS – Innovative Solutions In Space

Abe Bonnema – Marketing Director
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E: info@isispace.nl
W: www.isispace.nl
www.isilaunch.com
www.cubesatshop.com
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ISIS is a leading provider of nanosatellite systems, ground stations, launch services and turnkey solutions from the Netherlands.

Science [&] Technology
Stand: B14-B19

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The Netherlands

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W: www.stcorp.nl

S[&]T brings novel software, people and ideas to the space market, turning issues into insights, data into decisions and science into success.

Delft University of Technology
Stand: B14-B19

Charlotte de Kort
Faculty of Aerospace Engineering
Kluyverweg 1
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TU Delft is the largest and most all-round university of technology in the Netherlands. The University enjoys a good international reputation.

Dutch Space
Stand: B14-B19

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Dutch Space, leading space company in the Netherlands, develops innovative (sub)systems and products for the international space industry.

SRON Netherlands Institute for Space Research
Stand: B14-B19

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SRON develops and uses innovative technology for groundbreaking research in space, focusing on astrophysical research, Earth science and planetary research.

TNO
Stand: B14-B19

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E: gerard.blaauw@tno.nl
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TNO, the largest research institute in the Netherlands, encompasses space systems, space applications, and a special technology transfer programme.

BRADFORD engineering B.V.
Stand: B14-B19

R.(Raoul) G.H.M. Voeten
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The Netherlands

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W: www.bradford-space.com

Bradford Engineering B.V. is a top ranking Dutch Subsystems & Equipment Supplier in the fields of Chemical- and Electrical Propulsion, AOCS and Thermal Control.

Netherlands Space Office
Stand: B14-B19

Jasper Wamsteker
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Netherlands Space Office (NSO) is the space agency of the Dutch government. The NSO develops and executes the Dutch space policy.

SystematIC design
Stand: B14-B19

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E: b.monna@systematic.nl
W: www.systematic.nl

SystematIC design is a design house for analog and mixed mode ASICs and electronics. Services range from feasibility studies up to complete designs.

Satellite Services BV
Stand: B14-B19

Pieter van Duijn / Monika Lebek
Space Business Park
Huygensstraat 44
NL-2201 DK Noordwijk Aan Zee
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T: +31 71 751 5100
F: +31 71 751 5199
E: marketing@ssbv.com
W: www.ssbv.com

SSBV is a Dutch System Engineering House providing product based solutions for Spacecraft AIT, TTC & Earth Observation Systems and small satellites.

National Aerospace Laboratory – NLR
Stand: B14-B19

Bas van der Peet, Manager Marketing
Anthony Fokkerweg 2
NL-1059 CM Amsterdam
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T: +31 52 724 8746
E: peet@nlr.nl

NLR, an independent technological institute, performs research to develop new technologies for aviation and space, not only from a scientific perspective, but also for the application of this research in industrial and governmental sectors,

---

SpaceNed
Stand: B14-B19

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SpaceNed is the Association of Space companies in The Netherlands. SpaceNed's objective is to strengthen the position of its members in the international space market.

Magellan Aerospace
Stand: C1

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Marketing Manager
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W: www.magellan.aero

Magellan Aerospace manufactures small satellite buses, sub-orbital rocket vehicles and payloads, spacecraft heat shielding solutions, and precision machined payload components.

Ministry of Transport of the Czech Republic
Stand: C1+

PhDr. Václav Šimice
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T: +420 606 726 548
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W: www.mdcr.cz, www.spacedepartment.cz

The Czech Ministry of Transport is a key governmental body dealing with space and space activities in the Czech Republic.

Japan Aerospace Exploration Agency
Stand:C2+C3

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W: www.jaxa.jp

Under our corporate message "Reaching for the skies, exploring space," JAXA is pursuing great possibilities in various aerospace fields.

Swedish Space Corporation
Stand: C4

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SE-171 04 Solna
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W: www.ssc.se

The Swedish Space Corporation (SSC) designs, tests, launches and operates air and space systems.

Korea Aerospace Research Institute(KARI)
Stand: C5

Mr. Ok-Kyu Lee, Mr. In-Kyu Joen
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Daejeon 305-333
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W: www.kari.re.kr

The Korea Aerospace Research Institute (KARI) is the leading organisation for aerospace R&D in Korea. KARI's R&D activities include the development of aircraft, satellite, launch vehicles and the quality certification of aircraft and space products. KARI's COMS(Communication Ocean & Meteorological Satellite) was successfully launched by the Ariane-5 in June, 2010 together with the completion of the first Korean astronaut mission in 2008. KARI is now developing satellite (KOMPSAT-3 & 5), and launch vehicle.

Canadian Space Agency
Stand: C6

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The Canadian Space Agency coordinates all civil, space-related policies and programs to deliver social and economic benefits to Canada and Canadians.

MDA
Stand: C7

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MDA's expertise ranges from robotic systems for on-orbit servicing and planetary exploration, to complete satellite mission design.

British Interplanetary Society
Stand:C8+

Suzann Parry
27/29 South Lambeth Road
London SW8 1SZ
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T: +44 207 735 3160
E: mail@bis-spaceflight.com
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The world's longest established organisation (founded in 1933) devoted solely to supporting and promoting the exploration of space and astronautics.

3. Timetable Overview ▮ 3.6 Exhibition

Ascend Worldwide Limited
Stand: C8+

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Ascend SpaceTrak Database and Space Review Online are used by satellite operators, manufacturers and insurers, launch providers and space agencies.

Reaction Engines Limited
Stand: C8

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Reaction Engines Ltd is at the forefront of the development of pre-cooled engine technologies for the SKYLON reusable spaceplane.

CST
Stand: C8

CST London Office
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UK

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Fax: +44 20 8840 7776
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Service and support in the supply of launch solutions, market analysis, commerce, resource prospecting, technologies analysis, planning and advice.

Space Generation Advisory Council
Stand: C9

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SGAC is a non-governmental organisation representing university students and young space professionals to the United Nations, space agencies, industry and academia.

Critical Software
Stand: C9+

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W: www.criticalsoftware.com asd.criticalsoftware.com

Critical Software delivers flight qualified software, quality & product assurance, operational simulators, data processing and visualization tools, ISVV and RAMS.

Phoenix Semiconductor Limited
Stand: D1

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Working for Semicoa Corporation as their European Sales representative we are specialist in the supply of radiation assured devices – transistors, diodes and MOSFETS. Working in partnership with our customers and suppliers we offer a complete range of services from custom products built to Source Control Drawings through to devices offered against the standard DSCC (Defense Supply Centre Columbus) QPL offering MIL-PRF-19500.
JAN, JANTX, JANTXV, JANS, JANSR, JANSF, JANHC, JANKC, JANKCR, JANKCF

VEGA
Stand: D2

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VEGA - providing Space programme and project management; systems and operations engineering; end-to-end ground systems; simulations and modelling; and training solutions.

National Aeronautics and Space Administration
Stand: D4

Jim Hull, NASA Exhibit Manager
300 E Street, SW
Washington, DC 20546
USA

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F: +1 202 358 4338
E: jim.hull@nasa.gov
W: www.nasa.gov

Visit the NASA Theater! See highlights of the latest missions – Earth, ISS and deep space – come and explore of the Universe.

International Student Zone
Stand: D5

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ESAC/European Space Astronomy Centre
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Madrid
Spain

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E: Felix-Ferdinand.Mikl@esa.int

The International Students Zone is a presentation, meeting and networking area for students and young space professionals from around the world organised by the International Space Education Board. It will feature special presentations and sessions for students throughout the week.

Welcome Dinner Sponsor
Lockheed Martin Corporation

Mr. Dean P. Acosta
Communications Director, Engineering & Technology

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E: Dean.acosta@lmco.com

Headquartered in Bethesda, MD, USA, Lockheed Martin is a global security company that employs about 136,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation reported 2009 sales of $45 billion."

Poster Presentation
SOURIAU SAS

Ms. Claire Lautaret
9 rue de la Porte de Buc
78000 Versailles
France

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F: +33 1 45 10 78 66
E: clautaret@souriau.com

Exhibitor Badges

Each exhibiting company is entitled to a certain number of free Exhibitor Badges according to the square metres of exhibition ground that its stand covers.

An exhibitor badge allows access to:

- Access to the exhibition area

- Coffee breaks

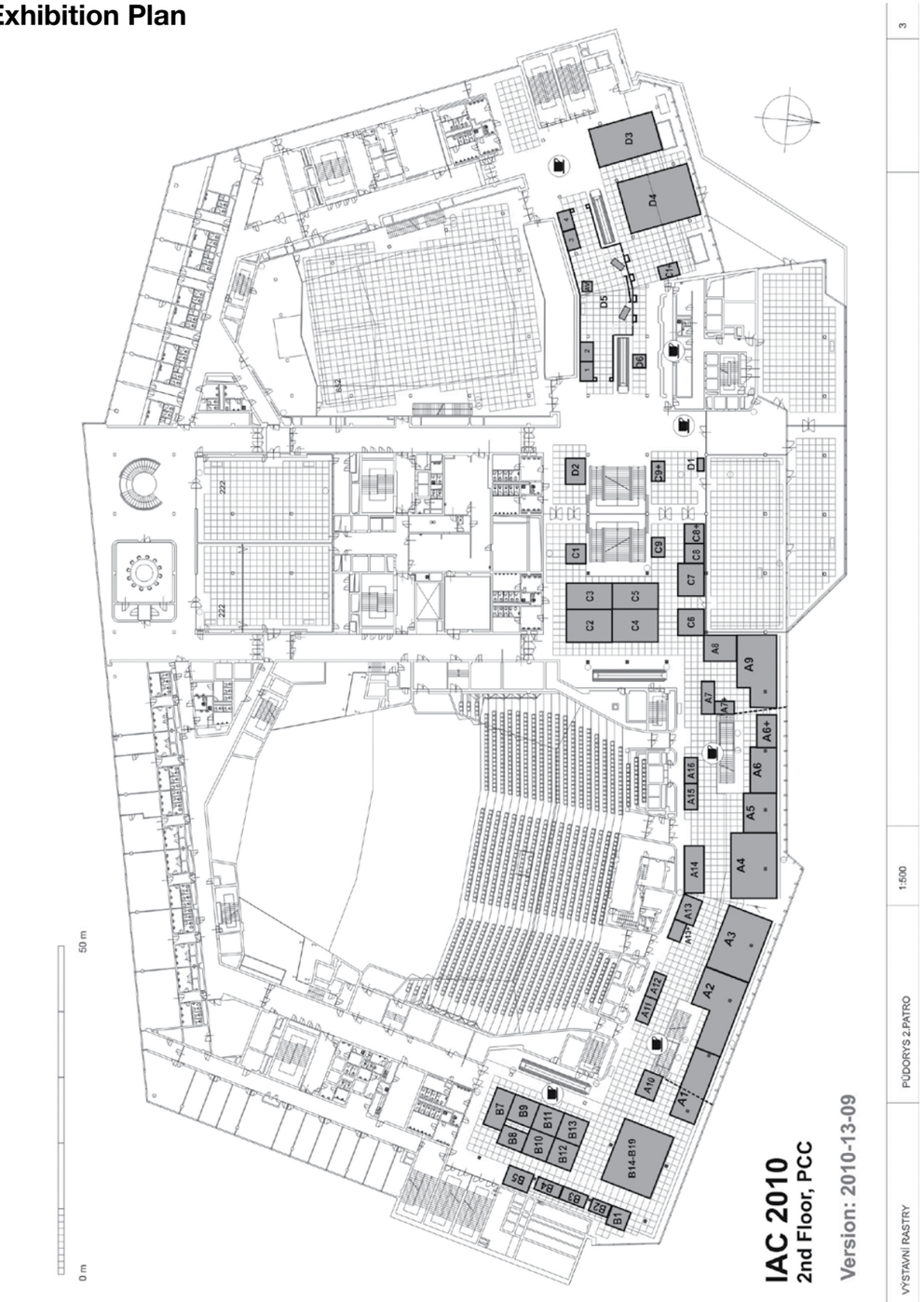
- Welcome Reception

Exhibitor badges will be ready for pick-up on-site.

Additional exhibitor badges can be ordered for EURO 80 + 20% VAT/in advance or on-site. Do not forget to collect your badges before the event opens otherwise you will have problems entering the exhibition.

Exhibitor badges can only be issued to companies that have paid all participation fees related to the exhibition.

Exhibition Plan



List of Stands & Exhibitors

Booth No	Company
A1	Thales Alenia Space
A2	Deutsches Zentrum fur Luft und Raumfahrt e.V. (DLR) German Aerospace Centre (DLR)
A3	EADS Astrium
A4	ESA
A5	Surrey Satellite Technology Ltd.
A6	Aerospace Industry Support Initiative
A6+	IAB GmbH
A7	International Space University
A7+	Active Space Technologies
A8	United Space Alliance
A9	Italian Space Agency ASI
A10	Semelab Limited
A11	Star Dundee Ltd.
A12	HE Space Operation GmbH
A13+	Berlin Space Technologies GmbH
A13,A14	Czech Space office
A15	Heinlein Prize Trust
A16	GomSpace
B1	GISTDA
B2	Springer
B3	HASTIC
B4	Polish Space Technology Platform
B5	Enterprise Estonia
B7	Rafael
B8	Romanian Space Agency (ROSA)
B9, B11	NESTRA
B10, B12	GIFAS
	ONERA
	EADS SODERN
	Safran Group
	/ Snecma Propulsion Solide and Snecma /
B13	ZARM
B14 – B19	SpaceNed Holland pavillion
	BRADFORD engineering B.V
	Delft University of Technology
	Dutch Space
	ISIS - Innovative Solutions In Space
	National Aerospace Laboratory - NLR
	Netherlands Space Office
	Satellite Services BV
	Science (&) Technology
	Space Ned
	SRON Netherlands Institute for Space Research
	SystematIC desing
	TNO
C1	Magellan Aerospace
C1+	Ministry of Transport of the Czech Republic
C2 – C3	JAXA
C4	Swedish Space Corporation
C5	KARI
C6	Canadian Space Agency
C7	MDA Space Mission
C8 – C8+	British Interplanetary Society
	Ascend Worlwide Limited
	Reaction Engines Limited
	CST
C9	Space Generation Advisory Council
C9+	Critical Software
Poster presentattion	Souriau SAS
D1	Phoenix Semiconductor Limited
D2	VEGA
D3	Cluster area
D4	NASA
D5	Student Zone
D6	Chinese Society of Astronautics

4. Organisers and Associated Events

4.1 The International Astronautical Federation

The International Astronautical Federation (IAF) is an international non-governmental and non-profit organisation, founded in 1951.

The Federation encourages the advancement of knowledge about space and the development and application of space assets for the benefit of humanity. It plays an important role in disseminating information, and in providing a significant worldwide network of experts in the development and utilisation of space.

It remains to this day the only international federation for the space community that addresses all aspects of space – developments, activities, knowledge, experts and the future.

Members of the IAF include space agencies, space companies, societies, associations and institutes. As an international organisation with 198 members, the Federation is governed by a Constitution.

The IAF is responsible for the annual International Astronautical Congress (IAC) alongside other symposia.

The summary missions of the International Astronautical Federation are:

- public awareness and appreciation of space activities worldwide
- the exchange of information on space programme developments and plans
- the development of highly-motivated and internationally-knowledgeable workforces
- the recognition of achievements in space activities and space programme cooperation
- the use by developing countries of space systems for human development

The IAC in Prague marks the beginning of the IAF's 60th anniversary celebrations which will continue through late 2010 and 2011.

IAF Member Organisations 2010

Company	Country
Access Intelligence	United States
Acutronic Switzerland Ltd.	Switzerland
Aerojet-General Corporation	United States
Aerospace Research Institute	Iran
Agence Spatiale Algérienne (ASAL)	Algeria
Agrupación Astronáutica Espa~nola	Spain
American Astronautical Society (AAS)	United States
American Institute of Aeronautics and Astronautics (AIAA)	United States
Analytical Graphics, Inc.	United States
Andoya Rocket Range	Norway
Angström Aerospace Corporation (AAC)	Sweden
Argentine Association for Space Technology	Argentina
Arianespace	France
Asociación Argentina de Ciencias Espaciales (AACE)	Argentina

Company	Country
Association Aéronautique & Astronautique de France (AAAF)	France
Association of Specialist Technical Operators in Space (ASTOS)	United Kingdom
Associazione Italiana di Aeronautica e Astronautica (AIDAA)	Italy
Astrium GmbH	Germany
Astrium SAS France	France
Astrium UK	United Kingdom
Astronaute Club Européen (ACE)	France
Astronautic Technology SDN BHD	Malaysia
Astronautical Society of India	India
Astrotech Corporation	United States
ATUCOM – Tunisian Association for Communication and Space Sciences	Tunisia
Austrian Research Promotion Agency	Austria
Brazilian Space Agency (AEB)	Brazil

4. Organisers and Associated Events ▮ 4.1 The International Astronautical Federation

Company	Country
Bulgarian Aerospace Agency	Bulgaria
Canadian Aeronautics & Space Institute (CASI)	Canada
Canadian Space Agency	Canada
Carlo Gavazzi Space	Italy
Center for Strategic and International Studies (CSIS)	United States
Central Research Institute of Machine Building (FSUE/TSNIIMASH)	Russia
Centre National de la Cartographie et de la Teledetection (CNCT)	Tunisia
Centre National d'Etudes Spatiales (CNES)	France
Centre Royal de Télédétection Spatiale	Morocco
Centre Spatial de Liège	Belgium
Centro de Investigación y Difusion Aeronáutico Espacial (CIDA-E)	Uruguay
Centro Para el Desarrollo Tecnológico Industrial (CDTI)	Spain
Chinese Society of Astronautics	China
CIRA Italian Aerospace Research Centre	Italy
Comisión Nacional de Actividades Espaciales (CONAE)	Argentina
Commission d'Astronautique de l'Académie Roumaine	Romania
Croatian Astronautical and Rocket Federation (HARS)	Croatia
CSIRO Marine & Atmospheric Research	Australia
Cyprus Astronautical Society	Cyprus
Czech Space Office	Czech Republic
Danish Astronautical Society	Denmark
Dassault Aviation	France
DEIMOS Space S.L.	Spain
Deutsche Gesellschaft für Luft- und Raumfahrt, Lilienthal-Oberth e.V. (DGLR)	Germany
Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)	Germany
Dutch Space	The Netherlands
EADS CASA Espacio S.L.	Spain
EADS Sodern	France
Ecole Polytechnique Fédérale de Lausanne (EPFL)	Switzerland
Ecuadorian Civilian Space Agency (EXA)	Ecuador
Engineers Australia	Australia

Company	Country
Enterprise Estonia	Estonia
Eumetsat	Germany
EURISY Association	France
Eurockot Launch Services GmbH	Germany
Euroconsult	France
European Conference for Aero-Space Sciences (EUCASS)	Belgium
European Space Agency (ESA)	France
European Space Policy Institute (ESPI)	Austria
Eurospace	France
Federal Aviation Administration Office of Commercial Space Transportation (FAA/AST)	United States
Federal Space Agency	Russia
Finnish Astronautical Society	Finland
General Organization of Remote Sensing (GORS)	Syria
GIFAS	France
GMV	Spain
HE Space Operations	Germany
Hungarian Astronautical Society (MANT)	Hungary
ICARE-CNRS	France
IHI Aerospace Co., Ltd.	Japan
Indian Space Research Organization (ISRO)	India
Indonesian National Institute of Aeronautics and Space (LAPAN)	Indonesia
Institut Français d'Histoire de l'Espace	France
Instituto de Aeronáutica e Espaço (IAE)	Brazil
Instituto Mexicano del Espacio Exterior, INMEE, A.C.	Mexico
Instituto Nacional de Pesquisas Espaciais (INPE)	Brazil
Instituto Nacional de Técnica Aeroespacial (INTA)	Spain
International Association for the Advancement of Space Safety	The Netherlands
International Space University (ISU)	France
Internationaler Förderkreis für Raumfahrt – Hermann Oberth – Wernher von Braun e.V.	Germany
Israel Aerospace Industries Ltd.	Israel
Israel Society of Aeronautics & Astronautics	Israel
Israel Space Agency	Israel

Company	Country
Italian National Research Council – CNR	Italy
Italian Space Agency (ASI)	Italy
Japan Aerospace Exploration Agency (JAXA)	Japan
Japan Society for Aeronautics and Space Sciences (JSASS)	Japan
Japanese Rocket Society	Japan
Kayser-Threde GmbH	Germany
Kentucky Space	United States
Khrunichev State Research & Production Space Center	Russia
King Abdulaziz City for Science & Technology (KACST)	Saudi Arabia
Korea Aerospace Research Institute	Korea, Republic of
Korea Astronomy and Space Science Institute	Korea, Republic of
Lavochkin Association	Russia
Law Offices of Sterns and Tennen	United States
Lockheed Martin Corporation	United States
MDA Corporation	Canada
Microcosm, Inc.	United States
Mitsubishi Electric Corporation	Japan
Mitsubishi Heavy Industries, Ltd.	Japan
Moscow Aviation Institute	Russia
National Aeronautics and Space Administration (NASA)	United States
National Aerospace Agency (NASA) of Azerbaijan Republic	Azerbaijan
National Aerospace Laboratory (NLR)	The Netherlands
National Oceanic and Atmospheric Administration (NOAA)	United States
National Research Foundation (NRF)	South Africa
National Space Agency of Ukraine (NSAU)	Ukraine
National Space Research and Development Agency, Abuja, Nigeria	Nigeria
National Space Society	United Kingdom
NEC Toshiba Space Systems, Ltd.	Japan
Neptec Design Group	Canada
Netherlands Society for Aerospace (NVR)	The Netherlands
Netherlands Space Office (NSO)	The Netherlands
Nigerian Meteorological Agency	Nigeria
Norsk Astronautisk Forening	Norway

Company	Country
Northrop Grumman Space Technology	United States
Norwegian Space Centre	Norway
Novespace	France
Oceanit Laboratories, Inc.	United States
Odyssey Space Research	United States
Office National d'Etudes et de Recherches Aérospatiales (ONERA)	France
OHB-System AG	Germany
Pakistan Space and Upper Atmosphere Research Commission	Pakistan
Polish Astronautical Society	Poland
Proespaço-The Portuguese Association of Space Industries	Portugal
Ramirez de Arellano y Abogados, S.C. Law Firm	Mexico
RMIT University	Australia
Rocket Research Institute, Inc.	United States
RUAG Aerospace Ltd.	Sweden
Russian Academy of Sciences	Russia
Russian Technology Transfer Center	Russia
S.A.B.C.A	Belgium
S.P. Korolev Rocket and Space Corporation Energia	Russia
Samara Space Centre "TsSKB-Progress"	Russia
Satrec Initiative	Korea, Republic of
School of Engineering, UNAM	Mexico
Secure World Foundation	United States
SENER Ingeniería y Sistemas, S.A.	Spain
Serco Europe	Belgium
SES	Luxemburg
Shamakhy Astrophysical Observatory	Azerbaijan
Sirius XM Radio	United States
Sky Perfect JSAT Corporation	Japan
Snecma	France
Space Canada Corporation	Canada
Space Commercial Services Holdings (Pty) Ltd	South Africa
Space Enterprise Partnerships Limited	United Kingdom
Space Generation Advisory Council (SGAC)	Austria

Company	Country
Space Policy Institute, George Washington University	United States
Space Systems/Loral	United States
Space Technology Institute (STI)	Vietnam
SpaceNed	The Netherlands
Spheris	France
Starsem	France
Stellenbosch University	South Africa
Sun Space and Information Systems	South Africa
Sunsat Energy Council	United States
Surrey Satellite Technology Ltd	United Kingdom
Swedish Society for Aeronautics and Astronautics	Sweden
Swedish Space Corporation	Sweden
SwissSpace Association	Switzerland
Techno System Developments S.R.L.	Italy
Telesat Canada	Canada
Telespazio S.p.A.	Italy
Thales Alenia Space Italia	Italy
ThalesAlenia Space	France
The Aerospace Corporation	United States
The Boeing Company	United States
The British Interplanetary Society	United Kingdom
The Chinese Aeronautical and Astronautical Society located in Taipei	Taiwan, China
The John Hopkins University Applied Physics Laboratory	United States
The Korean Society for Aeronautical and Space Sciences	Korea, Republic of
The Planetary Society	United States
TNO	The Netherlands
TÜBITAK	Turkey
U.S. Geological Survey	United States
U3P (Union pour la Promotion de la Propulsion Photonique)	France
UK Space Agency	United Kingdom
United Space Alliance	United States
University of Lapland	Finland
University of the Western Cape	South Africa

Company	Country
University of Valencia	Spain
Victorian Space Science Education Centre	Australia
Virgin Galactic L.L.C	United States
Volvo Aero Corporation	Sweden
von Karman Institute for Fluid Dynamics	Belgium
World Space Week Association	United States
X PRIZE Foundation	United States
Yuzhnoye State Design Office	Ukraine
ZARM Fab GmbH	Germany

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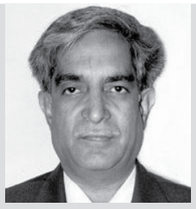

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Design Bureau of General Machine-Building (KBOM),
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- **Thomas Hetier,** Industry Relations
- **Philippe Moreels,** Technical Coordinator
- **Scott Hatton,** Content Manager
- **Juliane McCarty**, Executive Assistant
- **Rocio Caparros,** International Relations Coordinator
- **Marine Mecker,** Administrative Assistant

4.2 The International Academy of Astronautics

The Academy is an independent international community of leading experts committed to expanding the frontiers of space, the newest realm of human activity. To foster the development of astronautics, the Academy undertakes a number of activities, including the recognition of outstanding contributors through election and awards. It also facilitates professional communication, develops and promotes new ideas and initiatives, engages the public, and fosters a sense of community among the members. This is a unique non-governmental organisation established in 1960 and recognised by the United Nations in 1996.

It is an honorary society with an action agenda. With 1200 elected members and corresponding members from 80 nations, it works closely with space agencies, industry, the academic community and the national science and engineering academies to determine needs and objectives and to help shape policy and forge cooperation by means of studies, position papers, conferences and publications. The IAA published four studies over the past five months and is engaged in the preparation of more than 30 studies (see www.iaaweb.org/content/

Although the IAA has many connections to these and other similar organisations, it is distinctive as the only international Academy of elected members in broad area of astronautics and space.

The value of the Academy derives from its members and the Board of Trustees 2009-2011 with its vice-Presidents Dr Yannick d'Escatha (France), Dr Stanislav, Konyukhov (Ukraine), Prof Hiroki Matsuo (Japan) and Prof. Liu Jiuan (China). Although the IAA has many connections to these and other similar organisations, it is distinctive as the only international Academy of elected members in broad area of astronautics and space.

On the occasion of its 50th anniversary, a “Heads of Space Agencies Summit” will be held on 17 November 2010 at the Ronald Reagan Building and International Trade Centre in Washington DC with the primary support of Lockheed Martin Corporation and other international sponsors.

The attempt is to reach a broad consensus on international cooperation and coordination at the highest level in those four areas and eventually consider new concrete initiatives of cooperation. It is our intent to avoid any duplication of on-going efforts but rather to foster closer and broader international coordination across the four topics areas to strengthen the effectiveness and support of global space activities.

- Climate Change/Green Systems
- Disaster Management/Natural Hazards
- Planetary/Lunar Exploration
- Human Spaceflight

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Academy Day

International Academy of Astronautics (IAA)
Jointly organised with the Czech Academy of Sciences
Prague, Czech Republic, Sunday 26 September 2010
On the occasion of the 50th IAA Anniversary Celebration

09:00	Restricted Commissions Plenary Meeting, room Vltava + Vistula (*)
10:00	Commission parallel Open Meetings (*)
	Comm. 1, Space Physical Sciences, Suite I, Tiber Comm. 2, Space Life Sciences, Suite I, Seine Comm. 3, Technology & System Develop, Suite I, Rhine Comm. 4, System Operation & Utilization, Suite I, Rhone Comm. 5, Space Policies, Law & Economics, Suite I, Vistula Comm. 6, Space & Society, Culture & Educ., Suite I, Shannon
12:00	End of Commission Meetings
12:05	IAA Luncheon *(advance registration required) Lets Eat Restaurant (*)*
13:25	IAA Special General Meetings *(restricted to members and CM only)*

IAA Plenary Session Suite II (*)

14:00	Welcome Address *by Madhavan Nair, President Intl Academy of Astronautics*
14:10	Welcome Address *by Prof. Drahos, President Czech Academy of Sciences*
14:20	Welcome Address *by Prof. Jiri Grygar, Former President of the Learned Society of Czech Republic*
14:35	27th IAA Scientific Lecture *by Dr. Borovicka and Dr.Spurny*
15:00	The Need for More Effective Governance on Outer Space Matters? *by Ciro Arevalo, Past Chair UN COPUOS, and Dimitru-Dorin Prunariu, Chair UN COPUOS.*
15:30	The Heads of Space Agencies Summit, Washington DC, USA, 17 November 2010 *by Summit Steering Committee Co-Chairs: Mary Snitch and Corinne Jorgenson, Summit Program Manager.*
15:40	The IAA Study on Human Spaceflight *by Giuseppe Reibaldi, ESA*
15:55	Discussion
16:30	Awards Introduction by Yannick d’Escatha, Vice-President IAA, Awards & Membership
16:35	Double Star Program, Challenges from both Technology and Culture, *by Wu Ji, Centre for Space Science & Applied Research, Chinese Academy of Sciences, China*
17:00	Major Discoveries from Double Star and Cluster 6-point Measurement of Magnetosphere, *by Philippe Escoubet, ESA/ESTEC*
17:30	Polarimetric Remote Sensing of Solar System Objects, *by Michael Mishchenko, Senior Scientist, NASA Goddard Institute for Space Studies, New York*
18:00	Adjourn Plenary Session

(*) Venue: Corinthia Hotel Prague, Kongresova 1, 140 69 Praha 4, Czech Republic (http://www.corintha.com)

4.3 The International Institute of Space Law

Founded in 1960, the International Institute of Space Law (IISL) is an independent non-governmental organisation dedicated to fostering the development of space law in partnership with various international and domestic institutions. The membership of the IISL is composed of individuals and institutions from more than forty countries who have been elected on the basis of their contributions to the field of space law or other social sciences related to space activities.

The IISL holds its annual Colloquium on current issues in space law at the International Astronautical Congress and the Colloquium Proceedings are published each year by the AIAA. During the IAC the IISL also co-organises annual Scientific-Legal Roundtables with the International Academy of Astronautics, the 25th of which will be held this year. The themes of the sessions to be held during this year's Colloquium can be found elsewhere in this programme.

The IISL is an officially recognised observer at sessions of the United Nations Committee on the Peaceful Uses of Outer Space and organises an annual symposium for the delegates of the COPUOS Legal Subcommittee with the European Centre for Space Law. Since 2001, the IISL has organised dedicated space law conferences in several countries, including Singapore, China, India, Thailand, and the USA. It has also organised the annual Eilene M. Galloway Symposium on Critical Issues in Space Law in Washington, DC since 2006. The IISL issues Statements that inform the debate on the most pressing issues in the arena of space law. During the annual Colloquia, the IISL strives to address topics that are of real interest to all space actors and welcomes all IAC attendees to attend and participate in its sessions.

Since 1990, the IISL has organised the Manfred Lachs Space Law Moot Court Competition. The competition is based on a hypothetical space law case written by the IISL members and student teams from Europe, North America and the Asia Pacific region participate. Preliminary competitions are held each spring in the different regions. The regional champions then compete at the World Finals which take place at the IAC and are judged each year by members of the International Court of Justice.

We hope to see many of you during our 53rd Colloquium in Prague – and we look forward to many enriching debates and exchanges!

President: Tanja Masson-Zwaan – The Netherlands

Executive Secretary: Corinne C. Jorgenson – USA
94 bis, av. de Suffren, 75015 Paris – France
Email: info@iislweb.org
Website: www.iislweb.org

19th Manfred Lachs Space Law Moot Court Competition
Organised by the International Institute of Space Law
Thursday 30 September 2010, 15:00
Regional Court of Pilsen, Pilsen, Czech Republic

The Manfred Lachs Space Law Moot Court Competition is organised annually by the International Institute of Space Law (IISL). Preliminary regional competitions are organised each spring. The winning teams of the preliminaries meet in the World Finals held in conjunction with the annual IISL Space Law Colloquium, and are judged by sitting Judges of the International Court of Justice.

This year, for the 19th competition, three teams, from Europe, North America and the Asia Pacific region, will compete in the World Finals. These events will take place in Prague during the IAC. The 2010 hypothetical Problem is entitled the **"Case concerning Suborbital Tourism, Definition of Outer Space and Liability" (Aspirantia v Republica).**

The semi-final will be held on Tuesday 28 September in a closed session between 12:30 and 15:00 at the Congress Centre. The finals will be held on Thursday 30 September from 15:00 to 18:00 at the Regional Court of Pilsen and will be judged by three Members of the International Court of Justice in The Hague.

After the announcement of the winning team and remittance of awards, the IISL will host a dinner reserved for IISL members and special guests.

All timings are subject to confirmation at the start of the IAC and will be announced at various locations.

All who are interested to attend the Final Round are welcome, but the Dinner is reserved for IISL Members and special guests, who will be provided with invitations. Those wishing to attend the Finals are requested to contact the IISL, so as to arrange for bus transportation.

A Summary of the Problem will be available in advance.

Representatives of the Media wishing to attend may contact the IISL Secretary or IAC organisers.

IISL Website: www.iislweb.org

Competition: www.iislweb.org/lachsmoot

Martha Mejia-Kaiser, Co-Chair, Manfred Lachs Moot Court Committee

Les Tennen, Co-Chair, Manfred Lachs Moot Court Committee

IISL Executive Secretary: Corinne C. Jorgenson, secretary@iislweb.org

IISL Assistant Executive Secretary: Mark J. Sundahl, mark.sundahl@law.csuohio.edu

4.4 UN/IAF Workshop

20th UN/IAF Workshop on "GNSS Applications for Human Benefit and Development"

Prague, Czech Republic, from 24 to 25 September 2010

Held in conjunction with the 61st International Astronautical Congress (27 September – 1 October 2010)

Co-sponsored by European Space Agency (ESA), International Committee on Global Navigation Satellite Systems (ICG) and Ministry of Education, Youth and Sports of the Czech Republic

The Workshop will be held in conjunction with the 61st International Astronautical Congress (IAC). Workshop participants selected by the UN and IAF will be also invited to attend the IAC.

This Workshop is the 20th in the series of meetings jointly organised by the Office for Outer Space Affairs, under the United Nations Programme on Space Applications, and by the International Astronautical Federation. It builds on the recommendations and experience gained from previous workshops. The UN/IAF Workshop has been endorsed by the United Nations General Assembly as part of the 2010 activities of the United Nations Programme on Space Applications.

The Workshop will address the following issues and will discuss GNSS technologies, applications and services that contribute into sustainable economic and social development programmes, primarily in developing countries, with the following main objectives:

- To increase awareness among decision makers and representatives of research and academic community about ongoing activities and trends in the use of GNSS technologies, applications and services;
- To examine GNSS technologies, applications and services available for addressing social and economic issues;
- To strengthen institutional and human capacity building in the area of GNSS technologies, applications and services; and
- To strengthen international and regional cooperation in the subjects.

The Workshop will be opened by

- Prof. Dr. Berndt Feuerbacher, President, International Astronautical Federation
- Mr Chris De Cooker, Head, International Relations, European Space Agency
- Mr Ken Hodgkins, Department of State, USA (on behalf of the ICG)
- Dr Takao Doi, Head, United Nations Programme on Space Applications

There will be three Technical Sessions:

- Applications of GNSS technologies and services – Co-chairs Mr Ken Hodgkins, ICG/USA, and Prof. Frantisek Vejrazka, CTU, Czech Republic
- Applications of GNSS technologies and services – Co-chairs: Mr Chris De Cooker, ESA, and Mr Miroslav Svitek, CTU, Czech Republic
- International and regional frameworks, initiatives and cooperation – Co-chairs: Prof. Otto Koudelka, Austria/ SatNav Cmt. of IAF, and Ms Blanka Kosinova, Ministry of Transport, Czech Republic

On the second day, two Working Groups will be established to prepare for the Round Table discussion in addressing questions on critical issues/focal themes identified at the technical sessions.

A Round Table Discussion, moderated by Dr D. Prunariu, Chairman of COPUOS, will follow.

The Concluding Session will be co-chaired by Dr Gerard Brachet, IAF/CLIODN, and Dr Takao Doi, UN-OOSA

Please find more information online at http://www.iafastro.org/index.html?title=2010_UN-IAF_Workshop

4.5 IAF Young Professionals Programme

2010 PRAGUE

Young Professionals Programme

International Astronautical Congress (IAC)

Join us for three exclusive social/networking events

SUNDAY	TUESDAY	THURSDAY
26.09.10	28.09.10	30.09.10

ALL THREE EVENTS

6–8 P.M. CORINTHIA HOTEL, PRAGUE

(Next to the Prague Congress Centre)

Please plan to join us for social networking opportunities with other young professionals involved in space activities worldwide, as well as with seasoned professionals in your area of expertise. On Wednesday, we are planning a large gathering with the student programmme, so please reserve that evening as well. We look forward to meeting you!

4.6 The Student Programme

Dear Delegates, Dear students,

As in the past five years, the 2010 International Astronautical Congress will feature a dedicated 'Students Programme' organised by the International Space Education Board (ISEB). As the present Chair of the Board, I take the opportunity to recall, as it reads in its Charter, that the purpose of the Board is to provide a mechanism for enhanced cooperation among its Members with a twofold objective of (1) increasing science, technology, engineering and mathematics literacy achievement in connection with space and, (2) supporting the future workforce needs of space programs. To that end, the ISEB discusses global issues of importance to each Member's outreach and education programs and implements joint education initiatives.

Space Science, engineering and technology related activities are the backbone of our Agencies' undertakings and are important elements for the creation, development and the sustainability of competitive knowledge-based societies and economies. They require an appropriate quantity and quality of human capital. To ensure, in the long term, the availability of a suitable and talented workforce, the ISEB Members directly all offer unique educational activities and programmes. The sponsoring of students to attend professional conferences and congresses is one of them.

In the context of the IAC 2010, ISEB represents a collaborative effort of its Founding Members, its Members and Associate Members; respectively: the Canadian Space Agency (CSA), the Japanese Aerospace Exploration Agency (JAXA), the National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA); the Centre National d'Etudes Spatiales (CNES) and the Victorian Space Science Education Centre (VSSEC).

This year, agencies will be sponsoring 50-60 students to attend the Congress while also providing special guest speakers, activities and a dedicated International Student Zone (ISZ). Do not hesitate to visit it regularly. Many interesting things will happen regularly there!

To conclude, in addition to the IAF Executive and the members of the Local Organising Committee, I wish to thank all my ISEB colleagues for their support and highly collaborative spirit shown during the preparations of IAC 2010. I particularly wish our students a fruitful conference and a memorable experience here in Prague.

Sincerely Yours,

Francesco Emma
Head, Education and Knowledge Management Office
European Space Agency
Chair, International Space Education Board

4. Organisers and Associated Events ▮ 4.6 The Student Programme

IAC 2010 Students Programme

Monday 27 September: INAUGURATION DAY

10:00 – 12:00	Opening Ceremony
13:00 – 15:00	Plenary 1 – Heads of Agencies
15:00 – 15:50	Heads of Agency Q&A Session with International Space Education Board (ISEB) Students *(International Student Zone (ISZ) – Questions by ISEB sponsored students but open to ALL students)*

Tuesday 28 September: NASA DAY

11:00 – 12:30	Presentation by NASA and/or its students at ISZ *(ALL students welcome)*
13:00 – 13:30	ISEB Lunch Session 1.1 *(ISZ – ALL students welcome)*
13:30 – 14:00	ISEB Lunch Session 1.2 *(ISZ – ALL students welcome)*
14:30 – 17:00	ISEB Founding Members' Heads of Education Meeting

Wednesday 29 September: JAXA DAY

11:00 – 12:30	Presentation by JAXA and/or its students at ISZ *(ISZ – ALL students welcome)*
13:00 – 13:30	ISEB Lunch Session 2.1 *(ISZ – ALL students welcome)*
13:30 – 14:00	ISEB Lunch Session 2.2 *(ISZ – ALL students welcome)*
14:00 – 15:00	Plenary 3: "Next Generation Visions for Space Operations" Work Force Development Plenary
15:30 – 18:30	ISEB Heads of Education Annual Meeting

Thursday 30 September: CSA or ESA DAY *(TBC)*

11:00 – 12:30	Presentation by agency and/or its students at ISZ *(ISZ – ALL students welcome)*
13:00 – 13:30	ISEB Lunch Session 3.1 *(ISZ – ALL students welcome)*
13:30 – 14:00	ISEB Lunch Session 3.2 *(ISZ – ALL students welcome)*

Friday 1 October: CSA or ESA DAY *(TBC)*

11:00 – 12:30	Presentation by agency and/or its students at ISZ *(ISZ – ALL students welcome)*
13:00 – 13:30	ISEB Lunch Session 4.1 *(ISZ – ALL students welcome)*
13:30 – 14:00	ISEB Lunch Session 4.2 *(ISZ – ALL students welcome)*

4.7 IAC 2010 Professional Development Programme

The Space Education and Outreach Committee (SEOC) of the International Astronautical Federation (IAF), in collaboration with the International Space Education Board, will be offering educator professional development workshops for a maximum of 20 primary and 20 secondary teachers at the forthcoming 2010 International Astronautical Congress (IAC) in the Czech Republic.

Delivered during a full day of hands-on and minds-on learning about rocketry, robotics, planetary exploration and the science of building spacecraft, educators will learn about the space context while further developing their knowledge, tools and confidence in the areas of science and technology to facilitate bringing space into their respective classrooms and thereby inspiring science learning among the next space generation.

The Space Educator Professional Development sessions and two special keynote addresses will take place on Saturday 25 September from 09:00 until 15:30. These sessions will prepare participating educators so that they can also take full advantage of the multitude of plenary and technical sessions offered during the IAC from 27 September – 1 October 2010 at the Prague Congress Centre.

As part of that collaborative effort, the European Space Agency (ESA) will showcase teaching material developed and distributed in the framework of its ESERO (European Space Education Resource Office) project.

The workshop alongside attendance at various IAC events on Monday will be free to participants. Educators who wish to attend the whole week of the IAC can pay 100 Euros on site.

Further details may be found at: http://www.iafastro.org/index.html?title=Educator_Programme

4.8 IAF Youth Grants Programme

The recipients of the IAC 2010 Youth Grants Programme are ten students and young professionals who were selected from over 70 well-qualified applicants in 31 countries.

The Student recipients are:

- **Ahmad Hilmi Abu Kassim** from Malaysia
- **Mary D'Souza** from Australia
- **Dymtro Faizullin** from Ukraine
- **Ahmad Shah Hakimyar** from Afghanistan
- **Etim Offing** from Nigeria (alumni)

The Young Professional recipients are:

- **Taslim Alade** from Nigeria
- **Tri Dinh Quoc** from Vietnam
- **Funmilayo Erinfolami** from Nigeria
- **Guzel Kamaletdinova** from Russia
- **Lulekwa Makapela** from South Africa

These grant recipients are receiving funding from the IAF to attend the IAC, and will participate in a number of events.

They will participate in the activities of the IAC Student Programme organised by the International Space Education Board and the IAF Young Professional Programme which are conducted during the Congress. They will meet with IAF-assigned mentors and student/young professional advisors and be given special recognition during the Congress.

They will also have the opportunity to participate in the Space Generation Congress and the 2010 UN/IAF Workshop held just before the Congress. Following the Congress, the grant recipients will report on the activities they undertake upon their return home to build on the experiences they gained during the Congress and to share what they have learned.

4.9 Masters with Masters – knowledge-sharing event

Tuesday 28 September 2010
12:00 – 13:00
Forum Hall

As part of their joint workforce development efforts the European Space Agency (ESA) and the U.S. National Aeronautics and Space Agency (NASA) will hold a special “Masters with Masters” knowledge sharing session at the International Astronautical Congress. The event will feature ESA’s Director General Jean-Jacques Dordain and NASA’s Administrator Charles Bolden.

During the one-hour session, moderated by NASA Academy of Program/Project and Engineering Leadership (APPEL) Director Edward Hoffman, the two space agency leaders will engage in a dialogue on their vision for the future, their personal experiences and lessons learned and their thoughts on preparing the next generation of space programme leaders.

This Masters with Masters session, the latest in a series of such events organised by NASA’s APPEL programme, will be video-taped for later viewing by interested space programme professionals, students and others on the ESA and NASA web sites.

4.10 The Local Organising Committee

The Czech Space Office as a coordinator of space activities in the Czech Republic established a Local Organising Committee, chaired by the Director of the CSO, Jan Kolář.

The Members of the LOC are:

Staff of the CSO:

Jan Kolář
Director
Chairman of Local Organising Committee
jan.kolar@czechspace.cz

Jiří M. Fuchs
Exhibition
fuchs@czechspace.cz

Šimon Kavan
Exhibition
kavan@czechspace.cz

Josef Šobra
International Meeting for Members of Parliaments
sobra@czechspace.cz

Milan Halousek
Space Generation Congress
Student + Young Professionals Programme
halousek@czechspace.cz

Jaroslav Urbář
Space Generation Congress
Student + Young Professionals Programme
urbar@czechspace.cz

Michal Václavík
IAA Academy Day
vaclavik@czechspace.cz

Martin Šunkevič
UN/IAF Workshop
sunkevic@czechspace.cz

Petra Šmatláková
LOC Secretariat
smatlakova@czechspace.cz

Kristýna Štěpánová
LOC Secretariat
stepanova@czechspace.cz

Representatives of Ministry of Education, Youth and Sports and of Ministry of Foreign Affairs:

Jana Bystřická
UN/IAF Workshop
jana.bystricka@msmt.cz

Ondřej Novák
UN/IAF Workshop
ondrej.novak@msmt.cz

Monika Popenková
UN/IAF Workshop
Monika_Popenkova@mzv.cz

Advisors for the Moot Court:

Mahulena Hofmannová
Universitaet Giessen
Mahulena.Hofmann@recht.uni-giessen.de

Martin Faix
Universitaet Giessen
martin.faix@gmail.com

Vladimír Kopal
West Bohemian University

Advisor

Luboš Perek
perek@ig.cas.cz

Executive Organiser:

Guarant International spol. s r. o
Congress secretariat
iac2010@guarant.cz

5. Tours and Social Events

Special tours and social events have been arranged exclusively for the delegates and accompanying persons of 61st International Astronautical Congress.

Tours and Social Events Overview

	HALF-DAY (morning)	HALF-DAY (afternoon)	OVERNIGHT	EVENING
Saturday 25 September			**Karlovy Vary Spa**	
Sunday 26 September			**Karlovy Vary Spa**	
Monday 27 September		**Opening Ceremony**		**Welcome Reception**
		City Tour by Historical Tram		
Tuesday 28 September	**Prague Informative**			**Fun Evening „U Fleků“**
Wednesday 29 September	**Karlštejn Castle**			**International Cultural Night in Planetarium Prague**
Thursday 30 September		**Prague Castle Tour**		**IISL Dinner in Pilsen**
				Dinner Cruise on Vltava River
Friday 1 October	**Vltava River Cruise with Guide**			**Gala Banquet**
Saturday 2 October			**Český Krumlov (UNESCO)**	
Sunday 3 October			**Český Krumlov (UNESCO)**	

Social Events Details

Detailed information and tickets are available at the Registration Desk.

No transportation to the Social events venues is provided. The participants are advised to use public transportation or taxi. Please ask the staff at the Registration Desk to call the taxi for you.

OPENING CEREMONY

Date: Monday 27 September 2010
Address: Congress Hall, 1st Floor, PCC
Time: 10:00 – 12:00

Entrance free for all registered participants and accompanying persons

WELCOME RECEPTION

Date: Monday 27 September 2010
Address: Foyers 2nd & 3rd Floor, PCC
Time: 20:.00 – 22:00

Entrance free for all registered participants and accompanying persons

FUN EVENING “U FLEKŮ”

Date: Tuesday 28 September 2010
Admission: 39 EUR per person
Address: Křemencova 11, Praha 1
How to get there from PCC: one stop by metro to the station I. P. Pavlova and then by tram No. 4, 6, 10, 16 or 22 two stops to the tram station Karlovo náměstí.
Time: 20:00 – 23:00

Let us invite you to a beer party with a typical Czech beer in the famous pub “U Fleků”.

The history of the “U Fleků” building creates differing impressions. For one person it represents a pilgrimage place for Prague and Czech beer drinkers, for another it represents an interesting tourist attraction – one of the most visited within the country. “U Fleků” is without a doubt the most famous Prague pub. Today it is a place of culinary experiences and can satisfy the requirements of even the pickiest gourmets with the offer of traditional old Czech dishes.Traditional Czech music performed by Duo Švejk in combination with excellent beer and food – that means a lot of fun. Come and enjoy this wonderful evening!

INTERNATIONAL CULTURAL NIGHT IN PLANETARIUM PRAGUE

Date: Wednesday 29 September 2010
Admission: 88 EUR per person
Address: Královská obora 233, Praha 7
How to get there from PCC: six stops by metro to the station Nádraží Holešovice and then by tram No. 5, 12, 14, 15 or 17 one stop to the tram station Výstaviště.
Time: 20:00 – 22:30

The Prague Planetarium is the largest institution of its kind in the Czech Republic and is one of the largest in the world. You find three planetarium projectors in one building!

The Planetarium is located in one of the biggest parks in Prague – Stromovka. The history of Stromovka dates back to 1268, when Premysl Otakar II used the park as the royal hunting grounds. The evening offers not only a gourmet experience in stylish cosmic atmosphere but also a 3D projection about the history of astronomy in Prague. Don’t miss this unforgettable experience!

DINNER CRUISE ON VLTAVA RIVER

Date: Thursday 30 September 2010
Admission: 55 EUR per person
Address: Na Františku, Praha 1
How to get there from PCC: four stops by metro to the station Florenc and then by bus No. 133 four stops to the bus stop Nemocnice Na Františku. You will see the boat „EURÓPE“ right under the Anežský convent.
Time: 20:00 – 22:30

Take this opportunity to see Prague from the Vltava River while you are enjoying a buffet style dinner that offers a great variety of starters, main dishes and desserts followed by a musical entertainment programme.

5. Tours and Social Events

GALA BANQUET
Date: Friday 1 October 2010
Admission: 95 EUR per person
Address: Náměstí republiky 5, Praha 1
How to get there from PCC: four stops by metro to the station Florenc, change to the yellow line B and go one stop to the metro station Náměstí Republiky.
Time: 20:00 – 23.00

Tour Details

All tours will leave from and return to the Prague Congress Centre.

The meeting point will be at Entrance 10 of the Prague Congress Centre.

The Local Organising Committee reserves the right to cancel the tour if a minimum number of participants have not registered. In this case another tour will be offered or a refund will be paid at the Registration Desk.

On-site availability cannot be guaranteed.

Detailed information is available at the Registration Desk.

Note: “Time” shows the pickup time and the drop off time; “Duration” shows length of the actual tour without the travel.

KARLOVY VARY OVERNIGHT
Term: 25 September – 26 September 2010
Time: 8:00 (25 September) – 19:00 (26 September)
Duration: 2 days
Price includes: Lunch, Bed&Breakfast, Entrance fee to Moser factory, Transportation
Price pp: 146 EUR – in DBL room; surcharge 13 EUR for SGL room

CITY TOUR BY HISTORICAL TRAM
Term: 27 September 2010
Time: 12:30 – 14:30
Duration: 1 hour
Price includes: English speaking guide and 2 transfers, no admissions
Price pp: 33 EUR

PRAGUE INFORMATIVE
Term: 28 September 2010
Time: 8:30 – 11:00
Duration: 2 hours
Price includes: English speaking guide and 2 transfers, no admissions
Price pp: 25 EUR

KARLŠTEJN CASTLE
Term: 29 September 2010
Time: 9:00 – 14:00
Duration: 1,5 hour
Price includes: Admission to the Karlstejn Castle circle I, English speaking guide, transportation
Price pp: 36 EUR

PRAGUE CASTLE TOUR
Term: 30 September 2010
Time: 12:30 – 16:30
Duration: 3 hours
Price includes: Admission to the exhibition: The Story of Prague Castle and St. Vitus Cathedral, English speaking guide, 2 transfers
Price pp: 42 EUR

VLTAVA RIVER CRUISE WITH GUIDE
Term: 1 October 2010
Time: 11:15 – 13:45
Duration: 1 hour
Price includes: English speaking guide, 2 transfers
Price pp: 15 EUR

ČESKÝ KRUMLOV (UNESCO) OVERNIGHT
Term: 2 October – 3 October 2010
Time: 8:00 (2 October) – 19:00 (3 October)
Duration: 2 days
Price includes: Lunch, Bed&Breakfast, Transportation, Entrance fee to Castle representative chambers
Price pp: 140 EUR – in DBL room; surcharge 13 EUR for SGL room

6. Technical Programme

6.1 Message from the IPC Co-Chairs

We are very happy that you are attending the 61st International Astronautical Congress (IAC), which is being held in the very centre of Europe at historic Prague, capital of the Czech Republic.

The last IAC in this part of Europe took place in Budapest, Hungary, in 1983, and before that was held in Prague for the first time in 1977. That 28th IAC was very successful, even though the atmosphere was quite different then because of the Cold War.

Part of its success may be that Prague has a long history as an astronomical 'refuge'. The skilful astronomical observer Tycho Brahe and the great scientific mind Johannes Kepler were in Prague at the beginning of 17th century, and Albert Einstein before the First World War.

From the very beginning of the Space Age, Czech and Slovak specialists have also cooperated internationally at many levels in the fields of space research and technology.

As Co-Chairs of the International Programme Committee, we are happy to be building on this tradition. We were fortunate this year to attract an extraordinary number of high quality papers – of some 2200 abstracts received, 1600 papers were selected for the 61st IAC. Along with the technical programme, there are twelve events in the public programme – eight plenaries and four highlight lectures. We are holding the second Cluster forum, a Parliamentarian meeting, the UN-IAF workshop on the theme of GNSS, and various innovative seminars and workshops.

We would like to take this opportunity to give thanks to the many authors without whom we would have no Congress, the IPC and IPC Steering Group members for their great support putting together the Technical Programme and to the Prague LOC for their excellent preparation.

Enjoy Prague!

Petr Lála, Michel Arnaud and Sias Mostert
IPC Co–Chairs

6.2 Information for Authors

All authors are asked to upload their manuscripts and multimedia presentations prior to the Congress in order to make them available to all participants on the *Interactive Congress Guide DVD.* You can still update your manuscripts and multimedia presentations with the latest developments through the IAF website or in the **Presentation Preparation Room** on the 2nd floor of the Prague Congress Centre.

Your presentation will be automatically preloaded on the computer of the Technical Session room. Please note that speakers are not allowed to insert USB memory sticks or CD-ROMs in the PC of the Technical Session room. Therefore, all updates need to be uploaded **prior to the day before the Technical Session takes place, 18:00 local time.** Later changes cannot be reflected on your final presentation.

The room dedicated to authors (Presentation Preparation Room) is equipped with computers (MS Windows XP – Compatible) with CD/DVD drives and USB ports. It will be open during the following hours:

Monday 27 September – **Thursday** 30 September 2010	07:00-18:30
Friday 1 October 2010	07:00-16:30

Our help desk team will assist you in uploading multimedia presentations during operating hours.

Speakers are requested to report to their allocated Technical Session room 20 minutes prior to the start of their session to meet with the session Chairs and to check their presentation. Do not forget to bring two printed courtesy copies of your manuscript and a backup copy of your presentation. Some session Chairs might also ask you for a short biography to introduce you at the session.

Note: There will be internet access for computers located in technical sessions plus Wi-Fi access.

6.3 Plenary Events

Plenary 1: Heads of Agency plenary

Monday 27 September 2010 13:30-15:00

Congress Hall

Agency Heads will provide an overview of their current programmes and insight into future plans, giving views on actual developments and potential international opportunities. An interactive discussion with the audience will follow.

Charles Bolden,
Administrator,
National Aeronautics and Space Administration,
United States

Anatoly Perminov,
Head,
Roscosmos,
Russia

Jean-Jacques Dordain,
Director General,
European Space Agency

Chen Qiufa,
Administrator,
China National Space Administration,
China

Keiji Tachikawa,
President,
Japan Aerospace Exploration Agency,
Japan

K Radhakrishnan,
Chairman,
Indian Space Research Organisation,
India

Steve MacLean,
President,
Canadian Space Agency,
Canada

This session is moderated by Uli Bobinger.

Plenary 2: Impact of Governments' Space Policy Changes on Industry

Tuesday 28 September 2010 08:30-10:00

Forum Hall

The objective of this plenary is to enhance the awareness of space agencies to their degree of impact on industry resulting from their policy changes; it should also serve to educate industry on government drivers behind introducing recent and expected policy changes.

The session will be designed to explore the impact on industry of major government space policy changes across the globe. This influence may be of a variety of types. First, governments may change the missions that they profess to pursue. Second, governments may change the kinds of procedures they employ for acquisition of products and services from industry. Third, governments may encourage companies to engage in business activities where a single government is not the only customer.

In the case of the U.S. Government's space agency, NASA, all three changes are in play.

NASA is pursuing a new policy set by the Obama Administration, following up on the options provided by the U.S. review committee on the future of human spaceflight, commonly referred to as the Augustine Commission. With regard to acquisition strategy, NASA has been making increasing use of so-called "commercial" approaches, including firm fixed price contracting, as in the case of the Commercial Resupply Services contract for purchase of resupply services in support of the International Space Station (ISS).

Beyond this, NASA in the Commercial Orbital Transportation Services (COTS) programme, aimed at developing and demonstrating ISS resupply vehicles, has been actively encouraging industry participants to pursue customers in addition to NASA. NASA has also been addressing industry development of commercial crew transportation services, to supplement cargo capabilities.

Around the world, other space agencies are pursuing new directions as well. For example, in Japan, the new basic space law and implementation priorities are consolidating the space-related agencies of Japan and encouraging space industries. In Europe, options for involvement in human as well as robotic space exploration are also being weighed, both by the European Space Agency and the European Union, as they closely coordinate their efforts.

6. Technical Programme ▮ 6.3 Plenary Events

Jean-Yves Le Gall
Chairman & CEO,
Arianespace,
France

Shoichiro Asada
General Manager,
Space Systems Department,
Aerospace Headquarters,
Mitsubishi Heavy Industries, Ltd.
Japan

Hiroshi Yamakawa,
Secretary-General,
Strategic Headquaters for Space Policy,
Cabinet Secretariat,
Government of Japan

Martin Sweeting,
CEO,
SSTL,
United Kingdom

Jean-Jacques Dordain,
Director General,
European Space Agency

François Auque,
CEO,
EADS Astrium

Luigi Pasquali,
CEO,
Thales Alenia Space,
Italy

James Chilton,
Vice President,
Exploration Launch Systems,
The Boeing Company,
United States

This session is organised by the IAF Industry Relations Committee and coordinated by Mag Iskander, President of MDA, Information Systems Group and chaired by Jean-Yves Le Gall.

Plenary 3: Never Lost Again

Tuesday 28 September 2010 14:00-15:00

Forum Hall

The purpose of this plenary is to demonstrate the worldwide importance of satellite navigation systems to the public, to industry (specifically including transportation) and to the military. Satellite navigation has grown over the past two decades from a single system for limited uses to one in which, in the current decade, there will be six systems, many augmented by complementary terrestrial systems, that provide a tremendous range of services.

Under some circumstances, position determination accuracy of less than a centimeter will be achievable. Position location chips are being routinely incorporated into automotive vehicles, hand held cellular devices and surveying instruments while satellite navigation is being incorporated into automated aircraft landing, military operations, and many other systems. It is certainly a space technology that has directly provided tremendous human benefits.

Anthony Russo
Director,
National Coordination Office
for Space-Based Positioning,
Navigation and Timing,
United States

Didier Faivre
Head of the Navigation,
Department,
European Space Agency

Alain Bories
Senior VP Strategy and
Business Development
OHB Technology,
Germany

Bradford Parkinson
Edward C. Wells Professor
of Aeronautics and Astronautics
Emeritus Stanford University,
United States

MODERATOR
Joe M. Straus
Executive Vice President (retired),
The Aerospace Corporation,
United States

Plenary 4: Global Sea Level Rise and Its Societal Impacts

Wednesday 29 September 2010 09:00-10:00

Forum Hall

Increased fresh water input to the oceans from melting mountain glaciers and polar ice sheets, plus the thermal expansion caused by global warming are increasing the sea level at an alarming rate. As the sea level rises, many low-lying islands and coastal zones will be inundated or marginalized. With 146 million people worldwide living within 1 metre of mean high water, GSLR directly threatens coastal infrastructure through increased erosion and more frequent storm-surge flooding.

This plenary will examine different aspects of sea level rise including current international spaceborne programs that make sustained, precision measurements of the phenomenon.

Lee-Lueng Fu
Senior Research Scientist,
NASA Jet Propulsion
Laboratory,
United States

Stefan Rahmstorf
Potsdam Institute for Climate Impact
Research,
Germany

Ron Birk
Director, Civil Space Mission Integration
Northrop Grumman Space Technology,
United States

MODERATOR
James Graf
Deputy Director for the Earth Science
and Technology Directorate,
NASA Jet Propulsion
Laboratory,
United States

Plenary 5: Next Generation Visions For Space Operations

Wednesday 29 September 2010 14:00-15:00

Forum Hall

The operation of space systems is the most visible phase in the life cycle of space programmes. This phase excites and inspires the future workers in this industry. It is the phase that youth learn about in history classes, see in news reports, read in popular fiction, and watch at the cinema. It is widely accepted that attracting these young people into the aerospace workforce is vital to the industrial base of nations involved in space-related endeavors. Yet, although we often profess this need, we (the "established" aerospace workers) seldom try to understand the aspirations and expectations of the students and young professionals for their careers in space operations. If we want to keep the industry relevant to the youth, we must understand their hopes and expectations.

The panel will pursue a dialogue among advanced graduate students, sharing their hopes, and young professionals, sharing their accomplishments, and all sharing their vision for future space operations, emphasizing the contributions they hope to make. All panelists will also highlight their commitment to international dialogue and cooperation and their importance for successful and sustained space operations.

Alex Karl,
Operations Engineer,
Space Applications Services,
Belgium

Ryan Kobrick,
Executive Director,
Yuri's Night,
Canada

Tahir Merali,
Columbus Systems Training Group,
European Space Agency

Brian Leathers,
Safety Engineer,
Kennedy Space Centre,
United Space Alliance,
United States

Aria Iwasawa,
Graduate Student,
Keio University,
Japan

MODERATOR
Manfred Warhaut,
Head of Mission Operations,
European Space Agency

MODERATOR
William Gerstenmaier
Associate Administrator for Space Operations,
NASA,
United States

Plenary 6: Advancing the Global Exploration Strategy

Thursday 30 September 2010 09:00-10:00

Forum Hall

The International Space Exploration Coordination Group (ISECG) was born out of The Global Exploration Strategy: The Framework for Coordination (GES or Framework Document) that was prepared by fourteen space agencies and published in May 2007.

In the GES, the agencies expressed their intent and determination to work together to enable the exploration of Earth's nearest companions the Moon, Mars and Asteroids, to expand the frontier where humans will someday live and work. The ISECG has developed, and continues to develop, a variety of products to help guide the implementation of the Global Exploration Strategy.

Simonetta Di Pippo
Director of Human Spaceflight
European Space Agency

Gilles Leclerc
Manager,
Technology Management,
Canadian Space Agency

Douglas R Cooke
Associate Administrator,
Exploration Systems Mission Directorate,
NASA,
United States

Yoshiyuki Hasegawa
Managing Director,
Lunar and Planetary Exploration Programme Group,
Japan Aerospace Exploration Agency (JAXA),
Japan

David Parker
Director of Space Science and Exploration,
UK Space Agency

Sang-Ryool Lee
Executive Director of Satellite R&D Head Office,
Korea Aerospace Research Institute,
Republic of Korea

MODERATOR
Kathy Laurini
NASA,
United States

Plenary 7: ISS Research – A Decade of Progress and a Decade of Promise

Thursday 30 September 2010 14:00-15:00

Forum Hall

The International Space Station has been hosting research from the international science community for 10 years. In that time, hundreds of scientists have used ISS as a platform for conducting high quality research in diverse disciplines. Results from this effort have led to better understanding of the effects of microgravity on living organisms and physical processes, including terrestrial applications, and are paving the way for exploration.

Panelists will describe their experiences conducting research on ISS and the key role that research played in their areas of discovery. Benefits of the research to life on Earth and to exploration will be highlighted. This will be a unique event to promote not just the promise of ISS research but the results already realized.

Yoshiro Urade
Department of Molecular Behavioral Biology,
Osaka Bioscience Institute,
Japan

Alexander Choukèr
Clinic of Anaesthesiology,
University of Munich,
Germany

Nicole Buckley
Director,
Life & Physical Sciences,
Space Exploration,
Canadian Space Agency

V. E. Fortov
Academician,
Division of Energetics,
Machinary, Mechanics and Control Systems,
RAS,
Russia

MODERATOR
Julie Robinson
ISS Program Scientist,
ISS Payloads Office,
NASA Johnson Space Center,
United States

Plenary 8: Czech Space Visions

Friday 1 October 2010 12:15-13:45

Forum Hall

Today's exploration of space relies on two important elements: observations made in-situ and numerical experiments performed on large supercomputers. The Astronomical Institute and the Institute of Atmospheric Physics (Academy of Sciences of the Czech Republic) are highly involved in space sciences and related research in both areas.

Over the past few years two main projects have been carried out. First is the development and usage of supercomputing facility called Amalka and the second is development and operation of DSLP (Dual Segmented Langmuir Probe) instrument for PROBA 2 mission.

CZECH PARTICIPATION IN THE ESA SCIENCE PROGRAMME UNTIL 2020

František Fárník
Astronomical Institute,
Czech Academy of Sciences,
Czech Republic

CZECH PARTICIPATION IN EUROPEAN SPACE PROGRAMMES

Zdeněk Kozáček
Czech Space Research Centre,
Czech Republic

CZECH INDUSTRY IN ESA PROGRAMMES

Petr Bareš
Czech Space Alliance,
Czech Republic

SOLAR-TERRESTRIAL RELATIONS – PAST, PRESENT AND FUTURE

Zdeněk Němeček
Faculty of Mathematics & Physics,
Charles University,
Prague,
Czech Republic

EXPLORATION OF THE SOLAR SYSTEM USING IN SITU OBSERVATIONS

Pavel Trávníček
Astronomical Institute & Institute of Atmospheric Physics,
Czech Academy of Sciences,
Prague,
Czech Republic

CZECH SPACE OFFICE

Jan Kolář
Institute of Mathematics,
Academy of Sciences,
Czech Republic

MODERATOR
Jiří Grygar
Insitute of Physics,
Czech Academy of Sciences,
Czech Republic

6.4 Highlight Lectures

Highlight Lecture 1: Overview of space activities in South Africa

Monday 27 September 2010 18:30-19:30

Forum Hall

Highlight Lecture 2: Origins, Surprises and Future of GPS

Tuesday 28 September 2010 18:30-19:30

Forum Hall

Over the past 30 years, a new utility has come into being. It has stealthily crept into the fabric of worldwide society and created dependencies that did not exist before. This utility is known as the Global Positioning System or GPS. With over a billion GPS receivers in use, this stunning achievement has truly revolutionized the way the world functions in the 21st century. Today, the loss of GPS signals would have catastrophic consequences.

So, how did GPS come into being? What technologies were essential to its success? Who developed those technologies? Recently there have been a number of GPS histories published that are very inaccurate on these subjects. The purpose of this talk is to trace the true origins of GPS; in so doing, to give credit to many of the original engineers and technologists of GPS whose contributions have almost been lost. In addition, solutions to the challenges will offer “lessons learned” for the newer Global Navigation Satellite Systems.

Bradford Parkinson
Edward C. Wells Professor of Aeronautics,
Astronautics Emeritus,
Stanford University,
United States

Highlight Lecture 3: SETI Progress and Prospects

Wednesday 29 September 2010 18:30-19:30

Forum Hall

In 2010, it will be exactly a half-century since the first modern experiment in the field known as SETI, the Search for Extraterrestrial Intelligence. For two decades, SETI has been represented in the International Academy of Astronautics – the IAA SETI Permanent Study Group – is the world’s only SETI organisation with a broadly international membership.

Despite the fact that SETI has yet to find a compelling signal that would indicate that we’re not alone, it is a highly dynamic field. Discoveries of extrasolar planets, the strong indications of liquid water on a half-dozen other worlds in our solar system, and the very early genesis of life on Earth all suggest that life is not a highly rare phenomenon.

Seth Shostak
SETI Institute,
United States

Highlight Lecture 4: Chandrayaan-1 and Water on the Moon

Thursday 30 September 2010 18:30-19:30

Forum Hall

The Chandrayaan-1 mission to the Moon, launched on 22 October 2008, marked the beginning of India’s foray into planetary exploration. The mission carried a selected set of dozen experiments, designed and developed in India as well as in Europe and USA. The mission yielded several important science results. The most prominent among these is the discovery of water molecule and hydroxyl in lunar surface material.

J. N. Goswami
ISRO-DOS,
India

6.5 Second International Cluster Forum

The IAF will be organising the 2nd International Cluster Forum within the Exhibition of the IAC 2010 in Prague, Czech Republic. This year, the Cluster Forum will be held during the whole Congress week in the centre of the IAC 2010 Exhibition Hall.

The forum gathers decision makers and business developers from major corporations, large and small space agencies, smaller businesses, consulting firms and universities.

Tuesday, 28 September

10 :00 – 13 :00	Sponsors Corporate Presentation
13 :15 – 13 :45	*"European Space Activities under the Research Framework Programme"* Reinhard Schulte-Braucks, DG Enterprise and Industry, European Commission
14 :00 – 17 :30	Association of Industry and Small & Medium industry

Wednesday, 29 September

10:00 – 13:00	Nanosatellites Projects Presentation – Part 1
13:15 – 13:30	"*CubeSats for the VEGA Maiden Flight*" Piero Galeone, European Space Agency
	"*GENSO*" Helen Page, European Space Agency
13:30 – 13:45	*"United Nations Basic Space Technology Initiative (UNBSTI)"* Werner Balogh, UN-OOSA
13:45 – 14:00	*"HUMSAT: Constellation Project Applied to Humanitarian Support"* Fernando Aguado, University of Vigo
14:00 – 14:15	*"QB 50, Network for Lower Thermosphere and Re-Entry Research"* Jean Muylaert, Director, von Karman Institute
14:15 – 17:30	Nanosatellites Projects Presentation – Part 2

Thursday, 30 September

10:00 – 13:00	*"Experts meet Young Professionals and Students"* – Part 1
13:15 – 13:30	"*International Project/Programme Management Committee*" Edward J. Hoffman, Director, NASA APPEL
13:30 – 13:45	"*Because it's all about people*" Claudia Kessler, CEO, HE Space
13:45 – 14:00	"*Flight Plan for a Space Career*" Barbara Puddephatt, Space Resourcing Director, Serco Europe
14:00 – 17:30	*"Experts meet Young Professionals and Students"* – Part 2

Friday, 1 October

10:00 – 12:00	Central and Eastern European Activities – Part 1
14:00 – 14:15	*"Hungarian Space Industry overview"* Speaker to be confirmed
14:15 – 14:30	*"Space Research in Poland"* Speaker to be confirmed
14:30 – 14:45	*"Romanian Space activities"* Marius-Ioan Piso, President & CEO, Romanian Space Agency (ROSA)
15:00 – 17:00	Central and Eastern European Activities – Part 2

6.6 Technical session papers ordered by symposium

A1. SPACE LIFE SCIENCES SYMPOSIUM

Coordinator: Ronald J. White (South Dakota School of Mines & Technology, United States); Peter Graef (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany)

A1.1. Behaviour, Performance and Psychosocial Issues in Space

September 27 2010, 15:15 – Small Theatre

Chair: Nick Kanas (University of California and Veterans Affairs Medical Center, United States); Vadim Gushin (Institute for Biomedical Problems, Russia)
Rapporteur: Gro M. Sandal (University of Bergen, Norway)

IAC-10.A1.1.1
RESOLUTION OF PSYCHOSOCIAL CRISES ASSOCIATED WITH FLYING IN SPACE
Jelena Brcic, University of British Columbia, Canada

IAC-10.A1.1.2
DEVELOPMENT AND APPLICATION OF A SIMPLE, RAPID, AND OBJECTIVE BEHAVIORAL ASSAY OF GROUP COHESION IN SIMULATED ASTRONAUT CREWS
Pete Roma, IBR and Johns Hopkins Univ, United States

IAC-10.A1.1.3
HIGH VERSUS LOW CREWMEMBER AUTONOMY DURING A 105-DAY MARS SIMULATION MISSION
Nick Kanas, University of California and Veterans Affairs Medical Center, United States

IAC-10.A1.1.4
SOME PSYCHOPHYSIOLOGICAL AND BEHAVIORAL ASPECTS OF ADAPTATION TO SIMULATED AUTONOMOUS MISSION TO MARS
Vadim Gushin, Institute for Biomedical Problems, Russia

IAC-10.A1.1.5
PERSONAL VALUES AND CREW COMPATIBILITY DURING A SIMULATED SPACE MISSION
Gro Mjeldheim Sandal, University of Bergen, Norway

IAC-10.A1.1.6
INDIVIDUAL SUBCONSCIOUS ADAPTIVE PROCESSES TO THE MARTIAN FLIGHT SIMULATION
Yuri Bubeev, RF SRC - Institute of Biomedical Problems of the RAS, Russia

IAC-10.A1.1.7
NEUROCOGNITIVE EFFECTS OF A 3D VIRTUAL REALITY MOOD INDUCTION SYSTEM IN MARS-500 CHAMBER
Gabriel G. De la Torre, Universidad de Cádiz, Spain

IAC-10.A1.1.8
COUNTERMEASURES: NON-NUTRITIVE BENEFITS OF GROWING AND TENDING PLANTS DURING THE 500-DAY CHAMBER SIMULATION
Scott Bates, Utah State University, United States

IAC-10.A1.1.9
THE SIGNIFICANCE OF FATIGUE IN THE OPERATIONAL SPACE MEDICAL SETTING
Laura Drudi, McGill University, Canada

A1.2. Human Physiology in Space

September 28 2010, 10:15 – Small Theatre

Chair: Inessa Kozlovskaya (Institute for Biomedical Problems, Russia); Satoshi Iwase (Aichi Medical University, Japan)
Rapporteur: Hanns-Christian Gunga (Charité - University Medicine Berlin, Germany)

IAC-10.A1.2.1
AUTONOMIC FUNCTION TESTING ONBOARD ISS FOR CREW HEALTH MONITORING WITH "PULS" AND "PNEUMOCARD" – RESULTS, LIMITATIONS AND NEXT STEPS
Jens Tank, Hannover Medical School, Germany

IAC-10.A1.2.3
CHANGES IN THE SENSITIVITY OF THE CENTRAL RESPIRATION MECHANISM IN SPACE FLIGHT
Victor Baranov, Research Institute of General Pathology and Pathophysiology / Russian Academy of Medical Sciences, Russia

IAC-10.A1.2.4
RAPID FLUID SHIFTS INDUCED BY PARABOLIC FLIGHTS ALTER THE THERMAL BALANCE IN HUMANS
Thomas Schlabs, Charité - University Medicine Berlin, Germany

IAC-10.A1.2.5
HOW DO COSMONAUTS SLEEP IN MICROGRAVITY?
Roman Baevsky, Institute for Biomedical Problems, Russia

IAC-10.A1.2.6
FLAVONOID LUTEOLIN UP-REGULATED ANTIOXIDANT DEFENSE SYSTEMS AND DECREASED OXIDATIVE STRESS IN TAIL-SUSPENDED RATS
Lina Qu, Astronaut Center of China, China

IAC-10.A1.2.7
ENHANCING THE BENEFITS OF AN ARTIFICIAL GRAVITY COUNTERMEASURE COUPLED WITH EXERCISE AND VIBRATION
Rahul Goel, MIT, United States

IAC-10.A1.2.9
ARTIFICIAL GRAVITY WITH ERGOMETRIC EXERCISE ON INTERNATIONAL SPACE STATION AS THE COUNTERMEASURE FOR SPACEFLIGHT DECONDITIONING IN HUMANS
Satoshi Iwase, Aichi Medical University, Japan

IAC-10.A1.2.10
COMPARATIVE STUDY OF THE EFFICACY OF DIFFERENT KINDS OF MUSCLE TRAINING IN EXPERIMENT SIMULATING INTERPLANETARY SPACE FLIGHT – RESULTS OF THE STUDY WITH 105-DAYS ISOLATION
Inessa Kozlovskaya, Institute for Biomedical Problems, Russia

IAC-10.A1.2.11
EFFECTS OF HYPO- NORMO- AND HYPERBARIC PRESSURE ON OXYGENATION, METABOLIC AND IMMUNE RESPONSES IN HUMANS DURING SHORT TERM HEAD DOWN TILT AT -6 DEGREES
Alexander Choukèr, University of Munich, Germany

A1.3. Medical Care for Humans in Space

September 28 2010, 15:15 – Small Theatre

Chair: Rupert Gerzer (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany); Anatoly I. Grigoriev (Institute for Biomedical Problems, Russia)
Rapporteur: Patrik Sundblad (ESA/ESTEC, The Netherlands)

IAC-10.A1.3.1
THE NASA HUMAN HEALTH AND PERFORMANCE CENTER (NHHPC) – AN INTERNATIONAL COLLABORATIVE FORUM TO ADDRESS HIGH PRIORITY RISK REDUCTION STRATEGIES FOR HUMAN SPACE FLIGHT INCLUDING SUBORBITAL, ORBITAL, AND PLANETARY FLIGHT ENVIRONMENTS.
Jeffrey R. Davis, National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States

IAC-10.A1.3.2
THE INTERNATIONAL COUNTERMEASURE WORKING GROUP (ICM) – A FORUM FOR COORDINATING EFFORTS RELATED TO DEVELOPMENT OF SCHEMES TO MAINTAIN HEALTH AND PERFORMANCE IN ASTRONAUTS AND COSMONAUTS
Patrik Sundblad, ESA/ESTEC, The Netherlands

IAC-10.A1.3.3
ASSESSMENT OF MEDICAL RISK FACTORS FOR PROSPECTIVE PASSENGERS OF SUBORBITAL AND SHORT-DURATION ORBITAL COMMERCIAL SPACE FLIGHTS
Melchor Antunano, U.S. Federal Aviation Administration (FAA), United States

IAC-10.A1.3.4
THE PROCESS OF ADAPTATION OF THE CARDIOVASCULAR SYSTEM TO THE CONDITIONS OF WEIGHTLESSNESS – PROBABILITY ESTIMATION OF THE RESULTS OF HEART RATE VARIABILITY ANALYSIS
Roman Baevsky, Institute for Biomedical Problems, Russia

IAC-10.A1.3.6
FOOD PREPARATION STRATEGIES AND FOOD SATISFACTION UNDER MARS MISSION ANALOGUE CONDITIONS
Jean Hunter, Cornell University, United States

IAC-10.A1.3.7
DYNAMIC COMPRESSIVE MECHANICAL PROPERTIES OF CANCELLOUS BONE FROM HUMAN LUMBAR SPINE
Ma Honglei, Astronaut Center of China, China

IAC-10.A1.3.8
EFFECTS OF NEBIVOLOL (NEBILET®) ON CARDIOVASCULAR AND THERMOREGULATORY FUNCTIONS UNDER REAL AND SIMULATED MICROGRAVITY CONDITIONS
Andreas Werner, Charite Universitaetsmedizin Berlin, Germany

IAC-10.A1.3.9
DEVELOPMENT OF MITOSPORIC FUNGI IN HERMETICALLY CLOSED CHAMBERS BY THE EXAMPLE OF MARS-105 EXPERIMENT
Sergey Kharin, Institute for Biomedical Problems of the Russian Academy of Sciences, Russia

IAC-10.A1.3.10
INFLUENCE OF MODELED MICROGRAVITY EFFECTS ON THE COURSE OF ACUTE PANCREATITIS
Mikhail Baranov, Research Institute of General Pathology and Pathophysiology / Russian Academy of Medical Sciences, Russia

IAC-10.A1.3.11
INTEGRATED COUNTERMEASURE AND REHABILITATION EXERCISER (ICARE)
Dirk Claessens, Verhaert Space, Belgium

IAC-10.A1.3.13
A REVIEW OF TELEMEDICINE SOLUTIONS TO ACUTE CARE IN THE PRE-HOSPITAL SETTING
Matthew Turnock, McMaster University, Canada

IAC-10.A1.3.14
ASTRONAUT BODY MASS MEASUREMENT DEVICE CALIBRATED WITH MINIATURE LOAD CELL
Hui Yan, China

A1.4. Radiation Fields, Effects and Risks in Human Space Missions

September 29 2010, 10:15 – Small Theatre

Chair: Günther Reitz (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany); Giovanni De Angelis (Istituto Superiore di Sanita' (ISS), Rome, Italy)

IAC-10.A1.4.1
SELECTED RESULTS OF RADIATION MEASUREMENTS PERFORMED IN EUROPEAN PROJECTS ONBOARD THE INTERNATIONAL SPACE STATION
Günther Reitz, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.A1.4.2
THE FIRST CALIBRATION RESULTS OF THE TRITEL THREE-DIMENSIONAL SILICON DETECTOR TELESCOPE
Attila Hirn, Hungarian Academy of Sciences KFKI Atomic Energy Research Institute, Hungary

IAC-10.A1.4.3
INVESTIGATION OF TWO PILLE DOSIMETERS RETRIEVED FROM THE ISS
Peter Szanto, Hungarian Academy of Sciences KFKI Atomic Energy Research Institute, Hungary

IAC-10.A1.4.4
TRITEL 3 DIMENSIONAL SPACE DOSIMETRIC TELESCOPE IN THE EUROPEAN STUDENT EARTH ORBITER PROJECT OF ESA
Balazs Zabori, Budapest University of Technology and Economics, Hungary

IAC-10.A1.4.5
LUNAR RADIATION ENVIRONMENT: A COMPARISON BETWEEN MODELS AND THE CHANDRAYAAN-1 RADOM EXPERIMENT DATA
Giovanni De Angelis, Istituto Superiore di Sanita' (ISS), Rome, Italy, Italy

IAC-10.A1.4.6
LUNAR RADIATION DOSE DUE TO COSMIC RAYS AND THEIR SECONDARY PARTICLES
Kanako Hayatsu, Waseda University, Japan

IAC-10.A1.4.7
SPACE RADIATION ANALYSIS: RADIATION EFFECTS AND PARTICLE INTERACTION OUTSIDE EARTH MAGNETOSPHERE USING GRAS AND GEANT4
Lisandro Martinez, Cranfield University, Argentina

IAC-10.A1.4.8
MARS RADIATION ENVIRONMENT MODELING FOR THE LIULIN-PHOBOS INVESTIGATION OF THE PHOBOS SAMPLE RETURN MISSION
Giovanni De Angelis, Istituto Superiore di Sanita' (ISS), Rome, Italy, Italy

IAC-10.A1.4.9
ESTIMATES OF CARRINGTON-CLASS SOLAR PARTICLE EVENT RADIATION EXPOSURES ON MARS
Lawrence W. Townsend, University of Tennessee, United States

IAC-10.A1.4.10
GENE EXPRESSION PROFILE OF HUMAN CELLS IN RESPONSE TO SIMULATED SPACE RADIATION
Christine Hellweg, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.A1.4.12
FREE RADICAL SCAVENGING ACTIVITIES OF ANTHOCYANINS FROM SEVERAL NATURAL BERRY
Zhao Haitian, Harbin Institute of Technology, China

IAC-10.A1.4.13
UVB INDUCED DAMAGE AND REPAIR KINETICS IN HUMAN LYMPHOCYTES
Cuilin Cheng, Harbin Institute of Technology, China

IAC-10.A1.4.14
GLIOSAT/GLIOLAB: JOINT MISSIONS TO STUDY IONIZING RADIATIONS EFFECTS ON CANCER CELLS BEHAVIOUR
Chantal Cappelletti, Scuola di Ingegneria Aerospaziale, Italy

IAC-10.A1.4.15
A TEST FOR THE IMPACT OF RADIATION ON HUMAN RETINAL FUNCTION
Daniela Petrova, University College London, United Kingdom

A1.5. Astrobiology and Exploration

September 30 2010, 10:15 – Small Theatre

Chair: Pascale Ehrenfreund (University of Leiden, The Netherlands); Gerda Horneck (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany)
Rapporteur: Cassie Conley (National Aeronautics and Space Administration (NASA), United States)

IAC-10.A1.5.1
50 YEARS OF EXOBIOLOGY AND ASTROBIOLOGY: SCIENCE ACCOMPLISHMENTS, PUBLIC PERCEPTIONS
Linda Billings, George Washington University, United States

IAC-10.A1.5.2
ASTROBIOLOGY ON THE INTERNATIONAL SPACE STATION
Gerda Horneck, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.A1.5.3
CASS-E: CRANFIELD ASTROBIOLOGICAL STRATOSPHERIC SAMPLING EXPERIMENT
Lolan Naicker, Cranfield University, United Kingdom

IAC-10.A1.5.4
RADIATION RESISTANCE OF THE TARDIGRADE: RAMAZZOTTIUS VARIEORANATUS – PATHWAY TO RADIATION RESISTANT ASTRONAUTS?
Gunther Kletetschka, NASA, United States

IAC-10.A1.5.5
AN ASTROBIOLOGY SMALL PAYLOADS DEMONSTRATION NANOSATELLITE: ORGANISM/ORGANICS EXPOSURE TO ORBITAL STRESSES (O/OREOS)
Cassie Conley, National Aeronautics and Space Administration (NASA), United States

IAC-10.A1.5.6
MARS ORGANIC MOLECULE ANALYZER (MOMA): INSTRUMENT CONCEPT AND RESULTS
Luann Becker, The John Hopkins University, United States

IAC-10.A1.5.8
TESTING RAMAN SPECTROSCOPY FOR THE TRACE ANALYSIS OF BIOMARKERS FOR MARS EXOBIOLOGICAL STUDIES
Jan Jehlička, Charles University, Czech Republic

IAC-10.A1.5.9
SAMPLING AND SAMPLE PROCESSING STANDARDIZATION FOR SPACECRAFT AND ASSOCIATED CLEAN ROOM SURFACES
Kelly Kwan, United States

IAC-10.A1.5.11
CHALLENGES FOR TERRESTRIAL AND EXTRATERRESTRIAL ORIGINS OF LIFE
Brij Tewari, University of Guyana, Guyana

A1.6. Life Support and EVA Systems

September 30 2010, 15:15 – Small Theatre

Chair: Chiaki Mukai (JAXA, Japan); Bernhard Koch (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany)
Rapporteur: Terrence G. Reese (National Aeronautics and Space Administration (NASA), United States)

IAC-10.A1.6.1
INTERACTIONS AND INTELLIGENT CLOTHING WITH MONITORING-ALERTING SYSTEM FOR PHYSIOLOGICAL BEHAVIOUR
Taseer Ahmad, University of Kent at Canterbury, United Kingdom

IAC-10.A1.6.2
CARBON DIOXIDE REMOVAL SYSTEM FOR CLOSED LOOP ATMOSPHERE REVITALIZATION, PACKED BED AND STRUCTURED SORBENT EXPERIMENTAL TEST RESULTS
Emily Mattox, University of Alabama in Huntsville, United States

IAC-10.A1.6.3
HARDWARE/SOFTWARE COMPLEX FOR CREW'S SERVICE OF INTEGRATED LIFE SUPPORT SYSTEM OPERATION IN LONG-TERM GROUND EXPERIMENT UNDER MARS-500 PROJECT
Guzel Kamaletdinova, NIICHIMMASH, Russia

IAC-10.A1.6.4
OXYGEN CONCENTRATION CONTROL IN EXTRAVEHICULAR ACTIVITY(EVA) OF MANNED SPACECRAFT
Jin Yu, China Academy of Space Technology (CAST), China

IAC-10.A1.6.5
MICROBIOLOGIC PATTERN RECOGNITION IN MANNED SPACE VEHICLE AND STATIONS
Paul Fomkin, Moscow Aviation Institute (State Technical University), Russia

IAC-10.A1.6.6
REGENERATION OF WATER AND ATMOSPHERE ON SPACE STATION: THE EXPERIENCE GAINED ON THE SPACE STATIONS "SALUT", "MIR", ISS AND DEVELOPMENT PROSPECTS
Leonid Bobe, NIICHIMMASH, Russia

IAC-10.A1.6.7
SYNERGETIC HYBRID LIFE SUPPORT SYSTEM FOR A MARS TRANSFER VEHICLE
Stefan Belz, University of Stuttgart, Germany

IAC-10.A1.6.8
APPLICATION OF JET PACKS FOR LUNAR EXTRAVEHICULAR ACTIVITIES /EXPLORATIONS
Ehsan Taheri, K.N. Toosi University; Aerospace Research Institute (Ministry of Science, Research and Technology), Iran

IAC-10.A1.6.9
DEVELOPMENT OF A SUBLIMATOR FOR CHINESE FEITIAN EVA SPACE SUIT
Zhiqiang Wu, Astronaut Center of China, China

IAC-10.A1.6.10
ERGONOMICS DESIGN AND TEST FOR CHINA "FEITIAN" EVA SPACESUIT
Li Tanqiu, China Astronaut Research and Training Center, China

IAC-10.A1.6.11
PROJECT HYDRONAUT1
Matyáš Šanda, Czech Space Office, Czech Republic

A1.7. Biology in Space

October 1 2010, 09:00 – Small Theatre

Chair: Jancy C. McPhee (National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States); Ludmila Buravkova (Institute for Biomedical Problems, Russia)
Rapporteur: Cassie Conley (National Aeronautics and Space Administration (NASA), United States)

IAC-10.A1.7.1
JAPANESE SPACE LIFE SCIENCE EXPERIMENTS ONBOARD THE KIBO IN 2008-2010, AND BEYOND
Fumiaki Tanigaki, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.A1.7.2
CHANGES IN GENE EXPRESSION IN HUMAN BONE MARROW MESENCHYMAL STROMAL CELLS UNDER SIMULATED MICROGRAVITY
Pavel Gershovich, FSC RF-IMBP, Russia

IAC-10.A1.7.3
A REVIEW OF ENDOTHELIAL FUNCTION IN ALTERED GRAVITY ENVIRONMENTS
Marlene Grenon, University of California, San Francisco, United States

IAC-10.A1.7.4
PKC AND CELL CYTOSKELETON IN HUMAN UMBILICAL VEIN ENDOTHELIAL CELLS UNDER SIMULATED MICROGRAVITY
Yu Zhang, Beihang University, China

IAC-10.A1.7.5
MICE DRAWER SYSTEM: A LONG DURATION ANIMAL EXPERIMENT ON THE INTERNATIONAL SPACE STATION
Salvatore Pignataro, Italian Space Agency (ASI), Italy

IAC-10.A1.7.6
SPACE MUTATION BREEDING IN CHINA BY LIU JIYUAN, WU MEIRONG, SUN YONGCHENG
Yongcheng Sun, China Aerospace Science and Technology Corporation (CASC), China

IAC-10.A1.7.7
TRANSCRIPTIONAL AND PHYSIOLOGICAL CHARACTERIZATION OF ESCHERICHIA COLI MG1655 GROWN UNDER LOW SHEAR SIMULATED MICROGRAVITY FOR 1000 GENERATIONS
George Fox, University of Houston, United States

IAC-10.A1.7.8
EFFECTS OF SOY AND DAIRY FERMENTS ON MONOCYTE VIABILITY, CYTOKINE PRODUCTION AND CELL SURFACE MOLECULE EXPRESSION: IMPACT IN A LOW-SHEAR MODELED MICROGRAVITY SYSTEM
Nicole Buckley, Canadian Space Agency, Canada

IAC-10.A1.7.9
PARABOLIC MANEUVERS OF THE SWISS AIR FORCE FIGHTER JET NORTHROP F5-E AS A NEW PLATFORM TO IDENTIFY RAPID GRAVI-RESPONSIVE MECHANISMS IN CULTURED MAMMALIAN CELLS
Oliver Ullrich, University of Zurich, Switzerland

A1.8. Public Outreach and Education in Space Life Sciences

October 1 2010, 14:00 – Small Theatre

Chair: Marlene MacLeish (National Space and Biomedical Research Institute, United States); Andrea Boese (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany)
Rapporteur: Chrysoula Kourtidou-Papadeli (Greek Aerospace Medical Association, Greece)

IAC-10.A1.8.1
NEW OPPORTUNITIES FOR COOPERATION IN A GLOBALIZING WORLD: THE NATIONAL SPACE BIOMEDICAL RESEARCH INSTITUTE EDUCATIONAL OUTREACH PROGRAM PROVIDES A MODEL
Marlene MacLeish, National Space and Biomedical Research Institute, United States

IAC-10.A1.8.2
CHALLENGES IN ACADEMIC SPACE MEDICINE RESEARCH AND EDUCATION
Marlene Grenon, University of California, San Francisco, United States

IAC-10.A1.8.3
THE HELMHOLTZ SPACE LIFE SCIENCES RESEARCH SCHOOL (SPACELIFE) ONE YEAR AFTER ITS START
Christine Hellweg, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.A1.8.4
SMALL MEDICAL EXPERIMENTS IN INNOVATIVE AEROBATIC SINGLE-ENGINE PARABOLIC FLIGHTS: PROVIDING DATA AND INSPIRATION FOR THE EXPLORERS OF TOMORROW
Antoni Perez-Poch, Universitat Politecnica de Catalunya (UPC), Spain

IAC-10.A1.8.5
THINK GLOBAL – ACT LOCAL: SPACE LIFE SCIENCES FOR EDUCATION AND OUTREACH AT THE GERMAN AEROSPACE CENTER DLR
Andrea Boese, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.A1.8.6
SPACE EDUCATION AND PUBLIC OUTREACH IN KOREA
Soyeon Yi, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.A1.8.7
GEOCATCHING IN GUATEMALA
Jeffrey Rivera, Ministry of Environment and Natural Resources, Guatemala

IAC-10.A1.8.8
SPACE LEARNING WITH FUN
Carlos Fernando Quijada Velasquez, Guatemala

A2. MICROGRAVITY SCIENCES AND PROCESSES

Coordinator: Antonio Viviani (Seconda Universita' di Napoli, Italy)
Vice-Coordinator: Marcus Dejmek (Canadian Space Agency, Canada)

A2.1. Gravity and Fundamental Physics

September 28 2010, 10:15 – Club B

Chair: Francois Gonzalez (Centre National d'Etudes Spatiales (CNES), France); Joachim Richter (RWTH Aachen, Germany)
Rapporteur: Bernard Zappoli (Centre National d'Etudes Spatiales (CNES), France)

IAC-10.A2.1.1
ON THE EQUIVALENCE PRINCIPLE
Gabriel Barceló, Advanced Dynamics S. A., Spain

IAC-10.A2.1.2
SIMULATION APPROACHES FOR THE SPACE MISSION MICROSCOPE
Stefanie Bremer, ZARM - University of Bremen, Germany

IAC-10.A2.1.3
IN ORBIT CALIBRATION FOR THE INSTRUMENT OF THE MICROSCOPE SPACE MISSION
Agnes Levy, ONERA, France

IAC-10.A2.1.4
SEDIMENTATION AND INTERNAL DYNAMICS OF AN ATTRACTIVE COLLOIDAL GEL
Giovanni Brambilla, Université de Montpellier II, France

IAC-10.A2.1.5
QUANTUS: IMPLEMENTING ATOM OPTICAL EXPERIMENTS IN THE BREMEN DROP TOWER
Hauke Müntinga, ZARM - University of Bremen, Germany

IAC-10.A2.1.6
TOWARDS A MATTER WAVE INTERFEROMETER ON A SOUNDING ROCKET
Tim van Zoest for the QUANTUS Team, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.A2.1.7
PHOTOPHORESIS IN PLANET FORMATION AND A PARTICLE MANIPULATION TOOL FOR IPE
Ingo von Borstel, Technische Universität Braunschweig, Germany

IAC-10.A2.1.8
DUSTY PLASMA COMPRESSIBILITY FROM AN ANALYSIS OF DUST SHOCK WAVE PROPAGATION
Alexander Usachev, Joint Institute for High Temperatures of the Russian Academy of Sciences, Russia

IAC-10.A2.1.9
THE ACES MISSION: SYSTEM DEVELOPMENT AND TEST STATUS
Marc Peter Hess, EADS Astrium Space Transportation GmbH, Germany

IAC-10.A2.1.10
HIGH ACCURATE GEOMETRICAL MACHINING AND METROLOGY FOR THE MICROSCOPE INSTRUMENT
Manuel Rodrigues, Office National d'Etudes et de Recherches Aérospatiales (ONERA), France

IAC-10.A2.1.11
OPTIMAL BLACK HOLES
Igor Gurevich, The Institute of Informatics Problems of the Russian Academy of Sciences, Hetnet Consulting Corp., Russia

A2.2. Fluid and Materials Sciences

September 28 2010, 15:15 – Club B

Chair: Raimondo Fortezza (MARS Center, Italy); Nickolay N. Smirnov (Moscow Lomonosov State University, Russia)
Rapporteur: Jean-Claude Legros (Université Libre de Bruxelles, Belgium)

IAC-10.A2.2.1
OPPOSED-FLOW FLAME SPREAD IN CONSTRAINED SPACES UNDER NORMAL AND REDUCED GRAVITY CONDITIONS
Shuang-Feng Wang, China

IAC-10.A2.2.2
DROPLET EVAPORATION AND COMBUSTION MODELING
Nickolay N. Smirnov, Moscow Lomonosov State University, Russia

IAC-10.A2.2.3
MICRO FLAME SPREADING IN SOLID FUEL DUCTS
Tsuneyoshi Matsuoka, Hokkaido University, Japan

IAC-10.A2.2.4
ANALYSIS OF THRUSTER PLUME CONTAMINATION DURING SPACECRAFT SEPARATION
Zhang Jian, China Academy of Space Technology (CAST), China

IAC-10.A2.2.5
THERMODIFFUSION IN THE SYSTEM PARTLY FILLED WITH POROUS MEDIA
Denis Melnikov, University of Brussels, Belgium

IAC-10.A2.2.8
NEW TYPE OF THERMAL CONVECTION IN THE ROTATING ANNULUS
Alevtina Ivanova, Russia

IAC-10.A2.2.9
VIBRATIONAL DYNAMICS OF TWO IMMISCIBLE LIQUIDS UNDER ROTATION
Nikolay Kozlov, PSPU, Russia

IAC-10.A2.2.10
RESISTANCE OF METALLIC SCREENS IN A CRYOGENIC FLOW
Alexander Fischer, Institute of Space Systems, German Aerospace Center (DLR), Germany

IAC-10.A2.2.11
UKRAINIAN PROGRAM FOR MATERIAL SCIENCES IN MICROGRAVITY
Oleh Fedorov, Space Research Institute of NAS and NSA of Ukraine, Ukraine

IAC-10.A2.2.12
MODELING AND EXPERIMENTAL CHARACTERIZATION OF THE MICROSTRUCTURE AND GRAIN STRUCTURE OF AL-7WT%SI DIRECTIONALLY SOLIDIFIED
Nathalie Mangelinck-Noel, CNRS, France

IAC-10.A2.2.13
CRYSTAL GROWTH OF SI X GE 1-X USING THE BRIDGMAN TECHNIQUE: SI SEGREGATION AND INTERFACE SHAPE
Jeffrey Woodacre, Dalhousie University, Canada

A2.3. Microgravity Experiments from Suborbital to Orbital Platforms

September 29 2010, 15:15 – Club B

Chair: Ziad Saghir (Ryerson University, Canada); Raffaele Savino (University of Naples "Federico II", Italy)
Rapporteur: Vladimir Pletser (European Space Agency (ESA), The Netherlands)

IAC-10.A2.3.1
FLOW STABILITY EXPERIMENTS ON THE INTERNATIONAL SPACE STATION
Aleksander Grah, ZARM - University of Bremen, Germany

IAC-10.A2.3.2
THE RAPID SOLIDIFICATION OF ALUMINUM 40 WEIGHT PERCENT NICKEL USING A DROP TUBE APPARATUS
Christopher Borowski, University of Alberta, Canada

IAC-10.A2.3.3
THERMAL DESTRATIFICATION TESTS WITH LIQUID NITROGEN IN PARABOLIC FLIGHTS
Jerome Lacapere, Air Liquide, France

IAC-10.A2.3.4
INVESTIGATION OF SLOSH EVENTS USING EXISTING SPHERES HARDWARE ON ISS PLATFORM
Michael Vergalla, Florida Institute of Technology, United States

IAC-10.A2.3.5
ON THERMAL CONDUCTION OF NANOFLUIDS BY Q. GALAND, S. VAN VAERENBERGH
Stefan Van Vaerenbergh, Université Libre de Bruxelles, Belgium

IAC-10.A2.3.6
GROUND-BASED EXPERIMENTS IN PREPARATION OF HEAT PIPE EXPERIMENTS ONBOARD MIOSAT MICROSATELLITE
Raffaele Savino, University of Naples "Federico II", Italy

IAC-10.A2.3.7
POST-FLIGHT DATA ANALYSIS OF THE BUGS EXPERIMENT ON SOUNDING ROCKET REXUS-7
Maria Libera Battagliere, Scuola di Ingegneria Aerospaziale, Italy

IAC-10.A2.3.8
EFFECT OF ROUNDED INTERIOR CORNER ON CAPILLARY FLOW
Qi Kang, Chinese Academy of Sciences, China

IAC-10.A2.3.9
DEVELOPMENT OF STATIC SEPARATOR AND MICROGRAVITY EXPERIMENT AT ZERO-G PARABOLIC FLIGHT
Junrong Li, Astronaut Center of China, China

IAC-10.A2.3.10
DESIGN AND OPERATING LIMITS OF THE PLATFORM FOR ACQUISITION OF ACCELERATION DATA (PAANDA)
Marcelo C. Tosin, State University of Londrina, Brazil

IAC-10.A2.3.12
A TOP-LEVEL SUMMARY OF MICROGRAVITY RESEARCH WHICH WOULD BENEFIT FROM COMMERCIAL SUBORBITAL PLATFORMS AND WHAT THE NASA COMMERCIAL REUSABLE SUBORBITAL RESEARCH (CRUSR) PROGRAM IS DOING TO HELP
Gregor Hanuschak, National Aeronautics and Space Administration (NASA), United States

A2.4. Science Results from Ground Based Research

September 30 2010, 10:15 – Club B

Chair: Valentina Shevtsova (Université Libre de Bruxelles, Belgium); Antonio Viviani (Seconda Universita' di Napoli, Italy)
Rapporteur: Nickolay N. Smirnov (Moscow Lomonosov State University, Russia)

IAC-10.A2.4.1
EXPERIMENTAL STUDY ON THE OSCILLATION MECHANISMS OF THE BUOYANT THERMOCAPILLARY CONVECTION
Li Duan, Key Laboratory of Microgravity, Institute of Mechanics, Chinese Academy of Sciences, China

IAC-10.A2.4.2
STATISTICAL RATE THEORY EXAMINATION OF ETHANOL EVAPORATION
Aaron Persad, University of Toronto, Canada

IAC-10.A2.4.3
INVESTIGATION OF EVAPORATION PROCESS COUPLED WITH THERMOCAPILLARY CONVECTION
Qiu-Sheng Liu, Chinese Academy of Sciences, China

IAC-10.A2.4.5
GAS –LIQUID TWO PHASE FLOW IN ANNULI
Yuri Gaponenko, Université Libre de Bruxelles, Belgium

IAC-10.A2.4.6
FLUID CONVECTIVE FLOWS SIMULATION IN ENCUMBERED SPACE
Nickolay N. Smirnov, Moscow Lomonosov State University, Russia

IAC-10.A2.4.7
LIFT FORCE ACTING THE CYLINDER IN VISCOUS LIQUID UNDER VIBRATION
Victor Kozlov, Russia

IAC-10.A2.4.9
MODELLING SHAPE OF A SEMICONDUCTOR CRYSTAL, GROWING IN MICROGRAVITY WITHOUT CONTACT WITH CRUCIBLE
Alexander Senchenkov, Research and Development Institute for Launch Complexes (NIISK), Russia

IAC-10.A2.4.10
NUMERICAL HEAT-MASS TRANSFER IN TIAL-NB DIRECTIONALLY SOLIDIFYING ALLOY UNDER THE EARTH- AND ZERO-GRAVITY ACTIONS
Andrey Kartavykh, Institute of Chemical Problems for Microelectronics (ICPM), Russia

IAC-10.A2.4.11
COMPARISON OF SOUND WAVE CHARACTERISTICS DURING 1 G AND MICROGRAVITY CONDITION
Ahmad Helmi Abu Kassim, Universiti Kuala Lumpur, Malaysia

IAC-10.A2.4.12
ACTIVE ANTENNAS FOR THE NEXT GENERATION OF LOW-FREQUENCY RADIO TELESCOPES
Guilherme Simon da Rosa, Southern Regional Space Research Center - CRS/CIE/INPE - MCT, Brazil

A2.5. Facilities and Operations of Microgravity Experiments

September 30 2010, 15:15 – Club B

Chair: Marcus Dejmek (Canadian Space Agency, Canada); Rainer Willnecker (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany)
Rapporteur: Peter Hofmann (Kayser-Threde GmbH, Germany)

IAC-10.A2.5.1
DECLIC FIRST RESULTS ON ORBIT
Gabriel Pont, Centre National d'Etudes Spatiales (CNES), France

IAC-10.A2.5.2
RECENT RESULTS AND DEVELOPMENTS FOR COMPLEX PLASMA EXPERIMENTS FOR THE INTERNATIONAL SPACE STATION
Ralf von Heise-Rotenburg, Kayser-Threde GmbH, Germany

IAC-10.A2.5.3
THE MATERIALS SCIENCE LABORATORY – A RESEARCH FACILITY ON BOARD THE INTERNATIONAL SPACE STATION
Harald Lenski, EADS Astrium Space Transportation GmbH, Germany

IAC-10.A2.5.4
"DYNAMIC EVOLUTION" OF KIBO PAYLOAD OPERATIONS – FEATURING FPEF MARANGONI EXPERIMENT OPERATIONS AND SOME OTHER HOT TOPICS IN KIBO
Keiichiro Sakagami, Japan Manned Space Systems Corporation, Japan

IAC-10.A2.5.5
DEVELOPMENT OF SODI (INCLUDING OPERATIONS), IPE AND DIRSOL
Dirk Claessens, Verhaert Space, Belgium

IAC-10.A2.5.6
ISS FLUID SCIENCE LABORATORY ON-ORBIT OPERATIONS: HARDWARE AND SOFTWARE ENHANCEMENTS, MVIS COMMISSIONING AND ISS MICROGRAVITY MEASUREMENTS
Giorgio Trinchero, Thales Alenia Space Italia, Italy

IAC-10.A2.5.7
NEW EXPERIMENT FACILITIES FOR THERMOPHYSICAL PROPERTY MEASUREMENTS IN MICROGRAVITY
Ivan Egry, DLR, Germany

IAC-10.A2.5.8
X-RAY DIAGNOSTICS FOR IN-SITU MICROGRAVITY EXPERIMENTS
Christian Lockowandt, Swedish Space Corporation, Sweden

IAC-10.A2.5.9
THE DROP TOWER BREMEN – EXPERIMENT OPERATION
Thorben Könemann, ZARM Fab GmbH, Germany

IAC-10.A2.5.10
MICROGRAVITY ACTIVE VIBRATION ISOLATION SYSTEM FOR SPACE SCIENCE IN CHINA
Weijia Ren, Academy of Opto-Electronics, Chinese Academy of Sciences, China

A2.6. Microgravity Sciences onboard the International Space Station and Beyond

October 1 2010, 09:00 – Club B

Chair: Jules Kenol (National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States); Rodolfo Monti (University of Naples "Federico II", Italy)
Rapporteur: Christoph Pütz (Astrium Space Transportation, Germany)

IAC-10.A2.6.1
ITALIAN SPACE AGENCY – THE NATIONAL UTILIZATION OF THE INTERNATIONAL SPACE STATION: 2001–2010 AND BEYOND
Salvatore Pignataro, Italian Space Agency (ASI), Italy

IAC-10.A2.6.2
EXPERIMENTS IN MICROGRAVITY: THE INDIAN PERSPECTIVE.
P R Goutham, PES School of Engineering, India

IAC-10.A2.6.3
MELFI POOL COMPLETE ON BOARD THE ISS WITH THIRD FREEZER TESTED IN 2010
Jean Cheganças, EADS Astrium, France

IAC-10.A2.6.4
OPERATIONAL RESULTS OF THE MATERIALS SCIENCE LABORATORY AFTER ONE YEAR IN-ORBIT
Patrick Hambloch, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.A2.6.5
HIGH QUALITY PROTEIN CRYSTAL GROWTH EXPERIMENT ONBORD "KIBO"
Satoshi Sano, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.A2.6.6
SHAPE MEMORY EPOXY FOAMS FOR AEROSPACE: EXPERIMENTATION ON ISS
Loredana Santo, University of Rome - Tor Vergata, Italy

IAC-10.A2.6.7
INVESTIGATION OF MARANGONI CONVECTION IN INTERNATIONAL SPACE STATION
Dhanuka (Dan) Wickramasinghe, University of Toronto, Canada

IAC-10.A2.6.8
'GEOFLOW I AND II' – FLUID PHYSICS EXPERIMENTS ONBOARD ISS FOR MODELING CONVECTION PHENOMENA IN EARTH' OUTER CORE AND MANTLE
Christoph Egbers, Brandenburg Technical University of Cottbus, Germany

IAC-10.A2.6.9
IVIDIL EXPERIMENT ON THE ISS
Valentina Shevtsova, Université Libre de Bruxelles, Belgium

IAC-10.A2.6.10
DSC (DIFFUSION AND SORET COEFFICIENTS) ON SODI MSG: TOWARDS FULL ET OF TRANSPORT COEFFICIENTS IN TERNARY ORGANIC LIQUIDS MIXTURES
Stefan Van Vaerenbergh, Université Libre de Bruxelles, Belgium

IAC-10.A2.6.11
THERMODIFFUSION OF BINARY AND TERNARY FLUID MIXTURE IN THE REDUCED GRAVITY ENVIRONMENT OF THE INTERNATIONAL SPACE STATION
Ziad Saghir, Ryerson University, Canada

IAC-10.A2.6.12
IRIS (IMAGE REVERSAL IN SPACE) – THE EFFECTS OF MICROGRAVITY ON PERCEPTION OF DEPTH-REVERSIBLE FIGURES
Yuval Brodsky, International Space University (ISU), France

IAC-10.A2.6.13
SPEED: SMALL PAYLOAD EXPRESS EARTH DELIVERY
Joseph Carroll, Tether Applications, Inc., United States

A2.7. Microgravity Processes onboard the International Space Station and Beyond

October 1 2010, 14:00 – Club B
Chair: Peter Hofmann (Kayser-Threde GmbH, Germany); Christoph Pütz (Astrium Space Transportation, Germany)
Rapporteur: Antonio Viviani (Seconda Universita' di Napoli, Italy)

IAC-10.A2.7.1
UTILIZATION OF THE COLUMBUS FACILITIES BIOLAB, EMCS, PCDF, CARDIOLAB, FSL & MSL
Ulrich Kuebler, EADS SPACE Transportation, Germany

IAC-10.A2.7.2
RESULTS AND EXPERIENCES FROM THE SODI-IVIDIL EXPERIMENT ON THE ISS
Angel Rodriguez, Universidad Politécnica de Madrid, Spain

IAC-10.A2.7.3
A COMPLEX OPERATIONAL SCENARIO FOR THE EXECUTION OF EUROPEAN FLUID PHYSICS EXPERIMENTS ON THE ISS: ACHIEVEMENTS AND LESSONS LEARNED.
Carlo Albanese, Telespazio S.p.A., Italy

IAC-10.A2.7.4
EXPERIMENTING AT MOON AND MARS GRAVITY LEVELS DURING PARABOLIC FLIGHTS TO PREPARE FOR PLANETARY EXPLORATION
Vladimir Pletser, European Space Agency (ESA), The Netherlands

IAC-10.A2.7.5
KINEMATIC CONTROL OF FLEXIBLE JOINT SPACE MANIPULATOR SYSTEMS AND VALIDATION IN SIMULATED MICROGRAVITY TESTS
Silvio Cocuzza, CISAS G. Colombo Center of Studies and Activities for Space, University of Padova, Italy

IAC-10.A2.7.6
HUMAN-TENDED SUBORBITAL MICROGRAVITY PAYLOAD FLIGHT OPPORTUNITIES IN THE XP SPACEPLANE
Charles Lauer, Rocketplane Global, Inc., United States

IAC-10.A2.7.7
ROCKET SEPARATION AND RECOVERY SYSTEM ACTUATION USING DYNEMA WIRE
Mark Uitendaal, Delft University of Technology (TU Delft), The Netherlands

IAC-10.A2.7.8
REEL.SMRT: A FEASIBILITY ANALYSIS OF A NOVEL BALLOON-BORNE PLATFORM FOR LOW-GRAVITY EXPERIMENTATION
Mikulas Jandak, Cranfield University, Czech Republic

IAC-10.A2.7.9
FEASIBILITY STUDY: ADAPTING INDIA'S RETRIEVABLE CAPSULE INTO A COMMERCIAL MICROGRAVITY PLATFORM
Sanket Nayak, Earth2Orbit (E2O), India

IAC-10.A2.7.10
MICROGRAVITY RESEARCH USING SMALL SATELLITES
Jaime Alberto Estela Gutiérrez, Germany

IAC-10.A2.7.11
PRIZES AS A TOOL FOR ENGAGING RESEARCHERS AND STUDENTS
Nicole Jordan, X PRIZE Foundation, United States

A3. SPACE EXPLORATION SYMPOSIUM

Coordinator: Christian Sallaberger (MDA Corporation, Canada); Bernard Foing (European Space Agency (ESA), The Netherlands)

A3.1. Space Exploration Overview

September 28 2010, 10:15 – Panorama
Chair: Christian Sallaberger (MDA Corporation, Canada); Luc Frécon (ThalesAlenia Space, France)
Rapporteur: Robert D. Richards (Optech Incorporated, Canada); Eun-Sup Sim (Korea Aerospace Research Institute, Korea, Republic of)

IAC-10.A3.1.1
ASSESSING SPACE EXPLORATION TECHNOLOGY REQUIREMENTS AS A FIRST STEP TOWARDS ENSURING TECHNOLOGY READINESS FOR INTERNATIONAL COOPERATION IN SPACE EXPLORATION
Kathleen Laurini, National Aeronautics and Space Administration (NASA), United States

IAC-10.A3.1.2
COSPAR PANEL ON EXPLORATION (PEX): ROADMAP FOR ROBOTIC AND HUMAN EXPLORATION OF MOON, MARS, AND NEAR-EARTH ASTEROIDS
Pascale Ehrenfreund, University of Leiden, The Netherlands

IAC-10.A3.1.3
COMPARISON OF LUNAR AND MARS IN-SITU RESOURCE UTILIZATION FOR FUTURE ROBOTIC AND HUMAN MISSIONS
Gerald Sanders, National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States

IAC-10.A3.1.4
ODYSSEY MOON "M-1" LUNAR MISSION OF OPPORTUNITY – ENABLING SCIENCE, EXPLORATION AND COMMERCE
Robert (Bob) Richards, Odyssey Moon Limited, United States

IAC-10.A3.1.5
UNIFIED PLATFROMS FOR FUNDAMENTAL SPACE RESEARCH
Viktor A. Vorontsov, Babakin Space Center, Russia

IAC-10.A3.1.6
A NEW SPACE RACE OR A RACE TO SPACE
Mohsen Bahrami, Aerospace Research Institute, Iran

IAC-10.A3.1.7
REGOLITH AS A RESOURCE IN SOLAR SYSTEM HUMAN AND ROBOTIC EXPLORATION
Robert Mueller, National Aeronautics and Space Administration (NASA)/Ames Research Center, United States

IAC-10.A3.1.8
AUTONOMOUS SAFE PRECISION LANDING TECHNOLOGY: ESA ACHIEVEMENTS AND CHALLENGES
Christian Philippe, European Space Agency (ESA), The Netherlands

IAC-10.A3.1.9
EXOGEOLAB PILOT PROJECT FOR TESTING LANDERS, ROVERS AND INSTRUMENTS
Bernard Foing, European Space Agency (ESA), The Netherlands

IAC-10.A3.1.10
PREPARATORY EXPLORATION ACTIVITIES: CSA EXPLORATION CORE PROGRAM
Jean-Claude Piedboeuf, Canadian Space Agency, Canada

IAC-10.A3.1.11
EVOLUTION OF THE DEEP SPACE IN SITU COMMUNICATION NETWORK
Wen Yuanyuan, China

IAC-10.A3.1.12
PROVING AEROBRAKING WITH MARS EXPRESS AND VENUS EXPRESS
Jesus Gil-Fernandez, GMV, Spain

A3.2A. Moon Exploration – Part 1

September 27 2010, 15:15 – Panorama
Chair: Bernard Foing (European Space Agency (ESA), The Netherlands); Carol J. Russo (National Aeronautics and Space Administration (NASA), United States)
Rapporteur: William H. Siegfried (The Boeing Company, United States); James Middleton (MDA, Canada)

IAC-10.A3.2A.1
SMART-1 NEW RESULTS AND LESSONS FOR FUTURE LUNAR EXPLORATION
Bernard Foing, European Space Agency (ESA), The Netherlands

IAC-10.A3.2A.2
CHANDRAYAAN-1 MISSION: SIGNIFICANT SCIENCE RESULTS
Jitendra Goswami, Physical Research Laboratory, India

IAC-10.A3.2A.3
THE LUNAR RECONNAISSANCE ORBITER: BEGINNING THE SCIENCE MISSION AFTER THE EXPLORATION MISSION
John Keller, National Aeronautics and Space Administration (NASA)/Goddard Space Flight Center, United States

IAC-10.A3.2A.4
A MINIATURE LASER INDUCED BREAKDOWN SPECTROSCOPE (MINI-LIBS) FOR LUNAR SURFACE EXPLORATION
A. S. Laxmi Prasad, India

IAC-10.A3.2A.5
IN-SITU AGE DETERMINATION OF PLANETARY SURFACE USING THE 40AR-39AR METHOD
Ralf von Heise-Rotenburg, Kayser-Threde GmbH, Germany

IAC-10.A3.2A.6
UPDATE ON THE GOOGLE LUNAR X PRIZE
William Pomerantz, X PRIZE Foundation, United States

IAC-10.A3.2A.7
THE TEAM ITALIA ANSWER TO THE GOOGLE LUNAR X PRIZE CHALLENGE: THE AMALIA PROJECT CONCEPTUAL DESIGN PHASE RESULTS
Michèle Lavagna, Politecnico di Milano, Italy

IAC-10.A3.2A.8
FEASIBILITY STUDY AND DEVELOPMENT PLAN FOR THE WHITE LABEL SPACE GLXP MISSION
Juergen Schlutz, University of Stuttgart & White Label Space, Germany

IAC-10.A3.2A.9
OPEN SOURCE MISSION TO THE MOON
Dominik Quantius, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.A3.2A.10
ANALYSIS OF LANDING SITE ATTRIBUTES FOR FUTURE MISSIONS TARGETING THE RIM OF THE LUNAR SOUTH POLE AITKEN BASIN
David Koebel, OHB-System AG, Germany

A3.2B. Moon Exploration – Part 2

September 28 2010, 15:15 – Panorama
Chair: Bernard Foing (European Space Agency (ESA), The Netherlands); Carol J. Russo (National Aeronautics and Space Administration (NASA), United States)
Rapporteur: William H. Siegfried (The Boeing Company, United States); James Middleton (MDA, Canada)

IAC-10.A3.2B.1
JAPANESE MOON LANDER SELENE-2 – PRESENT STATUS IN 2010
Tatsuaki Hashimoto, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.A3.2B.2
TECHNOLOGY DEVELOPMENT UNDER SIMULATED LUNAR ENVIRONMENT FOR LUNAR SURFACE EXPLORATION
Takeshi Hoshino, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.A3.2B.3
NASA'S ROBOTIC LUNAR LANDER DEVELOPMENT PROJECT UPDATE
Brian Morse, The John Hopkins University Applied Physics Laboratory, United States

IAC-10.A3.2B.4
COST-EFFECTIVE GEOPHYSICAL EXPLORATION OF THE MOON USING INSTRUMENTED MICRO-LANDERS AND A RELAY ORBITER
Trevor Sorensen, University of Hawaii, United States

IAC-10.A3.2B.5
LUNAR EXPLORATION MISSION BY REUSING LEO OBSERVATION SATELLITE
Jeongbeom Kim, Moscow Aviation Institute, Russia

IAC-10.A3.2B.6
CONCEPTUAL DESIGN STUDY ON KOREAN LUNAR ORBITER/LANDER PROTOTYPE
Gwanghyeok Ju, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.A3.2B.7
PRELIMINARY DESIGN OF MOON LANDER PROPULSION SYSTEM FOR GROUND TEST
Su-Kyum Kim, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.A3.2B.8
THE FIRST EUROPEAN LUNAR LANDER AND THE ESA-DLR APPROACH TO ITS DEVELOPMENT
Richard Fisackerly, European Space Agency (ESA), The Netherlands

IAC-10.A3.2B.9
AN ESA PRECURSOR MISSION TO HUMAN EXPLORATION OF THE MOON
James Carpenter, European Space Agency (ESA), The Netherlands

IAC-10.A3.2B.10
THE SAINTE-ROSE MOON-MARS ANALOGUE VOLCANIC SITE AT LA REUNION FOR PREPARING FUTURE GEOLOGICAL AND HUMAN EXPLORATION
Guy Pignolet, Science Sainte Rose, La Reunion

IAC-10.A3.2B.11
INTEGRATING ADVANCED MOBILITY INTO LUNAR SURFACE EXPLORATION
Juergen Schlutz, University of Stuttgart & White Label Space, Germany

IAC-10.A3.2B.12
OPTIMISATION OF SATELLITE CONSTELLATIONS AROUND THE MOON
Othon Winter, Saõ Paulo State University (UNESP), Brazil

A3.2C. Moon Exploration – Part 3

September 29 2010, 10:15 – Panorama

Chair: Bernard Foing (European Space Agency (ESA), The Netherlands); Carol J. Russo (National Aeronautics and Space Administration (NASA), United States)
Rapporteur: William H. Siegfried (The Boeing Company, United States); James Middleton (MDA, Canada)

IAC-10.A3.2C.1
UNMANNED LUNAR EXPLORATION: FROM SCIENTIFIC NEEDS TO A PRELIMINARY MISSION STUDY FOR THE ITALIAN LUNAR ROVER.
Claudia Facchinetti, Italian Space Agency (ASI), Italy

IAC-10.A3.2C.2
THERMAL CONCEPTS FOR SMALL SURFACE STATIONS, HOW TO SURVIVE THE LUNAR NIGHT
Stephan Ulamec, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.A3.2C.3
CAPABILITIES OF A LUNAR LANDER BASED ON ARIANE 5 SHARED LAUNCH OPPORTUNITY
Maren Homeister, OHB-System AG, Germany

IAC-10.A3.2C.5
REIPOS – RELATIVE INTERFEROMETRIC POSITION SENSOR
Daniel Bindel, ZARM – University of Bremen, Germany

IAC-10.A3.2C.6
DYNAMIC MODELLING OF A WHEELED LUNAR MICROROVER
Giancarlo Genta, Politecnico di Torino, Italy

IAC-10.A3.2C.7
THE CHALLENGES OF DESIGNING A LIGHTWEIGHT SPACECRAFT STRUCTURE FOR LANDING ON THE LUNAR SURFACE
Timothy Cole, The John Hopkins University Applied Physics Laboratory, United States

IAC-10.A3.2C.8
TRACTIVE PERFORMANCE EVALUATION OF COMPLIANT LUNAR WHEELS IN LUNAR SOILS
Michele Faragalli, McGill University, Canada

IAC-10.A3.2C.9
SENSORIMOTOR CONTROLS AND DISPLAYS FOR SAFE AND PRECISE LUNAR LANDING
Laurence R. Young, Massachussets Institute of Technology (MIT), United States

IAC-10.A3.2C.10
THE GERMAN SPACE AGENCY'S MOON EXPLORATION ACTIVITIES
Friedhelm Claasen, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.A3.2C.11
VALIDATION OF A LIDAR-BASED HAZARD DETECTION AND AVOIDANCE SYSTEM FOR AUTONOMOUS PLANETARY LANDING
Jean-Francois Hamel, NGC Aerospace Ltd., Canada

IAC-10.A3.2C.12
FIELD TESTING A MULTIPURPOSE 3D SENSOR FOR PLANETARY ROVER MISSIONS
Ross Taylor, Neptec USA, United States

IAC-10.A3.2C.13
A METHOD OF CRATER DETECTION AND MATCHING FOR NAVIGATION OF LANDING ON MOON
Jiang He, Harbin Institute of Technology, China

IAC-10.A3.2C.14
A COMPARATIVE STUDY OF LUNAR MISSION REQUIREMENT AND ONBOARD PROPULSION SYSTEM PERFORMANCE
Kyun Ho Lee, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.A3.2C.15
STRUCTURE OPTIMIZATION OF A LUNAR ROVER WHEEL USING THE DISCRETE ELEMENT METHOD
Robin Briend, McGill University, Canada

IAC-10.A3.2C.16
STUDIES ON THE RE-ENTRY ANGLE OF LUNAR PROBES
Zhao Yuhui, Nanjing University, China

IAC-10.A3.2C.17
THE PAYLOAD MANAGEMENT AND CONTROL FOR CHANG'E-3 LANDER
Xiaomin Chen, CSSAR/CAS, China

IAC-10.A3.2C.18
HAZARD RECOGNITION METHODS FOR PLANETARY LANDER WITH SINGLE CAMERA
Yoshifusa Demizu, University of Tokyo, Japan

A3.3A. Mars Exploration – Part 1

September 29 2010, 15:15 – Panorama

Chair: Vincenzo Giorgio (ThalesAlenia Space, Italy); Walter Faulconer (Strategic Space Solutions, LLC, United States)
Rapporteur: Marc D. Rayman (Jet Propulsion Laboratory - California Institute of Technology, United States); Sylvie Espinasse (ESA/ESTEC, The Netherlands)

IAC-10.A3.3A.1
OVERVIEW OF THE DISCOVERIES OF MRO AND PHOENIX AND THE IMPACT ON FUTURE MARS EXPLORATION
Ramon P. De Paula, National Aeronautics and Space Administration (NASA), United States

IAC-10.A3.3A.2
THE DISCOVERY OF LIQUID WATER ON MARS AND ITS IMPLICATIONS
Nilton Renno, University of Michigan, United States

IAC-10.A3.3A.3
RELAY TELECOMMUNICATIONS FOR THE COMING DECADE OF MARS EXPLORATION
Charles D. Edwards, Jet Propulsion Laboratory, United States

IAC-10.A3.3A.4
THE EUROPEAN ROBOTIC EXPLORATION OF THE PLANET MARS
Agustin Chicarro, European Space Agency (ESA), The Netherlands

IAC-10.A3.3A.5
EXOMARS 2016 MISSION DESIGN STATUS
Carlo Cassi, Thales Alenia Space Italia, Italy

IAC-10.A3.3A.6
EXOMARS MISSION 2016: EDL TECHNOLOGY DEMONSTRATOR MODULE FOR LANDING ON MARS SURFACE
Maurizio Capuano, Thales Alenia Space Italia, Italy

IAC-10.A3.3A.7
LOCALIZATION NETWORK FOR PLANETARY EXPLORATION WITH A MULTIROBOT SYSTEM
Mikko Elomaa, Helsinki University of Technology (TKK), Finland

IAC-10.A3.3A.8
THE MARS HOPPER: AN IMPULSE DRIVEN, LONG-RANGE, LONG-LIVED MOBILE PLATFORM UTILIZING IN-SITU MARTIAN RESOURCES
Steven Howe, USRA, United States

IAC-10.A3.3A.9
AN INFLATABLE AUTO-ROTATION SYSTEM CONCEPT FOR ENTRY, DESCENT AND LANDING ON MARS
Tobias Lutz, EADS Astrium Space Transportation GmbH, Germany

IAC-10.A3.3A.10
PRELIMINARY DESIGN AND ANALYSIS FOR CHINA MARS LANDING EXPLORATION MISSION
Shuang Li, Nanjing University of Aeronautics and Astronautics, China

IAC-10.A3.3A.11
DEVELOPMENT OF MARS EXPLORATION AND ANALYSIS OF CRITICAL TECHNOLOGY
Qi Ke Jun, CASC, China

IAC-10.A3.3A.12
LIDAR-BASED HAZARD DETECTION AND LANDING SITE SELECTION FOR PLANETARY LANDING
Bei Wang, Harbin Institute of Technology, China

A3.3B. Mars Exploration – Part 2

September 30 2010, 10:15 – Panorama

Chair: Vincenzo Giorgio (ThalesAlenia Space, Italy); Walter Faulconer (Strategic Space Solutions, LLC, United States)
Rapporteur: Marc D. Rayman (Jet Propulsion Laboratory - California Institute of Technology, United States); Sylvie Espinasse (ESA/ESTEC, The Netherlands)

IAC-10.A3.3B.1
THE MARS RECONNAISSANCE ORBITER: STATUS OF THE PRIMARY MISSION; PLANS FOR THE EXTENDED MISSION
James K. Erickson, National Aeronautics and Space Administration (NASA), United States

IAC-10.A3.3B.2
ANALYSIS OF CRYOKARSTIC SURFACE PATTERNS ON DEBRIS APRONS AT THE MID-LATITUDES OF MARS
Csilla Orgel, Eötvös Loránd University, Hungary

IAC-10.A3.3B.3
EXOMARS ORBITER MODULE: LOOKING FOR TRACE GAS ON MARS AND PROVIDING DATA RELAY SUPPORT FOR FUTURE MARS SURFACE ASSETS
Olivier Fratacci, Thales Alenia Space, France

IAC-10.A3.3B.4
NASA'S CONTRIBUTION TO THE JOINT ESA/NASA 2016 EXOMARS/TRACE GAS ORBITER (EXOMARS/TGO) MISSION
Ramon P. De Paula, National Aeronautics and Space Administration (NASA), United States

IAC-10.A3.3B.5
THE ROVER ENVIRONMENTAL METEOROLOGICAL STATION (REMS) ON BOARD MARS SCIENCE LABORATORY (MSL)
Tirso Velasco, CRISA, Spain

IAC-10.A3.3B.6
HYBRID ARCHITECTURE AGENT FOR EXOMARS ROVER-LIKE MISSION AUTONOMY
Pietro Francesconi, Politecnico di Milano, Italy

IAC-10.A3.3B.7
BIOLOGICALLY INSPIRED NANOROVERS – SAMPLE RETURN USING LIGHTWEIGHT HYBRID ACTUATION
Beatrice Smith, Surrey Space Centre, University of Surrey, United Kingdom

IAC-10.A3.3B.9
EXOMARS DRILL FOR SUBSURFACE SAMPLING AND DOWN-HOLE SCIENCE
Piergiovanni Magnani, Selex Galileo, Italy

IAC-10.A3.3B.10
HIGH INTEGRITY CONTROL SYSTEM FOR GENERIC AUTONOMOUS RVD
Luigi Strippoli, GMV, Spain

IAC-10.A3.3B.11
A DETAILED DESIGN, OPERATION AND ASSESSMENT TECHNOLOGY DEVELOPMENT REQUIRED FOR A MARS SAMPLE RETURN (MSR) SAMPLE RECEIVING FACILITY (SRF)
Mike Guest, Systems Engineering & Assessment Ltd, United Kingdom

IAC-10.A3.3B.12
OPTIMAL TRAJECTORY CORRECTION MANEUVER SCHEDULES FOR EARTH TO MARS FLIGHT
Guoqiang Zhao, Tsinghua University, China

A3.4. Space Based Astronomy

September 30 2010, 15:15 – Panorama

Chair: Roger Malina (Laboratoire d'Astrophysique de Marseille, France); David Kendall (Canadian Space Agency, Canada)
Rapporteur: Carol J. Russo (National Aeronautics and Space Administration (NASA), United States)

IAC-10.A3.4.1
SPACE ASTRONOMY TECHNICAL COMMITTEE FOUNDING
Sergio Volonte, European Space Agency (ESA), France

IAC-10.A3.4.2
THE HERSCHEL-PLANCK PROGRAMME – THE TWO SPACECRAFTS IN ORBIT, ALREADY A SUCCESS
Pascal Rideau, ThalesAlenia Space, France

IAC-10.A3.4.3
OBSERVING GRAVITATIONAL WAVES: A FEASIBLE MISSION BASELINE DESIGN
Peter Gath, Astrium GmbH, Germany

IAC-10.A3.4.4
DARIS – A LOW-FREQUENCY DISTRIBUTED APERTURE ARRAY FOR RADIO ASTRONOMY IN SPACE
Albert-Jan Boonstra, ASTRON, The Netherlands

IAC-10.A3.4.5
LONG DURATION BALLOON FLIGHTS FROM ESRANGE SPACE CENTER CARRYING ASTRONOMICAL INSTRUMENTS
Ola Widell, Swedish Space Corporation, Sweden

IAC-10.A3.4.6
A SOFTWARE TOOL TO AID IN CELESTIAL SOURCE VIEWING BY ASTROSAT SPACECRAFT
Nagamani Thangavel, ISRO Satellite Centre (ISAC), India

IAC-10.A3.4.7
INTERNATIONAL LUNAR OBSERVATORY ASSOCIATION (ILOA), HAWAII, UPDATE SEPTEMBER 2010: ILO PRECURSORS A / B, ILO PERMANENT, AND ILO HUMAN SERVICE MISSIONS
Steve Durst, Space Age Publishing Company, United States

A3.5. Small Bodies Missions and Technologies

October 1 2010, 09:00 – Panorama

Chair: Susan McKenna-Lawlor (Space Technology (Ireland) Ltd., Ireland); Stephan Ulamec (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany)
Rapporteur: Mariella Graziano (GMV, Spain); Marc D. Rayman (Jet Propulsion Laboratory - California Institute of Technology, United States)

IAC-10.A3.5.1
HAYABUSA'S REENTRY AND RECOVERY OF ITS CAPSULE
Junichiro Kawaguchi, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.A3.5.2
ROSETTA VISITS ASTEROID (21-)LUTETIA
Andrea Accomazzo, European Space Agency (ESA), Germany

IAC-10.A3.5.3
GUIDANCE AND CONTROL OF HOPPERS FOR SMALL BODY SURFACE EXPLORATION
Andrew Klesh, JAXA/JSPEC, Japan

IAC-10.A3.5.4
HAYABUSA-2, NEXT ASTEROID SAMPLE RETURN MISSION OF JAPAN
Makoto Yoshikawa, JAXA, Japan

IAC-10.A3.5.5
STATUS OF CURATION AND INITIAL ANALYSIS FOR SAMPLE RETURNED BY HAYABUSA
Junichiro Kawaguchi, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.A3.5.6
MISSION CONCEPT FOR ROBOTIC EXPLORATION OF DEIMOS
Elena Adams, The John Hopkins University Applied Physics Laboratory, United States

IAC-10.A3.5.7
LOW-COST MISSION TO MULTIPLE ASTEROID FLYBYS AND SAMPLE RETURN FOR THE 2015–2025
Dong Qiao, Beijing Institute of technology, China

IAC-10.A3.5.8
LANDING AND MOBILITY CONCEPT FOR THE SMALL ASTEROID LANDER MASCOT ON ASTEROID 1999 JU3
Claudia Dietze, Institute of Space Systems, German Aerospace Center (DLR), Germany

IAC-10.A3.5.9
SIMULATION OF NEAR-EARTH OBJECTS AND RELATED LANDER GUIDANCE SYSTEMS
Steve Parkes, University of Dundee, United Kingdom

IAC-10.A3.5.10
SD2: HOW TO DRILL A COMET
Pietro Francesconi, Politecnico di Milano, Italy

A3.6. Solar System Exploration

October 1 2010, 14:00 – Panorama

Chair: Junichiro Kawaguchi (Japan Aerospace Exploration Agency (JAXA), Japan); Denis J.P. Moura (European Defence Agency, Belgium)
Rapporteur: James Middleton (MDA, Canada); William H. Siegfried (The Boeing Company, United States)

IAC-10.A3.6.1
SOLAR PROBE PLUS, A HISTORIC MISSION TO THE SUN
James Kinnison, The John Hopkins University Applied Physics Laboratory, United States

IAC-10.A3.6.2
LUCIPHERA: THE TECHNOLOGY CHALLENGE OF A VENUS SAMPLE RETURN MISSION
Michèle Lavagna, Politecnico di Milano, Italy

IAC-10.A3.6.3
THE EUROPA JUPITER SYSTEM MISSION (EJSM): EXPLORING THE EMERGENCE OF HABITABLE WORLDS AROUND GAS GIANTS
Robert Pappalardo, National Aeronautics and Space Administration (NASA), United States

IAC-10.A3.6.4
CASSINI'S SOLSTICE MISSION
David Seal, Jet Propulsion Laboratory, United States

IAC-10.A3.6.5
ODYSSEY 2: A MISSION TOWARD NEPTUNE AND TRITON TO TEST GENERAL RELATIVITY
Benjamin Lenoir, Office National d'Etudes et de Recherches Aérospatiales (ONERA), France

IAC-10.A3.6.6
GG MISSION AND SPACECRAFT DESIGN
Alberto Anselmi, Thales Alenia Space Italia, Italy

IAC-10.A3.6.7
RUSSIAN PROGRAM OF VENUS EXPLORATION BY MEANS OF AUTOMATED SPACECRAFT: HERITAGE AND PERSPECTIVES. «VENERA-D» PROJECT
Viktor A. Vorontsov, Babakin Space Center, Russia

IAC-10.A3.6.8
FLIGHT STATUS OF IKAROS DEEP SPACE SOLAR SAIL DEMONSTRATOR
Yuichi Tsuda, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.A3.6.9
EXPLORATION BALLOONS FOR VENUS, MARS AND TITAN: DESIGN CONCEPTS AND EVALUATION OF THEIR IMPLEMENTATION POSSIBILITIES.
Elkin Konstantin, TSNIIMASH, Russia

IAC-10.A3.6.10
THE RETURN CAPSULE LANDING AND IMPACT ANALYSIS FOR THE SAMPLE RETURN MISSION
Jia He, Beijing Institute of Space Mechanics & Electricity, China

A4. 39th SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) – The Next Steps

Coordinator: Seth Shostak (SETI Institute, United States); Claudio Maccone (International Academy of Astronautics, Italy)

A4.1. SETI I: SETI Science and Technology

September 29 2010, 10:15 – Meeting Room 4.1

Chair: Stelio Montebugnoli (National Institute for Astrophysics, Italy); Alexander Ollongren (Leiden University, The Netherlands)
Rapporteur: H. Paul Shuch (SearchLites, United States)

IAC-10.A4.1.1
SETI PAST, PRESENT, AND FUTURE: 50 YEARS IN 15 MINUTES
H. Paul Shuch, SearchLites, United States

IAC-10.A4.1.2
A SETI SEARCH IN THE ANTI-SOLAR DIRECTION USING THE ALLEN TELESCOPE ARRAY
Seth Shostak, SETI Institute, United States

IAC-10.A4.1.4
SETI BACK ENDS MADE INEXPENSIVE
Stelio Montebugnoli, National Institute for Astrophysics, Italy

IAC-10.A4.1.5
TECHNOLOGIES DRIVING SETI
Curtis Mead, Harvard University, United States

IAC-10.A4.1.6
A NEW BELT BEYOND KUIPER'S: A BELT OF FOCAL SPHERES BETWEEN 550 AND 17,000 AU FOR SETI AND SCIENCE
Claudio Maccone, International Academy of Astronautics, Italy

IAC-10.A4.1.7
A MULTILEVEL MODEL OF INTERSTELLAR COMMUNICATION
Steve Trimberger, United States

IAC-10.A4.1.8
LARGE-SIZE MESSAGE CONSTRUCTION FOR ETI – INTERPRETATION OF PROCESSES IN LINGUA COSMICA
Alexander Ollongren, Leiden University, The Netherlands

IAC-10.A4.1.9
GIANT/RED-DWARF BINARIES: NEW SETI TARGETS AND IMPLICATIONS FOR INTERSTELLAR MIGRATION
Gregory L. Matloff, New York City College of Technology, United States

A4.2. SETI II: SETI and Society

September 29 2010, 15:15 – Meeting Room 4.1

Chair: Vladimír Kopal (West Bohemian University, Czech Republic); Douglas Vakoch (SETI Institute and California Institute of Integral Studies, United States)
Rapporteur: Carol Oliver (Macquarie University, Australia)

IAC-10.A4.2.1
FOOTPRINTS OF ALIEN TECHNOLOGY
Paul Davies, Arizona State University, United States

IAC-10.A4.2.2
THE HISTORY OF CONTACT ON EARTH: DATA, MYTHS, MISCONCEPTIONS
Kathryn Denning, York University, Canada

IAC-10.A4.2.3
SETI AND ASTROBIOLOGY: THE RIO SCALE AND THE LONDON SCALE
Ivan Almar, Hungarian Astronautical Society (MANT), Hungary

IAC-10.A4.2.4
THE DISC QUOTIENT: A POST DETECTION STRATEGY
John Elliott, Leeds Metropolitan University, United Kingdom

IAC-10.A4.2.5
SOCIAL NETWORKING: IMPLICATIONS FOR POST DETECTION COMMUNICATIONS
Carol Oliver, University of New South Wales, Australia

IAC-10.A4.2.6
WHAT SHOULD WE SAY TO EXTRATERRESTRIAL INTELLIGENCE?: AN ANALYSIS OF RESPONSES TO "EARTH SPEAKS"
Douglas Vakoch, SETI Institute and California Institute of Integral Studies, United States

IAC-10.A4.2.7
ONE KILO MESSAGE AND MOSAIC EARTH: EDUCATION AND OUTREACH POTENTIAL OF INTERSTELLAR ARTEFACT MESSAGE COMPOSITION PROJECTS
Tibor Pacher, Germany

IAC-10.A4.2.8
SOCIETAL STATISTICS BY VIRTUE OF THE STATISTICAL DRAKE EQUATION
Claudio Maccone, International Academy of Astronautics, Italy

IAC-10.A4.2.9
PROJECTS FOR DEEP SPACE AND DEEP TIME COMMUNICATION
Lowry Burgess, Carnegie Mellon University, United States

IAC-10.A4.2.10
THE LIMITS OF METALAW AND THE NEED FOR FURTHER ELABORATION
Adam Korbitz, J.D., State Bar of Wisconsin, United States

A5. HUMAN EXPLORATION OF THE MOON AND MARS SYMPOSIUM

Coordinator: Christian Sallaberger (MDA Corporation, Canada); Wendell Mendell (National Aeronautics and Space Administration (NASA), United States)

A5.1. Near Term Strategies for Lunar Surface Infrastructure

September 28 2010, 10:15 – Meeting Hall V

Chair: Maria Antonietta Perino (Thales Alenia Space Italia, Italy); Wendell Mendell (National Aeronautics and Space Administration (NASA), United States)
Rapporteur: Bernard Foing (European Space Agency (ESA), The Netherlands)

IAC-10.A5.1.1
AN APPROACH TO HABITATION FOR THE GLOBAL POINT OF DEPARTURE (GPOD) LUNAR ARCHITECTURE
Larry Toups, National Aeronautics and Space Administration (NASA)/Ames Research Center, United States

IAC-10.A5.1.2
A STRUCTURED METHOD FOR CALCULATING HABITABLE VOLUME FOR IN-SPACE AND SURFACE HABITATS
Matthew Simon, National Institute of Aerospace/Georgia Institute of Technology, United States

IAC-10.A5.1.3
EXPLORATION AND DESIGN OF THE LOGISTICS AND HARDWARE FOR ACCOMPLISHMENT OF GEOSCIENCES ON THE MOON
Ulrike Rahe, Chalmers University of Technology, Sweden

IAC-10.A5.1.4
ACTIVE DUST CONTROL AND MITIGATION TECHNOLOGY FOR LUNAR AND MARTIAN EXPLORATION
Carlos Calle, National Aeronautics and Space Administration (NASA)/Kennedy Space Center, United States

IAC-10.A5.1.6
A POWER ARCHITECTURE FOR THE ISECG REFERENCE ARCHITECTURE FOR HUMAN LUNAR EXPLORATION
Marc Haese, European Space Agency (ESA), The Netherlands

IAC-10.A5.1.7
LUNAR IN-SITU RESOURCE UTILIZATION IN THE ISECG HUMAN LUNAR EXPLORATION REFERENCE ARCHITECTURE
Gerald Sanders, National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States

IAC-10.A5.1.8
DUST REMOVAL AND BEST PRACTICES AT THE MARS DESERT RESEARCH STATION
Stacy Irwin, Florida Institute of Technology, United States

IAC-10.A5.1.9
DECISION-THEORETIC SYSTEM ARCHITECTURE MODEL FOR THE LUNAR SURFACE SYSTEM
Arthur Guest, Massachussets Institute of Technology (MIT), United States

IAC-10.A5.1.11
FROM APOLLO TRAVERSES TO FUTURE EVAS USING A MOBILE LABORATORY
Abigail Calzada Diaz, Universidad de Oviedo, Spain

IAC-10.A5.1.12
ILEWG ROADMAP FOR LUNAR ROBOTIC VILLAGES AND HUMAN BASES
Jacques Blamont, Centre National d'Etudes Spatiales (CNES), France

A5.2. Long Term Scenarios for Human Lunar Presence

September 30 2010, 10:15 – Meeting Hall IV

Chair: Uwe Apel (Hochschule Bremen, Germany); William H. Siegfried (The Boeing Company, United States)
Rapporteur: Nadeem Ghafoor (MDA, Canada)

IAC-10.A5.2.1
SPACE COLONIZATION, A STUDY OF SUPPLY AND DEMAND
Dana Andrews, Andrews Space, United States

IAC-10.A5.2.4
SOLAR ELECTRIC PROPULSION FOR A FLEXIBLE PATH OF HUMAN SPACE EXPLORATION
Nathan Strange, Jet Propulsion Laboratory - California Institute of Technology, United States

IAC-10.A5.2.5
THE SCIENCE RATIONALE FOR FLEXIBLE PATH: A ROBOTICALLY-INTENSIVE, CREW-BASED EXPLORATION STRATEGY FOR THE 21ST CENTURY
George Schmidt, National Aeronautics and Space Administration (NASA)/Glenn Research Center, United States

IAC-10.A5.2.6
ESA LUNAR IN-SITU RESOURCE UTILIZATION (ISRU) CONCEPT DESIGN AND BREADBOARDING ACTIVITIES
Emanuele Monchieri, Carlo Gavazzi Space, Italy

IAC-10.A5.2.7
MINING THE MOON: A FIRST STEP IN HARNESSING EXTRATERRESTRIAL RESOURCES
Alexandre Burelle, McGill University, Canada

IAC-10.A5.2.9
AN INTERNATIONAL STRATEGY FOR HUMAN EXPLORATION OF THE MOON: THE INTERNATIONAL SPACE EXPLORATION COORDINATION GROUP (ISECG) REFERENCE ARCHITECTURE FOR HUMAN LUNAR EXPLORATION
Kathleen Laurini, National Aeronautics and Space Administration (NASA), United States

IAC-10.A5.2.10
HUMAN LUNAR EXPLORATION: INTERNATIONAL CAMPAIGN DEVELOPMENT
Chris Culbert, National Aeronautics and Space Administration (NASA), United States

IAC-10.A5.2.11
COMPARATIVE CAMPAIGN ASSESSMENTS IN THE ISECG REFERENCE ARCHITECTURE FOR HUMAN LUNAR EXPLORATION
William Carey, European Space Agency (ESA), The Netherlands

IAC-10.A5.2.12
ISRU DEMONSTRATOR FOR PROPELLANT PRODUCTION ON THE MOON
Peter Hofmann, Kayser-Threde GmbH, Germany

A5.4. Going Beyond the Earth-Moon system: Human Missions to Mars, Libration points, and NEO's

October 1 2010, 14:00 – Terrace 1

Chair: Ernst Messerschmid (University of Stuttgart, Germany); Genevieve Gargir (Centre National d'Etudes Spatiales (CNES), France)
Rapporteur: Gerhard Schwehm (European Space Agency (ESA), Spain)

IAC-10.A5.4.1
AN INTEGRATED ARCHITECTURE FOR EXPLORATION
Walter Faulconer, Strategic Space Solutions, LLC, United States

IAC-10.A5.4.3
DEMONSTRATING CRITICAL CAPABILITIES TO ENABLE HUMAN DEEP-SPACE EXPLORATION
Christopher Moore, National Aeronautics and Space Administration (NASA), United States

IAC-10.A5.4.4
GOING BEYOND: MISSION AND SYSTEM ANALYSIS OF HUMAN EXPLORATION MISSIONS TO NEAR-EARTH OBJECTS
Aline Zimmer, University of Stuttgart, Germany

IAC-10.A5.4.5
A VALUE PROPOSITION FOR REVOLUTIONARY TECHNOLOGIES APPLIED TO CREWED MARS MISSIONS
Andrew Maxwell, National Institute of Aerospace/Georgia Institute of Technology, United States

IAC-10.A5.4.6
THE ANALYSIS OF ONE CONCEPT OF MANNED MISSION TO MARS
Mikhail S. Konstantinov, Moscow Aviation Institute, Russia

IAC-10.A5.4.7
SIGNIFICANCE AND FEASIBILITY ANALYSIS OF HUMAN MISSION TO MARS
Zhen Li, National University of Defense Technology, China

IAC-10.A5.4.8
CURRENT SITUATION AND DEVELOPMENT OF CHINA MARS EXPLORATION
Changya Chen, Shanghai Institute of Satellite Engineering, China

IAC-10.A5.4.9
ESTABLISHING A NEAR-TERM HUMAN TOEHOLD ON MARS AS A PRELUDE TO COLONIZATION: A FEASIBILITY STUDY
Arthur Guest, Massachussets Institute of Technology (MIT), United States

A6. SPACE DEBRIS SYMPOSIUM

Coordinator: Nicholas L. Johnson (National Aeronautics and Space Administration (NASA), United States); Christophe Bonnal (Centre National d'Etudes Spatiales (CNES), France)

A6.1. Measurements

September 27 2010, 15:15 – Terrace 2

Chair: Eugene Stansbery (National Aeronautics and Space Administration (NASA), United States); Seishiro Kibe (JAXA, Japan)
Rapporteur: Thomas Schildknecht (Astronomical Institute University of Bern (AIUB), Switzerland)

IAC-10.A6.1.1
OBSERVATION TECHNIQUES MADE THROUGH THE KAMI-SAIBARA RADAR
Chikako Hirose, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.A6.1.2
REQUIREMENTS OF INDIAN SPACE RESEARCH ORGANISATION FOR A MULTI OBJECT TRACKING RADAR
M.Y.S. Prasad, SDSC SHAR, India

IAC-10.A6.1.3
METHOD FOR DETERMINING SPACECRAFT ATTITUDE STABILITY BASED ON RCS
Wei Niu, State Key Laboratory of Astronautic Dynamics, China

IAC-10.A6.1.4
THE FIRST ITALIAN-RUSSIAN OBSERVATORY FOR SPACE DEBRIS MONITORING
Fabrizio Piergentili, University of Bologna, Italy

IAC-10.A6.1.5
ORBITAL DEBRIS DETECTION AND TRACKING STRATEGIES FOR THE NASA/AFRL METER CLASS AUTONOMOUS TELESCOPE (MCAT)
Mark Mulrooney, National Aeronautics and Space Administration (NASA), United States

IAC-10.A6.1.6
CHARACTERIZATION OF GEO AND HEO OBJECTS USING MULTI-YEAR STATISTICS ON BRIGHTNESS MEASUREMENTS
Vladimir Agapov, Keldysh Institute of Applied Mathematics, RAS, Russia

IAC-10.A6.1.7
PHYSICAL CHARACTERIZATION OF HIGH AMR DEBRIS BY OPTICAL REFLECTANCE SPECTROMETRY
Thomas Schildknecht, Astronomical Institute University of Bern (AIUB), Switzerland

IAC-10.A6.1.8
TIME-RESOLVED INFRARED SPECTROPHOTOMETRIC OBSERVATIONS OF HIGH AREA TO MASS RATIO (HAMR) OBJECTS IN GEO
Mark Skinner, Boeing, United States

IAC-10.A6.1.9
ANALYSIS OF OBSERVED AND SIMULATED LIGHT CURVES OF SPACE DEBRIS
Carolin Früh, Astronomical Institute University of Bern (AIUB), Switzerland

IAC-10.A6.1.10
DATA COLLECTED DURING THE POST-FLIGHT SURVEY OF MICROMETEOROID AND ORBITAL DEBRIS IMPACT FEATURES ON THE HUBBLE WIDE FIELD PLANETARY CAMERA 2
John Opiela, Jacobs Sverdrup, United States

IAC-10.A6.1.11
STATUS REPORT OF DEVELOPMENT OF A SENSOR FOR IN-SITU SPACE DUST MEASUREMENT (poster)
Yukihito Kitazawa, IHI Corporation, Japan

IAC-10.A6.2.12
UPDATED FIRST ORDER VALUE ANALYSIS FOR ORBITAL DEBRIS REMOVAL: THE BUSINESS CASE (poster)
Leonard D Vance, Raytheon, United States

IAC-10.A6.2.13
AN ANALYSIS OF RECENT MAJOR BREAKUPS IN THE LOW EARTH ORBIT REGION (poster)
J.-C. Liou, National Aeronautics and Space Administration (NASA)/ Ames Research Center, United States

A6.2. Modelling and Risk Analysis

September 28 2010, 15:15 – Terrace 2

Chair: Clare Martin (UK Space Agency, United Kingdom); Paula H. Krisko (National Aeronautics and Space Administration (NASA), United States)
Rapporteur: Luciano Anselmo (ISTI-CNR, Italy)

IAC-10.A6.2.1
VALIDATION OF THE ESA-MASTER-2009 SPACE DEBRIS POPULATION
Johannes Gelhaus, Technische Universität Braunschweig, Germany

IAC-10.A6.2.3
ORDEM2010 AND MASTER-2009 MODELED SMALL DEBRIS POPULATION COMPARISON
Paula H. Krisko, National Aeronautics and Space Administration (NASA), United States

IAC-10.A6.2.4
MULTI-LAYER INSULATION MODEL FOR MASTER-2009
Sven Kevin Flegel, Technische Universität Braunschweig, Germany

IAC-10.A6.2.5
A PARAMETRIC STUDY ON USING ACTIVE DEBRIS REMOVAL TO STABILIZE THE FUTURE LEO DEBRIS ENVIRONMENT
J.-C. Liou, National Aeronautics and Space Administration (NASA)/ Ames Research Center, United States

IAC-10.A6.2.6
ORBITAL EVOLUTION OF HIGH AREA-TO-MASS RATIO DEBRIS UNDER THE INFLUENCE OF THE RADIATION PRESSURE AND GRAVITATIONAL EFFECTS
Haowen Cheng, Nanjing University, China

IAC-10.A6.2.7
EXPLICIT EXPRESSION OF COLLISION PROBABILITY FOR SPACE OBJECTS IN ARBITRARY-SHAPE ORBIT
Xianzong Bai, National University of Defense Technology, China

IAC-10.A6.2.8
EVALUATION OF THE TLE PREDICTIONS FOR CONJUNCTION ASSESSMENT
Chikako Hirose, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.A6.2.9
OPTIMAL COLLISION AVOIDANCE MANEUVER TO MAINTAIN A LEO STATION KEEPING
Hae-Dong Kim, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.A6.2.10
EFFECTS OF SPACE DEBRIS ON THE COST OF SPACE OPERATION
William Ailor, The Aerospace Corporation, United States

A6.3. Hypervelocity Impacts and Protection

September 29 2010, 10:15 – Terrace 2

Chair: V. Adimurthy (Indian Space Research Organization (ISRO), India); Hedley Stokes (PHS Space Ltd, United Kingdom)
Rapporteur: Carsten Wiedemann (Technical University of Braunschweig, Germany)

IAC-10.A6.3.1
SHUTTLE POST FLIGHT MMOD INSPECTION HIGHLIGHTS
James Hyde, Barrios Technology/ESC Group - NASA, United States

IAC-10.A6.3.3
THE STUDY OF HYPERVELOCITY IMPACT CHARACTER FOR HONEYCOMB SANDWICH WITH MULTI-LAYER INSULATION
Jie Huang, China Aerodynamics Research and Development Center, China

IAC-10.A6.3.4
OBLIQUE HYPERVELOCITY IMPACT EXPERIMENT FOR SPACECRAFT DEBRIS SHIELD
Koji Tanaka, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.A6.3.5
FRAGMENTATION OF HYPERVELOCITY ALUMINUM PROJECTILES ON FABRICS
Martin Rudolph, Fraunhofer EMI, Germany

IAC-10.A6.3.6
EXPERIMENTAL COMPARISON OF AL SPHERE HYPERVELOCITY IMPACT ON AL-FOAM SANDWICHED SHIELD AND AL-FOAM STUFFED SHIELD
Bin Jia, Harbin Institute of Technology, China

IAC-10.A6.3.7
THE HYPERVELOCITY IMPACT TEST INVESTIGATION AND ANALYSIS ON THERMAL CONTROL INSTRUMENT IN THE SATELLITES
Yuhua Huo, China Academy of Space Technology (CAST), China

IAC-10.A6.3.8
STUDY OF HYPERVELOCITY IMPACT ON ELECTRODYNAMIC TETHER FOR TETHER LIFETIME SIMULATION
Atsushi Yanagida, Waseda University, Japan

IAC-10.A6.3.9
A BALLISTIC LIMIT ANALYSIS PROGRAM FOR SHIELDING AGAINST MICROMETEOROIDS AND ORBITAL DEBRIS
Shannon Ryan, The Lunar and Planetary Institute, United States

IAC-10.A6.3.10
DAMAGE IDENTIFICATION OF SINGLE ALUMINUM PLATE PRODUCED BY HYPERVELOCITY IMPACT BASED ACOUSTIC EMISSION
Wugang Liu, China

IAC-10.A6.3.11
OBSERVATION OF JETS IN CONICAL SHAPED CHARGES (poster)
Shin-ichi Takeda, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.A6.3.12
PROJECTILE MOTION UNDER FREE SURFACE AFTER PERFORATION OF CONTAINMENT FILLED WITH TWO-PHASE FLUID (poster)
Nickolay N. Smirnov, Moscow Lomonosov State University, Russia

IAC-10.A6.3.13
NUMERICAL MODELING AND PARAMETER IDENTIFICATION FOR KEVLAR LAMINATE ON THE CONDITION OF HYPERVELOCITY IMPACT (poster)
Bintao Liu, Beijing University of Aeronautics and Astronautics, China

A6.4. Mitigation, Standards, Removal and Legal Issues

September 29 2010, 15:15 – Terrace 2

Chair: John W. Hussey (Consultant, United States); Fernand Alby (Centre National d'Etudes Spatiales (CNES), France)
Rapporteur: Heiner Klinkrad (European Space Agency (ESA), Germany)

IAC-10.A6.4.1
MEDIUM EARTH ORBITS: IS THERE A NEED FOR A THIRD PROTECTED REGION?
Nicholas L. Johnson, National Aeronautics and Space Administration (NASA), United States

IAC-10.A6.4.2
THE INFLUENCE OF SOLAR AND GEOMAGNETIC ACTIVITY MODELLING ON THE COST OF END-OF-LIFE DISPOSAL: APPLICATIONS TO EUROPEAN EARTH OBSERVATION MISSIONS
Blanca Altés-Arlandis, DEIMOS Space S.L., Spain

IAC-10.A6.4.3
ORBITAL COLLISIONS AND SPACE DEBRIS – INCIDENCE, IMPACT AND INTERNATIONAL POLICY
Roedolph Opperman, Massachussets Institute of Technology (MIT), United States

IAC-10.A6.4.4
OVERVIEW OF THE LEGAL AND POLICY CHALLENGES OF ORBITAL DEBRIS REMOVAL
Brian Weeden, Secure World Foundation, Canada

IAC-10.A6.4.5
HIGH LEVEL REQUIREMENTS FOR AN OPERATIONAL SPACE DEBRIS DEORBITER
Christophe Bonnal, Centre National d'Etudes Spatiales (CNES), France

IAC-10.A6.4.6
SPACE DEBRIS MITIGATION USING ON-ORBIT SERVICING SOLUTIONS
Clemens Kaiser, Kayser-Threde GmbH, Germany

IAC-10.A6.4.7
DYNAMICAL SIMULATIONS AND EXPERIMENTS ABOUT CAPTURING A TUMBLING DEBRIS
Shin-ichiro Nishida, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.A6.4.8
LARGE SPACE DEBRIS REORBITER USING ION BEAM IRRADIATION
Shoji Kitamura, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.A6.4.9
ACTIVE DEBRIS REMOVAL: EDDE, THE ELECTRODYNAMIC DEBRIS ELIMINATOR
Jerome Pearson, Star Technology and Research, Inc., United States

IAC-10.A6.4.11
ULTRASHORT OPTICAL PULSES APPLIED TO DEORBITING SMALL DEBRIS ELEMENTS
Richard L. Fork, University of Alabama in Huntsville, United States

IAC-10.A6.4.12
THE EFFECTIVENESS OF SPACE DEBRIS MITIGATION MEASURES (poster)
Carsten Wiedemann, Technical University of Braunschweig, Germany

IAC-10.A6.4.13
ORBITAL DEBRIS REMOVAL WITH SOLAR CONCENTRATORS (poster)
Massimiliano Vasile, University of Glasgow, United Kingdom

IAC-10.A6.4.14
LASER DEFLECTION OF SPACE DEBRIS (poster)
Franz-Josef Kahlen, University of Cape Town, South Africa

IAC-10.A6.4.15
NOVEL CONCEPTS FOR THE REMOVAL OF SPACE DEBRIS (poster)
Ulrich Knirsch, EADS Astrium, Germany

A6.5. Space Surveillance and Space Situational Awareness

October 1 2010, 14:00 – Meeting Hall IV

Chair: Holger Krag (European Space Agency (ESA), Germany); Vladimir Agapov (Keldysh Institute of Applied Mathematics, RAS, Russia)
Rapporteur: Mark J. Matney (National Aeronautics and Space Administration (NASA), United States)

IAC-10.A6.5.1
ITALIAN CONTRIBUTE TO EUROPEAN SPACE SURVEILLANCE: FEASIBILITY STUDY OF ESTABLISHING AUTOMATIC OBSERVATORIES AT THE MALINDI ASI BASE IN KENYA AND IN ARGENTINEAN ANDES MOUNTAINS
Fabrizio Piergentili, University of Bologna, Italy

IAC-10.A6.5.2
BUILD-UP AND MAINTENANCE OF A CATALOGUE OF GEO OBJECTS WITH ZIMSMART
Johannes Herzog, Astronomical Institute University of Bern (AIUB), Switzerland

IAC-10.A6.5.3
ANALYSIS OF HIGH AREA-TO-MASS RATIO (HAMR) GEO SPACE OBJECT ORBIT DETERMINATION AND PREDICTION PERFORMANCE
Thomas Kelecy, Boeing Integrated Defense Systems, United States

IAC-10.A6.5.4
CURRENT IMPROVEMENTS OF THE ISON NETWORK TO SUPPORT THE COLLISION PREDICTION TASK
Igor Molotov, Keldysh Institute of Applied Mathematics, RAS, Russia

IAC-10.A6.5.5
PRELIMINARY TELESCOPE DESIGN ANALYSIS FOR THE OPTICAL SPACE SURVEILLANCE SUBSYSTEM
Alessandro Vananti, Astronomical Institute University of Bern (AIUB), Switzerland

IAC-10.A6.5.6
PROCESSING SPACE DEBRIS OPTICAL MEASUREMENTS FROM SURVEY-ONLY STRATEGIES: DEVELOPMENT OF A CATALOGUING OPERATIONAL TOOL AND VALIDATION CAMPAIGNS
Estrella Olmedo, DEIMOS Space S.L., Spain

IAC-10.A6.5.7
SERVICES, DESIGN DRIVERS AND SOLUTION CONCEPTS FOR A EUROPEAN LEO SPACE SURVEILLANCE SYSTEM
Holger Krag, European Space Agency (ESA), Germany

IAC-10.A6.5.8
A TRADE-OFF STUDY BETWEEN SIZE THRESHOLD OF CATALOGUED OBJECTS AND TRACK ACCURACY FOR THE DESIGN OF A SPACE SITUATIONAL AWARENESS SYSTEM
Sylvain Bertrand, Office National d'Etudes et de Recherches Aérospatiales (ONERA), France

IAC-10.A6.5.9
EVALUATION SYSTEM OF SPACE SITUATION BASED ON SPACE OBSERVATION
Zhang Yaolei, China Academy of Launch Vehicle Technology, China

IAC-10.A6.5.10
DEBRIS TELESCOPES CATCH OBJECTS IN LEO ZONE (poster)
Lorenzo Cibin, Carlo Gavazzi Space, Italy

IAC-10.A6.5.11
GLOBALIZED PLANNING OF SURVEILLANCE OF ORBITAL OBJECTS (poster)
Tatyana V. Labutkina, Dnepropetrovsk National University named after Oles' Gonchar, Ukraine

IAC-10.A6.5.12
OPTIMAL MANEUVER FOR SATELLITE-DEBRIS COLLISION AVOIDANCE (poster)
M. Navabi, Shahid Beheshti University, Iran

B1. EARTH OBSERVATION SYMPOSIUM

Coordinator: John W. Hussey (Consultant, United States); Pierre Ranzoli (Eumetsat, Germany)

B1.1. International Cooperation in Earth Observation Missions

September 28 2010, 10:15 – Conference Hall

Chair: John W. Hussey (Consultant, United States); Pierre Ranzoli (Eumetsat, Germany)
Rapporteur: David Brent Smith (National Oceanic and Atmospheric Administration (NOAA), United States)

IAC-10.B1.1.1
CEOS: BUILDING EARTH OBSERVATION COMMUNITY IN DEVELOPING COUNTRIES FOR SOCIETAL BENEFIT
Gilberto Camara, INPE, Brazil

IAC-10.B1.1.3
STATUS AND FUTURE PROSPECTS FOR EARTH OBSERVATION
Adam Keith, Euroconsult North America, Canada

IAC-10.B1.1.4
RADARSAT CONSTELLATION AN EVOLUTION IN THE CANADIAN CONTRIBUTIONS TO DISASTER MANAGEMENT
Guy Seguin, Canadian Space Agency, Canada

IAC-10.B1.1.5
EARLY WARNING SYSTEM FOR ENVIRONMENTAL MONITORING OF ROPME REGION
Peter Petrov, Kuwait

IAC-10.B1.1.6
QUICK RESPONSE FOR DISASTER MONITORING FROM FORMOSAT-2 SATELLITE
An-Ming Wu, National Space Organization, Taiwan, China

IAC-10.B1.1.7
EMPLOYING SPACE-BASED DATA AND OBSERVATIONS FOR UNDERSTANDING CLIMATE CHANGE AND SUSTAINABLE DEVELOPMENT IN LATIN AMERICA AND THE CARIBBEAN – RESEARCH AND RESULTS FROM THE CATHALAC/UAHUNTSVILLE 2010 INTERNATIONAL PROGRAM
Sundar Christopher, University of Alabama in Huntsville, United States

IAC-10.B1.1.8
FROM GEOSS TO GERSS – A PERSONAL PROSPECT
Rock Jeng-Shingi Chern, China Institute of Technology, Taiwan, China

IAC-10.B1.1.9
SPACE MONITORING AND EARTHQUAKES FORECASTS, INTERNATIONAL COOPERATION
Nickolay N. Smirnov, Moscow Lomonosov State University, Russia

IAC-10.B1.1.10
INTERNATIONAL CHARTER 'SPACE AND MAJOR DISASTERS' TEN YEARS OF OPERATIONAL SERVICES
André Husson, Centre National d'Etudes Spatiales (CNES), France

B1.2. Future Earth Observation Systems

September 28 2010, 15:15 – Conference Hall

Chair: Benoit Boissin (Centre National d'Etudes Spatiales (CNES), France); Gilles Corlay (EADS Sodern, France)
Rapporteur: Bruce K. Quirk (U.S. Geological Survey, United States)

IAC-10.B1.2.2
FINE SCALE ALTIMETRY CONSTELLATION FOR GMES OCEANOGRAPHY USING A GENERIC SATELLITE PLATFORM
Stephan Strauß, OHB-System AG, Germany

IAC-10.B1.2.3
A FRACTIONATED SATELLITE APPROACH TO COASTAL SALINITY MEASUREMENT
Benjamin Schwarz, University of Southampton, United Kingdom

IAC-10.B1.2.4
LONG TERM MEASUREMENT OF THE EARTH'S RADIATION BUDGET USING A CONSTELLATION OF BROADBAND RADIOMETERS HOSTED ON IRIDIUM NEXT
Om Prakash Gupta, United States

IAC-10.B1.2.5
NANOSATELLITE MISSION OVERVIEW WITH A SLAB WAVEGUIDE SPATIAL HETERODYNE SPECTROMETER PAYLOAD
Kenneth Sinclair, York University, Canada

IAC-10.B1.2.6
POLAR COMMUNICATIONS AND WEATHER (PCW) MISSION
Guennadi Kroupnik, Canadian Space Agency, Canada

IAC-10.B1.2.7
EXTENSION OF EARTH OBSERVATION ORBITS USING LOW-THRUST PROPULSION
Pamela Anderson, Advanced Space Concept Laboratory University of Strathclyde, United Kingdom

IAC-10.B1.2.8
PROPOSED GEOSTATIONARY EARTH OBSERVATION SYSTEM VS EXISTING AND PROPOSED LEO EARTH OBSERVATION SATELLITE CONSTELLATIONS: A COMPARATIVE OVERVIEW
Ron Olivier, Sun Space and Information Systems, South Africa

IAC-10.B1.2.9
A MILLION SQUARE KILOMETER OPTICAL SATELLITE FOR KAZAKHSTAN
Joost Elstak, Surrey Satellite Technology Ltd, United Kingdom

IAC-10.B1.2.10
MDA SUB-METRE OPTICAL IMAGING SYSTEM – HIGH PERFORMANCE AT LOW COST
George Tyc, MacDonald Dettwiler & Associates Ltd., Canada

IAC-10.B1.2.11
NOT JUST BIG CUSTOMERS WITH BIG BUCKS: HOW TO GET SUB-METRE IMAGERY FROM A SMALL SATELLITE
Andrew Cawthorne, Surrey Satellite Technology Ltd, United Kingdom

B1.3. Earth Observation Sensors & Technology

September 29 2010, 10:15 – Conference Hall

Chair: Andrew Court (TNO, The Netherlands); Yean Joo Chong (National University of Singapore, Rep. Of Singapore)
Rapporteur: Luigi Bussolino (Bussolino and Associates, Italy)

IAC-10.B1.3.1
IN-ORBIT DATA OF THE ACCELEROMETERS OF THE ESA GOCE MISSION
Jean-Pierre Marque, Office National d'Etudes et de Recherches Aérospatiales (ONERA), France

IAC-10.B1.3.2
USE OF THE HIGH SENSITIVE ELECTROSTATIC ACCELEROMETER FOR ORBIT PERTURBATION EFFECTS INVESTIGATION ON BOARD OF LEO SPACECRAFT
Radek Peresty, Vyzkumny a Zkusebni letecky ustav, a.s. - VZLU, Czech Republic

IAC-10.B1.3.3
THE SGR-RESI – A SMALL SATELLITE INSTRUMENT FOR SENSING THE EARTH USING GNSS SIGNALS
Martin J. Unwin, Surrey Satellite Technology Ltd, United Kingdom

IAC-10.B1.3.4
THE SEA & LAND SURFACE TEMPERATURE RADIOMETER (SLSTR) TECHNOLOGIES
Peter Coppo, Selex Galileo, Italy

IAC-10.B1.3.5
PROGRESS IN THE ADVANCED HYPERSPECTRAL IMAGING PROGRAMME ENMAP (ENVIRONMENTAL MAPPING AND ANALYSIS PROGRAMME)
Timo Stuffler, Kayser-Threde GmbH, Germany

IAC-10.B1.3.6
OPTICAL THIN FILM TECHNOLOGY APPLIED IN SPACE
Wang Duoshu, Lanzhou Institute of Physics, China

IAC-10.B1.3.8
STAND-ALONE ASSEMBLY OF IR CAMERA
Ho-Soon Yang, Korea, Republic of

IAC-10.B1.3.9
INFRARED CORRELATION RADIOMETER FOR TROPOSPHERIC CARBON MONOXIDE MEASUREMENTS FROM GEO
Doreen Neil, National Aeronautics and Space Administration (NASA)/Ames Research Center, United States

IAC-10.B1.3.10
GEOSTATIONARY IMAGING FABRY-PEROT SPECTROMETER (GIFS) FOR THE MEASUREMENT OF TRACE GASES AND CLOUDS
Jeng-Hwa Yee, The John Hopkins University, United States

IAC-10.B1.3.11
MONITORING OF GREENHOUSE GASES USING INFRARED GRATING SPECTROMETER
Himanshu Shekhar, SRM University, India

B1.4. Earth Observation Data Management Systems

September 30 2010, 10:15 – Conference Hall

Chair: Bruce K. Quirk (U.S. Geological Survey, United States); Carlo Ulivieri (University of Rome "La Sapienza", Italy)
Rapporteur: Pierre Ranzoli (Eumetsat, Germany)

IAC-10.B1.4.1
GLOBAL HYDROLOGY RESOURCE CENTER: A FOUNDATION FOR RESEARCH USING EARTH OBSERVATION DATA
Manil Maskey, University of Alabama in Huntsville, United States

IAC-10.B1.4.2
IN-FLIGHT VERIFICATION OF CCSDS BASED ON-BOARD REAL-TIME VIDEO COMPRESSION
Florian Aschauer, Max-Planck Institute for Extraterrestrial Physics, Germany

IAC-10.B1.4.3
COMS INR; PROSPECT AND RETROSPECT
Handol Kim, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.B1.4.4
EXPERIENCE IN IMPLEMENTING AN EO DATA CENTRE, BASED ON A COMMERCIAL MULTI-MISSION DATA AND INFORMATION MANAGEMENT SYSTEM INTEGRATING EXISTING PROCESSING FACILITIES
Soeren Schwartze, Werum Software & Systems AG, Germany

IAC-10.B1.4.5
DETECTION OF SMALL ATMOSPHERIC PARTICULATE MATTER BY SATELLITE MEASUREMENTS
Munzer Jahjah, Italy

IAC-10.B1.4.6
GEO-INFORMATION SYSTEM FOR DISASTER MANAGEMENT IN DEVELOPING COUNTRIES: THE EXAMPLE OF ANTROPOGENIC LAND DEGRADATION ASSESSMENT AND ITS IMPLICATION FOR CLIMATE CHANGE.
Kayode Adepoju, Nigeria

IAC-10.B1.4.7
PROCESSING OF MULTI-SPECTRAL AND MULTI-VIEWING REMOTE SENSING DATA OF LAND SURFACE
Vera Djepa, United Kingdom

IAC-10.B1.4.8
ADVANCES SPACE TECHNOLOGY AS ADAPTATION FACTOR FOR HUMAN BENEFITS
Salahova Saida, Azerbaijan National Aerospace Agency, Azerbaijan

IAC-10.B1.4.9
COMPARING NEURAL NETWORKS, INVARIANT MOMENTS AND MATHEMATICAL MORPHOLOGY PERFORMANCES FOR THE AUTOMATIC OBJECT RECOGNITION
Giancarlo Santilli, Italy

IAC-10.B1.4.10
DESIGN AND IMPLEMENTATION OF THE OPERATION AND MANAGEMENT SYSTEM FOR EARTH OBSERVATION SATELLITES GROUND APPLICATION SYSTEM
Ying Li, China Academy of Space Technology (CAST), China

IAC-10.B1.4.11
OIL SPILL DETECTION ON RADAR IMAGES BY USING MATHEMATICAL MORPHOLOGY
Giancarlo Santilli, Italy

B1.5. Earth Observation Applications and Economic Benefits

September 30 2010, 15:15 – Conference Hall

Chair: Luigi Bussolino (Bussolino and Associates, Italy); Paul Kamoun (ThalesAlenia Space, France)
Rapporteur: Yean Joo Chong (National University of Singapore, Rep. Of Singapore)

IAC-10.B1.5.1
INTER. COOPERATION PROPOSAL: RAPID RESPONSE SMALL SATELLITES FOR DISASTER SURVEILLANCE
Fu Danying, CASC, China

IAC-10.B1.5.2
IN ORBIT RESULTS OF THE NEXT GENERATION DISASTER MONITORING CONSTELLATION SATELLITE UK-DMC-2
James Penson, Surrey Satellite Technology Ltd, United Kingdom

IAC-10.B1.5.3
DEVELOPMENT AND OPERATION OF SPACE-BASED DISEASE EARLY WARNING MODELS
Mariel John, United States

IAC-10.B1.5.4
RADARSAT INSAR MONITORING OF GEOHAZARD AREAS IN SUPPORT OF CONSTRUCTION PROGRAMS
Vern Singhroy, Canada Centre for Remote Sensing, Canada

IAC-10.B1.5.5
SATELLITE DATA APPLICATIONS IN DETECTING AND PREDICTING CLIMATE CHANGE AND DESERTIFICATION IN AFRICA: CASE STUDY OF THE SAHEL REGION.
Abubakar Babagana, Kanuri Development Association, Nigeria

IAC-10.B1.5.6
DEVELOPING REAL TIME MODEL FOR ROAD SAFETY MEASURES IN NIGERIA USING GEOGRAPHICAL INFORMATION SYSTEMS AND REMOTE SENSING
Taslim Alade, National Space Research and Development Agency, Abuja, Nigeria, Nigeria

IAC-10.B1.5.7
ANALYSIS OF CLIMATE CHANGE AND SATELLITE POLICY IN THE UNITED STATES
Mariel John, United States

IAC-10.B1.5.8
APPLICATION OF POLARIMETRIC SAR FOR HISTORICAL FOREST FIRE SCARS AND BIOMASS
David G. Goodenough, Pacific Forestry Centre, Natural Resources Canada, Canada

IAC-10.B1.5.9
INTEGRATED SPACE APPLICATIONS IN THE EARLY DETECTION AND MANAGEMENT OF BUSHFIRES
Lachlan Thompson, RMIT University, Australia, Australia

IAC-10.B1.5.10
APPLICATION OF THE ALONG TRACK SCANNING RADIOMETER FOR MONITORING OF SOIL MOISTURE AND OPTIMISATION OF PLANT WATER SUPPLY
Vera Djepa, United Kingdom

B1.6. GEOSS and Carbon Monitoring from Space

September 29 2010, 15:15 – Conference Hall

Chair: David Brent Smith (National Oceanic and Atmospheric Administration (NOAA), United States); Graham Gibbs (Canadian Space Agency, United States)
Rapporteur: Paul Kamoun (ThalesAlenia Space, France)

IAC-10.B1.6.1
THE RESULTS OF GOSAT ONE AND HALF YEARS OBSERVATION AND CURRENT STATUS OF THE SATELLITE
Masakatsu Nakajima, JAXA Tsukuba Space Center, Japan

IAC-10.B1.6.2
MEASURING CO2 FROM SPACE: THE NASA ORBITING CARBON OBSERVATORY-2
David Crisp, Jet Propulsion Laboratory - California Institute of Technology, United States

IAC-10.B1.6.3
SEVEN YEARS OF OBSERVATIONS OF MID-TROPOSPHERIC CO2 FROM THE ATMOSPHERIC INFRARED SOUNDER
Thomas Pagano, NASA/JPL, United States

IAC-10.B1.6.4
CARBONSAT CONSTELLATION
Wei Sun, OHB-System AG, Germany

IAC-10.B1.6.5
THE GEOSS QUALITY ASSURANCE FRAMEWORK FOR EARTH OBSERVATION (QA4EO): ACHIEVEMENTS AND FUTURE IMPLEMENTATION.
Giuseppe Ottavianelli, European Space Agency (ESA), Italy

IAC-10.B1.6.6
INTERNATIONAL SYSTEMS, MISSIONS AND PROGRAMS TO SUPPORT 21ST CENTURY CARBON CYCLE MONITORING REQUIREMENTS
Rene Laufer, Baylor University, United States

IAC-10.B1.6.7
REMOTE SENSING OF SOIL AND BIOMASS CONTRIBUTION TO GLOBAL CARBON CYCLE
Vera Djepa, United Kingdom

B1.7. Interactive Session on Earth Observation

October 1 2010, 14:00 – Conference Hall

Chair: Andrew Court (TNO, The Netherlands)

IAC-10.B1.7.1
FUTURE CONCEPTS FOR EARTH OBSERVATION MISSIONS
Carsten Tobehn, OHB-System AG, Germany

IAC-10.B1.7.2
GEOSYNCHRONOUS INTERFEROMETRIC SYNTHETIC APERTURE RADAR: APPLICATION RESEARCH AND MISSION ANALYSIS
Jia Xu, China Academy of Space Technology (CAST), China

IAC-10.B1.7.3
RESEARCH ON DEVELOPMENT OF REMOTE SENSING EARTH OBSERVATION
Zhengguo Shang, China Aerospace Science and Industry Corporation, China

IAC-10.B1.7.4
A GENERIC SATELLITE PLATFORM FOR HIGH PERFORMANCE LEO MISSIONS – LEOBUS-1000
Amin Shahsavar, OHB-System AG, Germany

IAC-10.B1.7.5
A METHOD FOR DETERMINING THE ABSOLUTE TOTAL ELECTRON CONTENT USING UNMODULATED COHERENT MULTIFREQUENCY SIGNALS
Aleksey Novikov, FSUE RSDE, Russia

IAC-10.B1.7.6
SYNCHRONIZATION STRATEGY AND OVERLAP RATIO OF BEAM FOOTPRINT FOR FORMATION FLYING INSAR SATELLITE
Liu Xuekui, Harbin Institute of Technology, China

IAC-10.B1.7.7
EARTHCARE CLOUD PROFILING RADAR HIGH POWER AMPLIFIER
Marcello Gambarara, Selex Galileo, Italy

IAC-10.B1.7.8
DEVELOPMENT OF HYPERSPECTRAL IMAGING ELECTRONICS FOR STSAT-3 SATELLITE
Kyungin Kang, Korea Advanced Institute of Science and Technology (KAIST), Korea, Republic of

IAC-10.B1.7.9
AN ANALYSIS OF THE ACCURACY OF THE MEASUREMENT FOR SPACE-BORNE SCATTEROMETER
Lixia Liu, China

IAC-10.B1.7.10
ESTIMATING COUNTRY LEVEL MARKET POTENTIAL FOR SPACEBORNE REMOTE SENSING DATA SERVICES
Murthy L.N. Remilla, Indian Space Research Organization (ISRO), India

IAC-10.B1.7.11
HERMES DELTA: THE USE OF THE DELTA OPERATION MODE OF THE HERMES-A/MINOTAUR INTERNET-TO-ORBIT GATEWAY TO TURN A LAPTOP IN TO A VIRTUAL EO GROUND STATION
Ronnie Nader, Ecuadorian Civilian Space Agency (EXA), Ecuador

B2. SPACE COMMUNICATIONS AND NAVIGATION SYMPOSIUM

Coordinator: Joe M. Straus (The Aerospace Corporation, United States); Otto Koudelka (Graz University of Technology, Austria)

B2.1. Advanced Systems

September 27 2010, 15:15 – Club B

Chair: Robert Prevaux (Space Systems/Loral, United States); Ryutaro Suzuki (National Institute of Information and Communications Technology, Japan)
Rapporteur: Morio Toyoshima (National Institute of Information and Communications Technology, Japan)

IAC-10.B2.1.1
ADVANCED BROADBAND COMMUNICATION-BROADCASTING CONVERGENCE SATELLITE
Jae Woo Park, Electronics and Telecommunications Research Institute (ETRI), Korea, Republic of

IAC-10.B2.1.2
SPACE INDUSTRY INFORMATION SYSTEMS IN THE INTERESTS OF RUSSIA'S ARCTIC REGION DEVELOPMENT
Nikolay Sevastiyanov, Gazprom Space Systems, Russia

IAC-10.B2.1.3
RESULTS OF A FEASIBILITY STUDY INTO THE SPACE-BASED DETECTION OF AIS SIGNALS ON AN OPERATIONAL BASIS
Frank te Hennepe, OHB-System AG, Germany

IAC-10.B2.1.4
A HIGHLY EFFICIENT MULTIPLE ACCESS SYSTEM FOR SATELLITE INTER NETWORKING APPLICATIONS
Manfred Wittig, European Space Agency (ESA), The Netherlands

IAC-10.B2.1.5
AN EFFECTIVE ROUTE CONTROL METHOD ON MULTI-LAYERED SATELLITE NETWORKS
Yuta Tada, Tohoku University, Japan

IAC-10.B2.1.6
HIGH CAPACITY FEEDER LINKS
Manfred Wittig, European Space Agency (ESA), The Netherlands

IAC-10.B2.1.7
ALPHABUS, A SUCCESSFUL EUROPEAN PUBLIC PRIVATE PARTNERSHIP
Thibery Cussac, Centre National d'Etudes Spatiales (CNES), France

IAC-10.B2.1.8
Q/V-BAND COMMUNICATIONS AND NAVIGATION EXPERIMENTS USING ALPHASAT
Otto Koudelka, Graz University of Technology, Austria

IAC-10.B2.1.9
RESULTS OF THE OPTICAL LINK BETWEEN THE OPTICAL COMMUNICATIONS TELESCOPE LABORATORY AND THE OPTICAL INTER-SATELLITE COMMUNICATIONS ENGINEERING TEST SATELLITE
Keith Wilson, Jet Propulsion Laboratory - California Institute of Technology, United States

IAC-10.B2.1.10
RESULTS OF KIRARI OPTICAL COMMUNICATION DEMONSTRATION EXPERIMENTS WITH THE NICT OPTICAL GROUND STATION (KODEN) AIMING FOR FUTURE CLASSICAL AND QUANTUM COMMUNICATIONS IN SPACE
Morio Toyoshima, National Institute of Information and Communications Technology, Japan

IAC-10.B2.1.11
ON THE USE OF GROUND ANTENNA ARRAYS FOR SATELLITE TRACKING: ARCHITECTURE, BEAMFORMING, CALIBRATION AND MEASUREMENTS
Ramón Martínez Rodríguez-Osorio, Universidad Politécnica de Madrid, Spain

IAC-10.B2.1.12
FIELD TESTING FOR SATELLITE BASED TRACKING SYSTEM
Pasi Kämppi, Laurea University of Applied Sciences, Finland

B2.2. Fixed and Broadcast Communications

September 29 2010, 10:15 – Club B

Chair: Otto Koudelka (Graz University of Technology, Austria); Christopher Croom (Sirius Satellite Radio, United States)
Rapporteur: Moon-Beom Heo (Korea Aerospace Research Institute, Korea, Republic of)

IAC-10.B2.2.1
AN HD-TV DIRECT-TO-HOME BROADCASTING SATELLITE SYSTEM IN KA-BAND OVER EUROPE
Jean-Didier Gayrard, ThalesAlenia Space, France

IAC-10.B2.2.2
MEASURED SATELLITE AND SYSTEM PERFORMANCE VERSUS DESIGN TARGETS FOR A SDARS HYBRID CONSTELLATION
Joseph Foust, Space Systems/Loral, United States

IAC-10.B2.2.3
OPTIMIZING SDARS SYSTEM PERFORMANCE IN A HYBRID CONSTELLATION
Christopher Croom, Sirius Satellite Radio, United States

IAC-10.B2.2.4
SURVIVABILITY APPLICATION DEMONSTRATIONS VIA WIDEBAND INTERNETWORKING ENGINEERING TEST AND DEMONSTRATION SATELLITE "KIZUNA" (WINDS)
Ryutaro Suzuki, National Institute of Information and Communications Technology, Japan

IAC-10.B2.2.5
INDIA AND CHINA – NEW VOICES IN THE SATCOM ARENA
Norbert Frischauf, JRC-IE, Austria

IAC-10.B2.2.6
SATELLITE BASED IP SERVICES IN MOBILE ENVIRONMENT
Venugopal Desaraju, Devas Multimedia Pvt. Ltd., India

IAC-10.B2.2.7
INDIAN TELEMEDICINE PROGRAM FROM CONCEPT TO COMPLETION – TOWARDS NATIONAL ADAPTION
Murthy L.N. Remilla, Indian Space Research Organization (ISRO), India

IAC-10.B2.2.8
DESIGN AND EVALUATION OF A RECEIVER SYSTEM FOR A CONICAL BEAM TRACKING ALGORITHM
Philipp Rosenberger, Technische Universität München, Germany

IAC-10.B2.2.9
AN OPTICALLY CONTROLLED BEAM FORMING NETWORK FOR KA-BAND ANTENNA
Akira Akaishi, National Institute of Information and Communications Technology, Japan

IAC-10.B2.2.10
A NEW ALGORITHM FOR THE SELF-CALIBRATION OF THE AMPLITUDE AND PHASE ERROR OF THE MULTIPLE BEAM ANTENNA IN THE SATELLITE COMMUNICATION
Jian Wang, China

IAC-10.B2.2.11
SOYUZ LAUNCHER'S TELEMETRY SYSTEM BY DASSAULT AVIATION
Michel Dupas, Dassault Aviation, France

IAC-10.B2.2.12
DESIGN OF A CIVIL COMMUNICATION SYSTEM ON HIGH ALTITUDE PLATFORMS
Jinchang Guo, China Academy of Space Technology (CAST), China

B2.3. Mobile Satellite Communications and Navigation Technology

September 30 2010, 10:15 – Terrace 2

Chair: Robert Briskman (Sirius XM Radio, United States); Jean-Paul Aguttes (Centre National d'Etudes Spatiales (CNES), France)
Rapporteur: Desaraju Venugopal (Devas Multimedia Pvt. Ltd., India)

IAC-10.B2.3.1
GNSS BASED NAVIGATION AND CONTROL FOR AUTONOMOUS FORMATION VEHICLE
Jae-Ik Park, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.B2.3.2
THE USE OF GLOBAL SATELLITE COMMUNICATION SYSTEM IN PROBLEMS OF CONTROLLING AND TRANSMITTING INFORMATION OF UNIVERSITY SATELLITE
Dmytro Faizullin, Dnipropetrovsk National University named after Oles' Gonchar, Ukraine

IAC-10.B2.3.3
ESA IRIS PROGRAMME: TECHNICAL OPTIONS FOR A NEW SATELLITE COMMUNICATIONS SYSTEM FOR AIR TRAFFIC MANAGEMENT
Nathalie Ricard, European Space Agency (ESA), The Netherlands

IAC-10.B2.3.4
THE FUTURE OF INTERNET SERVICES
Ivan Bondarenko, Dnepropetrovsk National University named after Oles' Gonchar, Ukraine

IAC-10.B2.3.5
DESIGN AND VALIDATION OF A SOFTWARE RECEIVER FOR GALILEO
Ramón Martínez Rodríguez-Osorio, Universidad Politécnica de Madrid, Spain

IAC-10.B2.3.7
R&D STATUS OF SATELLITE/TERRESTRIAL INTEGRATED MOBILE COMMUNICATION SYSTEM
Yoshiyuki Fujino, National Institute of Information and Communications Technology, Japan

IAC-10.B2.3.8
FREQUENCY-DOMAIN EQUALIZATION FOR BROADBAND SATELLITE COMMUNICATION WITH MOBILE PLATFORMS
Ningning Liu, Xi'an Institute of Space Radio Technology, China

IAC-10.B2.3.9
A CARRIER PHASE SYNCHRONIZATION ALGORITHM IN SATELLITE COMMUNICATION SYSTEM
Qiang Lv, China Academy of Space Technology (CAST), China

IAC-10.B2.3.10
APPLICATIONS OF NONLINEAR SIGNAL PROCESSING TECHNOLOGIES IN SATELLITE COMMUNICATIONS
Qiu Weifeng, Xi'an Institute of Space Radio Technology, China

IAC-10.B2.3.11
ANTENNA POINTING MEASUREMENT AND PRECISION ANALYSIS FOR GSO MOBILE COMMUNICATION SATELLITES
Dong Chen, China Academy of Space Technology (CAST), China

IAC-10.B2.3.12
ACCURACY REQUIREMENT ANALYSIS OF FEED EXCITATION COEFFICIENTS OF MULTIPLE-BEAM REFLECTOR ANTENNAS
Yong Xue, China Academy of Space Technology (CAST), China

IAC-10.B2.3.13
SCIENTIFIC RESEARCH AND GLOBAL NAVIGATION SATELLITE SYSTEMS – PRESENT AND FUTURE TRENDS
Clovis de Matos, ESA (European Space Agency), France

B2.4. Space Navigation Systems and Services

September 30 2010, 15:15 – Terrace 2

Chair: Calin Rosetti (International Academy of Astronautics, France); Rita Lollock (The Aerospace Corporation, United States)
Rapporteur: Cédric Balty (ThalesAlenia Space, France)

IAC-10.B2.4.1
THE SYSTEM OF SPACECRAFT'S ANGLE ORIENTATION
Dima Groshelev, Dniepropetrovsk National University, Ukraine

IAC-10.B2.4.2
FIRST RESULTS OF LAUNCH AND INITIAL ON-ORBIT OPERATIONS OF QUASI-ZENITH SATELLITE SYSTEM
Noriyasu Inaba, JAXA, Japan

IAC-10.B2.4.3
RAPID DEVELOPMENT OF NAVIGATION PAYLOADS FOR GALILEO FULL OPERATIONAL CAPABILITY
Philip Davies, Surrey Satellite Technology Ltd, United Kingdom

IAC-10.B2.4.5
A NOVEL EMERGENCY SYSTEM FOR LOW EARTH ORBIT SATELLITES USING GALILEO GNSS
Eberhard Gill, Delft University of Technology (TU Delft), The Netherlands

IAC-10.B2.4.6
EUROPEAN GEOSTATIONARY NAVIGATION OVERLAY SYSTEM (EGNOS) CAPABILITY ON THE SES SIRIUS 5 SATELLITE
Michael Pavloff, Space Systems/Loral, United States

IAC-10.B2.4.7
GNSSMETER PROJECT: GNSS-BASED METERING FOR VEHICLE APPLICATIONS AND VALUE ADDED ROAD SERVICES
Marti Jofre, CTAE - Aerospace Research and Technology Centre, Spain

IAC-10.B2.4.8
AN EXTENSIVE AND AUTONOMOUS DEEP SPACE NAVIGATION SYSTEM USING RADIO PULSARS
Antti Kestilä, Aalto University School of Science and Technology, Finland

IAC-10.B2.4.9
A NOVEL INTEGRATED NAVIGATION SYSTEM FOR LUNAR LANDER BASED ON COMPUTER VISION AND INS
Du Yaling, Beijing Aerospace Automatic Control Institute, China

IAC-10.B2.4.10
TIME SYNCHRONIZATION OF SPACECRAFTS IN FORMATION FLYING BY PULSAR TIMING
Shengchang LAN, Harbin Institute of Technology, China

IAC-10.B2.4.11
RESEARCH OF THE MULTISYSTEM USER INTEGRITY ALGORITHM BASED ON COMBINED GALILEO AND EGNOS
Xuehui Zhang, China Aerospace Science & Industry Academy, China

B2.5. Near-Earth and Interplanetary Communications

October 1 2010, 09:00 – Terrace 2

Chair: Manfred Wittig (European Space Agency (ESA), The Netherlands); Ramon P. De Paula (National Aeronautics and Space Administration (NASA), United States)
Rapporteur: A. Bhaskaranarayana (Indian Space Research Organization (ISRO), India)

IAC-10.B2.5.1
A TECHNOLOGY ROADMAP FOR INTERPLANETARY COMMUNICATIONS
Andreas Rathke, Astrium GmbH, Germany

IAC-10.B2.5.2
KA-BAND DEEP SPACE COMMUNICATION OF JAXA
Tomoaki Toda, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.B2.5.3
KA-BAND HIGH-RATE TELEMETRY SYSTEM UPGRADE FOR THE NASA DEEP SPACE NETWORK
Remi LaBelle, Jet Propulsion Laboratory, United States

IAC-10.B2.5.4
ON THE POTENTIAL OF OPTICAL TELEMETRY TRANSMISSION ON INTERPLANETARY MISSIONS
Thomas Dreischer, RUAG Aerospace Ltd., Switzerland

IAC-10.B2.5.5
LINK BUDGET ANALYSIS FOR SMALL OPTICAL TRANSPONDER ONBOARD SMALL SATELLITES
Morio Toyoshima, National Institute of Information and Communications Technology, Japan

IAC-10.B2.5.6
SATELLITE CONSTELLATIONS FOR DATA TRANSFER FROM THE MOON
Quirin Funke, TU Muenchen, Germany

IAC-10.B2.5.7
OVERHEAD REDUCING COMMUNICATION STRATEGIES ON THE SURFACE OF A DISTANT PLANET
Laszlo Bacsardi, Budapest University of Technology and Economics, Hungary

IAC-10.B2.5.8
ANALYSIS OF THE CONTACT GRAPH ROUTING ALGORITHM: BOUNDING INTERPLANETARY PATHS
Edward Birrane, The John Hopkins University Applied Physics Laboratory, United States

IAC-10.B2.5.9
EFFICIENT ROUTING IN DISRUPTION-TOLERANT SPACECRAFT NETWORKS
Eleftherios Skoutaris, University of Luxembourg, Luxemburg

IAC-10.B2.5.10
MULTI-OBJECTIVE COMMUNICATION OPTIMIZATION METHODOLOGY WITH APPLICATION TO LUNAR ROBOTIC EXPLORATION
Alessandra Babuscia, Massachussets Institute of Technology (MIT), United States

IAC-10.B2.5.11
THE FRONTIER SOFTWARE-DEFINED RADIO: MISSION-ENABLING, MULTI-BAND, LOW-POWER PERFORMANCE
Christopher Haskins, The John Hopkins University Applied Physics Laboratory, United States

IAC-10.B2.5.12
PROJECT AGORA: SIMULTANEOUSLY DOWNLOADING A SATELLITE SIGNAL AROUND THE WORLD
Ghulam Jaffer, Graz University of Technology, Austria

IAC-10.B2.5.13
THE RESEARCH ON FOLDED LINEAR TURBO DECODER FOR LUNAR COMMUNICATION
Ying Zhang, Beijing Aerospace Automatic Control Institute, China

B2.6. Advanced Technologies

October 1 2010, 14:00 – Terrace 2

Chair: Edward W. Ashford (Ashford Aerospace Consulting, United States); MG Chandrasekhar (Devas Multimedia Pvt. Ltd., United States)
Rapporteur: Elemer Bertenyi (E. Bertenyi & Associates Inc., Canada)

IAC-10.B2.6.1
RAPID DEPLOYMENT OF SPACE CAPABILITIES: TOOLS FOR ACCELERATING INNOVATION IN EXISTING AND DEVELOPING SYSTEMS
Bruce Chesley, Boeing Space and Intelligence Systems, United States

IAC-10.B2.6.3
MODELING AND ANALYZING THE QUANTUM BASED EARTH-SATELLITE AND SATELLITE-SATELLITE COMMUNICATIONS
Laszlo Bacsardi, Budapest University of Technology and Economics, Hungary

IAC-10.B2.6.4
APPLICATIONS AND REQUIREMENTS OF HIGH DATA RATE INTERSATELLITE LINKS IN FUTURE COMMUNICATION ARCHITECTURES
Ralf Purschke, Technische Universität München, Germany

IAC-10.B2.6.6
NEVER MIND THE QUALITY, FEEL THE BANDWIDTH: QUALITY OF SERVICE DRIVERS FOR FUTURE ONBOARD COMMUNICATION NETWORKS
Steve Parkes, University of Dundee, United Kingdom

IAC-10.B2.6.7
SCOM- A TRANSCEIVER FOR SMALL SATELLITES BASED ON MIMO AND MODERN CODING TECHNOLOGIES
Rozbeh Alavi, Technical University of Berlin, Germany

IAC-10.B2.6.8
SPIN AXIS ESTIMATION OF THE RADIATION BELT STORM PROBES SPACECRAFT USING RF DOPPLER DATA
Dipak Srinivasan, The John Hopkins University Applied Physics Laboratory, United States

IAC-10.B2.6.9
NEW TELEMETRY SYSTEM DESIGN FOR FUTURE NANOSATELLITE MISSIONS
Manuela Unterberger, Graz University of Technology, Austria

IAC-10.B2.6.10
ERROR-CORRECTING CODES FOR RELIABLE COMMUNICATIONS IN MICROGRAVITY PLATFORMS
Décio Luiz Gazzoni Filho, State University of Londrina, Brazil

IAC-10.B2.6.11
DEVELOPMENT OF A VISUAL NAVIGATION SYSTEM FOR THE SATELLITE DYNAMIC SIMULATOR LUVEX
Fathalrahman Adam, Center of Applied Space Technology and Microgravity, Germany

IAC-10.B2.6.12
RESEARCH OF CHANNEL ALLOCATION STRATEGIES ON MULTIMEDIA COMMUNICATION SATELLITE SYSTEM
Ren Junqiang, China Academy of Space Technology (CAST), China

B3. HUMAN SPACE ENDEAVOURS SYMPOSIUM

Coordinator: Mag Iskander (MDA Corporation, Canada); Carlo Mirra (EADS Astrium, The Netherlands)

B3.1. Overview Session (Present and Near-Term Human Space Flight Programs)

September 27 2010, 15:15 – Meeting Hall V

Chair: Graham Gibbs (Canadian Space Agency, United States); Terrence G. Reese (National Aeronautics and Space Administration (NASA), United States)
Rapporteur: Rainer Willnecker (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany)

IAC-10.B3.1.1
MANNED SPACEFLIGHTS: PAST EXPERIENCE, LOOK INTO THE FUTURE
Sergey Krikalev, Yu.A. Gagarin Research and Test Cosmonaut Training Center, Russia

IAC-10.B3.1.2
THE INTERNATIONAL SPACE STATION AS A TRUE TEST BED
William H. Gerstenmaier, National Aeronautics and Space Administration (NASA)/Ames Research Center, United States

IAC-10.B3.1.3
CANADA AND THE INTERNATIONAL SPACE STATION PROGRAM: OVERVIEW AND STATUS SINCE IAC 2009
Benoit Marcotte, Canadian Space Agency, Canada

AC-10.B3.1.4
THE ERA OF INTERNATIONAL SPACE STATION UTILIZATION BEGINS: RESEARCH STRATEGY, INTERNATIONAL COLLABORATION, AND REALIZED POTENTIAL
Julie A. Robinson, National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States

IAC-10.B3.1.5
ANALOGUE ACTIVITIES IN THE FRAME OF ESA'S HUMAN SPACEFLIGHT PROGRAMME
Oliver Angerer, ESA/ESTEC, The Netherlands

IAC-10.B3.1.6
THE ECUADORIAN CIVILIAN SPACE PROGRAM: NEAR-FUTURE MANNED RESEARCH MISSIONS IN A LOW COST, ENTRY LEVEL SPACE PROGRAM.
Ronnie Nader, Ecuadorian Civilian Space Agency (EXA), Ecuador

IAC-10.B3.1.7
CCDEV: FIRST STEP TOWARD COMMERCIAL CREW
Alan Lindenmoyer, National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States

IAC-10.B3.1.8
CANADA EXPLORATION CORE PROGRAM TO PREPARE EXPLORATION BEYOND ISS
Jean-Claude Piedboeuf, Canadian Space Agency, Canada

IAC-10.B3.1.9
ANALYSIS AND MODIFICATION OF HISTORICAL UNITED STATES SPACEFLIGHT CAPSULE DESIGNS FOR IMPLEMENTATION IN FUTURE COMMERCIAL LAUNCHES
Ashley Tromba, The University of Alabama, United States

IAC-10.B3.1.10
AN INTERNATIONAL STRATEGY FOR EXPLORATION: DEVELOPMENT STATUS OF THE ISECG GLOBAL EXPLORATION ROADMAP
Bernhard Hufenbach, European Space Agency (ESA), The Netherlands

IAC-10.B3.1.11
DEVELOPING A COMMON SET OF HUMAN LUNAR EXPLORATION GOALS AND OBJECTIVES
Jennifer Rhatigan, National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States

B3.2. How Can We Best Apply Our Experience to Future Human Missions?

September 28 2010, 15:15 – Meeting Hall V

Chair: Dieter Sabath (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany); Sergey K. Shaevich (Khrunichev State Research & Production Space Center, Russia)
Rapporteur: Gene Rice (RWI - Rice Wigbels Int'l, United States)

IAC-10.B3.2.2
JEM ECLSS OPERATION LESSONS LEARNED AND SUGGESTION FOR FUTURE DESIGN
Yuichiro Nogawa, Japan Manned Space Systems Corporation, Japan

IAC-10.B3.2.3
IS IT NECESSARY TO HAVE THE CLOSED BIO-REGENERATIVE LIFE SUPPORT SYSTEM FOR IMPLEMENTING THE FIRST MARS MANNED MISSION?
Boris Kiforenko, S.P. Timoshenko Institute of Mechanics NASU, Ukraine

IAC-10.B3.2.4
EX-POST-EVALUATION OF EXTRA-TERRESTRIAL HABITATS FROM THE PERSPECTIVE OF HUMAN ACTIVITIES
Sandra Haeuplik-Meusburger, UT Vienna, Austria

IAC-10.B3.2.5
FUTURE HUMAN MISSIONS: BENEFITING FROM EXPERIENCE
Manuel Valls Toimil, EUROPEAN SPACE AGENCY (ESA), retired, Spain

IAC-10.B3.2.6
LAUNCH STRATEGY FOR MANNED SPACECRAFT: IMPROVING SAFETY OR INCREASING OF LAUNCH MASS?
Rafail Murtazin, Rocket Space Corporation Energia, Russia

IAC-10.B3.2.7
DESCENT SYSTEMS FOR AN IMPROVED AND REUSABLE GEMINI CAPSULE
Heather Pitts, University of Alabama in Huntsville, United States

IAC-10.B3.2.8
LANDING GEAR DESIGN FOR A 1/3 SCALE GEMINI-STYLE CAPSULE
Toshawnka Walker, United States

IAC-10.B3.2.9
LESSONS LEARNED FROM JEM MANIFESTING AND BENCH REVIEW ACTIVITY
Yoshinobu Satoh, Japan Manned Space Systems Corporation, Japan

IAC-10.B3.2.10
STREAMLINING PAYLOAD INTEGRATION
Susan Lufkin, United Space Alliance, United States

IAC-10.B3.2.11
INTEGRATED CONTROL SYSTEM OF THE ISS MULTIPURPOSE LABORATORY MODULE: NEW APPROACHES IN CONCEPTUAL DESIGN
Evgeny Mikrin, S.P. Korolev Rocket and Space Corporation Energia, Russia

B3.3. ISS Operations and Utilization

September 29 2010, 10:15 – Meeting Hall V

Chair: Carlo Mirra (EADS Astrium, The Netherlands); Maria Stella Lavitola (Thales Alenia Space Italia, Italy)
Rapporteur: Hiroyuki Ogo (Japan Manned Space Systems Corporation, Japan)

IAC-10.B3.3.1
ACHIEVEMENTS, PLANS AND OUTLOOK OF THE EUROPEAN ISS UTILISATION PROGRAMME
Martin Zell, European Space Agency (ESA), The Netherlands

IAC-10.B3.3.2
EFFECTIVENESS OF THE "LONG-TERM PROGRAM OF SCIENTIFIC AND APPLIED EXPERIMENTS ON THE ISS RUSSIAN SEGMENT"
Boris Zagreev, TSNIIMASH, Russia

IAC-10.B3.3.3
DAWN OF THE KIBO UTILIZATION – RESULTS FROM UTILIZATION PLANNING AND INTEGRATION
Nobuyoshi Fujimoto, JAXA, Japan

IAC-10.B3.3.4
CSA PLANNING TO USE ISS TO MEET THE FUTURE
Nicole Buckley, Canadian Space Agency, Canada

IAC-10.B3.3.6
SCIENTIFIC PAYLOAD IMPLEMENTATION ONBOARD THE INTERNATIONAL SPACE STATION
Vic Cooley, National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States

IAC-10.B3.3.7
THE IMPLEMENTATION OF TWO YEARS OF ESA UTILISATION OF THE ISS
Carlo Mirra, EADS Astrium, The Netherlands

IAC-10.B3.3.8
ISSUES AND SOLUTION KNOWLEDGE FROM ISS/KIBO LIFE SCIENCE EXPERIMENT OPERATIONS
Kazue Ueyama, Japan Manned Space Systems Corporation, Japan

IAC-10.B3.3.9
TEMPORARY STOWAGE RACKS – DESIGN AND OPERATIONAL SCENARIO
Alessandro Bellomo, ALTEC S.p.A., Italy

IAC-10.B3.3.10
SCIENTIFIC POTENTIAL OF RUSSIAN MINI RESEARCH MODULES OF THE ISS
Igor V. Sorokin, S.P. Korolev Rocket and Space Corporation Energia, Russia

IAC-10.B3.3.11
JAPANESE EXPERIMENT MODULE REMOTE MANIPULATOR SYSTEM (JEMRMS) OPERATIONS FOR HTV-1 MISSION
Kazuya Imaki, Japan Manned Space Systems Corporation, Japan

B3.5. Astronauts: Those Who Make it Happen

September 30 2010, 10:15 – Meeting Hall V

Chair: Igor V. Sorokin (S.P. Korolev Rocket and Space Corporation Energia, Russia); Alan T. DeLuna (United Space Alliance, United States)
Rapporteur: Tai Nakamura (Japan Aerospace Exploration Agency (JAXA), Japan)

IAC-10.B3.5.1
STATUS AND PROSPECTS OF THE COSMONAUT SELECTION AND TRAINING SYSTEM UTILIZATION
Sergey Krikalev, Yu.A. Gagarin Research and Test Cosmonaut Training Center, Russia

IAC-10.B3.5.3
SYSTEM APPROACH TO DECISION-MAKING PROCESS ABOARD A HUMAN SPACECRAFT: PRIORITIES AND OPTIMIZATION OF DECISION-MAKING STRING
Alexander Kalery, S.P. Korolev Rocket and Space Corporation Energia, Russia

IAC-10.B3.5.4
INTEGRATED ONBOARD CREW AND INTERNATIONAL CONTROL CENTERS OPERATIONS IN CASE OF CONTINGENCY AND EMERGENCY SITUATIONS
Akira Tsuchida, JAXA Tsukuba Space Center, Japan

IAC-10.B3.5.5
C1 MISSION: LESSONS LEARNED ABOUT PAIRING SPACE ACTIVITIES WITH CANADIAN ASTRONAUT INCREMENT.
Nicole Buckley, Canadian Space Agency, Canada

IAC-10.B3.5.6
EVA TOOLS FOR THE ISS AND INTERPLANETARY MISSIONS
Mikhail Tyurin, S.P. Korolev Rocket and Space Corporation Energia, Russia

IAC-10.B3.5.7
MODELING AND SIMULATION OF EVA DYNAMICS FOR CONSTRUCTION OF SPACE STATION
Li Hao, China

IAC-10.B3.5.8
STUDYING EARTH'S SURFACE FROM ISS BOARD ACCORDING TO URAGAN RESEARCH PROGRAM
Eric Sarmin, RSC Energia, Russia

B3.6.-A5.3. Joint session on Human and Robotic Partnerships to Realize Space Exploration Goals

September 30 2010, 15:15 – Meeting Hall V

Chair: Anthony R. Gross (National Aeronautics and Space Administration (NASA), United States); Christian Sallaberger (MDA Corporation, Canada)
Rapporteur: Luigi D'Emiliano (ALTEC S.p.A., Italy); Massimiliano Bottacini (ESA/ESTEC, The Netherlands)

IAC-10.B3.6.-A5.3.1
MICROROVERS ASSISTING HUMANS ON THE MOON AND MARS
Bruce Betts, The Planetary Society, United States

IAC-10.B3.6.-A5.3.2
JOB-LEVEL CONTROL OF AUTONOMOUS EARTHMOVING MACHINES FOR BASE CONSTRUCTION ON THE MOON OR MARS
Eric Halbach, Helsinki University of Technology (TKK), Finland

IAC-10.B3.6.-A5.3.3
AUTONOMOUS SERVICE ROVER FOR HUMAN-ROBOT COOPERATION
Alberto Medina, GMV, Spain

IAC-10.B3.6.-A5.3.4
EIFEL 2009 FIELD CAMPAIGN: ANALOG ASTRONAUT EXTRAVEHICULAR SURFACE/SUBSURFACE ACTIVITIES AND HUMAN ASPECTS
Willibald Stumptner, Austrian Space Forum, Austria

IAC-10.B3.6.-A5.3.5
FUNCTIONAL PROTOTYPING OF CREW COLLABORATIVE ROBOTIC SYSTEMS: GAINING CONFIDENCE AND KNOWLEDGE IN VIEW OF PLANETARY APPLICATION
Simona Ferraris, Thales Alenia Space Italia, Italy

IAC-10.B3.6.-A5.3.6
HUMAN AND ROBOTIC PARTNERSHIPS DURING ILEWG FIELD CAMPAIGNS IN UTAH DESERT (EUROGEOMARS2009 AND EUROMOONMARS2010) AND EIFEL VOLCANIC PARK
Bernard Foing, European Space Agency (ESA), The Netherlands

IAC-10.B3.6.-A5.3.7
THE ROLE OF NATURAL INTERACTION IN ASTRONAUT-ROBOT COOPERATION
Seppo Heikkilä, Helsinki University of Technology (TKK), Finland

IAC-10.B3.6.-A5.3.8
REX-J (ROBOT EXPEIMENT ON ISS/JEM) TO BE CONDUCTED IN THE YEAR 2012 TO DEMONSTRATE THE EVA SUPPORT ROBOTS (ASTROBOTS)
Mitsushige Oda, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.B3.6.-A5.3.9
THE DYNAMIC CHARACTERISTICS ANALYSIS OF MOON SOIL DRILLING DEVICE
Zhifeng Dong, China University of Mining and Technology, China

IAC-10.B3.6.-A5.3.10
ROBOTIC PRE-CURSOR MISSIONS: ENHANCING HUMAN EXPLORATION
Nantel Suzuki, National Aeronautics and Space Administration (NASA), United States

B3.7. Enablers for the Future Human Missions

October 1 2010, 09:00 – Meeting Hall V

Chair: Todd Fox (Odyssey Space Research, United States); Genevieve Gargir (Centre National d'Etudes Spatiales (CNES), France)
Rapporteur: Gi-Hyuk Choi (Korean Aerospace Research Institute, Korea, Republic of)

IAC-10.B3.7.1
RATIONALE FOR FLEXIBLE PATH: A HUMAN EXPLORATION STRATEGY FOCUSED ON ORBITAL AND LOW-GRAVITY WELL DESTINATIONS
George Schmidt, National Aeronautics and Space Administration (NASA)/Glenn Research Center, United States

IAC-10.B3.7.2
CONCEPT FOR INCORPORATING SUSTAINABILITY ATTRIBUTES EARLY IN THE ISECG HUMAN LUNAR EXPLORATION REFERENCE ARCHITECTURE
Gerald Sanders, National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States

IAC-10.B3.7.3
SPACE STATIONS USING THE SKYLON LAUNCH SYSTEM
Mark Hempsell, Reaction Engines Ltd., United Kingdom

IAC-10.B3.7.4
AN INNOVATIVE NAVIGATION SCHEME FOR HIGH PRECISION LANDING ON MARS
Nie Qi, Beijing Aerospace Automatic Control Institute, China

IAC-10.B3.7.5
COMMON DOCKING NAVIGATION SYSTEMS
Kevin Miller, Ball Aerospace & Technologies Corp., United States

IAC-10.B3.7.6
HYBRID LIFE SUPPORT AS INTEGRATED SYSTEM APPLYING FUEL CELL AND ALGAL PHOTOBIOREACTOR
Britta Ganzer, University of Stuttgart, Germany

IAC-10.B3.7.8
SUSTAINMENT TECHNOLOGY ENABLERS FOR FUTURE NASA MISSIONS UTILIZING ARES 1 SUPPORTABILITY ENGINEERING AND SUSTAINABILITY LESSONS LEARNED
John V. Smith, National Aeronautics and Space Administration (NASA)/Marshall Space Flight Center, United States

IAC-10.B3.7.9
USING VOICE INPUT/OUTPUT TECHNOLOGIES TO SUPPORT HAND-BUSY EXECUTION OF ONBOARD ISS CREW PROCEDURES
John Melody, SyberNet Ltd., Ireland

IAC-10.B3.7.10
AN INVESTIGATION OF FLYWHEELS ROTORS UNBALANCES INFLUENCE ON MICROACCELERATIONS ON BOARD PERSPECTIVE SPACECRAFT
Anton Sumarokov, S.P. Korolev Rocket and Space Corporation Energia, Russia

B3.8.-E7.7. Joint IAF-IISL session on Legal Framework for Collaborative Human Space Missions

October 1 2010, 14:00 – Meeting Hall V

Chair: Cristian Bank (EADS Astrium Space Transportation GmbH, Germany); Lesley Jane Smith (Leuphana University of Lüneburg/ Weber-Steinhaus & Smith, Germany)
Rapporteur: Mark Hempsell (Reaction Engines Ltd., United Kingdom)

IAC-10.B3.8.-E7.7.1
LEGAL ASPECTS OF INTERNATIONAL COOPERATION IN CHINA'S MANNED SPACE PROGRAM
Haifeng Zhao, Harbin Institute of Technology, China

IAC-10.B3.8.-E7.7.2
EUROPE'S APPROACH TO HUMAN SPACE MISSIONS
Stefania Barbieri, European Space Agency (ESA), France

IAC-10.B3.8.-E7.7.3
FUTURE DIRECTIONS FOR INTERNATIONAL SPACE COLLABORATION: AN ANALYSIS OF THE IMPACT OF PRESIDENT OBAMA'S FY2011 BUDGET PROPOSAL
Zoe Szajnfarber, Massachussets Institute of Technology (MIT), United States

IAC-10.B3.8.-E7.7.4
NASA'S TRADITIONAL APPROACHES TO INTERNATIONAL COOPERATION: ASSESSMENT OF RELEVANCE AND APPLICABILITY FOR SPACE EXPLORATION
Peggy Finarelli, George Mason University, United States

IAC-10.B3.8.-E7.7.5
IMPROVING INTERNATIONAL SPACE COOPERATION
Walter Faulconer, Strategic Space Solutions, LLC, United States

IAC-10.B3.8.-E7.7.6
THE INTERNATIONAL SPACE STATION AS A "TRADING POST IN OUTER SPACE": A VIEW FROM EUROPE
Robert Veldhuyzen, European Space Agency (ESA), The Netherlands

IAC-10.B3.8.-E7.7.7
MERCHANTS ON ORBIT – CHALLENGE FOR DIPLOMATS ON EARTH. OR ABOUT IMPACT OF COMMERCIAL ASPECT OF ISS OPERATIONS ON THE BALANCE OF INTERNATIONAL PARTNERSHIP
Jakub Ryzenko, PIAP, Poland

IAC-10.B3.8.-E7.7.8
RECENT DEVELOPMENTS IN SPCE LAW: AGREEMENT ON INTERNATIONAL SPACE STATION AS CASE STUDY
Olusojil Nester John, Nigeria

IAC-10.B3.8.-E7.7.9
COMMERCIALIZATION OF OUTER SPACE: MOVING TOWARDS LEGAL CERTAINTY
Subhayu Chakraborty, National University of Juridical Sciences, India

B4. SMALL SATELLITE MISSIONS SYMPOSIUM

Coordinator: Rhoda Shaller Hornstein (National Aeronautics and Space Administration (NASA), United States); Alex da Silva Curiel (Surrey Satellite Technology Ltd, United Kingdom)

B4.1. 11th UN/IAA Workshop on Small Satellite Programmes at the Service of Developing Countries

September 28 2010, 10:15 – Club H

Chair: Sias Mostert (Space Commercial Services Holdings (Pty) Ltd, South Africa); Sergei Chernikov (United Nations Office at Vienna, Austria)
Rapporteur: Petr Lála (Czech Space Office, Czech Republic); Pierre Molette (France)

IAC-10.B4.1.1
BUILDING TECHNOLOGICAL CAPABILITY WITHIN SATELLITE PROGRAMS IN DEVELOPING COUNTRIES
Danielle Wood, Massachussets Institute of Technology (MIT), United States

IAC-10.B4.1.2
RECENT DESIGN AND UTILIZATION TRENDS OF SMALL SATELLITES IN DEVELOPING COUNTRIES
Mohamed Argoun, Cairo University, Egypt

IAC-10.B4.1.4
CUBESAT PROGRAM JUSTIFICATION MODEL
Stephanie Wan, George Washington University, United States

IAC-10.B4.1.5
DEVELOPING COUNTRY'S SMALL SATELLITES MISSIONS
Lucas Lopes Costa, Southern Regional Space Research Center - CRS/CCR/INPE - MCT in collaboration with the Space Science Laboratory of Santa Maria - LACESM/CT - UFSM, Brazil

IAC-10.B4.1.6
STUDY ON THE SUCCESS OF SMALL SATELLITE TTP PROGRAMS FOR DEVELOPING COUNTRIES AND BEST PRACTICE BASED ON TUBSAT TRAINING PROGRAMME
Tom Segert, TSB Innovation Agency Berlin GmbH / FAV, Germany

IAC-10.B4.1.7
CAPACITY BUILDING IN BASIC SPACE TECHNOLOGY DEVELOPMENT THROUGH ON-THE-JOB TRAINING IN NANO-SATELLITE DESIGN, BUILDING AND TESTING
Mengu Cho, Kyushu Institute of Technology, Japan

IAC-10.B4.1.8
SYSTEM ENGINEERING AND INTEGRATION OF PRATHAM, INDIAN INSTITUTE OF TECHNOLOGY BOMBAY'S FIRST STUDENT SATELLITE
Saptarshi Bandyopadhyay, Indian Institute of Technology, Bombay (IITB), India

IAC-10.B4.1.9
ENHANCING UNDERGRADUATE STUDIES IN URUGUAY WITH AEROSPACE ACTIVITIES
Maria Victoria Alonsoperez, Uruguay

IAC-10.B4.1.10
A NEW AGE FOR THE PERUVIAN SPACE PROGRAM
Juan Martín Canales Romero, Germany

IAC-10.B4.1.11
EL LIBERTAD 1 THE FIRST COLOMBIAN SATELLITE (CUBESAT) OVERVIEW
Raúl Andrés Joya Olarte, Universidad Sergio Arboleda, Colombia

IAC-10.B4.1.12
ACADEMIC AEROSPACE PROGRAMME AT THE UNAM
Carlos Romo Fuentes, School of Engineering, UNAM, Mexico

IAC-10.B4.1.13
ITA'S UNIVERSITY SATELLITE PROGRAM
Geilson Loureiro, Instituto Nacional de Pesquisas Espaciais (INPE), Brazil

B4.2. Small Space Science Missions

September 27 2010, 15:15 – Club H

Chair: Stamatios Krimigis (The John Hopkins University, United States); Denis J.P. Moura (European Defence Agency, Belgium)

IAC-10.B4.2.1
FOCUSING ON SCIENTIFIC RETURNS THROUGH RESULT-BASED MANAGEMENT OF SMALL SPACE SCIENCE MISSIONS
Richard Giroux, Canadian Space Agency, Canada

IAC-10.B4.2.2
ADITYA – 1, INDIAN MINI SATELLITE SPACE CORONAGRAPH
V. Koteswara Rao, Astronautical Society of India, India

IAC-10.B4.2.3
SMALL SATELLITE REIMEI FOR AURORAL OBSERVATIONS
Hirobumi Saito, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.B4.2.4
MEASUREMENT OF TOTAL ELECTRON COUNT OF THE IONOSPHERE AND THE SOCIAL GOAL OF PRATHAM, INDIAN INSTITUTE OF TECHNOLOGY BOMBAY'S FIRST STUDENT SATELLITE
Saptarshi Bandyopadhyay, Indian Institute of Technology, Bombay (IITB), India

IAC-10.B4.2.6
NEAR INFRARED CAMERA FOR ASTRONOMY IN THE SMALL SATELLITE STSAT-3
Dae-Hee Lee, Korea Astronomy and Space Science Institute, Korea, Republic of

IAC-10.B4.2.7
DEVELOPMENT OF A HIGH AGILITY SMALL SATELLITE MISSION
Andrew Cawthorne, Surrey Satellite Technology Ltd, United Kingdom

IAC-10.B4.2.8
THE UK'S TECHNOLOGY DEMONSTRATION SATELLITE
James Penson, Surrey Satellite Technology Ltd, United Kingdom

IAC-10.B4.2.9
FLIGHT RESULTS FROM PRISMA FORMATION FLYING AND RENDEZVOUS DEMONSTRATION MISSION
Staffan Persson, Swedish Space Corporation, Sweden

IAC-10.B4.2.11
EVALUATING AIS DATA QUALITY FOR SPACE BASED SHIP MONITORING USING THE AAUSAT3 PROTOTYPE
Ulrik Wilken Rasmussen, Aalborg University, Denmark

IAC-10.B4.2.12
DEVELOPMENT OF THE MICROSATELLITE RISING-2 BY TOHOKU UNIVERSITY AND HOKKAIDO UNIVERSITY
Yuji Sakamoto, Tohoku University, Japan

B4.3. Small Satellite Operations

September 28 2010, 15:15 – Club H

Chair: Peter M. Allan (Rutherford Appleton Laboratory, United Kingdom); Karen McBride (University of California, Los Angeles, United States)

IAC-10.B4.3.1
PRISMA OPERATIONAL CONCEPT: SERVICING A VARIETY OF EXPERIMENTAL TEAMS FOR THE FLIGHT DEMONSTRATION OF FORMATION FLYING TECHNOLOGIES
Per Bodin, Sweden

IAC-10.B4.3.2
NEXT GENERATION DISASTER MONITORING CONSTELLATION SATELLITE UK-DMC-2: IN-ORBIT RESULTS
Mike Cutter, Surrey Satellite Technology Ltd, United Kingdom

IAC-10.B4.3.3
THE SELF-TRACKING SMALL SATELLITE
Bruce Robertson, Mount Allison University, Canada

IAC-10.B4.3.4
METHODOLOGY OF OPERATION A REMOTE SENSING SYSTEM FOR EARTH IMAGES BASED ON THE MICROSATELLITE "CONDOR UNAM-MAI"
Jose Alberto Ramirez Aguilar, School of Engineering, UNAM, Mexico

IAC-10.B4.3.5
AUTONOMOUS OPERATIONS AND INITIAL OPERATION RESULTS OF SMALL SATELLITE STSAT-2
Kyungin Kang, Korea Advanced Institute of Science and Technology (KAIST), Korea, Republic of

IAC-10.B4.3.6
ANTARCTIC BROADBAND – A MICROSTALLITE NICHE
Michael Brett, Aerospace Concepts Pty Ltd, Australia

IAC-10.B4.3.7
PSN – PERUVIAN SATELLITE NETWORK
Jaime Alberto Estela Gutiérrez, Germany

IAC-10.B4.3.8
GENSO: A REPORT ON THE EARLY OPERATIONAL PHASE
Helen Page, European Space Agency (ESA), The Netherlands

IAC-10.B4.3.9
THE IMPACT OF GLOBAL NETWORKS FOR SATELLITE OPERATIONS ON ACADEMIC SPACE MISSIONS
Bastian Preindl, University of Applied Science Technikum Wien, Austria

IAC-10.B4.3.10
DATA COMBINATION MECHANISM IN HIGHLY DISTRIBUTED GROUND STATION NETWORKS
Marco Schmidt, University of Wuerzburg, Germany

IAC-10.B4.3.11
MEASURING AND MODELING LINK QUALITY IN GROUND STATION NETWORKS FOR SMALL SATELLITE OPERATIONS
Sebastian Krinninger, Vienna University of Technology, Austria

IAC-10.B4.3.12
THE POTENTIAL OF GROUND STATION NETWORKS LIKE GENSO FOR MULTI-SATELLITE PROJECTS LIKE QB50
Lars Mehnen, University of Applied Science Technikum Wien, Austria

B4.4. Small Satellites Potential for Future Integrated Applications and Services

September 29 2010, 10:15 – Club H

Chair: Larry Paxton (The John Hopkins University Applied Physics Laboratory, United States); Amnon Ginati (European Space Agency (ESA), The Netherlands)
Rapporteur: Klaus Briess (Technische Universität Berlin, Germany)

IAC-10.B4.4.1
CUBESAT FORMATION FLYING: A SUITABLE PLATFORM FOR SPACE SITUATIONAL AWARENESS APPLICATIONS.
Mugurel Balan, Institute for Space Sciences, Romania

IAC-10.B4.4.2
ENHANCED SATELLITE AIS PERFORMANCES THROUGH AN OPTIMIZED SPACE SEGMENT DESIGN
Elena Razzano, Carlo Gavazzi Space, Italy

IAC-10.B4.4.3
INTEGRATED SMALL SATELLITE DISASTER MANAGEMENT SOLUTION FOR DEVELOPING COUNTRIES
Sias Mostert, Space Commercial Services Holdings (Pty) Ltd, South Africa

IAC-10.B4.4.4
MEMS GYROSCOPES BASED ATTITUDE DETERMINATION EXPERIMENT OF ITASAT SATELLITE – PROJECT DESCRIPTION AND INITIAL RESULTS
Marcelo C. Tosin, State University of Londrina, Brazil

IAC-10.B4.4.5
NOR FLASH MEMORY RELIABILITY IN LOW EARTH ORBIT
Abhishek Jain, SRM University, India

IAC-10.B4.4.6
SMALL SATELLITE CONSTELLATION PLANNING FOR DISASTER MANAGEMENT
D.V.A. Raghava Murthy, ISRO Satellite Centre (ISAC), India

IAC-10.B4.4.7
STATUS OF VNIR HYPERSPECTRAL SENSOR HSC-III DEVELOPMENT: OPTICAL AND DATA ACQUISITION SUB-SYSTEM
Shin Satori, Hokkaido Institute of Technology, Japan

IAC-10.B4.4.8
SYSTEMATIC IDENTIFICATION OF APPLICATIONS FOR A CLUSTER OF FEMTO-SATELLITES
Prem Sundaramoorthy, Delft University of Technology (TU Delft), The Netherlands

IAC-10.B4.4.9
CHAOS IN THE ROTATIONAL MOTION OF A MAGNETIC SPACECRAFT IN POLAR CIRCULAR ORBIT WITH INTERNAL DAMPING DUE TO MAGNETIC HYSTERESIS
Miklos Vincze, Eötvös Loránd University, Hungary

IAC-10.B4.4.10
COMMISSIONING THE S3S NANOSATELLITE STAR TRACKER
Thomas Dzamba, Ryerson University, Canada

B4.5. Access to Space for Small Satellite Missions

September 29 2010, 15:15 – Club H

Chair: Alex da Silva Curiel (Surrey Satellite Technology Ltd, United Kingdom); Jeffery Emdee (The Aerospace Corporation, United States)

IAC-10.B4.5.1
LAUNCHER-1 RAPID REACTION APPLICATIONS – AN OVERVIEW
Shaun Kenyon, Surrey Satellite Technology Ltd, United Kingdom

IAC-10.B4.5.3
DEVELOPMENT OF GAS-LIQUID EQUILIBRIUM PROPULSION SYSTEM FOR IKAROS RCS
Yoshihiro Kishino, IHI Aerospace Co, Ltd., Japan

IAC-10.B4.5.4
DESIGN AND VERIFICATION OF AN OPTIMIZED SEPARATION SYSTEM FOR MICROSATELLITES: THE ALMASAT-1 CASE STUDY
Davide Bruzzi, ALMASpace S.r.l., Italy

IAC-10.B4.5.5
COLLISION RISK ANALYSIS FOR NANOSATELLITE CLUSTER LAUNCHES
Fabio Santoni, University of Rome "La Sapienza", Italy

IAC-10.B4.5.6
OVERVIEW OF EARTH-TO-ORBIT NANO-SATELLITE LAUNCH MARKETS AND THE NANO-LAUNCHER SERVICE
A.C. Charania, SpaceWorks Commercial, United States

IAC-10.B4.5.7
SMALL SATELLITES CURRENT SITUATION FOR ACCESS TO SPACE ORBITS
Eduardo Escobar Burger, Southern Regional Space Research Center - CRS/CCR/INPE - MCT in collaboration with the Space Science Laboratory of Santa Maria - LACESM/CT - UFSM, Brazil

IAC-10.B4.5.8
RESEARCH ON RAPID ACCESS TO SPACE OF FRACTIONATED SPACECRAFT MODULES
Zhifu Bai, China

IAC-10.B4.5.9
SMALL SATELLITE LAUNCH MARKET STUDY
Akshay V. Patel, Harvard Business School, United States

IAC-10.B4.5.10
ON ORBIT, ON DEMAND DEPLOYMENT OF NANO SATELLITES FOR EXPANDED MISSION CAPABILITIES
Steve Cook, Dynetics, United States

B4.6A. Design and Technology for Small Satellites

September 30 2010, 10:15 – Club H

Chair: Richard Holdaway (Rutherford Appleton Laboratory, United Kingdom); Philip Davies (Surrey Satellite Technology Ltd, United Kingdom)

IAC-10.B4.6A.1
ACHIEVEMENTS AND FUTURE OF DFH CIVIL REMOTE SENSING SMALL SATELLITES
Bai Zhaoguang, Dong Fang Hong Satellite Co. Ltd., China

IAC-10.B4.6A.2
DESIGN AND DEVELOPMENT OF ADVANCED TECHNOLOGY DEMONSTRATION SMALL SATELLITE "TSUBMAME"
Nobuhiko Kisa, Tokyo Institute of Technology, Japan

IAC-10.B4.6A.4
IN-ORBIT AODCS PERFORMANCE OF SUMBANDILASAT AN EARTH OBSERVATION SATELLITE FOR SOUTH AFRICA
Willem Steyn, ESL, Inc., South Africa

IAC-10.B4.6A.5
MAXIMISING RE-USE THROUGH A MODULAR RANGE OF SMALL SATELLITE PLATFORMS
Philip Davies, Surrey Satellite Technology Ltd, United Kingdom

IAC-10.B4.6A.6
SKIMSATS – ULTRA LOW ALTITUDE SPACECRAFT DESIGN CONCEPTS AND APPLICATIONS
Simon Chalkley, Systems Engineering & Assessment Ltd, United Kingdom

IAC-10.B4.6A.7
TECHNOLOGIES FOR MICROSATELLITE ON DISTURBANCE SUPPRESSION, PROPULSION, AND RELIABILITY ASSESSMENT
Hironori Sahara, Tokyo Metropolitan University, Japan

IAC-10.B4.6A.8
THE SGR-RESI – A SMALL SATELLITE INSTRUMENT FOR SENSING THE EARTH USING GNSS SIGNALS
Mike Cutter, Surrey Satellite Technology Ltd, United Kingdom

IAC-10.B4.6A.9
THE TET-1 MISSION – CURRENT PROJECT STATUS OF THE SMALL SATELLITE MISSION AND OUTLOOK FOR A ONE YEAR MISSION OPERATION PHASE
Clemens Kaiser, Kayser-Threde GmbH, Germany

IAC-10.B4.6A.10
USING RECONFIGURABLE HARDWARE FOR ROUTING IN MESH NETWORKS OF SMALL LEO SATELLITES
Aimal Siraj, Japan

IAC-10.B4.6A.11
TUBSAT – A RELIABLE AND COST EFFECTIVE MICRO SATELLITE PLATFORM
Matthias Buhl, Technische Universität Berlin, Germany

IAC-10.B4.6A.12
SMART ANTENNA SYSTEM FOR SMALL SATELLITES
Danilo Roascio, Politecnico di Torino, Italy

B4.6B. Design and Technology for Nano-Sats and Cube-Sats

September 30 2010, 15:15 – Club H

Chair: Richard Holdaway (Rutherford Appleton Laboratory, United Kingdom); Philip Davies (Surrey Satellite Technology Ltd, United Kingdom)

IAC-10.B4.6B.2
DESIGN AND ANALYSIS OF A FULL COMPOSITE STRUCTURE FOR THE 1ST GREEK CUBE-SAT BY THE UNIVERSITY OF PATRAS (UPSAT)
Andreas Ampatzoglou, University of Patras, Greece

IAC-10.B4.6B.3
DESIGN STATUS OF THE DELFI-NEXT NANOSATELLITE PROJECT
Jasper Bouwmeester, Delft University of Technology (TU Delft), The Netherlands

IAC-10.B4.6B.4
SYSTEMS ENGINEERING, OPERATIONS AND PAYLOAD INTERFACING IN CUBE-SATS
Tom Stuttard, Astrium Ltd., United Kingdom

IAC-10.B4.6B.5
HUMSAT: HUMANITARIAN SATELLITE CONSTELLATION: A NANOSATELLITE CONSTELLATION FOR CLIMATE CHANGE MONITORING AND HUMANITARIAN INITIATIVES.
Fernando Aguado Agelet, Universidad de Vigo, Spain

IAC-10.B4.6B.6
JAPAN CANADA JOINT COLLABORATION SATELLITES – DESIGN OF INTERSATELLITE SEPARATION MECHANISM
Alfred Ng, Canadian Space Agency, Canada

IAC-10.B4.6B.7
PACE NANOSATELLITE PREPARING FOR LAUNCH
Artur Scholz, National Cheng Kung University, Taiwan, China

IAC-10.B4.6B.8
MISSION DESIGN FOR PICO-SATELLITE "SPACE TETHERED AUTONOMOUS ROBOTIC SATELLITE II"
Masahiro Nohmi, Kagawa University, Japan

IAC-10.B4.6B.9
LOW COST TURNKEY MISSIONS USING THE SENTRY NANO-SPACECRAFT BUS
Jason Andrews, United States

IAC-10.B4.6B.10
A SINGLE MICROCONTROLLER BASED ON-BOARD COMPUTER DESIGN FOR A NANO SATELLITE
Saikat Gupta, SRM University, kattankulathur,chennai,INDIA, India

IAC-10.B4.6B.11
CUBESATS DEVELOPMENT AT POLITECNICO DI TORINO: THE E-ST@R PROGRAM
Sabrina Corpino, Politecnico di Torino, Italy

IAC-10.B4.6B.12
ANALYSIS OF FIELD PROGRAMMABLE GATE ARRAY ALTERNATIVES FOR USE IN NANOSATELLITES
William do Nascimento Guareschi, Southern Regional Space Research Center - CRS/CCR/INPE - MCT in collaboration with the Space Science Laboratory of Santa Maria - LACESM/CT - UFSM, Brazil

B4.7. Space Systems and Architectures Featuring Cross-Platform Compatibility

October 1 2010, 14:00 – Club H

Chair: Jaime Esper (National Aeronautics and Space Administration (NASA), United States); Marco D'Errico (Seconda Universita' di Napoli, Italy)
Rapporteur: Peter Mendham (SciSys Ltd, United Kingdom)

IAC-10.B4.7.1
A PERFORMANCE COMPARISON OF DIFFERENT SATELLITE RANGE SCHEDULING ALGORITHMS FOR GLOBAL GROUND STATION NETWORKS
Bastian Preindl, University of Applied Science Technikum Wien, Austria

IAC-10.B4.7.2
AN INTEGRATED DEVELOPMENT FRAMEWORK FOR RAPID DEVELOPMENT OF PLATFORM-INDEPENDENT AND REUSABLE SATELLITE ON-BOARD SOFTWARE
Claas Ziemke, University of Stuttgart, Germany

IAC-10.B4.7.3
A GENERAL PURPOSE POWERFUL PROCESSING BOARD FOR HIGHLY INTEGRATED EQUIPMENTS
Arnaud Colmon, EADS Sodern, France

IAC-10.B4.7.5
FLEXIBLE BUILDING-BLOCK ARCHITECTURE FOR LEO MICROSATELLITE PLATFORMS
Elena Razzano, Carlo Gavazzi Space, Italy

IAC-10.B4.7.7
MULTI-PURPOSE MODULAR PLUG AND PLAY ARCHITECTURE FOR SPACE SYSTEMS: DESIGN, INTEGRATION AND TEST
Tommaso Pittera', Second University of Naples, Italy

IAC-10.B4.7.9
ISRO'S RESPONSIVE SOUNDING ROCKET SYSTEM DEPLOYED FOR INVESTIGATION OF ANNULAR ECLIPSE EFFECTS
Helen Basil, Indian Space Research Organization (ISRO), India

B4.8. Hitchhiking to the Moon

October 1 2010, 09:00 – Club H

Chair: Leon Alkalai (Jet Propulsion Laboratory, United States); Rene Laufer (Baylor University, United States)
Rapporteur: Adam M. Baker (Virgin Galactic L.L.C, United Kingdom)

IAC-10.B4.8.1
ACCOMMODATING LUNAR HITCHHIKERS -- LESSONS LEARNED AND PROSPECTS
James Burke, The Planetary Society, United States

IAC-10.B4.8.2
LCROSS LUNAR IMPACTOR – LESSONS LEARNED FROM A SMALL SATELLITE MISSION
Daniel Andrews, National Aeronautics and Space Administration (NASA)/Ames Research Center, United States

IAC-10.B4.8.3
OPTIMAL DESIGN OF LOW-ENERGY TRANSFERS TO HIGHLY ECCENTRIC FROZEN ORBITS AROUND THE MOON
Alison Gibbings, University of Glasgow, Space Advanced Research Team, United Kingdom

IAC-10.B4.8.4
TRAJECTORY OPTIMISATION OF A VERY-LOW-THRUST LUNAR MISSION SUBJECT TO HIGHLY NON-LINEAR THRUST CONSTRAINTS
Rogan Shimmin, University of Adelaide, Australia

IAC-10.B4.8.5
A DISCOVERY-CLASS LUNETTE MISSION CONCEPT FOR A LUNAR GEOPHYSICAL NETWORK
John Elliott, Jet Propulsion Laboratory, United States

IAC-10.B4.8.6
LUNACHEM--AN INSTRUMENT TO DETERMINE THE CHEMICAL REACTIVITY OF LUNAR DUST
David Loftus, National Aeronautics and Space Administration (NASA)/Ames Research Center, United States

IAC-10.B4.8.7
TIROSS – AN ACADEMIC SMALL SATELLITE PROGRAM FOR SCIENTIFIC EARTH-MOON SYSTEM INVESTIGATIONS
Rene Laufer, Baylor University, United States

IAC-10.B4.8.8
CONCEPT FOR A LUNAR TRANSFER VEHICLE FOR SMALL SATELLITE DELIVERY TO THE MOON FROM THE INTERNATIONAL SPACE STATION
John Elliott, Jet Propulsion Laboratory, United States

IAC-10.B4.8.9
STATUS OF THE IAA STUDY GROUP 4.5 HITCHHIKING TO THE MOON
Leon Alkalai, Jet Propulsion Laboratory, United States

B5. SYMPOSIUM ON INTEGRATED APPLICATIONS

Coordinator: Amnon Ginati (European Space Agency (ESA), The Netherlands); Larry Paxton (The John Hopkins University Applied Physics Laboratory, United States)

B5.1. Integrated Applications End-to-End Solutions

September 29 2010, 10:15 – Club C

Chair: Larry Paxton (The John Hopkins University Applied Physics Laboratory, United States); Charlotte Mathieu (European Space Agency (ESA), France)
Rapporteur: Amnon Ginati (European Space Agency (ESA), The Netherlands)

IAC-10.B5.1.1
OPERATIONALIZING CLIMATE SCIENCE FOR HEALTHCARE IN AFRICA
Simon Adebola, Switzerland

IAC-10.B5.1.2
SAFE: SATELLITES FOR EPIDEMIOLOGY – TUBERCULOSIS SURVEILLANCE IN GEORGIA
Audrey Berthier, MEDES-IMPS, France

IAC-10.B5.1.3
EUROPEAN SPACE AGENCY INTEGRATED APPLICATIONS PROMOTION PROJECT AMAZON – THE DEVELOPMENT OF A TELEMEDICINE-ENABLED VITAL SIGNS MONITOR FOR USE IN PRE-HOSPITAL CARE
Chris Hannan, Remote Diagnostic Technology, United Kingdom

IAC-10.B5.1.4
AN INTEGRATIVE APPROACH OF USING SATELLITE-BASED INFORMATION FOR PRECISION FARMING: TALKINGFIELDS
Heike Bach, VISTA GmbH, Germany

IAC-10.B5.1.5
SPACE & THE ARCTIC: WHEN LOOKING FROM ABOVE CAN HELP DOWN-TO-EARTH PROBLEMS
Isabelle Duvaux-Bechon, European Space Agency (ESA), France

IAC-10.B5.1.6
SPACEGRID: TOWARDS THE INTEGRATION OF SPACE TECHNOLOGIES IN THE POWER GRID MANAGEMENT SYSTEM
Maria Lucia Tampellini, Carlo Gavazzi Space, Italy

IAC-10.B5.1.7
INTEGRATED APPLICATIONS: END-TO-END SERVICES ADDRESSING ENERGY SECTOR NEEDS
Gonzalo Martin-de-Mercado, European Space Agency (ESA), The Netherlands

IAC-10.B5.1.8
HUMANITARIAN CRISIS 2015 – MAKING SPACE THE MOST EFFECTIVE
Jakub Ryzenko, PIAP, Poland

IAC-10.B5.1.9
A EUROPEAN CRISIS RESPONSE SPACE ARCHITECTURE
Luca del Monte, European Space Agency (ESA), France

B5.2. Tools and Technology in Support of Integrated Applications

September 29 2010, 15:15 – Club C

Chair: Larry Paxton (The John Hopkins University Applied Physics Laboratory, United States); Boris Penne (OHB-System AG, Germany)
Rapporteur: Larry Paxton (The John Hopkins University Applied Physics Laboratory, United States)

IAC-10.B5.2.1
INTEGRATED APPLICATIONS PROMOTION (IAP) – THE ESTABLISHMENT OF AN AMBASSADOR PLATFORM FOR THE CENTRAL AND EASTERN EUROPEAN REGION OPERATED BY THE EUROPEAN SPACE POLICY INSTITUTE (ESPI)
Erich Klock, European Space Policy Institute (ESPI), Austria

IAC-10.B5.2.2
SPACE GENERATION ADVISORY COUNCIL AD-HOC GROUP ON DISASTER MANAGEMENT, RISK-REDUCTION AND CAPACITY-BUILDING (SGAC SPIDER)
Mario Ciaramicoli, Space Generation Advisory Council (SGAC), Canada

IAC-10.B5.2.3
A SYSTEM-OF-SYSTEMS APPROACH FOR THE CONCURRENT DESIGN OF SPACE MISSIONS
Guido Ridolfi, Politecnico di Torino, Italy

IAC-10.B5.2.4
ORTHOGONAL ARRAYS BASED DESIGN METHODOLOGY FOR COMPLEX COUPLED SPACE SYSTEMS
Guido Ridolfi, Politecnico di Torino, Italy

IAC-10.B5.2.5
THE VALUE OF SPACE APPLICATIONS WITH MINIATURIZED INSTRUMENTS
Erik Laan, TNO Science and Industry, The Netherlands

IAC-10.B5.2.6
HYBRID SPACE-AIRBORNE BISTATIC SYNTHETIC APERTURE RADAR FOR AVOIDANCE, LANDING AND OBSERVATION OF UNMANNED AERIAL SYSTEMS
Alfredo Renga, University of Naples "Federico II", Italy

IAC-10.B5.2.7
INSAT3D: REAL-TIME SPACECRAFT MONITORING IN 3D
Luc Claustres, VEGA Technologies SAS, France

IAC-10.B5.2.8
BALLOON-BORNE AIR TRAFFIC MANAGEMENT (ATM) EXPERIMENT AS A PRECURSOR TO SPACE-BASED ATM
Yuval Brodsky, International Space University (ISU), France

IAC-10.B5.2.9
CONCEIVE OF THE TELEOPERATOR SPACECRAFT
Jian-yong Zhou, China

IAC-10.B5.2.10
GLOBAL ASSIMILATION AND INFORMATION ACCESS (GAIA): AN INTEGRATED APPROACH TO EARTH SCIENCE PROBLEMS
Larry Paxton, The John Hopkins University Applied Physics Laboratory, United States

B6. SPACE OPERATIONS SYMPOSIUM

Coordinator: H. Neal Hammond (United Space Alliance, United States); Manfred Warhaut (European Space Agency (ESA), Germany)

B6.1. Human Spaceflight Operations Concepts

September 28 2010, 10:15 – Terrace 1

Chair: Bob Chesson (European Space Agency (ESA), The Netherlands); Mario Cardano (ThalesAlenia Space, Italy)
Rapporteur: Michael McKay (European Space Agency (ESA), Germany)

IAC-10.B6.1.1
DEVELOPMENT AND VERIFICATION OF GROUND-BASED TELEROBOTICS OPERATIONS CONCEPT FOR DEXTRE
Sarmad Aziz, Canadian Space Agency, United States

IAC-10.B6.1.2
UTILIZATION OF ISS TO DEVELOP AND TEST OPERATIONAL CONCEPTS AND HARDWARE FOR LOW-GRAVITY TERRESTRIAL EVA
Matthew Gast, United Space Alliance, United States

IAC-10.B6.1.3
COSMIC CATCH: CANADARM2'S FIRST CAPTURE OF A FREE-FLYING VEHICLE – OPERATIONAL RISKS, CONSIDERATIONS AND RESULTS
Laura Lucier, Canadian Space Agency, United States

IAC-10.B6.1.4
JEM REMOTE MANIPULATOR SYSTEM ON-ORBIT OPERATIONS, CHALLENGES, ACHIEVEMENTS AND FEEDBACK FOR FUTURE SPACE ROBOTICS
Shinobu Doi, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.B6.1.5
HIGHLIGHTS IN COLUMBUS OPERATIONS AND PREPARATION FOR ASSEMBLY COMPLETE OPERATIONS PHASE
Dieter Sabath, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

AC-10.B6.1.6
SPACE STATION MULTI-INCREMENT ORBITAL MISSION DESIGN USING DYNAMIC PROGRAMMING
Lin Kunpeng, China

IAC-10.B6.1.7
ISS EXPLOITATION AND END-TO-END LOGISTICS SERVICE AS A WAY TO OPTIMIZATION
Dario Saia, Thales Alenia Space Italia, Italy

IAC-10.B6.1.8
THE OPERATIONS OF THE ESA ISS ELEMENTS DURING THE YEAR 2010
Alberto Novelli, European Space Agency (ESA), The Netherlands

IAC-10.B6.1.9
DESIGN AND DEVELOPMENT OF NEW JEM GROUND OPERATION SYSTEMS FOR THE NEXT GENERATION
Masaaki Komatsu, Kushiro National College of Technology, Japan

IAC-10.B6.1.10
WEB DESIGN FOR THE INTERNATIONAL SPACE STATION: AN OVERVIEW OF THE CHALLENGES AND NEW TECHNOLOGIES USED IN WEB-BASED APPLICATIONS ONBOARD THE SPACE STATION, ASTRONAUT MISSION PLANNING AND IN MISSION CONTROL CENTER OPERATIONS
Ahmed Khan, National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States

IAC-10.B6.1.11
NODE 3 AND CUPOLA INTEGRATED IN THE ISS AND FULLY OPERATIONAL: THEIR ASSEMBLY AND UTILIZATION, THE UNIQUE EXPERIENCE AND THE LESSON LEARNED
Annamaria Piras, Thales Alenia Space Italia, Italy

IAC-10.B6.1.12
CONSIDERATIONS FOR COMMERCIAL RECOVERY OF HUMAN CARRYING EARTH LANDING CAPSULES
Gary Rohrkaste, United Space Alliance, United States

B6.2. New Operations Concepts

September 30 2010, 15:15 – Terrace 1

Chair: Thomas Kuch (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany); Geneviève Campan (Centre National d'Etudes Spatiales (CNES), France)
Rapporteur: Masaaki Komatsu (Kushiro National College of Technology, Japan)

IAC-10.B6.2.1
DEVELOPMENT, IMPLEMENTATION AND VERIFICATION OF A NOVEL GROUND STATION ARCHITECTURE FOR REAL-TIME APPLICATIONS
Sebastian Herzig, Technische Universität München, Germany

IAC-10.B6.2.2
REAL-TIME EVALUATION OF ATTITUDE CONSTRAINS DURING SPACE ROBOT OPERATIONS
Markus Pietras, Technische Universität München, Germany

IAC-10.B6.2.3
GROUND SEGMENT AND OPERATIONAL CONCEPT FOR LUNAR AND PLANETARY ROBOTIC MISSION
Chiara Maria Lombardi, ALTEC S.p.A., Italy

IAC-10.B6.2.4
AUTOMATION OF OPERATIONAL ROUTINE TASKS IN ESOC EARTH OBSERVATION MISSIONS
Michael Koller, European Space Agency (ESA), Germany

IAC-10.B6.2.5
MULTIFACETED NATURE OF ATV OPERATIONS
Kris Capelle, ESA, France

IAC-10.B6.2.6
ON-ORBIT SERVICING MISSIONS: CHALLENGES AND SOLUTIONS FOR A SPACECRAFT OPERATIONS CENTER
Florian Sellmaier, German Aerospace Center (DLR), Germany

IAC-10.B6.2.7
SATELLITE END OF LIFE CONSTRAINTS: TECHNICAL AND ORGANISATIONAL SOLUTIONS
Bernard Cabrieres, Centre National d'Etudes Spatiales (CNES), France

IAC-10.B6.2.8
SUMBANDILA OPERATIONS – A COOPERATIVE APPROACH
Jan Koekemoer, SunSpace, South Africa

B6.3. Training Relevant for Operations, including Human Spaceflight

October 1 2010, 09:00 – Terrace 1

Chair: Michael McKay (European Space Agency (ESA), Germany); John Auburn (VEGA Group, United Kingdom)
Rapporteur: Glen Stromme (United Space Alliance, United States)

IAC-10.B6.3.1
FLIGHT CONTROLLER TRAINING FOR ISS "KIBO" MODULE
Satoru Nishizawa, Japan Manned Space Systems Corporation, Japan

IAC-10.B6.3.2
THE NEW APPROACH FOR ROBOTICS TRAINING
Chizuru Yokosuka, Japan Manned Space Systems Corporation, Japan

IAC-10.B6.3.3
EVOLUTION OF THE ESA ASTRONAUT TRAINING FOR COLUMBUS SYSTEMS OPERATIONS
Peter Eichler, EADS Astrium Space Transportation GmbH, Germany

IAC-10.B6.3.4
COMMERCIAL SPACEWALKING: DESIGNING AN EVA QUALIFICATION PROGRAM FOR SPACE TOURISM
Matthew Gast, United Space Alliance, United States

IAC-10.B6.3.5
VIRTUAL REALITY: AVATARS IN HUMAN SPACEFLIGHT TRAINING
Jeffrey Osterlund, United Space Alliance, United States

IAC-10.B6.3.6
TRAINING ACADEMY AT ATV CONTROL CENTRE
Dries Caluwaerts, Booz & Company, France

IAC-10.B6.3.8
A VIRTUAL ASTRONAUT MODEL AND THE SIMULATION OF EVA
Ning Liu, CAST, China

IAC-10.B6.3.9
TRAINING CONSIDERATIONS FOR COMMERCIAL SPACE FLIGHT OPERATIONS
Gregory McClung, United Space Alliance, United States

B6.5. Flight Control Operations Virtual Forum

September 30 2010, 10:00 – Meeting Room 3.3

Chair: Kathleen Coderre (Lockheed Martin Space and Science Solutions, United States); Tom Uhlig (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany)

IAC-10.B6.5.1
SPOT 2 END OF LIFE - DISPOSAL MANOEUVRES
Aurelie MoussiSoffys, Centre National d'Etudes Spatiales (CNES), France

IAC-10.B6.5.2
HUMAN SPACEFLIGHT TRAJECTORY OPERATIONS: A CASE STUDY FROM STS-132/ULF4
Rebecca Cutri-Kohart, United Space Alliance, United States

IAC-10.B6.5.3
HUMAN FACTOR IN UNMANNED SPACECRAFT OPERATIONS
Eric Sawyer, Centre National d'Etudes Spatiales (CNES), France

IAC-10.B6.5.4
PLANNING AND EXECUTING FLIGHT DATA BASE TRANSITIONS IN SYNCHRONIZATION WITH GROUND
Guillaume Girard, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.B6.5.5
A YEAR IN THE LIFE OF CSA SPACE OPERATIONS: 2010 HIGHLIGHTS & THE WAY FORWARD
Viqar Abbasi, Canadian Space Agency, Canada

IAC-10.B6.5.6
CNES OPERATIONAL ACTIVITIES IN COLLISION AVOIDANCE FOR LEO SATELLITES
Xavier Pena, Centre National d'Etudes Spatiales (CNES), France

IAC-10.B6.5.7
HOW THE SPACECRAFT OPERATION WILL BE NEAR THE FUTURE?
Yuichiro Nogawa, Japan Manned Space Systems Corporation, Japan

B6.6.-B3.4. Sustainable Utilization of the ISS Beyond 2015 – Joint Session of the Human Space Endeavors and Space Operations Symposia

September 29 2010, 15:15 – Meeting Hall V

Chair: Paul Eckert (The Boeing Company, United States); Helmut Luttmann (Astrium Space Transportation, Germany)
Rapporteur: Rachid Amekrane (Astrium GmbH, Germany)

IAC-10.B6.6.-B3.4.1
INTERNATIONAL SPACE STATION AS A PLATFORM FOR EXPLORATION BEYOND LOW EARTH ORBIT
Michael Raftery, Boeing Defense Space & Security, United States

IAC-10.B6.6.-B3.4.2
ISS EXTENSION – NEW OPPORTUNITIES FOR HIGH VALUE SCIENTIFIC AND INDUSTRIAL UTILISATION
Freya Scheffler-Kayser, DLR, German Space Agency, Germany

IAC-10.B6.6.-B3.4.3
THE SUSTAINING ENGINEERING FOR JEM LONG TERM OPERATION
Yusuke Muraki, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.B6.6.-B3.4.4
SUCCESS STORIES AND NEW CHALLENGES OF JAPANESE EXPERIMENT MODULE "KIBO" COMMERCIAL UTILIZATION
Yashio Kashiyama, Japan Manned Space Systems Corporation, Japan

IAC-10.B6.6.-B3.4.5
UTILISATION OF THE COLUMBUS LABORATORY BY THE EUROPEAN UNION
Giuseppe Reibaldi, European Space Agency (ESA), The Netherlands

IAC-10.B6.6.-B3.4.6
ISS UTILISATION BY CSA: NOW AND IN THE FUTURE
Nicole Buckley, Canadian Space Agency, Canada

IAC-10.B6.6.-B3.4.8
IAF SPACE OPERATIONS COMMITTEE WORKING GROUP REPORT ON ISS OPERATIONS COST REDUCTION
Michael McKay, European Space Agency (ESA), Germany

IAC-10.B6.6.-B3.4.9
OPENING UP THE ISS TO THE GLOBAL COMMUNITY – A KEY TO PROMOTING INTERNATIONAL COOPERATION
Alexander Karl, Germany

C1. ASTRODYNAMICS SYMPOSIUM

Coordinator: Erick Lansard (ThalesAlenia Space, France)

C1.1. Orbital Dynamics

September 27 2010, 15:15 – North Hall

Chair: Rock Jeng-Shing Chern (China University of Science and Technology, Taiwan, China); Paolo Teofilatto (University of Rome "La Sapienza", Italy)
Rapporteur: Othon Winter (Saõ Paulo State University (UNESP), Brazil)

IAC-10.C1.1.1
ANALYTIC EXPANSIONS OF LUNI-SOLAR GRAVITY PERTURBATIONS ALONG ROTATING AXES FOR TRAJECTORY OPTIMIZATION: PART2: THE MULTIPLIERS SYSTEM AND SIMULATIONS
Jean Kechichian, The Aerospace Corporation, United States

IAC-10.C1.1.2
NEW NUMERICAL METHODS FOR DETERMINING PERIODIC ORBITS IN THE CIRCULAR RESTRICTED THREE-BODY PROBLEM
Mauro Pontani, University of Rome "La Sapienza", Italy

IAC-10.C1.1.3
EXTENSION OF LOW THRUST PROPULSION TO THE COPLANAR CIRCULAR RESTRICTED FOUR BODY PROBLEM WITH APPLICATIONS TO FUTURE TROJAN ASTEROIDS MISSIONS
Marta Ceccaroni, University of Strathclyde, United Kingdom

IAC-10.C1.1.4
ON THE LOW-ENERGY TRANSFERS BETWEEN ICY MOONS OF JUPITER
Elena Fantino, Universitat Politecnica de Catalunya (UPC), Spain

IAC-10.C1.1.5
ELECTRIC ?V IN SOLAR ELECTRIC PROPULSION (SEP) AND FLYBY FOR NEAR-EARTH-OBJECTS
Denilson Paulo Souza dos Santos, INPE, Brazil

IAC-10.C1.1.6
SHORT-PERIOD BALLISTIC OUT-OF-ECLIPTIC TRAJECTORIES VIA MULTIPLE VENUS & EARTH SWING-BYS AND VEGA-DRIVEN MULTIPLE EARTH SWING-BYS
Junichiro Kawaguchi, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C1.1.7
TRAJECTORY EVOLUTION IN MULTI-BODY REGIMES WITH APPLICATIONS IN THE SATURNIAN SYSTEM
Diane Davis, Purdue University, United States

IAC-10.C1.1.8
ACCURACY ANALYSIS OF ORBIT DETERMINATION AND PREDICTION FOR LOW ORBIT LUNAR SATELLITES
Jiasong Wang, State Key Lab of Astrodynamics, China

IAC-10.C1.1.9
COULOMB TESTBED FORCE MODEL VERIFICATION FOR CHARGED RELATIVE MOTION EXPERIMENTS
Carl Seubert, University of Colorado, United States

IAC-10.C1.1.11
HOW TO ESTABLISH AND KEEP ORTHOGONAL CONSTELLATION BY TWO ORBITERS UNDER PERTURBATION
Naoko Ogawa, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C1.1.12
SPACECRAFT RENDEZVOUS THROUGH MOTION CAMOUFLAGE
Tao Yang, China

C1.2. Orbital Dynamics (2)

September 28 2010, 10:15 – North Hall

Chair: Gianmarco Radice (University of Glasgow, United Kingdom); Filippo Graziani (University of Rome "La Sapienza", Italy)
Rapporteur: Josep J. Masdemont (Universitat Politecnica de Catalunya (UPC), Spain)

IAC-10.C1.2.1
BREAKWELL LECTURE: "A BRIEF SURVEY OF METHODS AVAILABLE FOR NUMERICAL OPTIMIZATION OF SPACECRAFT TRAJECTORIES"
Bruce Conway, University of Illinois at Urbana-Champaign, United States

IAC-10.C1.2.2
SOLAR SAIL TRANSFER TRAJECTORY FROM L1 POINT TO SUB L1 POINT
Gong Shengping, Tsinghua University, China

IAC-10.C1.2.3
TRAJECTORY CONTROL FOR A SOLAR SAIL SPACECRAFT IN AN OFFSET LUNAR ORBIT
Geoff Wawrzyniak, Purdue University, United States

IAC-10.C1.2.4
ON A HAZARD MITIGATION PROBLEM FOR APOPHIS-EARTH POSSIBLE COLLISION IN 2036
Vyacheslav V. Ivashkin, Keldysh Institute of Applied Mathematics, RAS, Russia

IAC-10.C1.2.5
A NEW NAVIGATION FORCE MODEL FOR SOLAR RADIATION PRESSURE
Jay McMahon, University of Colorado, United States

IAC-10.C1.2.7
ORBIT CONTROL OF HIGH AREA-TO-MASS RATIO SPACECRAFT USING ELECTROCHROMIC COATING
Charlotte M. Lücking, University of Strathclyde, United Kingdom

IAC-10.C1.2.8
NONLINEAR EFFECTS IN THE CORRELATION OF TRACKS AND COVARIANCE PROPAGATION
Kyle Alfriend, Texas A&M University, United States

IAC-10.C1.2.10
TETHER LENGTH CONTROL FOR ORBITAL MANOEUVRES
Maurizio Parisse, Aerospace Engineering School, University of Rome "La Sapienza", Italy

C1.3. Attitude Dynamics

September 28 2010, 15:15 – North Hall

Chair: Andre Mazzoleni (North Carolina State University, United States); Hyochoong Bang (Korea Advanced Institute of Science and Technology (KAIST), Korea, Republic of)
Rapporteur: Fabio Santoni (University of Rome "La Sapienza", Italy)

IAC-10.C1.3.1
ATTITUDE ACQUISITION OF SPACECRAFT WITH MULTIPLE LIQUID STORES
Jay Kang, Korea Aerospace University, Korea, Republic of

IAC-10.C1.3.2
DYNAMICS OF TETHERED BINARY ASTEROID SYSTEMS
Andre Mazzoleni, North Carolina State University, United States

IAC-10.C1.3.3
EFFICIENT ATTITUDE CONTROL OF TETHER-CONTROLLED SPINNING SOLAR SAIL USING C.M.-C.P. OFFSET TORQUE AND VIRTUAL STRUCTURE METHOD
Junichi Nishida, Tokyo Institute of Technology, Japan

IAC-10.C1.3.4
ONBOARD ATTITUDE PERTURBATION ESTIMATION FOR GYROLESS SPACECRAFT
Steve Ulrich, Carleton University, Canada

IAC-10.C1.3.5
DYNAMIC CONTROL OF REDUNDANT SPACE MANIPULATORS SUITABLE FOR REAL-TIME APPLICATIONS
Silvio Cocuzza, CISAS G. Colombo Center of Studies and Activities for Space, University of Padova, Italy

IAC-10.C1.3.6
NEW ELEMENTS FOR THE EFFICIENT PROPAGATION OF ATTITUDE DYNAMICS
Martin Lara, Real Observatorio de la Armada, Spain

IAC-10.C1.3.7
REVIEW AND ANALYSIS OF SINGLE-THRUSTER ATTITUDE CONTROL ALGORITHMS FOR SPINNING SPACECRAFT
Robin Raus, Surrey Space Centre, University of Surrey, United Kingdom

IAC-10.C1.3.8
SINGULARITY-FREE DYNAMIC EQUATIONS OF SPACECRAFT-MANIPULATOR SYSTEMS
Pål Johan From, Norwegian University of Science and Technology, Norway

IAC-10.C1.3.10
ATTITUDE DYNAMICS OF A PENDULUM-SHAPED CHARGED SATELLITE
Hiroshi Yamakawa, Kyoto University, Japan

IAC-10.C1.3.11
MEASUREMENT AND ANALYSIS OF THE SOLAR ARRAY PANEL'S DYNAMIC DISPLACEMENT CAUSED BY THERMAL SNAP USING AN ON-BOARD MONITOR CAMERA
Yusuke Hagiwara, Tokyo Institute of Technology, Japan

IAC-10.C1.3.12
LYAPUNOV STABILITY ANALYSIS OF SPACECRAFT ATTITUDE CONTROL SYSTEM WITH CONTROL ALLOCATION
Shengyong Tang, Harbin Institute of Technology, China

C1.4. Attitude Dynamics (2)

September 29 2010, 10:15 – North Hall

Chair: Anna Guerman (University of Beira Interior, Portugal); Gerard Gomez (University of Barcelona, Spain)
Rapporteur: Zhang Weihua (China)

IAC-10.C1.4.2
DESIGN AND VALIDATION OF GEOMETRIC OPTIMISATION SOFTWARE FOR THE ATTITUDE CONTROL OF MICROSATELLITES
Nadjim Mehdi Horri, Surrey Space Centre, University of Surrey, United Kingdom

IAC-10.C1.4.3
ATTITUDE CONTROL OF IKAROS SOLAR SAIL SPACECRAFT AND ITS FLIGHT RESULTS
Ryu Funase, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C1.4.5
FAULT DETECTION AND FAULT TOLERANT CONTROL FOR AAUSAT3 CUBESAT
Bjørn Eskildsen, Aalborg University, Denmark

IAC-10.C1.4.7
A SPACE MOBILE ROBOT USING TETHERED MOVING METHODS – STUDY OF TETHER'S LOCATION AND ROBOT'S LOCOMOTION CAPABILITY
Mitsuhiro Yamazumi, Tokyo Institute of Technology, Japan

IAC-10.C1.4.8
MISSION-ORIENTED MICRO-SUN-SENSOR LABORATORY TESTING IN REAL-TIME OPERATION MODE
Michele Grassi, University of Naples "Federico II", Italy

IAC-10.C1.4.9
AN ATTITUDE MODEL FOR THE SPACECRAFT OF THE ESA MISSION GAIA
Ralf Keil, ZARM - University of Bremen, Germany

IAC-10.C1.4.10
RESEARCH ON THE POINTING CONTROL COMPUTATION AND REALIZATION METHOD OF TDRS TRACKING THE LEO SPACECRAFT
Wu Gang, Beijing Institute of Tracking and Telecommunication Technology, China

IAC-10.C1.4.11
NONLINEAR ESTIMATION FOR VISION-BASED TARGET ATTITUDE MEASUREMENT IN SPACE OPERATION
Haifeng Su, College of Astronautics, Northwestern Polytechnical University, China

IAC-10.C1.4.12
THREE-AXIS STABILIZATION OF A LOW EARTH ORBIT SPACECRAFT UTILIZING THREE MAGNETORQUERS AND REACTION WHEELS COMBINATIONS, ACCORDING TO ENERGY CONSUMPTION
M. Navabi, Shahid Beheshti University, Iran

C1.5. Guidance, Navigation, and Control

September 29 2010, 15:15 – North Hall

Chair: Brij Agrawal (Naval Postgraduate School, United States); Alfred Ng (Canadian Space Agency, Canada)
Rapporteur: Fuyuto Terui (Japan Aerospace Exploration Agency (JAXA), Japan)

IAC-10.C1.5.2
ATTITUDE MANOEUVRING UNDER DYNAMIC PATH AND TIME CONSTRAINTS FOR IMPROVED GPS COVERAGE OF FORMATION-FLYING NANOSATELLITES
Bryan Johnston-Lemke, Space Flight Laboratory, University of Toronto, Canada

IAC-10.C1.5.3
IMAGE BASED NAVIGATION AND GUIDANCE FOR APPROACH AND TOUCHDOWN PHASE TO AN ASTEROID UTILIZING CAPTURED IMAGES AT THE REHEARSAL OPERATION
Fuyuto Terui, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C1.5.4
FORMATION ACQUISITION AND CONTROL STRATEGIES FOR FORMATIONS IN HIGHLY ELLIPTIC ORBITS
Thomas Vincent Peters, GMV, Spain

IAC-10.C1.5.5
GUIDANCE AND CONTROL STRATEGIES FOR A SPACECRAFT TO RENDEZVOUS WITH A NON-COOPERATIVE SPACECRAFT
Ananth S. Komanduri, ZARM - University of Bremen, Germany

IAC-10.C1.5.6
DEVELOPMENT OF SLIDING MODE CONTROLLER FOR SMALL SATELLITE IN PLANETARY ORBITAL ENVIRONMENT FORMATION FLYING MISSIONS
Saptarshi Bandyopadhyay, Indian Institute of Technology, Bombay (IITB), India

IAC-10.C1.5.7
A NEW METHOD OF NAVIGATION AND GUIDANCE USING DOUBLE LINE-OF-SIGHT MEASUREMENTS FOR AUTONOMOUS RENDEZVOUS
Chen Tong, BUAA, China

IAC-10.C1.5.8
APPROACH FOR OPTIMAL MULTI-RENDEZVOUS TRAJECTORY DESIGN FOR ACTIVE DEBRIS REMOVAL
Junko Murakami, Kyushu University, Japan

IAC-10.C1.5.9
FORMATION FLIGHT LINE OF SIGHT GUIDANCE
Mauricio Moshe Guelman, Asher Space Research Institute, Technion, I.I.T., Israel

IAC-10.C1.5.11
FLIGHT RESULTS FROM SSC'S GNC EXPERIMENTS WITHIN THE PRISMA FORMATION FLYING MISSION
Per Bodin, Sweden

IAC-10.C1.5.12
FLIGHT RESULTS FROM THE AUTONOMOUS NAVIGATION AND CONTROL OF FORMATION FLYING SPACECRAFT ON THE PRISMA MISSION
Sergio De Florio, University of Glasgow, Space Advanced Research Team, Germany

C1.6. Guidance, Navigation, and Control (2)

September 30 2010, 10:15 – North Hall

Chair: Jean-Paul Berthias (Centre National d'Etudes Spatiales (CNES), France); Saburo Matunaga (Tokyo Institute of Technology, Japan)
Rapporteur: Benedicte Escudier (SUPAERO - Ecole Nationale Supérieure de l'Aéronautique et de l'Espace, France)

IAC-10.C1.6.1
TRAJECTORY RECONSTRUCTION OF HAYABUSA'S ATMOSPHERIC REENTRY
Michael Shoemaker, Kyushu University, Japan

IAC-10.C1.6.2
PRECISE MODELING OF SOLAR RADIATION AND THERMAL ACCELERATIONS ON ROSETTA
Takahiro Kato, Kyushu University, Japan

IAC-10.C1.6.3
REQUIREMENTS AND DESIGN STUDY OF THE HTV RECOVERY TRAJECTORY
Keiichi Wada, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C1.6.4
ESTIMATION OF SOLAR RADIATION PRESSURE FORCE FOR SOLAR SAIL NAVIGATION
Tomohiro Yamaguchi, The Graduate University of Advanced Studies, Japan

IAC-10.C1.6.5
PROXIMITY NAVIGATION FOR ASTEROID MISSION USING CCD IMAGER
Kikuko Miyata, Kyushu University, Japan

IAC-10.C1.6.6
EVALUATION AND FINDINGS OF HTV-1 TRAJECTORY AND THE PLANNING OPERATION
Keiichi Wada, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C1.6.7
DEIMOS PRECISION LANDER GUIDANCE, NAVIGATION AND CONTROL DESIGN
James Kaidy, The John Hopkins University Applied Physics Laboratory, United States

IAC-10.C1.6.9
DESIGN OF A ROBUST CONTROL LAW FOR THE VEGA LAUNCHER BALLISTIC PHASE
Monica Valli, Politecnico di Milano, Italy

IAC-10.C1.6.10
ADAPTIVE GUIDANCE LAW FOR TRAJECTORY CONTROL OF A REUSABLE LAUNCH VEHICLE DURING AIR-BREATHING ASCENT PHASE
Venkitakrishnan Brinda, Indian Space Research Organization (ISRO), India

IAC-10.C1.6.11
FAULT DETECTION AND ISOLATION FOR SATELLITE USING THE IMM-UKF ALGORITHM
Jonghee Bae, Seoul National University, Korea, Republic of

IAC-10.C1.6.12
VISION BASED NAVIGATION FOR AUTONOMOUS PINPOINT LUNAR LANDING
Junhua Feng, Harbin Institute of Technology, China

C1.7. Guidance, Navigation, and Control (3)

September 30 2010, 15:15 – North Hall

Chair: David C. Folta (National Aeronautics and Space Administration (NASA)/Goddard Space Flight Center, United States); Kazuya Yoshida (Tohoku University, Japan)
Rapporteur: David B. Spencer (The Pennsylvania State University, United States)

IAC-10.C1.7.2
MULTI RATE SENSOR DATA FUSION FOR SPACECRAFT STATE ESTIMATION
G.V.P. Bharat Kumar, Indian Space Research Organization (ISRO), India

IAC-10.C1.7.4
EFFECT ANALYSIS OF THRUSTER CONFIGURATION TO CONTROL ERROR AND FUEL CONSUME
Xiaokui Yue, Northwestern Polytechnical University, China

IAC-10.C1.7.5
DIRECT TRANSCRIPTION OF LOW-THRUST TRAJECTORIES WITH FINITE TRAJECTORY ELEMENTS
Massimiliano Vasile, University of Glasgow, United Kingdom

IAC-10.C1.7.6
PREDICTION OF LANDING POINT OF CHANG'E-1 LUNAR PROBE USING SHORT-ARC USB AND VLBI TRACKING DATA
Jianrong Chen, State Key Lab of Astrodynamics, China

IAC-10.C1.7.7
VISUAL NAVIGATION SYSTEM FOR ORBIT AND ATTITUDE DETERMINATION OF FAILED/DEAD SATELLITES ON ORBIT
Gilberto Arantes Jr, ZARM - University of Bremen, Germany

IAC-10.C1.7.8
HIGH FREQUENCY VIBRATION ISOLATION OF CONTROL MOMENT GYROSCOPE ON SATELLITES
Zhang Yao, Beihang University, China

IAC-10.C1.7.9
PROBLEMS OF NAVIGATIONAL TRACKING OF TETHER SYSTEM DEPLOYMENT ON AN EXAMPLE OF YES2 EXPERIMENT ON SPACE VEHICLE "FOTON-M3"
Igor Belokonov, Samara State Aerospace University, Russia

IAC-10.C1.7.10
NEMO: AN ADVANCED CROSS-APPLICATION VISION-BASED GNC SW PLATFORM AND SIMULATOR
Igor Vukman, Carlo Gavazzi Space, Italy

IAC-10.C1.7.11
A LABORATORY FACILITY TO TEST VISION-AIDED DOCKING STRATEGIES WITH NO-COOPERATIVE TARGETS
Nicola Cortigiani, Politecnico di Milano, Italy

IAC-10.C1.7.12
A STUDY OF THE NAVIGATION FOR A SPACECRAFT BY USING MODIFIED ORBIT ESTIMATOR
Tsutomu Ichikawa, Japan Aerospace Exploration Agency (JAXA), Japan

C1.8. Mission Design, Operations and Optimization

October 1 2010, 09:00 – North Hall

Chair: Nicolas Berend (Office National d'Etudes et de Recherches Aérospatiales (ONERA), France); Yury Razumny (Bauman Moscow State Technical University, Russia)
Rapporteur: Johannes Schoenmaekers (European Space Agency (ESA), Germany)

IAC-10.C1.8.1
SUN-EARTH LIBRATION POINT TRANSFER OPTIONS WITH INTERMEDIATE HEO
Florian Renk, University of Stuttgart, Germany

IAC-10.C1.8.2
ORBIT DESIGN FOR FUTURE SPACECHIP SWARM MISSIONS
Camilla Colombo, University of Strathclyde, United Kingdom

IAC-10.C1.8.3
APPLICATION OF GLOBAL SOLUTION OF HAMILTON-JACOBI EQUATIONS TO OPTIMAL LOW-THRUST MULTIPLE RENDEZVOUS PROBLEM
Mai Bando, Kyoto University, Japan

IAC-10.C1.8.4
MISSION ANALYSIS OF THE CROSS-SCALE MULTI-SATELLITE SYSTEM
Stefania Cornara, DEIMOS Space S.L., Spain

IAC-10.C1.8.5
OPTIMIZATION OF OPERATIVE PLANNING FOR MULTIFUNCTIONAL SATELLITE OBSERVATION AND COMMUNICATION SYSTEMS
Valeriy V. Darnopykh, Moscow Aviation Institute (State University of Aerospace Technologies), Russia

IAC-10.C1.8.6
TARGET PHASING MANEUVER PLANNING FOR MANNED ORBITAL RENDEZVOUS
Jin Zhang, National University of Defense Technology, China

IAC-10.C1.8.7
DRAG-FREE CONTROL SYSTEMS MODELLING IN OPERATIONAL SIMULATORS
Dag Evensberget, VEGA Deutschland GmbH & Co, KG, Germany

IAC-10.C1.8.9
ATTITUDE MANEUVER DESIGN WITH PATH CONSTRAINTS FOR INDIAN ASTRONOMY SATELLITE – ASTROSAT
Pandiyan Ramalingam, ISRO Satellite Centre (ISAC), India

IAC-10.C1.8.10
SAFETY-OPTIMAL IMPULSIVE RENDEZVOUS WITH TRAJECTORY UNCERTAINTIES
Li-bo Liang, National University of Defense Technology, China

C1.9. Mission Design, Operations and Optimization (2)

October 1 2010, 14:00 – North Hall

Chair: Eberhard Gill (Delft University of Technology (TU Delft), The Netherlands); Michèle Lavagna (Politecnico di Milano, Italy)
Rapporteur: Kathleen Howell (Purdue University, United States)

IAC-10.C1.9.1
INVARIANT-MANIFOLD, LOW-THRUST TRANSFERS TO LOW MARS ORBITS
Giorgio Mingotti, Universität Paderborn, Germany

IAC-10.C1.9.2
PROPOSED END-OF-MISSION FOR THE CASSINI SPACECRAFT: INNER D RING BALLISTIC SATURN IMPACT
Brent Buffington, Jet Propulsion Laboratory, United States

IAC-10.C1.9.3
STRATEGY TO ACHIEVE GRAVITATIONAL CAPTURE AT CALLISTO
Elisa Maria Alessi, University of Barcelona, Spain

IAC-10.C1.9.4
ORBITAL TRANSFER DESIGN BETWEEN LIBRATION POINTS AROUND JOVIAN SATELLITES
Keita Tanaka, University of Tokyo, Japan

IAC-10.C1.9.5
OPTIMISED DESIGN OF A MISSION TO MULTIPLE TROJAN ASTEROIDS FLY-BIES
Denis Carbonne, Centre National d'Etudes Spatiales (CNES), France

IAC-10.C1.9.7
FINITE-THRUST OPTIMIZATION OF INTERPLANETARY TRANSFERS OF SPACE VEHICLE WITH BIMODAL NUCLEAR THERMAL PROPULSION
Oleksii Kharytonov, Taras Shevchenko National University, Ukraine

IAC-10.C1.9.8
INCREMENTAL SOLUTION OF LTMGA TRANSFERS TRANSCRIBED WITH AN ADVANCED SHAPING APPROACH
Massimiliano Vasile, University of Glasgow, United Kingdom

IAC-10.C1.9.9
APPLICATIONS OF MULTI-BODY DYNAMICAL ENVIRONMENTS: THE ARTEMIS TRANSFER TRAJECTORY DESIGN
David C. Folta, National Aeronautics and Space Administration (NASA)/Goddard Space Flight Center, United States

IAC-10.C1.9.10
PARTICLE SWARM OPTIMIZATION APPLIED TO ORBITAL TRANSFERS
Mauro Pontani, University of Rome "La Sapienza", Italy

IAC-10.C1.9.11
A STUDY OF THE TRANSFER TRAJECTORIES TO HALO ORBITS USING STABLE MANIFOLDS CONSIDERING LAUNCH CONDITIONS
Masaki Nakamiya, ISAS/JAXA, Japan

IAC-10.C1.9.12
DETERMINISTIC METHOD FOR SPACE TRAJECTORY DESIGN WITH MISSION MARGIN CONSTRAINTS
Joris Olympio, European Space Agency/ESTEC - Advanced Concepts Team, The Netherlands

C2. MATERIALS AND STRUCTURES SYMPOSIUM

Coordinator: Constantinos P. Stavrinidis (European Space Agency (ESA), The Netherlands); Pavel M. Trivailo (Royal Melbourne Institute of Technology (RMIT), Australia)

C2.1. Space Structures I – Development and Verification (Space Vehicles and Components)

September 27 2010, 15:15 – Meeting Room 4.2

Chair: Alwin Eisenmann (MT Aerospace Satellite Products Ltd., United Kingdom); Andreas Rittweger (EADS SPACE Transportation, Germany)
Rapporteur: Jean-Alain Massoni (ThalesAlenia Space, France)

IAC-10.C2.1.1
KEY CRYOGENIC TECHNOLOGIES ENHANCEMENT AND VERIFICATIONS WITHIN HXG MACRO DEMONSTRATOR
Yves Prel, Centre National d'Etudes Spatiales (CNES), France

IAC-10.C2.1.2
DEVELOPMENT AND VERIFICATION OF POLYMER-LINED COMPOSITE LIQUID HYDROGEN TANK FOR REUSABLE VEHICLE
Shinsuke Takeuchi, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C2.1.3
DEVELOPMENT OF PROPELLANT TANK STRUCTURE FOR KOREA SPACE LAUNCH VEHICLE
Yeong-Moo Yi, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.C2.1.4
STRUCTURAL LOAD TEST PROGRAMME FOR LVM3: TEST CONFIGURATIONS AND LESSONS LEARNED.
Somanath Sreedhara Panicker, Indian Space Research Organization (ISRO), India

IAC-10.C2.1.5
DESIGN, REALISATION AND TESTING OF A LARGE DIAMETER SOLID BOOSTER MOTOR CASE
Thomas Kurian, Indian Space Research Organization (ISRO), India

IAC-10.C2.1.6
ADVANCED STRUCTURAL ANALYSIS OF FLEX NOZZLE FOR SOLID ROCKET BOOSTER
Yezhil Arasu, Vikram Sarabhai Space Centre (VSSC), India

IAC-10.C2.1.7
STRUCTURAL ANALYSIS AND PRELIMINARY SPACE CHARACTERIZATION OF A PROTOTYPE HOLLOW LASER RETROREFLECTOR
Claudio Cantone, Istituto Nazionale di Fisica Nucleare (INFN), Italy

IAC-10.C2.1.8
A STRATEGY FOR FINITE ELEMENT MODEL VERIFICATION OF COMPLEX SPACECRAFT
Jifeng Ding, China Academy of Space Technology (CAST), China

IAC-10.C2.1.9
A NOTCHING METHOD FOR RANDOM VIBRATION ACCELERATION SPECTRA DERIVED FROM THE FORCE LIMITING TECHNIQUE
Yuanjie Zou, China Academy of Space Technology (CAST), China

IAC-10.C2.1.10
LOW SHOCK NON-PYRO SEPARATION SYSTEM FOR SMALL SATELLITE FROM LAUNCH VEHICLE
Seiya Nagano, Kyushu University, Japan

IAC-10.C2.1.11
STRUCTURAL ANALYSIS AND VERIFICATION OF A RECOVERY SUBSYSTEM FOR THE ATMOSPHERIC REENTRY SATELLITE
Artur C. Arantes-Filho, Instituto de Aeronáutica e Espaço (IAE), Brazil

IAC-10.C2.1.12
TECHNICAL STUDY ON THE STRUCTURAL DESIGN OF KOREAN LUNAR EXPLORER
Sun-Won Kim, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.C2.1.13
DEVELOPMENT OF THE ACCELEROMETER SENSOR HEADS FOR THE GOCE SATELLITE: ASSESSMENT OF THE CRITICAL ITEMS AND QUALIFICATION
Guillaume Bodoville, Office National d'Etudes et de Recherches Aérospatiales (ONERA), France

IAC-10.C2.1.14
OPTIMIZATION AND THERMAL CONTROL OF A MULTI-LAYERED STRUCTURE FOR SPACE ELECTRONIC DEVICE
Riccardo Monti, University of Rome "La Sapienza", Italy

C2.2. Space Structures II – Development and Verification (Deployable and Dimensionally Stable Structures)

September 28 2010, 10:15 – Meeting Room 4.2

Chair: Paolo Gasbarri (Università di Roma "La Sapienza", Italy); Jean-Alain Massoni (ThalesAlenia Space, France)
Rapporteur: Pierre Rochus (Centre Spatial de Liège, Belgium)

IAC-10.C2.2.1
A NEW DESIGN METHODOLOGY FOR ONBOARD ULTRA LIGHT-WEIGHT CABLE-MESH ANTENNA REFLECTORS
Takayuki Kanonji, Tokyo City University, Japan

IAC-10.C2.2.2
A SELF-DEPLOYING AND SELF-STABILIZING HELICAL ANTENNA FOR SMALL SATELLITES
Joachim Block, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.C2.2.3
DEPLOYMENT ANALYSES OF MEMBRANE STRUCTURE SYSTEMS WITH INFLATABLE TUBES FOR FUTURE SPACE APPLICATIONS
Nobuisa Katsumata, Waseda University, Japan

IAC-10.C2.2.4
ADVANCED MULTIBODY SIMULATION TECHNIQUES FOR LARGE DEPLOYABLE SYSTEMS – THE IXO TELESCOPE CASE
Gianluigi Baldesi, European Space Agency (ESA), The Netherlands

IAC-10.C2.2.5
DEVELOPMENT OF EXTENDIBLE ROBOT ARM EXPERIMENT MODEL FOR ISS/JEM-EF
Takeshi Kuratomi, WEL Research Co., Ltd., Japan

IAC-10.C2.2.6
THERMO-ELASTIC DISTORTION MEASUREMENTS BY HOLOGRAPHIC INTERFEROMETRY AND CORRELATION WITH FINITE ELEMENT MODELS FOR SIC CONNECTIONS/JUNCTIONS ON SPACECRAFT
Cedric Thizy, Centre Spatial de Liège, Belgium

IAC-10.C2.2.7
DEVELOPMENT OF MORPHING DEPLOYABLES FOR SPACE APPLICATIONS
Scott Walker, University of Southampton, United Kingdom

IAC-10.C2.2.8
STUDY ON SHAPE REPEATABILITY OF A FLEXIBLE SPACE STRUCTURE WITH HYSTERESIS
Kenta Saito, National Defense Academy, Japan

IAC-10.C2.2.9
DISPLACEMENT MEASUREMENTS OF A PARABOLIC REFLECTOR BY HOLOGRAPHIC INTERFEROMETRY IN THE LONG-WAVELENGTH INFRARED
Jean-François Vandenrijt, Centre Spatial de Liège, Belgium

IAC-10.C2.2.10
DEVELOPMENT OF IKAROS MISSION SYSTEM TO EXPAND SOLAR POWER SAIL
Hirotaka Sawada, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C2.2.11
TECHNO MANAGERIAL CHALLENGES IN DEVELOPMENT OF GSLV MK3 LAUNCH VEHICLE HARDWARES
Pazhayannoor Venkitachalam Venkitakrishnan, Indian Space Research Organization (ISRO), India

IAC-10.C2.2.12
STATIC AND DYNAMIC ANALYSIS OF SPACE WEBS
Yang Yu, Tsinghua University, China

IAC-10.C2.2.13
SUCCESSES AND PROBLEMS OF THE INFLATABLE RE-ENTRY DESCENT TECHNOLOGY DEVELOPMENT
Finchenko Valery, Lavochkin Association, Russia

IAC-10.C2.2.14
A NEW DESIGN CONCEPT OF LIGHT-WEIGHT DEPLOYABLE MEMBRANE STRUCTURES FOR SPACE APPLICATIONS
Io Yaguchi, Tokyo City University, Japan

C2.3. Space Structures – Dynamics and Microdynamics

September 28 2010, 15:15 – Meeting Room 4.2

Chair: Peter M. Bainum (Howard University, United States); Ijar M. Da Fonseca (Instituto Nacional de Pesquisas Espaciais (INPE), Brazil)
Rapporteur: Harijono Djojodihardjo (Universitas Al Azhar Indonesia, Indonesia)

IAC-10.C2.3.1
EXPERIMENTAL VERIFICATION OF DAMAGE DETECTION BASED ON PROPER ORTHOGONAL DECOMPOSITION ON A PLATE STRUCTURE
Mirco Zaccariotto, CISAS G. Colombo Center of Studies and Activities for Space, University of Padova, Italy

IAC-10.C2.3.2
MICRO-VIBRATION MEASUREMENTS ON THERMALLY LOADED MULTI-LAYER INSULATION SAMPLES
Anton Grillenbeck, Industrieanlagen-Betriebsgesellschaft mbH (IABG), Germany

IAC-10.C2.3.4
FURTHER DEVELOPMENT IN THE APPLICATION OF FAST MULTIPOLE BOUNDARY ELEMENT METHOD FOR UNIFIED BEM-FEM ACOUSTIC-STRUCTURAL COUPLING
Harijono Djojodihardjo, Universitas Al Azhar Indonesia, Indonesia

IAC-10.C2.3.5
FLEXURAL WAVE SCATTERING BY MULTIPLE ELLIPTIC HOLES IN AN INFINITE THIN PLATE
Hongliang Li, Harbin Engineering University, China

IAC-10.C2.3.6
VIBRATION CONTROL OF A FLEXIBLE SPACE MANIPULATOR DURING ON ORBIT OPERATIONS
Paolo Gasbarri, Università di Roma "La Sapienza", Italy

IAC-10.C2.3.7
PLACEMENT OPTIMIZATION OF PIEZOELECTRIC SENSORS IN A CLAMPED-FREE PLATE LIKE SOLAR PANEL ON A LARGE SPACE STRUCTURE
Ijar M. Da Fonseca, Instituto Nacional de Pesquisas Espaciais (INPE), Brazil

IAC-10.C2.3.8
GEOMETRICALLY EXACT 3D BEAM ELEMENT FOR ARBITRARY LARGE RIGID-ELASTIC DEFORMATION ANALYSIS OF AEROSPACE STRUCTURES
Genyong Wu, Northwestern Polytechnical University, China

IAC-10.C2.3.9
RESEARCH ON METHODOLOGY OF AEROSERVOELASTIC STABILITY ANALYSIS FOR REUSABLE LAUNCH VEHICLE
Junpeng Hui, China Academy of Launch Vehicle Technology, China

IAC-10.C2.3.10
STUDY ON FLUID-STRUCTURE INTERACTION IN LIQUID ROCKET FEED SYSTEM
Xin Wei, Beijing University of Aeronautics and Astronautics, China

IAC-10.C2.3.11
PREDICTION FOR SHOCK BEHAVIOR OF SATELLITE STRUCTURE PANEL BASED ON NUMERICAL ANALYSIS
Hanui Jeong, Chungnam National University, Korea, Republic of

C2.4. New Materials and Structural Concepts

September 29 2010, 10:15 – Meeting Room 4.2

Chair: Marc Lacoste (Snecma Propulsion Solide, France); Yuriy Moshnenko (Yuzhnoye State Design Office, Ukraine)
Rapporteur: Luigi Scatteia (CIRA Italian Aerospace Research Centre, Italy)

IAC-10.C2.4.1
A5 ME (MIDLIFE EVOLUTION) UPPER STAGE TANK COMMON BULKHEAD OPTIONS TRADE-OFF
Bernd Szelinski, MT Aerospace AG, Germany

IAC-10.C2.4.2
A NEW SINTERING METHOD FOR ULTRA-HIGH-TEMPERATURE RESISTANT SI-AL-C FIBERS
Dafang Zhao, Academy of Equipment Command and Technology, China

IAC-10.C2.4.3
ABLATIVE, MECHANICAL AND THERMAL PROPERTIES OF CARBON/SILICON CARBIDE (C/SIC) FOR USE AS THERMAL PROTECTION SYSTEM
Maria Luisa Gregori, CTA-IAE, Brazil

IAC-10.C2.4.4
ASSESSMENT OF AUTOMATED CARBON FIBRES DEPOSITION TECHNIQUES TO PRODUCE CMC STRUCTURES
Luigi Scatteia, CIRA Italian Aerospace Research Centre, Italy

IAC-10.C2.4.5
CERAMIC MATRIX COMPOSITE (CMC) THERMAL PROTECTION SYSTEM OF THE IXV EUROPEAN ATMOSPHERIC RE-ENTRY DEMONSTRATOR – DEVELOPMENT PROGRESS STATUS AND ON-GOING ACTIVITIES
Marc Lacoste, Snecma Propulsion Solide, France

IAC-10.C2.4.6
DEVELOPMENT OF THERMAL PROTECTIVE SEAL FOR HOT STRUCTURE CONTROL SURFACE ACTUATOR ROD
Farid Infed, MT Aerospace AG, Germany

IAC-10.C2.4.7
NEW ADVANCED CARBON-CARBON STRUCTURES FOR THERMAL PROTECTION SYSTEMS
Mario Marchetti, University of Rome "La Sapienza", Italy

IAC-10.C2.4.10
EVALUATION OF ULTRASTABLE CARBON/CARBON SANDWICH STRUCTURES JOINED WITH CERAMIC CEMENT
Martine Lutz, Thales Alenia Space, France

IAC-10.C2.4.11
DEVELOPMENT OF C/C COMPOSITE CAMERA CYLINDER
Ruizhen Li, China

C2.5. Smart Materials and Adaptive Structures

September 29 2010, 15:15 – Meeting Room 4.2

Chair: Michael J. Eiden (The Netherlands); Junjiro Onoda (Japan Society for Aeronautics and Space Sciences (JSASS), Japan)
Rapporteur: Paolo Gaudenzi (University of Rome "La Sapienza", Italy)

IAC-10.C2.5.1
DESIGN AND ANALYSIS OF A NOVEL LOW-SHOCK RELEASE DEVICE USING TWO-WAY SHAPE MEMORY MECHANISM OF SMA FOR SPACECRAFT APPLICATION
Jae Hyuk Lim, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.C2.5.2
HEAT-ELECTRICAL CHARGE CONVERSION VIA PYROELECTRIC DEVICES FOR SPACE EQUIPMENT: CHARACTERIZATION AND EXPERIMENTATION
Riccardo Monti, University of Rome "La Sapienza", Italy

IAC-10.C2.5.3
FINITE ELEMENT MODELS OF PIEZOELECTRIC ACTUATORS FOR ACTIVE FLOW CONTROL
Luca Lampani, University of Rome "La Sapienza", Italy

IAC-10.C2.5.4
HIGH VACUUM EXPERIMENT OF SPINNING DEPLOYMENT USING SCALED-DOWN MODEL FOR SOLAR SAIL
Azusa Muta, Tokyo Institute of Technology, Japan

IAC-10.C2.5.5
INNOVATIVE STRUCTURAL HEALTH MONITORING SYSTEM OF COMPOSITE AEROSPACE STRUCTURES BASED ON DYNAMIC OUTPUT DATA AND ADVANCED SIGNAL PROCESSING
Aikaterini Panopoulou, NPI European Space Agency (ESA/ESTEC)-University of Patras, Greece

IAC-10.C2.5.6
DIGITAL SELF-POWERED SEMI-ACTIVE UNIT FOR ADVANCED ENERGY-RECYCLING VIBRATION SUPPRESSION
Kanjuro Makihara, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C2.5.7
SHAPE MEMORY POLYMER COMPOSITE AND ITS APPLICATIONS IN DEPLOYABLE SPACE TRUSS STRUCTURES
Guangqiang Fang, Shanghai Key Laboratory of Spacecraft Mechanism, Aerospace System Engineering Shanghai, China

IAC-10.C2.5.8
SURFACE CONTROL OF ACTUATED HYBRID SPACE MIRRORS
Brij Agrawal, Naval Postgraduate School, United States

IAC-10.C2.5.9
A NON-EXPLOSIVE ACTUATOR FOR SMALL SATELLITE USING SHAPE MEMORY ALLOY ACTUATORS
Minsu Lee, Korea, Republic of

IAC-10.C2.5.10
IMAGE PROCESSING TECHNIQUE FOR DAMAGE DETECTION OF SPACE MEMBRANE STRUCTURES
Hiroshi Furuya, Tokyo Institute of Technology, Japan

IAC-10.C2.5.11
WAVELET ANALYSIS OF CRACK DETECTION EXPERIMENT FOR ALUMINUM ALLOY BOARD
Peng Weibin, Beijing Institute of Astronautical Systems Engineering, China

IAC-10.C2.5.12
PREDICTION, MEASUREMENT AND STABILIZATION OF STRUCTURAL DEFORMATION ON ORBIT
Kosei Ishimura, JAXA/ISAS, Japan

IAC-10.C2.5.13
PROBABILISTIC MOTION PLANNING FOR A VARIABLE GEOMETRY TRUSS UNDER DYNAMIC LOADING
Atsuhiko Senba, Nagoya University, Japan

IAC-10.C2.5.14
PYROSHOCK ATTENUATION USING 3-AXIS HYBRID MESH ISOLATORS WITH THE APPLICATION OF PSEUDOELASTIC SMA WIRE
Se-Hyun Youn, Korea Aerospace Research Institute, Korea, Republic of

C2.6. Space Environmental Effects and Spacecraft Protection

September 30 2010, 10:15 – Meeting Room 4.2

Chair: Minoo Dastoor (National Aeronautics and Space Administration (NASA), United States); Akira Meguro (Tokyo City University, Japan)
Rapporteur: Giuliano Marino (CIRA Italian Aerospace Research Centre, Italy)

IAC-10.C2.6.1
AN ANALYTICAL-NUMERICAL MODEL FOR OPTIMIZING THERMAL PROTECTION SYSTEMS SUBJECTED TO AERODYNAMIC HEATING
Michele Ferraiuolo, CIRA S.C.P.A., Italy

IAC-10.C2.6.2
GENERIC STUDY AND FINITE ELEMENT ANALYSIS OF IMPACT LOADING ON COMPOSITE HONECOMB PANEL STRUCTURE
Harijono Djojodihardjo, Universitas Al Azhar Indonesia, Indonesia

IAC-10.C2.6.3
RESULTS FROM PLEGPAY EXPERIMENT ON THE ISS
Giovanni Noci, Thales Alenia Space Italia, Italy

IAC-10.C2.6.4
ROLE OF INERT GAS COLLISION ON A MATERIAL DEGRADATION IN LOW EARTH ORBIT
Masahito Tagawa, Kobe University, Japan

IAC-10.C2.6.5
TEMPERATURE, ATOMIC OXIGEN AND OUTGASSING EFFECTS ON DIELECTRIC PARAMETERS AND ELECTRICAL PROPERTIES OF NANOSTRUCTURED COMPOSITE CARBON-BASED MATERIALS
Mario Marchetti, University of Rome "La Sapienza", Italy

IAC-10.C2.6.6
THE EFFECT OF UV IRRADIATION ONTO OPTICAL SURFACES WITH GASEOUS CONTAMINANTS AND THE COMPARISON WITH ACTUAL SENSOR OUTPUTS
Nobunari Itoh, Japan

IAC-10.C2.6.7
EVALUATION OF THE RESISTANCE OF COMPOSITE MATERIALS TO LUNAR DUST ABRASION
Mathieu Lalumiere Boucher, Canadian Space Agency, Canada

IAC-10.C2.6.8
VIBRATION SUPPRESSION USING TARGETED ENERGY TRANSFER IN A TWO-DEGREE-OF-FREEDOM UNEQUAL MASS NONLINEAR VIBRATION ABSORBER
YeChi Zhang, Harbin Institute of Technology, China

IAC-10.C2.6.9
STUDY OF SPACECRAFT SURFACE CHARGING AND SECONDARY ELECTRON EMISSION OF INSULATORS
Yifeng Chen, China Aerospace Science and Technology Corporation (CASC), China

IAC-10.C2.6.10
DEVELOPMENT OF A PRECISE MEASUREMENT SYSTEM FOR THE DIMENSIONAL CHANGE OF THE HIGH STABLE TELESCOPE STRUCTURE IN SPACE ENVIRONMENT
Jae-San Yoon, Korea Advanced Institute of Science and Technology (KAIST), Korea, Republic of

IAC-10.C2.6.11
TESTS OF LARES CUBE CORNER REFLECTORS IN SIMULATED SPACE ENVIRONMENT
Antonio Paolozzi, University of Rome "La Sapienza", Italy

IAC-10.C2.6.12
THE EFFECTS OF SPACE IONIZING RADIATION ON TRANSMISSION OF LANTHANUM GLASSES
Shengsheng Yang, Lanzhou Institute of Physics, China

C2.7. Space Vehicles – Mechanical/Thermal/Fluidic Systems

September 30 2010, 15:15 – Meeting Room 4.2

Chair: Oleg Alifanov (Moscow Aviation Institute, Russia); Mario Marchetti (University of Rome "La Sapienza", Italy)
Rapporteur: Guoliang Mao (Beijing Institute of Aerodynamics, China)

IAC-10.C2.7.1
CDR-LEVEL STRUCTURAL MODELLING AND OPTIMIZATION OF THE MERCURY SODIUM ATMOSPHERE SPECTRAL IMAGER (MSASI)
Joao Ricardo, Active Space Technologies, Portugal

IAC-10.C2.7.2
COMPUTATIONAL FLUID DYNAMICS ANALYSIS AND FLOW TEST OF MANNED SPACECRAFT
Wei Lu, China Academy of Space Technology (CAST), China

IAC-10.C2.7.3
COMPUTATIONAL MODELLING OF HEAT TRANSFER IN A SPACECRAFT HEAT PIPE
Michael Kio, National Space Research and Development Agency, Abuja, Nigeria, Nigeria

IAC-10.C2.7.4
COUPLED AEROASSISTED ORBITAL PLANE CHANGE MANOEUVRE AND THERMAL PROTECTION SYSTEM OPTIMIZATION
Antonio Mazzaracchio, Sapienza Università di Roma, Italy

IAC-10.C2.7.5
DESTRUCTIVE MATERIALS THERMAL PROPERTIES DETERMINATION WITH APPLICATION FOR SPACECRAFT STRUCTURES TESTING
Oleg Alifanov, Moscow Aviation Institute, Russia

IAC-10.C2.7.6
ENABLING TECHNOLOGIES FOR HOT STRUCTURES OF NEXT GENERATION RLV'S – THE ASA PROGRAM SUMMARY
F.A. Fossati, Aviospace, Italy

IAC-10.C2.7.7
EXPERIMENTAL AND NUMERICAL STUDIES OF SPALLATION PARTICLES EJECTED FROM A LIGHT-WEIGHT ABLATOR
Sohey Nozawa, Kyushu University, Japan

IAC-10.C2.7.8
EFFECTIVE PARAMETERS ON CALCULATION OF EFFECTIVE THERMAL CONDUCTIVITY OF MULTILAYER PRINTED CIRCUIT BOARDS IN SPACE APPLICATION
Esmaeil Moeini, Iran

IAC-10.C2.7.9
IBDM: THE INTERNATIONAL BERTHING DOCKING MECHANISM FOR HUMAN MISSIONS TO LOW EARTH ORBIT AND EXPLORATION
Marco Caporicci, European Space Agency (ESA), The Netherlands

IAC-10.C2.7.10
OPTICAL SENSOR SYSTEM APPLICABILITY FOR SPACECRAFT TESTS
Alfonso Giusti, University of Rome "La Sapienza", Italy

IAC-10.C2.7.11
RESEARCH ON THE THERMAL CONTROL HARDWARE COMBINED WITH HEAT PIPE AND PHASE CHANGE MATERIAL
Taig Young Kim, Korea Polytechnic University, Korea, Republic of

IAC-10.C2.7.13
WING LEADING EDGE ABLATION TESTS IN ARC TUNNEL
Ai Bangcheng, China Aerospace Science and Industry Corporation, China

IAC-10.C2.7.14
RESULTS FROM THE THERMAL BALANCE TESTING OF THE CBERS 3-4 SATELLITE TM
Marcio Bueno dos Santos, Instituto Nacional de Pesquisas Espaciais (INPE), Brazil

C2.8. Specialized Technologies, including Nanotechnology

October 1 2010, 14:00 – Meeting Room 4.2

Chair: Mario Marchetti (University of Rome "La Sapienza", Italy); Pierre Rochus (Centre Spatial de Liège, Belgium)
Rapporteur: Pavel M. Trivailo (Royal Melbourne Institute of Technology (RMIT), Australia)

IAC-10.C2.8.1
A MEMS-BASED XYLOPHONE BAR MAGNETOMETER FOR PICO SATELLITES
Sylvain Ranvier, Belgian Institute for Space Aeronomy (BISA), Belgium

IAC-10.C2.8.2
DESIGN AND TECHNOLOGICAL METHODS IN ASSURANCE OF CLEANLINESS OF ROCKETRY-SPACE OBJECTS FOR RELIABILITY AUGMENTATION OF THEIR PERFORMANCE
Larysa Potapovych, Yuzhnoye State Design Office, Ukraine

IAC-10.C2.8.3
DEVELOPMENT OF A SWIMMING MICROROBOT FOR BIOMEDICAL APPLICATIONS IN SPACE
Ali Ghanbari, Amirkabir University of Technology, Iran

IAC-10.C2.8.4
DEVELOPMENT OF COMPOSITE MATERIALS BASED ON A CARBON NANOTUBES NETWORK FOR SPACE APPLICATIONS
Patrick Gailly, Centre Spatial de Liège, Belgium

IAC-10.C2.8.5
DNA-BASED SENSORS INTEGRATED IN COMPOSITE POLYMERIC MATERIALS FOR MONITORING RADIATION DAMAGE IN SPACE ENVIRONMENT
M. Gabriella Santonicola, MESA+ Institute for Nanotechnology, University of Twente, The Netherlands

IAC-10.C2.8.6
NANOPARTICLES IN SOLAR SAIL MATERIALS
Karl Fleury-Frenette, Centre Spatial de Liège, Belgium

IAC-10.C2.8.7
NANO-MODIFICATION OF CYANATE ESTER COMPOSITES MATERIALS TOWARDS THE DEVELOPMENT OF NOVEL MATERIALS WITH TAILORED MECHANICAL, ELECTRICAL, THERMAL AND RF PROPERTIES FOR SPACE ANTENNA REFLECTOR APPLICATIONS
Antonios Vavouliotis, University of Patras, Greece

IAC-10.C2.8.8
NANOREINFORCED MATRICES FOR CARBON FIBER MULTISCALE REINFORCED COMPOSITES
Alberto Jimenez-Suarez, Universidad Rey Juan Carlos, Spain

IAC-10.C2.8.9
NANOSTRUCTURED COMPOSITE MATERIALS FOR ELECTROMAGNETIC INTERFERENCE SHIELDING APPLICATIONS
Mario Marchetti, University of Rome "La Sapienza", Italy

IAC-10.C2.8.10
TITANIUM COLD SPRAY COATINGS
Jihane Ajaja, McGill University, Canada

IAC-10.C2.8.11
AN EXPERIMENTAL INVESTIGATION OF RADIATION OVER AN ABLATING STARDUST MODEL AT 9.8 KM/S
Mary D'Souza, Australia

IAC-10.C2.8.12
MANUFACTURING TESTS FOR FIBER OPTIC SENSORS FOR THERMAL PROTECTION SYSTEMS USING NANOTECHNOLOGY
Antonio Paolozzi, University of Rome "La Sapienza", Italy

IAC-10.C2.8.13
WELD QUALITY IMPROVEMENT WITH HYBRID FSW TECHNOLOGY ASSISTED BY PREHEATING FOR COPPER T2/ALUMINIUM 5A06 DISSIMILAR MATERIALS
Xin Zhao, Shanghai Academy of Spaceflight Technology, China

IAC-10.C2.8.14
THE APPLICATION STATUS AND FUTURE DEVELOPMENT TRENDS OF NDT/NDE TECHNIQUES IN COMPOSITE MATERIALS
Liu Jian, Beijing Aerospace Propulsion Institute, China

C2.9. Interactive Session on Materials and Structures

October 1 2010, 14:00 – Meeting Room 4.1

Chair: Michael J. Eiden (The Netherlands)

IAC-10.C2.9.1
INVESTIGATION OF VIBRATION SUPPRESSION CAPABILITY OF SWITCHING TECHNIQUES BY MULTIPLE PIEZOELECTRIC ACTUATORS
Shigeru Shimose, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C2.9.2
SENSING CAPABILITIES OF MULTIFUNCTIONAL COMPOSITE MATERIALS USING CARBON NANOTUBES
Athanasios Baltopoulos, European Space Agency - University of Patras, Greece

IAC-10.C2.9.4
THERMOACOUSTIC POWER GENERATOR FUELED BY A SOLAR COLLECTOR SYSTEM THERMAL ANALYSIS
Maurizio Parisse, Aerospace Engineering School, University of Rome "La Sapienza", Italy

IAC-10.C2.9.5
A NEW ADAPTIVE ESTIMATION METHOD OF SPACECRAFT THERMAL MATHEMATICAL MODEL WITH AN ENSEMBLE KALMAN FILTER
Takeshi Akita, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C2.9.6
THERMOCHROMIC COATING BASED SMART THERMAL RADIATOR FOR AUTONOMOUS SPACECRAFT THERMAL CONTROL APPLICATION
Xin Xiang Jiang, Canadian Space Agency, Canada

C3. SPACE POWER SYMPOSIUM

Coordinator: John C. Mankins (ARTEMIS Innovation Management Solutions, LLC, United States)

C3.1. Joint Session with IAA Commission 3 (Space Technology & System Development) on "Solar Energy from Space"

September 28 2010, 15:15 – Club A

Chair: Nobuyuki Kaya (Kobe University, Japan); John C. Mankins (ARTEMIS Innovation Management Solutions, LLC, United States)
Rapporteur: Joe T. Howell (National Aeronautics and Space Administration (NASA)/Marshall Space Flight Center, United States); Leopold Summerer (European Space Agency (ESA), The Netherlands)

IAC-10.C3.1.1
PETER GLASER LECTURE: SPACE-BASED SOLAR POWER COMMERCIAL DEVELOPMENT AND PERSPECTIVES
Frank Steinsiek, EADS Astrium Space Transportation GmbH, Germany

IAC-10.C3.1.2
SOLAR ENERGY FROM SPACE: THE RESULTS FROM AN INTERNATIONAL ASSESSMENT OF OPPORTUNITIES, ISSUES AND POTENTIAL PATHWAYS FORWARD
John C. Mankins, ARTEMIS Innovation Management Solutions, LLC, United States

IAC-10.C3.1.3
PROPOSAL ON SOLAR POWER SATELLITE OF SANDWICH TYPE IN IAA STUDY
Nobuyuki Kaya, Kobe University, Japan

IAC-10.C3.1.4
POTENTIAL CONTRIBUTION OF SPACE SOLAR POWER TO NATIONAL SECURITY – A CRITICAL ANALYSIS
Jason Hay, The Tauri Group, United States

IAC-10.C3.1.5
MULTIOBJECTIVE OPTIMISATION OF INTEGRATED SPACE-BASED AND TERRESTRIAL SOLAR ENERGY SYSTEMS
Massimiliano Vasile, University of Glasgow, United Kingdom

IAC-10.C3.1.6
THE MOON AND FUTURE ENERGY FROM SPACE
Alex Ignatiev, University of Houston, United States

IAC-10.C3.1.7
NICHE APPLICATION DEVELOPMENT FOR SPACE BASED SOLAR POWER
Cornelius Zünd, France

IAC-10.C3.1.8
ECONOMIC ASSESSMENTS OF SPACE SOLAR POWER (SSP): PAST AND PRESENT
A.C. Charania, SpaceWorks Commercial, United States

IAC-10.C3.1.9
REAL OPTION ANALYSIS OF A PRIVATELY-FUNDED SPACE BASED SOLAR POWER VENTURE
Roger X. Lenard, LPS, United States

IAC-10.C3.1.10
THIRTY YEARS IN SPACE POWER FOR EARTH
Milan Pospíšil, Czech Republic

C3.2. Space Power Technologies and Techniques

September 30 2010, 10:15 – Club E

Chair: Henry W. Brandhorst (Auburn University, United States); Susumu Sasaki (Japan Aerospace Exploration Agency (JAXA), Japan)
Rapporteur: Ivan Bekey (Bekey Designs, Inc., United States); Frank Steinsiek (EADS Astrium Space Transportation GmbH, Germany)

IAC-10.C3.2.1
CLOSED-LOOP OPTICAL TARGET TRACKING FOR LASER POWER TRANSMISSION
Christian Schaefer, NICT, Japan

IAC-10.C3.2.2
STUDY ON HIGH ACCURACY PHASE CONTROL METHOD FOR SPACE SOLAR POWER SYSTEM
Takanori Narita, Mitsubishi Heavy Industries, Ltd., Japan

IAC-10.C3.2.3
A STUDY OF BEAM DIRECTION VARIATION OF LARGE DEPLOYABLE REFLECTOR ANTENNA ON ORBIT
Teruaki Orikasa, National Institute of Information and Communications Technology, Japan

IAC-10.C3.2.4
DEVELOPMENT AND TEST OF ELECTRIC DRIVING UNIT FOR KSLV-I FAIRING SEPARATION
Keunsu Ma, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.C3.2.5
EDUSAT POWER SYSTEM
Fabrizio Piergentili, University of Bologna, Italy

IAC-10.C3.2.6
DESIGN, INTEGRATION AND TESTING OF A NEW-CONCEPT LI-ION MODULAR BATTERY
Gaia Fusco, Carlo Gavazzi Space, Italy

IAC-10.C3.2.7
RESEARCH ON SEVERAL KEY PROBLEMS OF SSPC IN ADVANCED SPACE POWER DISTRIBUTION SYSTEM
Yu Lei, China Academy of Space Technology (CAST), China

IAC-10.C3.2.8
INFLUENCE OF NON-THERMALPHYSICAL PROPERTY TO PHP
Yajun Li, China

IAC-10.C3.2.9
OVERVIEW OF STUDIES ON LARGE STRUCTURE FOR SPACE SOLAR POWER SYSTEMS (SSPS)
Tatsuhito Fujita, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C3.2.10
STRUCTURE CONCEPTS AND CHARACTERISTICS OF ADVANCED LIGHTWEIGHT SOLAR CELL ARRAY SYSTEMS
Ryoko Fujii, Waseda University, Japan

C3.4. Space Power Experiments Applications and Benefits

October 1 2010, 09:00 – Club E

Chair: Ivan Bekey (Bekey Designs, Inc., United States); Frank Steinsiek (EADS Astrium Space Transportation GmbH, Germany)
Rapporteur: Nobuyuki Kaya (Kobe University, Japan); John C. Mankins (ARTEMIS Innovation Management Solutions, LLC, United States)

IAC-10.C3.4.1
SSPS TECHNOLOGIES DEMONSTRATION IN SPACE
Susumu Sasaki, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C3.4.2
THE 10 KW SATELLITE: A FIRST OPERATIONAL STEP FOR SPACE BASED SOLAR POWER
Claude Cougnet, EADS Astrium, France

IAC-10.C3.4.3
DEVELOPMENT OF THIN FILM SOLAR ARRAY FOR SMALL SOLAR POWER DEMONSTRATOR “IKAROS”
Koji Tanaka, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C3.4.4
THE SUAINEADH PROJECT: A STEPPING STONE TOWARDS THE DEPLOYMENT OF LARGE FLEXIBLE STRUCTURES IN SPACE
Massimiliano Vasile, University of Glasgow, United Kingdom

IAC-10.C3.4.5
THE SECOND MICROWAVE POWER BEAMING EXPERIMENT IN HAWAII
Nobuyuki Kaya, Kobe University, Japan

IAC-10.C3.4.6
RESULTS FROM NASA’S POWER BEAMING CHALLENGE.
Douglas Comstock, National Aeronautics and Space Administration (NASA)/Ames Research Center, United States

IAC-10.C3.4.7
AN ANALYSIS ON FLIGHT TEST RESULTS OF KSLV-I LITHIUM-ION BATTERIES
Myunghwan Kim, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.C3.4.8
SOLAR POWER PROFILE PREDICTION FOR LOW EARTH ORBIT (LEO) SATELLITES
Harijono Djojodihardjo, Universitas Al Azhar Indonesia, Indonesia

IAC-10.C3.4.9
THE ROLE OF THE JRC-IE IN SUPPORT OF THE UPCOMING HYDROGEN ECONOMY AND ITS POTENTIAL APPLICATIONS FOR SPACE ACTIVITIES
Norbert Frischauf, JRC-IE, Austria

C4. SPACE PROPULSION SYMPOSIUM

Coordinator: Giorgio Saccoccia (European Space Agency (ESA), The Netherlands); Carol J. Russo (National Aeronautics and Space Administration (NASA), United States)

C4.1. Propulsion Systems I

September 27 2010, 15:15 – Club A

Chair: Max Calabro (The Inner Arch, France); Vladimir Prisniakov (Academy of Sciences, Ukraine)
Rapporteur: Walter Zinner (Astrium GmbH, Germany)

IAC-10.C4.1.1
OVERVIEW OF CURRENT STATE OF ACTIVITIES RELATED TO ROCKET PROPULSION R&D IN RUSSIA
Dmitry Babkin, Federal Space Agency, Russia

IAC-10.C4.1.2
RESEARCH PROGRESS OF REUSABLE LIQUID ROCKET ENGINE IN JAXA
Makoto Yoshida, JAXA, Japan

IAC-10.C4.1.3
HYDROCARBON FUELED ROCKET ENGINE STUDY IN JAPAN
Kimihito Obase, Mitsubishi Heavy Industries, Ltd., Japan

IAC-10.C4.1.4
DEVELOPMENT OF A 35KN-THRUST-CLASS CLOSED-CYCLE HYDROGEN PEROXIDE / KEROSENE ENGINE
Mengwei Zheng, Beijing Aerospace Propulsion Institute, China

IAC-10.C4.1.5
PROGRESS OF THE VINCI ENGINE DEVELOPMENT
Philippe Caisso, Snecma, France

IAC-10.C4.1.6
AEROJET HIGH-PERFORMANCE BIPROPELLANT APOGEE ENGINES
Alfred Wilson, Aerojet-General Corporation, United States

IAC-10.C4.1.7
HISTORY AND STATUS OF AEROJET MARS LANDER PROPULSION ACTIVITIES
Alfred Wilson, Aerojet-General Corporation, United States

IAC-10.C4.1.8
REGULATION SYSTEMS OF THE CYCLONE-4 LV UPPER STAGE MAIN LIQUID ROCKET ENGINE
Vladimir Shnyakin, Yuzhnoye State Design Office, Ukraine

IAC-10.C4.1.9
ROCKET PROPULSION USING UNITARY PASTE-LIKE PROPELLANT – EXPERIMENTAL INVESTIGATIONS OF PASTE-LIKE PROPELLANT AND RESULTS OF PRM FIRE TESTS
Yulian Protsan, Laboratory of Advanced Jet Propulsion, Ukraine

IAC-10.C4.1.10
HOT-FIRE TEST OF A TURBOPUMP FOR A 30 TON CLASS ENGINE
Soon-Sam Hong, Korea Aerospace Research Institute, Korea, Republic of

C4.2. Propulsion Systems II

September 28 2010, 10:15 – Club A

Chair: Jean-François Guery (SNPE Materiaux Energetiques, France); I-Shih Chang (The Aerospace Corporation, United States)
Rapporteur: Jacques Gigou (European Space Agency (ESA), France)

IAC-10.C4.2.1
S200 SOLID BOOSTER DEVELOPMENT
P J Abraham, Indian Space Research Organization (ISRO), India

IAC-10.C4.2.2
PERFORMANCE PREDICTION FOR THE FIRST STATIC TEST OF A LARGE SOLID BOOSTER MOTOR
Jayaprakash Janardhanan Nair, Indian Space Research Organization (ISRO), India

IAC-10.C4.2.3
ZEFIRO 9A – VEGA THIRD STAGE SOLID ROCKET MOTOR – DEVELOPMENT ACTIVITIES AND LESSONS LEARNT
Stefano Bianchi, European Space Agency (ESA), Italy

IAC-10.C4.2.4
THRUST ANOMALIES AT IGNITION TRANSIENT OF SOLID PROPELLANT ROCKETS
Favini Bernardo, Sapienza Università di Roma, Italy

IAC-10.C4.2.5
SRB ACOUSTIC AND PLUME ANALYSIS OF ARES I-X FLIGHT TEST ON THE PAD B FIXED SERVICE STRUCTURE
Roger X. Lenard, LPS, United States

IAC-10.C4.2.6
DEVELOPMENT OF ADVANCED COMPUTER SCIENCE FOR SOLID-ROCKET-MOTOR INTERNAL BALLISTICS: ACSSIB
Toru Shimada, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C4.2.7
OVERVIEW OF LARGE SOLID ROCKET MOTOR OPTIONS FOR FUTURE EUROPEAN LAUNCHER
Didier Boury, Snecma Propulsion Solide, France

IAC-10.C4.2.8
PARAFFIN-BASED/LOX HYBRID ROCKET DEVELOPMENT AND TESTING
David A. Micheletti, MSE Technology Applications, Inc., United States

IAC-10.C4.2.9
DEVELOPMENT OF 2500 N CLASS CAMUI TYPE HYBRID ROCKET FOR WINGED FLIGHT EXPERIMENTS
Harunori Nagata, Hokkaido University, Japan

IAC-10.C4.2.10
A NEW CHALLENGE FOR IMPROVEMENT OF RECESSION RATE OF PARAFFIN FUEL OF HYBRID ROCKET WITH MULTI-SECTION SWIRL INJECTION
Shigeru Aso, Kyushu University, Japan

IAC-10.C4.2.12
DESIGN AND DEVELOPMENT OF PARAFFIN/N2O HYBRID PROPULSION SYSTEM WITH CATALYTIC IGNITER
Taegyu Kim, Chosun University, Korea, Republic of

C4.3. Propulsion Technology

September 29 2010, 10:15 – Club A

Chair: John Harlow (Consultant, United Kingdom); Carol J. Russo (National Aeronautics and Space Administration (NASA), United States)
Rapporteur: Alain Mercier (Snecma Propulsion Solide, France)

IAC-10.C4.3.1
EXPERIMENTAL AND NUMERICAL ANALYSES OF MICRO-SCALE JET NOZZLE FLOW
Seong-Up Ha, Moscow Aviation Institute, Russia

IAC-10.C4.3.2
CFD MULTIPHASE SIMULATIONS OF CRYOGENIC TANK PHENOMENA AND THEIR VERIFICATION BY TESTS
Juan Merino, MT Aerospace AG, Germany

IAC-10.C4.3.3
SCENE SUB-SCALE NOZZLE DEVELOPMENT AND TESTING
Klas Lindblad, Volvo Aero Corporation, Sweden

IAC-10.C4.3.4
LOW COST HYDRAZINE DECOMPOSITION CATALYST (KCMC-7) DEVELOPED WITH TEMPLATING METHOD FOR GENERATION OF MACROPORE FOR FACILE MASS AND HEAT TRANSFER
Sung June Cho, Chungnam National University, Korea, Republic of

IAC-10.C4.3.5
DEMONSTRATION OF A FULL SCALE LASER WELDED CHANNEL WALL NOZZLE IN HOT TEST ON THE VULCAIN 2 ENGINE
Roland Rydén, Volvo Aero Corporation, Sweden

IAC-10.C4.3.6
CATALYTIC DECOMPOSITION OF N2O USING NOBLE METALS TO DEVELOP MONOPROPELLANT THRUSTER
Assylkhan Kosdauletov, Korea Advanced Institute of Science and Technology (KAIST), Korea, Republic of

IAC-10.C4.3.7
DEVELOPMENT OF A FUEL OXIDISER COMPATIBLE DIAPHRAGM
Derek Hancock, MT Aerospace Satellite Products Ltd., United Kingdom

IAC-10.C4.3.9
MODELING AND EXPERIMENTAL VERIFICATION OF AUTO-IGNITION PROCESSES FOR A GREEN BI-PROPELLANT THRUSTER
Markus Schiebl, Austrian Institute of Technology GmbH (AIT), Austria

IAC-10.C4.3.10
THE IN-SPACE PROPULSION (ISP-1) PROJECT
Michel Muszynski, Snecma, France

IAC-10.C4.3.11
STUDY ON DECOMPOSITION OF GREEN PROPELLANT WITH ATMOSPHERIC PLASMA FOR PLASMA CHEMICAL THRUSTER
Yuta Matsuura, Tokyo Metropolitan University, Japan

IAC-10.C4.3.12
VACUUM TESTING OF A MICROPROPULSION SYSTEM BASED ON SOLID PROPELLANT COOL GAS GENERATORS
Alessandro Migliaccio, Delft University of Technology (TU Delft), The Netherlands

IAC-10.C4.3.13
INVESTIGATION OF HYDROGEN/OXYGEN SMALL THRUST ROCKET ENGINE USING GAS DYNAMIC RESONANCE TECHNIQUE
Nanjia Yu, Beijing University of Aeronautics and Astronautics, China

IAC-10.C4.3.14
NUMERICAL SIMULATION OF THE IGNITION PROCESS IN A GOX/CH4 VORTEX THRUSTER
Dechuan Sun, China

IAC-10.C4.3.15
DEVELOPMENT OF A NITROUS OXIDE MONOPROPELLANT MICRO-THRUSTER AT BUAA: 2009
Guobiao Cai, Beijing University of Aeronautics and Astronautics, China

C4.4. Electric Propulsion

September 29 2010, 15:15 – Club A

Chair: Garri A. Popov (RIAME, Russia); Richard Blott (Space Enterprise Partnerships Limited, United Kingdom)
Rapporteur: Rafael Spears (L-3 Communications, United States)

IAC-10.C4.4.1
DEVELOPMENT OF THE ION ENGINE SYSTEM FOR SLATS
Hiroshi Nagano, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C4.4.2
A 20KW HIGH POWER HALL EFFECT THRUSTER FOR EXPLORATION
Nicolas Cornu, Snecma, France

IAC-10.C4.4.3
SUMMARY OF THE 25000 HOUR ROUND-TRIP ION DRIVE OF HAYABUSA
Kazutaka Nishiyama, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C4.4.4
DESIGN AND TESTING OF A PULSED PLASMA THRUSTER FOR CUBESAT APPLICATION
Francesco Guarducci, University of Southampton, United Kingdom

IAC-10.C4.4.5
DEVELOPMENT OF A CYRINDRICAL HALL THRUSTER
Shinatora Cho, The University of TOKYO, Graduate school, Japan

IAC-10.C4.4.6
TOWARDS VERY HIGH POWER ELECTRIC PROPULSION
Nicolas Cornu, Snecma, France

IAC-10.C4.4.7
STUDY ON COMPARATIVE PERFORMANCE OF ADVANCED ION PROPULSION ENGINE SYSTEMS
Justin Chism, United States

IAC-10.C4.4.8
NANOPARTICLE ACCELERATOR WITH LORENTZ MODULATION-NAPALM
Istvan Lorincz, Delft University of Technology (TU Delft), The Netherlands

IAC-10.C4.4.9
INFLUENCE OF INPUT ENERGY INCREASE ON THRUST PERFORMANCE OF COAXIAL PULSED PLASMA THRUSTER
Yohei Kitazono, Tokyo Metropolitan University, Japan

IAC-10.C4.4.10
INFLUENCE OF STRUCTURAL FACTORS ON PROCESSES IN THE LOW POWER HOLLOW THRUSTER
Olexandr Petrenko, Dniepropetrovsk National University, Ukraine

IAC-10.C4.4.11
QUALIFICATION TEST SERIES OF THE INDIUM NEEDLE FEEP MICRO-PROPULSION SYSTEM FOR LISA PATHFINDER
Carsten Scharlemann, Austrian Research Centers GmbH (ARC), Austria

IAC-10.C4.4.12
A NEW POWER CONTROL METHOD FOR HALL THRUSTER USING OSCILLATION-MODE-MAP
Hiroyuki Osuga, Mitsubishi Electric Corporation, Japan

IAC-10.C4.4.13
NUMERICAL SIMULATION OF MICROWAVE-EXCITED MICRO-PLASMA THRUSTER WITH HELIUM PROPELLANT
Takeshi Takahashi, Kyoto University, Japan

IAC-10.C4.4.14
AN UPPER ATOMOSPHERE SIMULATOR USING ECR DISCHARGE FOR AIR BREATHING ION ENGINES
Yasuyoshi Hisamoto, The Graduate University of Advanced Studies, Japan

C4.5. Hypersonic and Combined Cycle Propulsion

September 30 2010, 10:15 – Club A

Chair: William W. Smith (Aerojet-General Corporation, United States); Christophe Bonhomme (Centre National d'Etudes Spatiales (CNES), France)
Rapporteur: Shigeru Aso (Kyushu University, Japan)

IAC-10.C4.5.1
MODELING AND SIMULATION OF RBCC ENGINE CYCLE
Dajun Xu, Beijing University of Aeronautics and Astronautics, China

IAC-10.C4.5.2
NUMERICAL SIMULATION OF INLET STARTING CHARACTERISTICS IN ROCKET-RAM COMBINED CYCLE ENGINE
Susumu Hasegawa, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C4.5.3
FLOW PATTERN AND MIXING CHARACTERISTICS OF CROSS FUEL INJECTION IN A SUPERSONIC FLOW
Jing Lei, China

IAC-10.C4.5.4
MARS EXPLORATION: SILANES AS FUELS FOR MARTIAN RAM-JET AND SCRAMJET ENGINES
Fabrizio Vergine, Sapienza University Rome, Italy, Italy

IAC-10.C4.5.5
EXPERIMENTAL STUDY ON FLOW AND HEAT TRANSFER CHARACTERISTIC OF AVIATION KEROSENE UNDER SUPERCRITICAL PRESSURES
Jiang Chenxi, China Aerospace Science and Industry Corporation, China

IAC-10.C4.5.6
APPLICATION OF CONTINUOUS ROTATING DETONATION TO JET PROPULSION
Piotr Wolanski, Warsaw University of Technology, Poland

IAC-10.C4.5.7
RESEARCH ON HYPERSONIC AIRPLANES USING PRE-COOLED TURBOJET ENGINE
Hideyuki Taguchi, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C4.5.8
ALTITUDE TESTING OF THE HYPERSONIC TURBOJET ENGINE AT MACH 2 FLIGHT CONDITION
Hiroaki Kobayashi, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.C4.5.9
COMBINED CYCLE PROPULSION FOR HIGH SUPERSONIC FLIGHT VEHICLES
Lachlan Thompson, RMIT University, Australia, Australia

C4.6. Special Session on "Missions Enabled by New Propulsion Technologies and Systems"

October 1 2010, 09:00 – Club A

Chair: Giorgio Saccoccia (European Space Agency (ESA), The Netherlands); David A. Micheletti (MSE Technology Applications, Inc., United States)
Rapporteur: Richard Blott (Space Enterprise Partnerships Limited, United Kingdom)

IAC-10.C4.6.1
CONCEPTUAL DESIGN OF "SILVER EAGLE" – COMBINED ELECTROMAGNETIC AND HYBRID ROCKET SYSTEM FOR SUBORBITAL INVESTIGATIONS
Ognjan Bozic, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.C4.6.2
PROPULSION TECHNOLOGIES FOR THE FLEXIBLE PATH EXPLORATION STRATEGY
George Schmidt, National Aeronautics and Space Administration (NASA)/Glenn Research Center, United States

IAC-10.C4.6.3
A HIGHLY EFFICIENT CARGO TRANSPORTATION SYSTEM FOR FLEXIBLE PATH HUMAN EXPLORATION MISSIONS
Joe Cassady, Aerojet-General Corporation, United States

IAC-10.C4.6.4
PROPULSION SOLUTIONS FOR FUTURE TELECOMS: FINDINGS FROM ESA'S TOMORROW'S BIRD STUDY
Davina Di Cara, European Space Agency (ESA), The Netherlands

IAC-10.C4.6.5
HIGH POWER ELECTRIC PROPULSION (HIPER) STUDY NUCLEAR ELECTRIC POWERED MISSIONS
Richard Blott, Space Enterprise Partnerships Limited, United Kingdom

IAC-10.C4.6.6
FEASIBILITY OF A SINGLE PORT HYBRID PROPULSION SYSTEM FOR A MARS ASCENT VEHICLE
Ashley Chandler, Stanford University, United States

IAC-10.C4.6.7
ACTIVE CONTROL DEVICES FOR ADVANCED SOLID PROPULSION
Pascal Caubet, Snecma Propulsion Solide, France

IAC-10.C4.6.8
HYBRID SOLAR SAIL AND SEP PROPULSION FOR NOVEL EARTH OBSERVATION MISSIONS
Matteo Ceriotti, University of Strathclyde, United Kingdom

IAC-10.C4.6.9
THE HYBRID PROPULSION TO SERVE SPACE EXPLORATION AND MICRO-GRAVITY EXPERIMENTS
Jerome Anthoine, ONERA, France

IAC-10.C4.6.10
PROJECT ICARUS: OPTIMIZATION OF NUCLEAR FUSION PROPULSION FOR INTERSTELLAR MISSIONS
Kelvin Long, United Kingdom

IAC-10.C4.6.11
A GENERAL RELATIVISTIC EXPLANATION OF THE PIONEER ANOMALY AND THE UTILITY OF A MILLI-C NEP MISSION ON VALIDATING THE OBSERVATIONS
Roger X. Lenard, LPS, United States

IAC-10.C4.6.12
NANOSATELLITE MISSIONS FOR IN SITU LOW ORBITAL HEIGHT ATMOSPHERIC MEASUREMENTS ENABLED BY LASER PROPULSION RE-ORBITING
Leonard Felicetti, University of Rome "La Sapienza", Italy

C4.7.-C3.5. Nuclear Propulsion and Power

September 30 2010, 15:15 – Club A

Chair: Claudio Bruno (University of Rome "La Sapienza", Italy); Harvey J. Willenberg (American Aerospace Advisors, Inc., United States)
Rapporteur: Paul A. Czysz (Hypertech, United States)

IAC-10.C4.7.-C3.5.1
ADVANCED RADIOISOTOPE HEAT SOURCE & PROPULSION SYSTEMS FOR PLANETARY EXPLORATION
Robert O'Brien, Center for Space Nuclear Research, United States

IAC-10.C4.7.-C3.5.2
RECENT ACTIVITIES AT THE CSNR FOR DEVELOPING NUCLEAR THERMAL ROCKETS
Steven Howe, USRA, United States

IAC-10.C4.7.-C3.5.3
SCALING LAWS FOR PLASMA JET MAGNETO-INERTIAL FUSION
Milos Stanic, Propulsion Research Center, University of Alabama in Huntsville, United States

IAC-10.C4.7.-C3.5.5
FISSION SURFACE POWER SYSTEM TECHNOLOGY DEVELOPMENT ACTIVITIES AT THE NASA MARSHALL SPACE FLIGHT CENTER
Roger X. Lenard, LPS, United States

IAC-10.C4.7.-C3.5.6
HYBRID NUCLEAR PROPULSION SYSTEM FOR A MANNED MARS MISSION (M3)
Federica Ferraro, Italy

C4.8. Space Propulsion

October 1 2010, 14:00 – Club A

Chair: Philippe Caisso (Snecma, France); Jacques Gigou (European Space Agency (ESA), France)
Rapporteur: Carol J. Russo (National Aeronautics and Space Administration (NASA), United States)

IAC-10.C4.8.1
THE HIGH ENERGY DENSITY MATERIALS: A NEW CHALLENGE FOR THE FUTURE
Christian Perut, SNPE Materiaux Energetiques, France

IAC-10.C4.8.2
MICROWAVE ROCKET WITH LONG-RANGE BEAM TRANSMISSION TECHNOLOGY
Toshikazu Yamaguchi, The University of TOKYO, Graduate school, Japan

IAC-10.C4.8.3
STUDY OF LASER PROPULSION EFFICIENCY FROM SOLID STATE LASER TO SHOCK WAVE ENERGY IN REDUCED AMBIENT PRESSURE
Bin Wang, The University of TOKYO, Graduate school, Japan

IAC-10.C4.8.4
GROUND THRUST MEASUREMENT SYSTEM FOR SUPERCONDUCTING MAGNETIC SAIL SPACECRAFT
Yuri Mukai, Research Institute for Sustainable Humanosphere, Kyoto University, Japan

IAC-10.C4.8.5
AERODYNAMIC CHARACTERISTICS OF MAGNETIC SAIL IN MAGNETIZED SOLAR WIND
Hiroyuki Nishida, Tokyo University of Agriculture and Technology, Japan

IAC-10.C4.8.6
THRUST CONTROL SYSTEM FOR MAGNETIC SAIL SPACECRAFT UNDER VARIABLE SOLAR WIND ENVIRONMENT
Tomokazu Koyama, Research Institute for Sustainable Humanosphere, Kyoto University, Japan

IAC-10.C4.8.7
PROGRESS IN REVOLUTIONARY PROPULSION PHYSICS
Marc G. Millis, Tau Zero Foundation, United States

IAC-10.C4.8.8
GRAVITY LENS MAPPING MISSION
Roger X. Lenard, LPS, United States

D1. SPACE SYSTEMS SYMPOSIUM

Coordinator: Tibor S. Balint (Jet Propulsion Laboratory, United States); Marco Guglielmi (European Space Agency (ESA), The Netherlands)

D1.1. Innovative and Visionary Space Systems Concepts

September 27 2010, 15:15 – Club E

Chair: Mauricio Moshe Guelman (Asher Space Research Institute, Technion, I.I.T., Israel); Robert L. Henderson (The John Hopkins University Applied Physics Laboratory, United States)
Rapporteur: Peter Dieleman (National Aerospace Laboratory (NLR), The Netherlands)

IAC-10.D1.1.2
CONCEPTUAL DESIGN OF AN ACTIVE DEBRIS REMOVAL STRATEGY FOR SUN-SYNCHRONOUS LOW EARTH ORBIT
Stijn Van Autrève, Interdisciplinary Centre for Space Studies (Catholic University of Leuven), Belgium

IAC-10.D1.1.3
PROMISING TECHNOLOGIES AND ASSOCIATED CONCEPTS FOR FUTURE MISSIONS
Xavier Roser, ThalesAlenia Space, France

IAC-10.D1.1.4
DESIGN CONCEPTS FOR A MANNED ARTIFICIAL GRAVITY RESEARCH FACILITY
Joseph Carroll, Tether Applications, Inc., United States

IAC-10.D1.1.5
ROBOTIC ON ORBIT SERVICING MISSIONS FOR MULTIPLE SATELLITE MAINTENANCE AND RECOVERY
Fabio Santoni, University of Rome "La Sapienza", Italy

IAC-10.D1.1.6
IN-ORBIT SERVICING AND DE-ORBITING CONCEPTS AND A GERMAN DEMONSTRATION MISSION
Joachim Thaeter, OHB-System AG, Germany

IAC-10.D1.1.7
AN L1 POSITIONED DUST CLOUD AS AN EFFECTIVE METHOD OF SPACE-BASED GEO-ENGINEERING
Russell Bewick, University of Strathclyde, United Kingdom

IAC-10.D1.1.8
ASSESSMENT OF VISIONARY GEOENGINEERING OPTIONS AND THE IMPACTS OF FREQUENT LAUNCHES WITH A GLOBAL ATMOSPHERIC MODEL
Leopold Summerer, European Space Agency (ESA), The Netherlands

IAC-10.D1.1.9
HELIODROMUS: RENEWABLE ENERGY FROM SPACE
JM (Hans) Kuiper, Delft University of Technology (TU Delft), The Netherlands

IAC-10.D1.1.10
VOYAGE CONTINUES – LIGHTSAIL-1 MISSION BY THE PLANETARY SOCIETY
Tomas Svitek, Stellar Exploration Inc, United States

IAC-10.D1.1.11
ROOT'S LIKE NATURAL BEHAVIORS APPLIED TO GUIDANCE ALGORITHMS FOR SPACE EXPLORATION MISSIONS
Marco Sabatini, Università di Roma "La Sapienza", Italy

D1.2. Enabling Technologies for Space Systems

September 28 2010, 10:15 – Club E

Chair: Xavier Roser (ThalesAlenia Space, France); Jean-Paul Aguttes (Centre National d'Etudes Spatiales (CNES), France)
Rapporteur: Anne Bondiou-Clergerie (GIFAS, France)

IAC-10.D1.2.1
AEROBRAKING AT VENUS: A SCIENCE AND TECHNOLOGY ENABLER
Kenneth Hibbard, The John Hopkins University Applied Physics Laboratory, United States

IAC-10.D1.2.2
DYNAMICS AND CONTROL OF A PARAGLIDER FOR PLANETARY EXPLORATION
Chiara Toglia, University of Rome "La Sapienza", Italy

IAC-10.D1.2.3
NON-EQUILIBRIUM ATMOSPHERIC-PRESSURE DIELECTRIC BARRIER DISCHARGE PLASMA: A TECHNOLOGY FOR ACHIEVING PLANETARY PROTECTION REQUIREMENTS
Moogega Cooper, JPL /Caltech, United States

IAC-10.D1.2.4
SHOCK RESPONSE CONTROL FOR LANDING OF PLANETARY EXPLORATION SPACECRAFT BY MEANS OF ACTIVE MOMENTUM EXCHANGE IMPACT DAMPER
Susumu Hara, Nagoya University, Japan

IAC-10.D1.2.5
DESIGN OF CAPTURE OPERATIONS FOR NON-COOPERATIVE TARGETS EMPLOYING AN AUTONOMOUS ROBOTIC MANIPULATOR
Benoit Larouche, York University, Canada

IAC-10.D1.2.6
PROMISING APPLICATIONS OF NANO-TECHNOLOGIES FOR SPACE SATELLITES BENEFITS AND ROAD-MAP
Olivier Vendier, Thales Alenia Space, France

IAC-10.D1.2.8
THE SMART SSR DTN ROUTER
Alan Mick, The John Hopkins University Applied Physics Laboratory, United States

IAC-10.D1.2.9
EVOLVING COMPLEX PROGRAMS IN TIERRA-BASED ON-BOARD COMPUTER ON UNITEC-1
Tomohiro Harada, University of Electro-Communications, Japan

IAC-10.D1.2.10
A HIGH-PERFORMANCE IMAGE ACQUISITION AND PROCESSING SYSTEM FABRICATED USING FPGA AND FREE SOFTWARE TECHNOLOGIES
Shinichi Kimura, Tokyo University of Science, Japan

D1.3. System Engineering Tools, Processes & Training (I)

September 28 2010, 15:15 – Club E

Chair: Ming Li (China Academy of Space Technology (CAST), China); Geilson Loureiro (Instituto Nacional de Pesquisas Espaciais (INPE), Brazil)
Rapporteur: Xavier Roser (ThalesAlenia Space, France)

IAC-10.D1.3.1
THE ESA DATA MODEL FOR CONCURRENT DESIGN OF SPACE SYSTEMS
Sam Gerene, J-CDS, The Netherlands

IAC-10.D1.3.2
ASTEROIDFINDER: A PRACTICAL USE OF CONCURRENT DESIGN IN PHASE B
Sam Gerene, J-CDS, The Netherlands

IAC-10.D1.3.3
COSMICS – A WEB-BASED APPROACH TO MULTI-USER CONCURRENT ENGINEERING
Aline Zimmer, University of Stuttgart, Germany

IAC-10.D1.3.6
HIGH-FIDELITY MODEL BASED MULTI-DISCIPLINARY OPTIMIZATION FOR SUBORBITAL REUSABLE LAUNCH VEHICLE
Chunlin Gong, Northwestern Polytechnical University, China

IAC-10.D1.3.7
COSTS AND RISK ANALYSIS TOOL FOR CONCEPTUAL LAUNCH VEHICLE MDO
Paolo Martino, Italy

IAC-10.D1.3.8
INTEGRATED MODEL FOR A COST TRADEOFF STUDY BETWEEN A NETWORK OF LANDERS AND PLANETARY HOPPERS
Howard Yue, Massachussets Institute of Technology (MIT), United States

IAC-10.D1.3.9
LAUNCH VEHICLES SEPARATION DYNAMICS AN END-TO-END SOLUTION
Jeyakumar D, Indian Space Research Organization (ISRO), India

IAC-10.D1.3.10
SYSTEM DESIGN OF ROCKET PLANE USING DYNAMIC INVERSION THEORY
Hirokazu Suzuki, Japan Aerospace Exploration Agency (JAXA), Japan

D1.4. Space Systems Architectures

September 29 2010, 10:15 – Club E

Chair: Geilson Loureiro (Instituto Nacional de Pesquisas Espaciais (INPE), Brazil); Peter Dieleman (National Aerospace Laboratory (NLR), The Netherlands)
Rapporteur: Franck Durand-Carrier (Centre National d'Etudes Spatiales (CNES), France)

IAC-10.D1.4.1
FRACTIONATED SATELLITES: A STEP TOWARDS FLEXIBILITY AND RESPONSIVENESS
Claude Cougnet, EADS Astrium, France

IAC-10.D1.4.2
NETWORKED PICO-SATELLITE FORMATIONS
Klaus Schilling, University of Wuerzburg, Germany

IAC-10.D1.4.4
SATSIM – A REAL-TIME MULTI-SATELLITE SIMULATOR FOR TEST AND VALIDATION IN FORMATION FLYING PROJECTS
Matti Nylund, Swedish Space Corporation, Sweden

IAC-10.D1.4.5
MULTI-AGENT TESTBED FOR DISTRIBUTED SPACE SYSTEMS
Andani Osuman, Delft University of Technology (TU Delft), The Netherlands

IAC-10.D1.4.6
DESIGN AND TESTING OF AN AUTONOMOUS MULTI-AGENT BASED SPACECRAFT CONTROLLER
Stuart Grey, University of Glasgow, United Kingdom

IAC-10.D1.4.7
FLYING THE CLOUD: THE CASE FOR ROUTING IN SPACE
Edward Birrane, The John Hopkins University Applied Physics Laboratory, United States

IAC-10.D1.4.8
OPPORTUNITIES AND CHALLENGES OF WIRELESS SENSOR NETWORKS IN SPACE
Rui Sun, Delft University of Technology (TU Delft), The Netherlands

IAC-10.D1.4.9
MODULAR SPACECRAFT ARCHITECTURE, A NEW PARADIGM IN SPACECRAFT DESIGN
Shashank Tamaskar, Purdue University, United States

D1.5. Lessons Learned in Space Systems

September 29 2010, 15:15 – Club E

Chair: Anne Bondiou-Clergerie (GIFAS, France); Klaus Schilling (University of Wuerzburg, Germany)
Rapporteur: Takashi Hamazaki (Japan Aerospace Exploration Agency (JAXA), Japan)

IAC-10.D1.5.1
FLIGHT AND DEVELOPMENT EXPERIENCE WITH COTS EMBEDDED HARDWARE AND VISUAL PROGRAMMING TECHNIQUES
Elias Breunig, Technische Universität München, Max-Planck-Institut für extraterrestrische Physik (MPE), Germany

IAC-10.D1.5.2
LESSONS LEARNED IN 12 YEARS OF SPACE SYSTEMS CONCURRENT ENGINEERING
Geilson Loureiro, Instituto Nacional de Pesquisas Espaciais (INPE), Brazil

IAC-10.D1.5.3
MERIT FUNCTIONS AND SYSML IN SYSTEMS ENGINEERING AT NASA'S JET PROPULSION LABORATORY
David Seal, Jet Propulsion Laboratory, United States

IAC-10.D1.5.4
HOW DO WE FIX SYSTEMS ENGINEERING?
Michael Griffin, University of Alabama in Huntsville, United States

IAC-10.D1.5.5
FIVE YEARS DEVELOPMENT AND FIVE YEARS OPERATIONS OF FORMOSAT-2 SATELLITE
An-Ming Wu, National Space Organization, Taiwan, China

IAC-10.D1.5.6
LESSONS LEARNED IN ARCHITECTING HUMAN SPACEFLIGHT PROGRAMS
Brian Muirhead, Jet Propulsion Laboratory - California Institute of Technology, United States

IAC-10.D1.5.7
U.S. MEDIUM LAUNCH VEHICLE FAILURES
E. Joe Tomei, The Aerospace Corporation, United States

IAC-10.D1.5.8
NON-U.S. MEDIUM LAUNCH VEHICLE FAILURES
I-Shih Chang, The Aerospace Corporation, United States

D1.6. System Engineering Tools, Processes and Training (2)

September 30 2010, 15:15 – Club E

Chair: Klaus Schilling (University of Wuerzburg, Germany); Takashi Hamazaki (Japan Aerospace Exploration Agency (JAXA), Japan)
Rapporteur: Reinhold Bertrand (European Space Agency (ESA), Germany)

IAC-10.D1.6.1
MICROSATELLITE OPTICAL PAYLOAD FOR IN-SITU SPACE DEBRIS MONITORING
Fabrizio Paolillo, Scuola di Ingegneria Aerospaziale, Italy

IAC-10.D1.6.2
CONCEPT SELECTION FOR A PLANETARY REFLECTION-SEISMOLOGY SYSTEM WITH MULTIPLE END-USER REQUIREMENTS AND MISSION CONSTRAINTS
Peter Batenburg, Delft University of Technology (TU Delft), The Netherlands

IAC-10.D1.6.3
BRANCH AND BOUND TECHNIQUE TO EFFICIENTLY SOLVE CONTROL AND SYSTEM DESIGN PROBLEMS WITH MIXED-INTEGER VARIABLES DOMAINS
Michèle Lavagna, Politecnico di Milano, Italy

IAC-10.D1.6.4
SYSTEM ENGINEERING FOR SRMSAT
Himanshu Shekhar, SRM University, India

IAC-10.D1.6.5
3D VIRTUAL PLATFORM TO VALIDATE PLANETARY VEHICLES DESIGN AND OPERATIONS
Riccardo Lombardi, Politecnico di Milano, Italy

IAC-10.D1.6.6
UNCERTAINTY MULTIDISCIPLINARY DESIGN OPTIMIZATION OF SPACE SYSTEMS IN THE PRESENCE OF NEW ATTRIBUTES
Jian Guo, Delft University of Technology (TU Delft), The Netherlands

IAC-10.D1.6.8
DEVELOPMENT OF A CFD METHODOLOGY FOR TESTING COMBUSTION INSTABILITIES OF A SHEAR-COAXIAL GAS-GAS ROCKET INJECTOR USING AN ATMOSPHERIC BURNER
Douglass Casey, Propulsion Research Center, University of Alabama in Huntsville, United States

IAC-10.D1.6.9
CONCURRENT SYSTEMS ENGINEERING OF A MICROSATELLITE LAUNCH VEHICLE
Jonas Bianchini Fulindi, Instituto Nacional de Pesquisas Espaciais (INPE), Brazil

IAC-10.D1.6.10
RELIABILITY MODIFICATION IN MULTIDISCIPLINARY DESIGN OPTIMIZATION OF A SOLID PROPELLANT LAUNCH VEHICLE
Masoud Ebrahimi, K. N. Toosi University of Technology, Iran

D2. SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS

Coordinator: Richard Tyson (National Aeronautics and Space Administration (NASA)/Marshall Space Flight Center, United States); Christophe Bonnal (Centre National d'Etudes Spatiales (CNES), France)
Rapporteur: John M. Horack (University of Alabama in Huntsville, United States)

D2.1. Launch Vehicles in Service or in Development

September 27 2010, 15:15 – Chamber Hall

Chair: Paulo Moraes Jr. (Instituto de Aeronáutica e Espaço (IAE), Brazil); Ray F. Johnson (The Aerospace Corporation, United States)
Rapporteur: Christian Dujarric (European Space Agency (ESA), France)

IAC-10.D2.1.1
LAUNCHER ACTIVITIES OF THE EUROPEAN SPACE AGENCY
Toni Tolker-Nielsen, ESA (European Space Agency), France

IAC-10.D2.1.2
ARIANE 5 ECA PERFORMANCE IMPROVEMENT PLAN PERFORMANCE IMPROVEMENT PLAN
Sylvain Guédron, Centre National d'Etudes Spatiales (CNES), France

IAC-10.D2.1.3
A5 ME: STATUS OF THE "PREPARATORY ACTIVITIES"
Catherine Poincheval, Astrium Space Transportation, France

IAC-10.D2.1.4
OPERATIONAL STATUS OF THE SPACEX FALCON 1 AND FALCON 9 LAUNCH VEHICLES
Aaron Dinardi, Space Exploration Technologies, United States

IAC-10.D2.1.5
UNITED LAUNCH ALLIANCE – ESTABLISHING HEAVY LIFT CAPABILITY ON THE WEST COAST
Michael Berglund, United Launch Alliance, United States

IAC-10.D2.1.6
GSLV MK-III (LVM3) DEVELOPMENT CHALLENGES AND PRESENT STATUS
Somanath Sreedhara Panicker, Indian Space Research Organization (ISRO), India

IAC-10.D2.1.7
DEVELOPMENT OF JAPAN'S NEXT GENERATION SOLID ROCKET LAUNCHER- THE EPSILON ROCKET
Yasuhiro Morita, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.D2.1.8
RELIABILITY OF H-IIA AND H-IIB LAUNCH VEHICLE
Takashi Noma, Mitsubishi Heavy Industries Ltd. - Nagoya Aerospace Systems, Japan

IAC-10.D2.1.9
STEPPING STONE TO THE FIRST KOREAN SPACE LAUNCH VEHICLE
Hyeon Cheol Gong, Korean Aerospace Research Institute, Korea, Republic of

IAC-10.D2.1.10
STATUS OF THE DEVELOPMENT OF EVOLVED UPPER-MEDIUM CLASS LAUNCH VEHICLE (ELV)
Sergey Saveliev, Federal Space Agency, Russia

IAC-10.D2.1.11
REGRESSION ANALYSIS OF LAUNCH VEHICLE PAYLOAD CAPABILITY FOR INTERPLANETARY MISSIONS (poster)
Jarret Lafleur, Georgia Institute of Technology, United States

D2.2. Launch services, Missions, Operations and Facilities

September 28 2010, 10:15 – Chamber Hall

Chair: Yves Gérard (Astrium Space Transportation, France); Ulf Palmnäs (Volvo Aero Corporation, Sweden)
Rapporteur: Patrick M. McKenzie (Ball Aerospace & Technologies Corp., United States)

IAC-10.D2.2.1
SOYUZ AT CSG: END OF DEVELOPMENT STATUS AND FIRST LESSONS LEARNED
Jean-Marc Astorg, Centre National d'Etudes Spatiales (CNES), France

IAC-10.D2.2.2
NASA'S COTS INITIATIVE: DEVELOPING COMMERCIAL CARGO SERVICES FOR LEO
Dennis Stone, National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States

IAC-10.D2.2.3
ULA PLANS TO SUPPORT COMMERCIAL CREW LAUNCH
George Sowers, United Launch Alliance, United States

IAC-10.D2.2.4
ARIANE 5 PROGRAM STATUS
Denis Schmitt, Arianespace, France

IAC-10.D2.2.5
THE CLASSIFICATION AND ANALYSIS OF THE ERROR AND FAULTS DURING KSLS COMPLEX DEVELOPMENT
SeokHee Lim, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.D2.2.6
OPERATIONAL PROCESS FOR THE SYSTEM INTEGRATION OF KSLV-I UPPER STAGE
You-Jin Won, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.D2.2.7
ARIANE 5 ME LAUNCH FACILITIES DEVELOPMENT AND QUALIFICATION
Pier Michele Roviera, European Space Agency (ESA), France

IAC-10.D2.2.8
SATISH DHAWAN SPACE CENTRE – A SPACE PORT FOR MULTI MISSION LAUNCH CAPABILITIES
Vellanki Seshagiri Rao, Indian Space Research Organization (ISRO), India

IAC-10.D2.2.9
"VOSTOCHNY" LAUNCH SITE: GENESIS, CONCEPT AND PROJECT DEVELOPMENT
Sergey Saveliev, Federal Space Agency, Russia

IAC-10.D2.2.10
CHINA HAINAN SPACE CENTER
Su Jian, China

IAC-10.D2.2.11
NEW EVOLVEMENT ON MEASUREMENT AND ASSESSMENT TECHNOLOGIES FOR SPACE LAUNCH ENVIRONMENTAL EFFECTS (poster)
Yang Liu, Beijing Special Engineering Design and Research Institute, China

IAC-10.D2.2.12
MEETING THE FUTURE LAUNCH DEMAND OF INTERNATIONAL EARTH OBSERVATION (poster)
Peter Freeborn, Eurockot Launch Services GmbH, Germany

IAC-10.D2.2.13
ADVANCED BIOLOGICAL TREATMENT FOR SOLID PROPELLANT WASTES (poster)
Laurent Vallet, SNPE Materiaux Energetiques, France

D2.3. Upper Stages, Space Transfer, Entry and Landing Systems

September 28 2010, 15:15 – Chamber Hall

Chair: Luigi Bussolino (Bussolino and Associates, Italy); David E. Glass (National Aeronautics and Space Administration (NASA), United States)
Rapporteur: Harry A. Cikanek (National Aeronautics and Space Administration (NASA), United States)

IAC-10.D2.3.1
ADVANCED TECHNOLOGY UPPER STAGES FOR FUTURE LAUNCHERS
Martin Sippel, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.D2.3.2
VENUS – CONCEPTUAL STUDIES FOR VEGA NEW UPPER STAGE
Markus Jäger, Astrium Space Transportation, Germany

IAC-10.D2.3.3
ORION CREW EXPLORATION VEHICLE DESIGN EVOLUTION
Harry A. Cikanek, National Aeronautics and Space Administration (NASA), United States

IAC-10.D2.3.4
ORION CREW EXPLORATION VEHICLE DEVELOPMENT
Harry A. Cikanek, National Aeronautics and Space Administration (NASA), United States

IAC-10.D2.3.5
HUMAN PLANETARY SPACECRAFT DESIGN LESSONS
John Connolly, National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States

IAC-10.D2.3.6
SPACE EXPLORATION SOONER AND CHEAPER USING REUSABLE SOLAR ELECTRIC TUGS (RESETS)
Dana Andrews, Andrews Space, United States

IAC-10.D2.3.7
THE FLUYT STAGE: A DESIGN FOR A SPACE-BASED ORBIT TRANSFER VEHICLE
Simon Feast, Reaction Engines Ltd., United Kingdom

IAC-10.D2.3.8
STUDY ON HTV EVOLVED PAYLOAD RECOVERY SYSTEM
Satoshi Fujiwara, Mitsubishi Heavy Industries, Ltd., Japan

IAC-10.D2.3.9
FUTURE INVESTIGATION OF CREW RE-ENTRY VEHICLE (CRV) FOR SPACE STATION
Ma Chao, China Acadamy of Launch Vehicle Technology, China

IAC-10.D2.3.10
THE ADVANCED RE-ENTRY VEHICLE – A STEP TOWARD THE EUROPEAN AUTONOMOUS HUMAN ACCESS TO SPACE
Massimiliano Bottacini, ESA/ESTEC, The Netherlands

IAC-10.D2.3.12
PECULIARITIES OF COMPUTER SIMULATION OF UNGUIDED REENTRY OF SPACE TRANSPORTATION SYSTEM PARTS
Alexander S. Filatyev, Central Aero-HydroDynamic Institute, Russia

D2.4. Future Space Transportation Systems

September 29 2010, 10:15 – Chamber Hall

Chair: S. Ramakrishnan (Vikram Sarabhai Space Centre (VSSC), India); Walter Faulconer (Strategic Space Solutions, LLC, United States)
Rapporteur: Lawrence Huebner (National Aeronautics and Space Administration (NASA)/Marshall Space Flight Center, United States)

IAC-10.D2.4.1
ORBITAL SCIENCES' COTS/CRS MISSION OVERVIEW
William Kosmann, Orbital Sciences Corporation, United States

IAC-10.D2.4.2
ESA'S NEXT GENERATION LAUNCHER STATUS OF THE FLPP LAUNCH SYSTEM CONCEPT INVESTIGATIONS
Jens Kauffmann, European Space Agency (ESA), France

IAC-10.D2.4.3
EVOLVING PLAN OF JAPANESE PRIMARY LAUNCH SYSTEM
Takanobu Kamiya, Mitsubishi Heavy Industries, Ltd., Japan

IAC-10.D2.4.5
NOVEL CONCEPTS FOR AFFORDABLE SPACE TRANSPORT AND TRAVEL: MICROLAUNCHERS AND PD AEROSPACE.
Yuki Takahashi, University of California, United States

IAC-10.D2.4.6
SPACELINER ROCKET-POWERED HIGH-SPEED PASSENGER TRANSPORTATION CONCEPT EVOLVING IN FAST20XX
Martin Sippel, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.D2.4.7
THE SKYLON D1 CONFIGURATION
Mark Hempsell, Reaction Engines Ltd., United Kingdom

IAC-10.D2.4.8
CONCEPTS AND PROBLEMS OF REALIZATION OF AIR LAUNCH OF LAUNCH VEHICLES: UKRAINIAN ASPECT
Stanislav Konyukhov, Yuzhnoye State Design Office, Ukraine

IAC-10.D2.4.9
RECENT PROGRESS TOWARD REUSABLE SOUNDING ROCKET
Yoshifumi Inatani, Japanese Rocket Society, Japan

IAC-10.D2.4.10
ASTRIUM SUBORBITAL SPACEPLANE PROJECT: A SAFE MULTI-MISSION INNOVATIVE VEHICLE
Christophe Chavagnac, EADS Astrium, France

D2.5. Future Space Transportation Systems Technologies

September 29 2010, 15:15 – Chamber Hall

Chair: Yushifumi Inatani (Japan Aerospace Exploration Agency (JAXA), Japan); Sylvain Guédron (Centre National d'Etudes Spatiales (CNES), France)
Rapporteur: William R. Claybaugh II (Orbital Sciences Corporation, United States)

IAC-10.D2.5.1
FLPP TECHNOLOGIES FOR A FUTURE EUROPEAN EARTH-TO-ORBIT EXPENDABLE LAUNCHER
Guy Ramusat, European Space Agency (ESA), France

IAC-10.D2.5.2
OVERVIEW ON TECHNOLOGIES DEVELOPMENT APPLICABLE TO CRYOGENIC UPPER STAGES WITHIN ESA, FUTURE LAUNCHERS PREPARATION PROGRAM (FLPP)
Adriana Sirbi Paragina, European Space Agency/Headquarters, France

IAC-10.D2.5.3
TECHNOLOGICAL DEMONSTRATORS TEST RESULTS
Sylvain Guédron, Centre National d'Etudes Spatiales (CNES), France

IAC-10.D2.5.4
HIGH THRUST ENGINE DEMONSTRATIONS
Philippe Caisso, Snecma, France

IAC-10.D2.5.5
CATALYTIC BI-PROPELLANT IGNITION TECHNOLOGY DEVELOPMENT
François Bouquet, TNO Defence, Security & Safety, The Netherlands

IAC-10.D2.5.7
ARES PROJECT TECHNOLOGY ASSESSMENT – APPROACH AND TOOLS
Uwe Hueter, Science Applications International Corporation (SAIC), United States

IAC-10.D2.5.8
TECHNOLOGY CHALLENGES FOR A REUSABLE FIRST STAGE
Jeffrey Zweber, Air Force Research Laboratory (AFRL), United States

IAC-10.D2.5.9
NEURAL NETWORK BASED FLUSH AIR DATA SYSTEM (FADS) FOR REUSABLE LAUNCH VEHICLES
M. Jayakumar, Indian Space Research Organization (ISRO), India

IAC-10.D2.5.10
CONTINUOUS TWIN SCREW TECHNOLOGY FOR THE MANUFACTURE OF LARGE SOLID PROPELLANT GRAINS OF NEXT GENERATION LAUNCHER
Christine Marraud, SNPE Materiaux Energetiques, France

IAC-10.D2.5.11
REMARKABLE AERODYNAMIC PERFORMANCE OF TRIANGLE CROSS SECTION CONFIGURATION FOR FULLY RLV (poster)
Shigeru Aso, Kyushu University, Japan

IAC-10.D2.5.12
A NUMERICAL STUDY ON REDUCTION OF PROPELLANTS FOR REACTION CONTROL SYSTEMS WITH IMPROVEMENT OF JET INTERACTION (poster)
Yu Etoh, Kyushu University, Japan

D2.6. Future Space Transportation Systems Verification and In-Flight Experimentation

September 30 2010, 10:15 – Chamber Hall

Chair: Giorgio Tumino (European Space Agency (ESA), France); Charles Cockrell (National Aeronautics and Space Administration (NASA), United States)
Rapporteur: Michael L. Burris (National Aeronautics and Space Administration (NASA), United States)

IAC-10.D2.6.1
SOUNDING ROCKET FLIGHT TEST OF PROPELLANT MANAGEMENT TECHNOLOGIES
Lionel Marraffa, European Space Agency (ESA), The Netherlands

IAC-10.D2.6.2
ADVANCED RENDEZVOUS, PROXIMITY OPERATIONS AND DOCKING (RPOD) STORRM FLIGHT TEST
Kevin Miller, Ball Aerospace & Technologies Corp., United States

IAC-10.D2.6.3
END TO END OPTIMISATION OF IXV TRAJECTORY VIA MULTIPLE-SUBARC SEQUENTIAL GRADIENT RESTORATION ALGORITHM
Rodrigo Haya Ramos, DEIMOS Space S.L., Spain

IAC-10.D2.6.4
THE INTERMEDIATE EXPERIMENTAL VEHICLE DEVELOPMENT STATUS
Giorgio Tumino, European Space Agency (ESA), France

IAC-10.D2.6.5
ARES I-X: FIRST STEP IN A NEW ERA OF EXPLORATION
Stephan Davis, National Aeronautics and Space Administration (NASA)/Marshall Space Flight Center, United States

IAC-10.D2.6.6
ARES I-X FLIGHT EVALUATION TASKS IN SUPPORT OF ARES I DEVELOPMENT
Lawrence Huebner, National Aeronautics and Space Administration (NASA)/Marshall Space Flight Center, United States

IAC-10.D2.6.7
THE ITALIAN UNMANNED SPACE VEHICLE FTB-1 BACK TO FLY: EXPERIMENTAL OBJECTIVES AND RESULTS OF THE DTFT-2 MISSION
Piero de Matteis, CIRA Italian Aerospace Research Centre, Italy

IAC-10.D2.6.9
EXPERT: THE ESA EXPERIMENTAL RE-ENTRY TEST-BED
Marco Caporicci, European Space Agency (ESA), The Netherlands

IAC-10.D2.6.10
THE NEEDS OF IN-FLIGHT EXPERIMENTS FOR CRYOGENIC PROPELLANT BEHAVIOR: INTEREST AND STATUS (poster)
Jerome Lacapere, Air Liquide, France

D2.7. Small Launchers: Concepts and Operations

September 30 2010, 15:15 – Chamber Hall

Chair: Nicolas Berend (Office National d'Etudes et de Recherches Aérospatiales (ONERA), France); Shayne Swint (National Aeronautics and Space Administration (NASA)/Marshall Space Flight Center, United States)
Rapporteur: Markus Jäger (Astrium Space Transportation, Germany)

IAC-10.D2.7.1
A MICROSATELLITE LAUNCH SYSTEM USING THE XP SPACEPLANE AS A REUSABLE FIRST STAGE FOR A NEW GENERATION HYBRID ROCKET UPPER STAGE
Charles Lauer, Rocketplane Global, Inc., United States

IAC-10.D2.7.2
JAPAN PICO NANO ADVANCE LAUNCH SYSTEM
Kazuhiro Yagi, IHI Aerospace Co, Ltd., Japan

IAC-10.D2.7.3
LIGHT-GAS GUN LAUNCHER CONCEPT FOR HIGH-G PROOF MINIATURE SUBORBITAL PAYLOADS
Frank Schäfer, Fraunhofer EMI, Germany

IAC-10.D2.7.4
RESPONSIVE, LOW-COST LAUNCH OF NANOSATELLITES AND TECHNOLOGY DEMONSTRATIONS
Steve Cook, Dynetics, United States

IAC-10.D2.7.5
THRUST OPTIMIZATION AND OPERATIONAL STRATEGY FOR LOW EARTH ORBIT LAUNCH VEHICLE
Jung-Woo Park, Korea Advanced Institute of Science and Technology (KAIST), Korea, Republic of

IAC-10.D2.7.6
STAGING MECHANISM STATUS OF THE ORBITAL LAUNCHER NERVA
Radu Rugescu, Politechnic University of Bucharest, Romania

IAC-10.D2.7.7
ROBUST CONTROL FOR AIR-LAUNCHED SYSTEMS
Luigi Ridolfi, Scuola di Ingegneria Aerospaziale, Italy

IAC-10.D2.7.8
MODULAR PAYLOAD DECK ELEMENTS FOR SMALL LAUNCH VEHICLES
Abe Bonnema, ISIS - Innovative Solutions In Space B.V., The Netherlands

IAC-10.D2.7.9
COMBUSTIBLE CASE, MOBILE ENGINE AND NO FEED DEVICE: THE CONCEPT OF A PICO LAUNCH VEHICLE
Vitaly Yemets, Dniepropetrovsk National University, Ukraine

IAC-10.D2.7.10
DNEPR PROGRAM: RELIABILITY AND INNOVATIONS IN SERVICE OF SMALL SATELLITES
Vladislav Solovey, ISC Kosmotras, Russia

D2.8. New Missions Enabled by Extra-large Launchers

October 1 2010, 09:00 – Chamber Hall

Chair: Martin Sippel (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany); Steve Creech (National Aeronautics and Space Administration (NASA), United States)
Rapporteur: Oleg Ventskovsky (Yuzhnoye SDO European Representation, Belgium)

IAC-10.D2.8.1
CURRENT STATUS OF NASA'S HEAVY LIFT PLAN: HEAVY LIFT CONCEPT DEVELOPMENT AND POTENTIAL UTILIZATION
Steve Creech, National Aeronautics and Space Administration (NASA), United States

IAC-10.D2.8.2
NEW MISSION CAPABILITY USING HEAVY LIFT LAUNCH VEHICLES WITH IN SPACE PROPELLANT DEPOTS
Martin McLaughlin, Northrop Grumman Corporation, United States

IAC-10.D2.8.3
A STUDENT-DESIGNED MARS SAMPLE RETURN MISSION WITH AN ARES V LAUNCH VEHICLE
Matthew Turner, University of Alabama in Huntsville, United States

IAC-10.D2.8.4
MAXIMIZING LAUNCH VEHICLE AND PAYLOAD DESIGN VIA EARLY COMMUNICATIONS
Kenneth Bruce Morris, National Aeronautics and Space Administration (NASA)/Marshall Space Flight Center, United States

IAC-10.D2.8.5
APPLICATION OF TRANSPORTATION INDUSTRY FOM'S AND EVALUATION OF INTEGRATED COST / PERFORMANCE OF HEAVY LIFT LAUNCH VEHICLES
Peters, Schafer Corp., United States

IAC-10.D2.8.6
ABOUT POSSIBILITY OF APOPHIS ASTEROID TRAJECTORY DEVIATION BY KINETIC (UNNUCLEAR) IMPACT
Stanislav Konyukhov, Yuzhnoye State Design Office, Ukraine

IAC-10.D2.8.7
THE FIRST STAGE ROCKET UNITS OF ZENIT LV IS RELIABLE BASIS TO CREATE HEAVY AND SUPERHEAVY LAUNCH VEHICLES
Alexander Degtyarev, Yuzhnoye State Design Office, Ukraine

D2.9. Commercial Human Spaceflight Safety

October 1 2010, 14:00 – Chamber Hall

Chair: Douglas O. Stanley (Georgia Institute of Technology, United States); John Sloan (Federal Aviation Administration Office of Commercial Space Transportation (FAA/AST), United States)

IAC-10.D2.9.1
DESIGNING FOR SAFETY AT ROCKETPLANE GLOBAL
Charles Lauer, Rocketplane Global, Inc., United States

IAC-10.D2.9.2
SPACESHIPTWO: DESIGNING FOR SAFETY
George Whitesides, Virgin Galactic L.L.C, United States

IAC-10.D2.9.3
ORBITAL'S VISION FOR SAFETY IN HUMAN SPACEFLIGHT
William R. Claybaugh II, Orbital Sciences Corporation, United States

IAC-10.D2.9.4
ASTRIUM SUBORBITAL SPACEPLANE PROJECT: SAFETY FIRST
Christophe Chavagnac, EADS Astrium, France

IAC-10.D2.9.5
TOWARDS REGULATING SUB-ORBITAL FLIGHTS – AN UPDATED EASA APPROACH
Jean-Bruno Marciacq, European Aviation Safety Agency-EASA, Germany

IAC-10.D2.9.6
THE CHALLENGES OF COMMERCIAL HUMAN SPACEFLIGHT SAFETY: A REGULATOR'S PERSPECTIVE
Richard Crowther, UK Space Agency, United Kingdom

IAC-10.D2.9.7
COMMERCIAL HUMAN SPACE FLIGHT SAFETY REGULATIONS: FEDERAL AVIATION ADMINISTRATION PERSPECTIVE
John Sloan, Federal Aviation Administration Office of Commercial Space Transportation (FAA/AST), United States

IAC-10.D2.9.8
OPERATING COMMERCIAL SPACE TOURISM VEHICLES FROM SWEDEN – REGULATORY CHALLENGES
Mattias Abrahamsson, Spaceport Sweden, Sweden

IAC-10.D2.9.9
AN APPLICATION OF FIELDED HARDWARE RELIABILITY DATA TO RELIABILITY THEORY FOR THE SPACE TRANSPORTATION SYSTEM (poster)
Manfred Kolmar, United Space Alliance, United States

D3. SYMPOSIUM ON STEPPING STONES TO THE FUTURE: STRATEGIES, ARCHITECTURES, CONCEPTS AND TECHNOLOGIES

Coordinator: John C. Mankins (ARTEMIS Innovation Management Solutions, LLC, United States); Alain Pradier (European Space Agency (ESA), The Netherlands)

D3.1. Strategies and Architectures to Establish a "Stepping Stone" Approach to our Future in Space

September 27 2010, 15:15 – Club C

Chair: John C. Mankins (ARTEMIS Innovation Management Solutions, LLC, United States); Vladimir Prisniakov (Academy of Sciences, Ukraine)
Rapporteur: William H. Siegfried (The Boeing Company, United States)

IAC-10.D3.1.1
STEPPING STONES FOR GLOBAL SPACE EXPLORATION
Megan Ansdell, Space Policy Institute, George Washington University, United States

IAC-10.D3.1.2
TO THE FUTURE OF ASTRONAUTICS BY REMEMBERING THE PAST – A PERSONAL TRAVELOGUE ON THE ROAD TO SPACE DEVELOPMENT
Marco C Bernasconi, MCB Consultants, Switzerland

IAC-10.D3.1.3
US-BASED NASA INITIATIVES FROM THE OFFICE OF THE CHIEF TECHNOLOGIST: POTENTIAL MODELS FOR ENCOURAGING INNOVATION IN COMMERCIAL SPACE
Gregor Hanuschak, National Aeronautics and Space Administration (NASA), United States

IAC-10.D3.1.4
STEPPING STONES TO THE MOON AND BEYOND: ILEWG ROADMAP
Jacques Blamont, Centre National d'Etudes Spatiales (CNES), France

IAC-10.D3.1.5
FROM ORBITAL APPLICATIONS OVER THE EXPLORATION OF OUR SOLAR SYSTEM TO SPIN-OFFS INTO DAILY LIVE AND INDUSTRY
Bernd Sommer, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.D3.1.6
THE NEXT STEPS DEFINING EUROPE'S ROLE IN THE UPCOMING SPACE EXPLORATION ARCHITECTURE
Maria Antonietta Perino, Thales Alenia Space Italia, Italy

IAC-10.D3.1.7
ANALOG ROADMAP TO MARS: A PATH TOWARDS SUSTAINABLE HUMAN SPACE EXPLORATION
Geert Smet, International Space University (ISU), Belgium

IAC-10.D3.1.8
THE YOUTH SPACE VISION FOR THE NEXT DECADE: THE NEXT GENERATION NETWORK LOOKS BACK TO LOOK FORWARD
Ariane Cornell, Space Generation Advisory Council (SGAC), Austria

D3.2. Novel Concepts and Technologies for the Exploration and Utilization of Space

September 30 2010, 10:15 – Club C

Chair: Joe T. Howell (National Aeronautics and Space Administration (NASA)/Marshall Space Flight Center, United States); Hiroshi Yamakawa (Waseda University, Japan)
Rapporteur: Maria Antonietta Perino (Thales Alenia Space Italia, Italy); Nantel Suzuki (National Aeronautics and Space Administration (NASA), United States)

IAC-10.D3.2.1
THE NEXT GENERATION CANADARM: PREPARING CANADA FOR FUTURE SPACE EXPLORATION AND SERVICING MISSIONS
Michael R. Greene, MDA Space Missions, Canada

IAC-10.D3.2.2
MOA2 – AN R&D PARADIGM BUSTER ENABLING SPACE PROPULSION BY COMMERCIAL APPLICATIONS
Norbert Frischauf, JRC-IE, Austria

IAC-10.D3.2.4
STUDY OF VARIABLE TOPOLOGY-TRANSFORMABLE SPACECRAFT
Xin Ning, Northwestern Polytechnical University, China

IAC-10.D3.2.5
THREE-DIMENSIONAL MODELLING THE POTENTIAL OF GREENHOUSE GASES TO INCREASE MARTIAN SURFACE TEMPERATURES
Leopold Summerer, European Space Agency (ESA), The Netherlands

IAC-10.D3.2.6
ARYAVARTA – A NOVEL APPROACH TOWARDS INNOVATIVE AND EFFICIENT SPACE TRANSPORTATION SYSTEMS
Rushi Ghadawala, Aryavarta Space Organization, India

IAC-10.D3.2.7
ASSESSMENT ON THE FEASIBILITY OF FUTURE SHEPHERDING OF ASTEROID RESOURCES
Joan Pau Sanchez Cuartielles, Advanced Space Concept Laboratory University of Strathclyde, United Kingdom

IAC-10.D3.2.8
KEY DESIGN PARAMETERS IN THE BASE REACTION CONTROL OF REDUNDANT SPACE MANIPULATORS
Isacco Pretto, CISAS G. Colombo Center of Studies and Activities for Space, University of Padova, Italy

IAC-10.D3.2.9
A DISTRIBUTED RADIATION INSTRUMENT IN PREPARATION TO MANNED MISSION TO MARS AND MOON
Mariella Graziano, GMV, Spain

IAC-10.D3.2.10
STUDY OF THE LATERAL DYNAMICS OF A LARGE PRESSURIZED LUNAR ROVER: COMPARISON BETWEEN CONVENTIONAL AND SLIP-STEERING
Giancarlo Genta, Politecnico di Torino, Italy

D3.3. Infrastructures and Systems to Enable International Future Exploration and Utilization of Space

September 30 2010, 15:15 – Club C

Chair: William H. Siegfried (The Boeing Company, United States); Scott Hovland (European Space Agency (ESA), The Netherlands)
Rapporteur: Scott Hovland (European Space Agency (ESA), The Netherlands); Gordon Woodcock (Part-time employe by Gray Research, United States)

IAC-10.D3.3.1
DESIGN AND CONSTRUCTION OF AN INFLATABLE LUNAR BASE WITH PRESSURIZED ROVERS AND SUITPORTS
Pablo de Leon, Argentine Association for Space Technology, Argentina

IAC-10.D3.3.2
LUNAR HABITAT CONSTRUCTION – A COMPOSITE ENCLOSURE SYSTEM
Jakub Dzamba, University of Toronto, Canada

IAC-10.D3.3.3
ON-ORBIT VERIFICATION OF INFLATABLE SPACE TERRARIUM ON THE EXPOSED FACILITY OF THE INTERNATIONAL SPACE STATION
Naoko Kishimoto, Kyoto University, Japan

IAC-10.D3.3.4
CONSTRUCTION OF ROBUST SUPPLY CHAIN NETWORK FOR SUSTAINABLE MARS HABITATION
Yasuhiro Akiyama, University of Tokyo, Japan

IAC-10.D3.3.5
3D PRINTING TECHNOLOGY FOR A MOON OUTPOST EXPLOITING LUNAR SOIL
Fabio Ceccanti, Alta S.p.A., Italy

IAC-10.D3.3.6
DESIGN AND LOCATION OF AN ASTEROID MINING SPACE STATION
Gaurav Misra, Birla Institute of Technology and Science(BITS)-Pilani, India

IAC-10.D3.3.8
ARYAVARTA – STOCHASTIC MODELLING OF RISK FOR SPACE MISSIONS
Rushi Ghadawala, Aryavarta Space Organization, India

IAC-10.D3.3.9
ZERO REACTION WORKSPACE OF A SPACE MANIPULATOR
Silvio Cocuzza, CISAS G. Colombo Center of Studies and Activities for Space, University of Padova, Italy

IAC-10.D3.3.10
THE DEVELOPMENT OF A TECHNOLOGY PRIZE TO PROMOTE ON-ORBIT SERVICING INFRASTRUCTURE
Peter Knudtson, International Space University (ISU), United States

D3.4. Joint Session on Space Technology and Systems Management Practices and Tools" – Part I

October 1 2010, 09:00 – Club C

Chair: Paivi Jukola (Helsinki University of Technology (TKK), Finland); Peter A. Swan (Teaching Science and Technology, Inc., United States)
Rapporteur: Christopher Moore (National Aeronautics and Space Administration (NASA), United States)

IAC-10.D3.4.1
MEASURING INNOVATION: A NEW APPROACH TO THE MANAGEMENT OF INNOVATION IN THE COMMUNICATION SATELLITE BUSINESS
Jean-Didier Gayrard, ThalesAlenia Space, France

IAC-10.D3.4.2
A PROCESS STUDY OF NASA'S SPACE SCIENCE INNOVATION SYSTEM
Zoe Szajnfarber, Massachussets Institute of Technology (MIT), United States

IAC-10.D3.4.3
INVESTMENT IN OPEN INNOVATION SERVICE PROVIDERS: NASA'S INNOVATIVE STRATEGY FOR SOLVING SPACE EXPLORATION CHALLENGES
Cynthia Rando, National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States

IAC-10.D3.4.5
CONCEPTS, INNOVATIONS AND PRODUCTS -MANAGING INNOVATIONS I
Paivi Jukola, Helsinki University of Technology (TKK), Finland

IAC-10.D3.4.6
MANAGING RESEARCH FOR GAME-CHANGING ADVANCES
Marc G. Millis, Tau Zero Foundation, United States

IAC-10.D3.4.7
CNES NORMATIVE REFERENTIAL: A MANAGEMENT AND ENGINEERING TOOL TO BE MORE EFFICIENT IN SPACE SYSTEMS DEVELOPMENT
Franck Durand-Carrier, Centre National d'Etudes Spatiales (CNES), France

IAC-10.D3.4.8
NEW MECHANISMS FOR TECHNOLOGICAL BREAKTHROUGHS AND SCIENTIFIC INNOVATION IN THE SPACE SECTOR BY REFLECTION FROM OTHER SECTORS
Christina Giannopapa, European Space Policy Institute (ESPI), Austria

IAC-10.D3.4.9
METHOD OF COLLABORATIVE PRODUCT DEVELOPMENT AT VARIOUS STAGES OF PLM
Shanti Swaroop Kandala, Korea Advanced Institute of Science and Technology (KAIST), India

IAC-10.D3.4.10
DESIGN OF EVALUATION METHOD FOR RESOURCES SCHEDULING IN TT\&C NETWORK MANAGEMENT SYSTEM
Jian Bai, Xi'an Satellite Control Center, China

D4. SYMPOSIUM ON VISIONS AND STRATEGIES FOR FAR FUTURES

Coordinator: Giuseppe Reibaldi (European Space Agency (ESA), The Netherlands); Hans E.W. Hoffmann (ORBComm Inc, Germany)

D4.2. Interstellar Precursor Missions

September 27 2010, 15:15 – Meeting Hall IV

Chair: Roger X. Lenard (LPS, United States); Claudio Bruno (University of Rome "La Sapienza", Italy)
Rapporteur: Dana Andrews (Andrews Space, United States)

IAC-10.D4.2.1
INTERSTELLAR PROBE: IMPACT OF THE VOYAGER AND IBEX RESULTS ON SCIENCE AND STRATEGY
Ralph L. McNutt, The John Hopkins University Applied Physics Laboratory, United States

IAC-10.D4.2.2
FOCAL SPACE MISSION TO 550 AU AND BEYOND: 2010 STATUS REVIEW
Claudio Maccone, International Academy of Astronautics, Italy

IAC-10.D4.2.3
PROJECT ICARUS: SON OF DAEDALUS – FLYING CLOSER TO ANOTHER STAR – A TECHNICAL UPDATE AND PROGRAMME REVIEW.
Robert Swinney, Project Icarus, United Kingdom

IAC-10.D4.2.4
PROJECT ICARUS: MECHANISMS FOR ENHANCING THE STABILITY OF GRAVITATIONALLY LENSED INTERSTELLAR COMMUNICATIONS
Pat Galea, Project Icarus, United Kingdom

IAC-10.D4.2.5
PROJECT ICARUS: STAKEHOLDER ANALYSIS AND PREDICTION OF TECHNOLOGICAL MATURITY OF KEY TECHNOLOGIES FOR THE DEVELOPMENT OF THE ICARUS INTERSTELLAR PROBE
Andreas Hein, Technische Universität München, Germany

IAC-10.D4.2.6
PROJECT ICARUS: ARCHITECTURE DEVELOPMENT FOR ATMOSPHERIC HELIUM 3 MINING OF THE OUTER SOLAR SYSTEM GAS PLANETS FOR SPACE EXPLORATION AND POWER GENERATION
Andreas Hein, Technische Universität München, Germany

IAC-10.D4.2.7
ENERGY, INCESSANT OBSOLESCENCE, AND THE FIRST INTERSTELLAR MISSIONS
Marc G. Millis, Tau Zero Foundation, United States

D4.3. Access to Space in the Far Future

September 29 2010, 15:15 – Small Theatre

Chair: Horst Rauck (Germany); Alain Pradier (European Space Agency (ESA), The Netherlands)
Rapporteur: Paivi Jukola (Helsinki University of Technology (TKK), Finland)

IAC-10.D4.3.1
A NEW HINGED-ROD MODEL FOR DEPLOYMENT AND RETRIEVAL OF TETHERED SATELLITE SYSTEM
Zhong Rui, Beijing University of Aeronautics and Astronautics, China

IAC-10.D4.3.3
TETHER TECHNOLOGY FOR SPACE SOLAR POWER SATELLITE AND SPACE ELEVATOR
Hironori Fujii, Kanagawa Institute of Technology, Japan

IAC-10.D4.3.4
DIVERSE CONFIGURATIONS OF THE SPACE CABLE
John Knapman, United Kingdom

IAC-10.D4.3.5
IN SERVICE POWER REQUIREMENT FOR A MOTORISED MOMENTUM EXCHANGE TETHER
Norilmi Ismail, University of Glasgow, United Kingdom

IAC-10.D4.3.6
DEFLECTION OF LARGE SPACE DEBRIS BY MEANS OF SPINNING AND SWINGING TETHERS
Nahum Melamed, The Aerospace Corporation, United States

IAC-10.D4.3.7
RELEASE AND DEPLOYMENT EXPERIMENTS OF ELECTRODYNAMIC TETHER SYSTEM
Ayaka Takahashi, Teikyo University, Japan

IAC-10.D4.3.8
ACTIVE SPACE DEBRIS REMOVAL – A SYSTEM ENGINEERING APPROACH
Marco M. Castronuovo, Italian Space Agency (ASI), Italy

D4.4. Space Elevators and Tethers

October 1 2010, 14:00 – Club E

Chair: Peter A. Swan (Teaching Science and Technology, Inc., United States); Robert E Penny (Cholla Space Systems, United States)
Rapporteur: David Raitt (The Netherlands)

IAC-10.D4.4.1
PRELIMINARY SYSTEMS REQUIREMENTS FOR THE SPACE TOILET ON THE SPACE TRAIN
Akira Tsuchida, Earth-Track Corporation, Japan

IAC-10.D4.4.2
TETHER ASSISTED NEAR EARTH OBJECT (NEO) DIVERSION
Mohammad J. Mashayekhi, McGill University, Canada

IAC-10.D4.4.3
LIGHT AND STRONG CNT FIBER SPUN WITH CNT WEB
Morihiro Okada, Shizuoka University, Japan

IAC-10.D4.4.4
WIRELESS POWER TRANSFER TO A MOVING VEHICLE: EXPLORATIONS WITH THE KANSAS CITY TEAM FOR THE NASA/SPACEWARD POWER BEAMING CHALLENGE
Martin Lades, Germany

IAC-10.D4.4.5
THE EFFECT OF DISTURBANCES ON SPACE ELEVATOR DYNAMICS WITH FLEXIBILITY
Ryotaro Ohkawa, Nihon University, Japan

IAC-10.D4.4.6
NUMERICAL DYNAMICS AND STABILITY STUDY FOR TWIN TETHERED OBJECTS
Radu Rugescu, Politechnic University of Bucharest, Romania

IAC-10.D4.4.7
GEOSTATIONARY STATION KEEPING CONTROL OF A SPACE ELEVATOR DURING INITIAL CABLE DEPLOYMENT
Noboru Takeichi, Nagoya University, Japan

IAC-10.D4.4.8
SPACE ELEVATOR ROAD MAP 2010
Akira Tsuchida, Earth-Track Corporation, Japan

IAC-10.D4.4.9
COMFORTABLENESS IN SPACE ELEVATOR – PHYSIOLOGICAL CHALLENGE
Satoshi Iwase, Aichi Medical University, Japan

IAC-10.D4.4.10
FIRST SPACE ELEVATOR: ON THE MOON, MARS OR THE EARTH?
Peter A. Swan, Teaching Science and Technology, Inc., United States

D5. SYMPOSIUM ON SAFETY, QUALITY AND KNOWLEDGE MANAGEMENT IN SPACE ACTIVITIES

Coordinator: Jeanne Holm (Jet Propulsion Laboratory, United States)

D5.1. Safety of Vehicules and Ground Segment for Aerospace Missions

September 30 2010, 10:15 – Meeting Room 4.1

Chair: Manola Romero (Office National d'Etudes et de Recherches Aérospatiales (ONERA), France); Alexander S. Filatyev (Central Aero-HydroDynamic Institute, Russia)
Rapporteur: Garett Smith (AIRBUS SAS, France)

IAC-10.D5.1.1
THE RISKS ANALYSES AND SAFETY BARRIERS ELABORATION FOR STAGE OF LAUNCH PREPARATION THE FACTORS OF STABLE ROCKET SPACE COMPLEX OPERATION
Vadim Kadzhaev, Researgh Institute eor Launch Complexes, Russia

IAC-10.D5.1.2
A NEW CHRONOLOGICAL METHOD FOR RELIABILITY IMPROVEMENT / RISK ASSESSMENT
Haruki Takegahara, Tokyo Metropolitan University, Japan

IAC-10.D5.1.3
RELIABILITY ANALYSIS METHODS STUDY OF SPACE LAUNCH MISSION
Xu Chunming, China Xichang Satellite Launch Center, China

IAC-10.D5.1.4
RISK HAZARD ANALYSIS FOR HIFIRE RESEARCH PROGRAM USING RANGE SAFETY TEMPLATE TOOLKIT
Michael Brett, Aerospace Concepts Pty Ltd, Australia

IAC-10.D5.1.5
SYNTHESIS OF CRITICAL DISTRIBUTED RANDOM DISTURBANCES FOR SPACE VEHICLES SAFETY ANALYSIS
Olga Yanova, Central Aero-HydroDynamic Institute, Russia

IAC-10.D5.1.6
THE OBJECTIVE ANALYSIS OF RISK FACTORS AT FALLING OF THE SEPARATED PARTS OF SPACE TRANSPORTATION SYSTEMS
Alexander Golikov, Central Aero-HydroDynamic Institute, Russia

IAC-10.D5.1.7
COMMERCIAL SPACE LAUNCHES SAFETY: A NEW CHALLENGE IN BRAZIL
Carlos Lino, INPE, Brazil

IAC-10.D5.1.8
THE INDEPENDENT GERMAN NATIONAL SURVEILLANCE ORGANISATION IN ESA'S LAUNCHER PRODUCT ASSURANCE FRAMEWORK
Jens Suedkamp, Industrieanlagen-Betriebsgesellschaft mbH (IABG), Germany

IAC-10.D5.1.9
APPLICATION OF A MEDICAL SAFETY MANAGEMENT SYSTEM APPROACH FOR COMMERCIAL HUMAN SPACEFLIGHT OPERATIONS
Melchor Antunano, U.S. Federal Aviation Administration (FAA), United States

IAC-10.D5.1.10
SYSTEM SAFETY ACTIVITY FOR IKAROS SPACECRAFT
Takayuki Yamamoto, Japan Aerospace Exploration Agency (JAXA), Japan

D5.2. Knowledge Management and Collaboration in Space Activities

September 30 2010, 15:15 – Meeting Room 4.1

Chair: Jeanne Holm (Jet Propulsion Laboratory, United States); Roberta Mugellesi-Dow (European Space Agency (ESA), Germany)

IAC-10.D5.2.1
SHARING KNOWLEDGE ACROSS SPACE AGENCIES--THE IAA KNOWLEDGE MANAGEMENT STUDY GROUP
Jeanne Holm, Jet Propulsion Laboratory, United States

IAC-10.D5.2.2
THE ULISSE ENVIRONMENT FOR COLLABORATION ON ISS EXPERIMENT DATA AND KNOWLEDGE REPRESENTATION
Ed Kuijpers, National Aerospace Laboratory (NLR), The Netherlands

IAC-10.D5.2.3
KNOWLEDGE CAPITALIZATION IN A CONCURRENT ENGINEERING ENVIRONMENT
Daniel Schubert, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.D5.2.4
ENABLING ENGINEERING EXCELLENCE IN NASA'S OFFICE OF THE CHIEF ENGINEER
Jeanne Holm, Jet Propulsion Laboratory, United States

IAC-10.D5.2.5
CCSDS – ADVANCING SPACEFLIGHT TECHNOLOGY FOR INTERNATIONAL COLLABORATION
Mike Kearney, National Aeronautics and Space Administration (NASA)/Marshall Space Flight Center, United States

IAC-10.D5.2.6
KNOWLEDGE PRESERVATION: A SEMANTIC APPROACH TO VISUALIZING AND REUSING MICROGRAVITY MATERIAL SCIENCE DATA
Alois Grimbach, DLR, German Space Agency, Germany

IAC-10.D5.2.7
KM DIAGNOSTIC IN SUBDIRECTORATES AND ASSOCIATED ACTIONS
Poble, Centre National d'Etudes Spatiales (CNES), France

IAC-10.D5.2.8
IMPROVING KNOWLEDGE SHARING WITH THE HELP OF A COMMON FRAMEWORK FOR SOFTWARE TOOLS
Patrick Hambloch, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.D5.2.9
COMPARISON OF HETEROGENEOUS SPACE PROJECTS THROUGH COMPLEXITY INDEXES, FOR TECHNICAL AND MANAGERIAL EVALUATIONS
Mauro Pasquinelli, Thales Alenia Space Italia, Italy

IAC-10.D5.2.10
A NEW INFORMATION SYSTEM ARCHITECTURE FOR A NEW SPACE EXPLORATION PARADIGM: USING STAKEHOLDER ANALYSIS TO REENGINEER THE VALUE CHAIN.
Antoni Perez-Poch, Universitat Politecnica de Catalunya (UPC), Spain

IAC-10.D5.2.11
HUMAN FACTOR IN TEAM INTERACTION, INFORMATION FLOW AND DECISION MAKING WITHIN ISS OPERATIONS
Andrea Guidi, HE Space Operations, Germany

IAC-10.D5.2.12
KNOWLEDGE SHARING METHODS: ASSESSMENT AND IMPLEMENTATION
Roberta Mugellesi-Dow, European Space Agency (ESA), Germany

D5.3. Space Weather Prediction and Effects on Space Missions

October 1 2010, 09:00 – Meeting Room 4.1

Chair: Jean-Francois Roussel (Office National d'Etudes et de Recherches Aérospatiales (ONERA), France); Mengu Cho (Kyushu Institute of Technology, Japan)

IAC-10.D5.3.1
THE GLOBAL MUON DETECTOR NETWORK – GMDN AND SPACE WEATHER PREDICTION
Nelson Jorge Schuch, Southern Regional Space Research Center - CRS/CCR/INPE - MCT in collaboration with the Space Science Laboratory of Santa Maria - LACESM/CT - UFSM, Brazil

IAC-10.D5.3.2
SPACE ENVIRONMENT MEASUREMENTS BY JAXA SATELLITES AND ISS
Takahiro Obara, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.D5.3.3
COLLABORATION AND POLICY FOR SPACE WEATHER MODELING AND RISK MITIGATION
Jeanne Holm, Jet Propulsion Laboratory, United States

IAC-10.D5.3.4
SPACE WEATHER EFFECTS IN SPACE MISSIONS MEASURED FROM SATELLITES AND GROUND-BASED INSTRUMENTS NEAR THE SOUTH ATLANTIC MAGNETIC ANOMALY CENTER
Tardelli Ronan Coelho Stekel, Southern Regional Space Research Center - CRS/CCR/INPE - MCT in collaboration with the Space Science Laboratory of Santa Maria - LACESM/CT - UFSM, Brazil

IAC-10.D5.3.5
MULTI-SCALE MODELING TO INVESTIGATE THE SINGLE EVENT EFFECTS FOR SPACE MISSIONS
Guillaume Hubert, Office National d'Etudes et de Recherches Aérospatiales (ONERA), France

IAC-10.D5.3.6
NUMERICAL ANALYSIS OF CHARGED PARTICLE EFFECTS ON SOLAR SAILS FOR INTERPLANETARY FLIGHT
Takanobu Muranaka, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.D5.3.8
EVALUATION OF PERFORMANCE AND RESISTANCE TO SPACE ENVIRONMENT OF ELECTRON-EMITTING FILM (ELF) FOR SPACECRAFT CHARGING MITIGATION
Takahiro Sumida, Kyushu Institute of Technology, Japan

IAC-10.D5.3.9
UNDERSTANDING THE EFFECT OF ATOMIC OXYGEN EXPOSURE ON SURFACE AND VOLUME RESISTIVITY CHANGE IN LEO
Noor Danish Ahrar Mundari, Kyushu Institute of Technology, Japan

IAC-10.D5.3.10
IMPACT OF SPACE WEATHER ON SATELLITE MATERIAL DEGRADATION
Funmilayo Erinfolami, African Regional Center for Space Science and Technology Education in English (ARCSSTE-E), Nigeria

IAC-10.D5.3.11
RADIATION ENVIRONMENT AND ITS EFFECT ON SPACECRAFT SIGNAL AND COMPONENTS
Michael Kio, National Space Research and Development Agency, Abuja, Nigeria, Nigeria

E1. SPACE EDUCATION AND OUTREACH SYMPOSIUM

Coordinator: Chris Welch (Kingston University, United Kingdom); Lyn Wigbels (American Astronautical Society (AAS), United States)

E1.1. Lift Off – Primary and Secondary Space Education

September 27 2010, 15:15 – Club D

Chair: Chris Welch (Kingston University, United Kingdom); Anne Elisabeth Brumfitt (Space Qualified Ltd, Australia)
Rapporteur: Claudia Kessler (HE Space Operations, Germany)

IAC-10.E1.1.2
A SATELLITE IN THE CLASSROOM: 2ND GRADE STUDENTS WORK WITH REAL-TIME SATELLITE IMAGES
Margot Solberg, Ecuadorian Civilian Space Agency (EXA), Ecuador

IAC-10.E1.1.3
THE FIRST EUROPEAN CANSAT COMPETITION FOR HIGH SCHOOL STUDENTS
Jøran Antonsen, Andoya Rocket Range, Norway

IAC-10.E1.1.4
THE NEW EDUSPACE, ESA'S ON-LINE EDUCATIONAL TOOL FOR EARTH OBSERVATION
Elke Delvoye, ESA (European Space Agency), The Netherlands

IAC-10.E1.1.5
EARTH OBSERVATION EDUCATION – PROGRAMME AND TOOLS FOR SCHOOLS IN THE CZECH REPUBLIC
Josef Šobra, Czech Space Office, Czech Republic

IAC-10.E1.1.6
DESIGNING TRANSFORMATIONS: SCHOOLS OF EXCELLENCE
Sue Fairburn, United Kingdom

IAC-10.E1.1.7
THE UNITED SPACE SCHOOL – A PROVEN APPROACH TO SECONDARY SCHOOL EDUCATION
Tahir Merali, European Astronaut Centre, Canada

IAC-10.E1.1.8
THE NEW SOUTH WALES SCHOOL OF SPACE SCIENCE: ENCOURAGING HIGH SCHOOL SCIENCE STUDIES
Kerrie Dougherty, Powerhouse Museum, Australia

IAC-10.E1.1.9
POLAR RESEARCH IN THE CLASSROOM, AFTER THE IPY
Birgit Strømsholm, Andoya Rocket Range, Norway

IAC-10.E1.1.10
10 YEARS OF SPACE EDUCATION IN NIGERIA
Etim Offiong, African Regional Center for Space Science and Technology Education in English (ARCSSTE-E), Nigeria

IAC-10.E1.1.11
DESIGN AND FABRICATION OF HARDWARE TO PROMOTE STEM EDUCATION AND CAREERS AMONG SECONDARY EDUCATION STUDENTS
Lisa Tunstill, University of Alabama in Huntsville, United States

IAC-10.E1.1.12
MARS MISSION PROGRAM FOR PRIMARY STUDENTS
Naomi Mathers, Victorian Space Science Education Centre, Australia

IAC-10.E1.1.13
ALERE FLAMMAM
Chantal Cappelletti, Scuola di Ingegneria Aerospaziale, Italy

E1.2. On Track – Undergraduate and Postgraduate Space Education

September 28 2010, 10:15 – Club D

Chair: Naomi Mathers (Victorian Space Science Education Centre, Australia); Marilyn Steinberg (Canadian Space Agency, Canada)
Rapporteur: Jeong-Won Lee (Korea Aerospace Research Institute, Korea, Republic of)

IAC-10.E1.2.2
A PROTOTYPE-BASED SPACE SYSTEMS DESIGN COURSE
Andre Mazzoleni, North Carolina State University, United States

IAC-10.E1.2.3
SPACECRAFT OPERATIONS TRAINING CENTRE (STC) – EDUCATIONAL HIGHWAY FROM UNIVERSITY TO SPACECRAFT OPERATIONS
Christian D. Bodemann, VEGA Deutschland GmbH & Co, KG, Germany

IAC-10.E1.2.4
TESTING AN INNOVATIVE BOOM FOR MICROSATELLITE ATTITUDE STABILIZATION: AN EDUCATIONAL EXPERIMENT ON SOUNDING ROCKET REXUS-7
Maria Libera Battagliere, Scuola di Ingegneria Aerospaziale, Italy

IAC-10.E1.2.5
ESA PARABOLIC FLIGHT, DROP TOWER AND CENTRIFUGE HANDS-ON ACTIVITIES
Natacha Callens, European Space Agency (ESA), Spain

IAC-10.E1.2.6
PROMOTING STEM EDUCATION VIA THE DESIGN, ANALYSIS, FABRICATION AND TESTING OF A SIMULATED LUNAR ROVING VEHICLE
Henrique Casagrande, University of Alabama in Huntsville, United States

IAC-10.E1.2.7
HOLDING A TECHNICAL REVIEW IN AN EDUCATIONAL PROJECT: IMPLEMENTATION AND LESSONS LEARNED FOR THE OUFTI-1 CUBESAT
Amandine Denis, University of Liege, Belgium

IAC-10.E1.2.8
DESIGN, CONSTRUCTION AND TESTING OF SOUNDING ROCKET PAYLOADS AT THE UNIVERSITY OF QUEENSLAND
Mary D'Souza, Australia

IAC-10.E1.2.9
PRE-MISSION ACTIVITIES FOR THE SPACE HIGHER EDUCATION
Mahsa Taheran, Polytechnic University of Madrid, Iran

IAC-10.E1.2.11
STATUS AND FUTURE PLANS FOR THE NORWEGIAN STUDENT SATELLITE PROGRAM, ANSAT
Jøran Antonsen, Andoya Rocket Range, Norway

IAC-10.E1.2.12
THE SUMMER SCHOOL ALPBACH – FFG'S APPROACH FOR A SPECIALIZED TRAINING IN SPACE SCIENCE
Michaela Gitsch, FFG, Austria

IAC-10.E1.2.13
C'SPACE, THE FRENCH SPACE CAMP
Nicolas Pillet, France

E1.3. Calling Planet Earth – Space Outreach to the General Public

September 29 2010, 15:15 – Club D

Chair: Yolanda Berenguer (UNESCO, France); Olga Zhdanovich (European Space Agency (ESA), The Netherlands)
Rapporteur: Gulnara T. Omarova (Astrophysical Institute, Kazakhstan)

IAC-10.E1.3.1
WORLD SPACE WEEK: AFTER 10 YEARS, THE LARGEST SPACE OUTREACH PROGRAM ON EARTH
Dennis Stone, World Space Week Association, United States

IAC-10.E1.3.2
TEN YEARS AFTER UNISPACE III
Michel Laffaiteur, France

IAC-10.E1.3.3
THE PUBLIC FACE OF SPACE: A SUMMARY OF KEY POINTS FROM ISU'S 14TH ANNUAL SYMPOSIUM
John Farrow, International Space University (ISU), France

IAC-10.E1.3.4
INCREASING MEDIA VISIBILITY OF PUBLIC OUTREACH EFFORTS
Oana Monalisa Sandu, Space Generation Advisory Council (SGAC), Romania

IAC-10.E1.3.5
ENHANCEMENT OF PUBLIC ENGAGEMENT: A STRATEGIC APPROACH FROM THE INTERNATIONAL SPACE EXPLORATION COORDINATION GROUP ISECG
Andrea Boese, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.E1.3.6
ESA KIDS, ESA'S WEBSITE FOR YOUNG SPACE ENTHUSIASTS
Elke Delvoye, ESA (European Space Agency), The Netherlands

IAC-10.E1.3.7
RISE ABOVE THE WHITE NOISE
Beth Beck, National Aeronautics and Space Administration (NASA), United States

IAC-10.E1.3.8
DEVELOPING SPACE IN DEVELOPING NATIONS
Carla Sharpe, South Africa

IAC-10.E1.3.9
EIGHT YEARS IN A 'SPACE MISSION' – LESSONS FROM RUNNING A POPULAR SPACE PORTAL IN HUNGARY
Sandor Frey, Urvilág (i.e. Space World), Hungary

IAC-10.E1.3.10
KYIV PLANETARIUM AUDIENCE RESPONSE ON INTERACTIVE (QUESTIONS AND ANSWERS) LECTURE "ASTRO-QUIZ" – QUALITATIVE EVALUATION
Nataliya Kovalenko, Kyiv planetarium, Ukraine

IAC-10.E1.3.11
FINDING SOLUTION FOR SPACE DEVELOPMENT THROUGH HUMAN RISK APPRAISAL DURING INTERPLANETARY MISSIONS FOR HIGHLY SKILLED SPECIALISTS EDUCATION
Lubov Strogonova, Moscow Aviation Institute (State Technical University), Russia

IAC-10.E1.3.12
THE ORGANIZATIONS FOR SPACE EDUCATION AND OUTREACH PROGRAMS IN THE REPUBLIC OF KOREA
Jeong-Won Lee, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.E1.3.13
THE POTENTIAL OF INNOVATIVE OUTREACH FROM CUBE-SAT PROGRAMMES
Jason Stones, Astrium Ltd., United Kingdom

IAC-10.E1.3.14
IS BEING A PLANETARY SCIENTIST THE BEST JOB IN THE WORLD?
Alexandre Sole, Spain

IAC-10.E1.3.15
PROGRAMA ESPACIAL.COM: A DREAM COMES TRUE
Antoni Perez-Poch, Universitat Politecnica de Catalunya (UPC), Spain

E1.4. New Worlds – Innovative Space Education and Outreach

September 30 2010, 15:15 – Meeting Hall IV

Chair: Jean-Daniel Dessimoz (Western Switzerland University of Applied Sciences (HESSO.HEIG-VD) and Swiss Association for Astronautics, Switzerland); Vera Mayorova (Novosti Kosmonavtiki (News of Cosmonautics), Russia)
Rapporteur: Mabel J. Matthews (National Aeronautics and Space Administration (NASA), United States)

IAC-10.E1.4.1
AOUDA.X – LESSONS LEARNED FROM A HIGH PROFILE SCIENCE-EDUCATION PARTNERSHIP PROJECT
Olivia Haider, Austrian Space Forum, Austria

IAC-10.E1.4.2
THE USE OF TELEPRESENCE TECHNOLOGIES IN NASA'S EDUCATION PROGRAMS
Patricia A. Currier, National Aeronautics and Space Administration (NASA), United States

IAC-10.E1.4.3
SYSTEM EDUCATIONS THROUGH SMALL AEROSPACE SYSTEMS
Kenji Ogimoto, SOUKI Systems Co. Ltd., Japan

IAC-10.E1.4.4
HANA-DENSETSU, RECOGNITION OF THE BEAUTY OF LIFE ON THIS PLANET
Yoichi Hasegawa, Japan Manned Space Systems Corporation, Japan

IAC-10.E1.4.5
THE BRAIN NEW STRATEGY FOR INNOVATIVE SPACE SCIENCES EDUCATION ON THE ANTHROPOGENESIS OF MULTIDIMENSIONAL SPACE-TIME PARADIGMS
Zdravko Andonov, Space Research Institute - Bulgarian Academy of Sciences, Bulgaria

IAC-10.E1.4.6
NEXT GENERATION SPACE ENGINEERS EDUCATION
Jens Frederik Dalsgaard Nielsen, Aalborg University, Denmark

IAC-10.E1.4.7
AUTOMATIC DETECTION OF SPACE DEBRIS WITH A MEADE TELESCOPE
Achim Gottscheber, SRH University of Applied Sciences Heidelberg, Germany

IAC-10.E1.4.8
FROM SIMPLE FASCINATION TO PROFESSIONAL PROJECTS – THE POLISH WEBCOMMUNITY PERSPECTIVE
Michal Moroz, kosmonauta.net, Poland

IAC-10.E1.4.9
PERUVIAN SATELLITE NETWORK – SUPPORT OF THE ISS RADIOAMATEUR PROGRAM
Jaime Alberto Estela Gutiérrez, Germany

IAC-10.E1.4.10
BUILDING THE BRIDGE FROM MISSION ANALYSIS TO SPACECRAFT OPERATIONS IN EDUCATION
Osman Kalden, VEGA Deutschland GmbH & Co, KG, Germany

IAC-10.E1.4.11
USING A VIRTUAL GROUND STATION AS A TOOL FOR SUPPORTING HIGHER EDUCATION
Ghulam Jaffer, Graz University of Technology, Austria

IAC-10.E1.4.12
"SPACE KNOWLEDGE" TO THE PUBLIC
Marion Mueller, GEONAT, Germany

IAC-10.E1.4.13
CANSAT FRANCE: AN INNOVATIVE COMPETITION TO ENCOURAGE WIDE ADOPTION AND PUBLIC AWARENESS
Emmanuel Jolly, Planete Sciences, France

IAC-10.E1.4.14
VIRTUAL SPACECRAFT DESIGN: AN EFFECTIVE TRAINING METHOD
Wen Yuejie, China Academy of Space Technology (CAST), China

IAC-10.E1.4.15
SPACE EDUCATION PROGRAM WITHIN THE FRAME OF COLLABORATION BETWEEN THE RUSSIAN FEDERATION AND MEXICO
Saul De la Rosa Nieves, School of Engineering, UNAM, Mexico

E1.5. To Boldly Go – Space Station Education and Outreach

October 1 2010, 09:00 – Meeting Room 4.2

Chair: Lyn Wigbels (American Astronautical Society (AAS), United States); Marilyn Steinberg (Canadian Space Agency, Canada)
Rapporteur: Rachid Amekrane (Astrium GmbH, Germany)

IAC-10.E1.5.1
A SPACESHIP, ASTRONAUTS AND CHILDREN: HOW THE EUROPEAN SPACE AGENCY BRINGS THEM TOGETHER IN THE CLASSROOM
Shamim Hartevelt, European Space Agency (ESA), The Netherlands

IAC-10.E1.5.2
SPACESMART: SHIFTING PUBLIC PERCEPTIONS OF SPACE
Beth Beck, National Aeronautics and Space Administration (NASA), United States

IAC-10.E1.5.3
NASA EDUCATION ACTIVITIES ON THE INTERNATIONAL SPACE STATION: A NATIONAL LABORATORY FOR INSPIRING, ENGAGING, EDUCATING AND EMPLOYING THE NEXT GENERATION
Julie A. Robinson, National Aeronautics and Space Administration (NASA)/Johnson Space Center, United States

IAC-10.E1.5.5
THE ISS AS USEFUL PLATFORM FOR THE RADIO AMATEUR COMMUNITY AROUND THE WORLD
Jaime Alberto Estela Gutiérrez, Germany

IAC-10.E1.5.6
AN ORDINARY CAMERA IN AN EXTRAORDINARY LOCATION: OUTREACH WITH THE MARS WEBCAM
Thomas Ormston, VEGA, Germany

IAC-10.E1.5.7
KIBO HI-VISION EARTHVIEW EDUCATIONAL SYSTEM DEVELOPMENT
Susumu Yoshitomi, Japan Space Forum, Japan

IAC-10.E1.5.9
EDUCATIONAL TRAINING ON SPACECRAFT OPERATIONS IN A SOYUZ MOCK-UP SIMULATOR
Jochen Noll, University of Stuttgart, Germany

E1.6.-E5.4. Water from Space: Societal, Educational and Cultural Aspects

September 29 2010, 11:45 – Club D

Chair: Annick Bureaud (Leonardo/Olats, France); Bee Thakore (Space Generation Advisory Council (SGAC), United Kingdom); Lyn Wigbels (American Astronautical Society (AAS), United States)
Rapporteur: Adrian Meyer (Space School Africa, South Africa)

IAC-10.E1.6.-E5.4.1
WATER IN SPACE EXPLORATION: INFLUENCE AND BENEFITS FOR SOCIAL PROJECTS ON EARTH
Jan Walter Schroeder, Astrinova, Germany

IAC-10.E1.6.-E5.4.2
LOOKING FOR MARS IN THE NORTHERN ATLANTIC
Lucy Hg, United States

IAC-10.E1.6.-E5.4.3
WATER FROM SPACE: ART AS A POWERFUL BRIDGE BETWEEN FANTASY AND FACT
Elinor Nina Czegledy Nagy, Leonardo Electronic Almanach, Canada

IAC-10.E1.6.-E5.4.4
LAUNCH: WATER – ACCELERATING INNOVATION FOR A SUSTAINABLE FUTURE.
Beth Beck, National Aeronautics and Space Administration (NASA), United States

IAC-10.E1.6.-E5.4.5
WATER DEAL
Helene von Oldenburg, Germany

E1.7. Space Workforce Development – Challenges and Opportunities

October 1 2010, 14:00 – Club D

Chair: Olga Zhdanovich (European Space Agency (ESA), The Netherlands); Mabel J. Matthews (National Aeronautics and Space Administration (NASA), United States); Annalisa Weigel (Massachussets Institute of Technology (MIT), United States)
Rapporteur: Frank Friedlaender (Lockheed Palo Alto Research Lab., United States); Amalio Monzon (LEEM, Germany)

IAC-10.E1.7.1
THE U.S. HUMAN SPACEFLIGHT WORKFORCE
William H. Gerstenmaier, National Aeronautics and Space Administration (NASA)/Ames Research Center, United States

IAC-10.E1.7.2
BUILDING A WORKFORCE TO SUPPORT A NATIONAL SPACE PROGRAMME
Mazlan Othman, United Nations Office for Outer Space Affairs, Austria

IAC-10.E1.7.3
IMPLEMENTATION OF A NASA EDUCATION WORKFORCE DEVELOPMENT INITIATIVE: TRANSITIONING A HIGH-PERFORMING AND DIVERSE STUDENT POOL INTO THE SPACE EXPLORATION WORKFORCE
Mabel J. Matthews, National Aeronautics and Space Administration (NASA), United States

IAC-10.E1.7.4
MAINTAINING THE FUTURE SPACE WORKFORCE – THE GLOBAL YOUTH'S PERSPECTIVE
Rishi Sharda, United Kingdom

IAC-10.E1.7.5
"LUNCHSAT", A TRAINING PROGRAMME FOR YOUNG PROFESSIONALS IN EADS ASTRIUM TO BUILD A NANO-SATELLITE
Nicholas Fishwick, Astrium Ltd., United Kingdom

IAC-10.E1.7.6
ATTRACTING AND TRAINING THE NEXT GENERATION OF EUROPEAN SPACE ENGINEERS THROUGH HANDS-ON SPACE PROJECT ACTIVITIES
Roger Walker, European Space Agency (ESA), The Netherlands

IAC-10.E1.7.7
LEEM: ATTRACTING STUDENTS TO THE AEROSPACE SECTOR AND CONTRIBUTING TO THEIR DEVELOPMENT
Amalio Monzon, LEEM, Germany

IAC-10.E1.7.8
INTEGRATING OF EDUCATIONAL AND SCIENTIFIC-TECHNOLOGICAL AREAS DURING THE PROCESS OF EDUCATION OF AEROSPACE ENGINEERS
Vera Mayorova, Novosti Kosmonavtiki (News of Cosmonautics), Russia

IAC-10.E1.7.9
THE SPACE ENGLISH ACCESS COURSE (SEAC): CHALLENGES AND OPPORTUNITIES FOR CONTINUING PROFESSIONAL EDUCATION AND TRAINING
Carol Carnett, International Space University (ISU), United States

IAC-10.E1.7.10
S. W. O. T (STRENGTH, WEAKNESS, OPPORTUNITY AND THREAT) ANALYSIS FOR STUDENTS TO EXPLORE SPACE AT ISRO AND IAC
Shanti Swaroop Kandala, Korea Advanced Institute of Science and Technology (KAIST), India

IAC-10.E1.7.11
INTERNATIONAL PROGRAM/PROJECT MANAGEMENT COMMITTEE PRESENTATION
Edward J. Hoffman, National Aeronautics and Space Administration (NASA), United States

IAC-10.E1.7.12
ENABLING THE FUTURE THROUGH PROGRAM/PROJECT ACADEMIES
Edward J. Hoffman, National Aeronautics and Space Administration (NASA), United States

E2. 40th STUDENT CONFERENCE

Coordinator: Marco Schmidt (University of Wuerzburg, Germany); Stephen Brock (American Institute of Aeronautics and Astronautics (AIAA), United States)

E2.1. Student Conference I

September 27 2010, 15:15 – Meeting Room 4.1

Chair: Marco Schmidt (University of Wuerzburg, Germany); Carsten Holze (machtwissen.de AG, Germany)
Rapporteur: Naomi Mathers (Victorian Space Science Education Centre, Australia)

IAC-10.E2.1.1
AIRCRAFT BASED LAUNCH SYSTEM "SYNERGY"
Mykola Gryshyn, Dniepropetrovsk National University, Ukraine

IAC-10.E2.1.2
DISPLACED GEOSTATIONARY ORBITS USING HYBRID LOW-THRUST PROPULSION
Jeannette Heiligers, University of Strathclyde, United Kingdom

IAC-10.E2.1.3
TRANSPORTATION ARCHITECTURE FOR ROUND-TRIP EXPLORATION TO MARS UTILIZING DEEP SPACE PORT AT SUN-EARTH LIBERATION POINT
Marie Kitajima, Tokai University, Japan

IAC-10.E2.1.5
MINIATURIZED PULSED PLASMA THRUSTERS FOR CUBESATS: MODELLING AND DIRECT THRUST MEASUREMENT
David Krejci, Austrian Institute of Technology GmbH (AIT), Austria

IAC-10.E2.1.6
NEW TRAJECTORIES TO TEST MOND/TEVES WITH LISA PATHFINDER
Benjamin Toullec, SUPAERO, France

IAC-10.E2.1.7
CORRELATION OF FATIGUE DATA FOR BARELY VISIBLE IMPACT DAMAGED CARBON FIBRE REINFORCED EPOXY LAMINATES
Alastair Komus, University of Manitoba, Canada

IAC-10.E2.1.8
PROSPECTIVE THERMOELECTRIC TELLURIDES
Patrik Čermák, University of Pardubice, Czech Republic

IAC-10.E2.1.10
IN-FLIGHT VERIFICATION OF A NOVEL METHOD FOR THE TRACKING OF ROCKETS
Konrad Makowka, Technische Universität München, Germany

E2.2. Student Conference II

September 28 2010, 10:15 – Meeting Room 4.1

Chair: Rachid Amekrane (Astrium GmbH, Germany); Benedicte Escudier (SUPAERO- Ecole Nationale Supérieure de l'Aéronautique et de l'Espace, France)
Rapporteur: Thomas Snitch (Little Falls Associates, Inc., United States)

IAC-10.E2.2.1
DEVELOPMENT AND VERIFICATION OF MICROSATELLITE ATTITUDE CONTROL SYSTEM BY PROCESSOR-IN-THE-LOOP METHOD
Chia-Yen Chong, National Cheng Kung University, Taiwan, China

IAC-10.E2.2.2
EFFECT OF SIZE AND ORIENTATION OF PANELS ON SATELLITE FORMATION
Priyam Chakraborty, Indian Institute of Technology, India

IAC-10.E2.2.3
THE E-ST@R CUBESAT: ANTENNAS SYSTEM
Gilbert Fanchini, Politecnico di Torino, Italy

IAC-10.E2.2.4
SOFTWARE DEVELOPMENT OF STAR TRACKERS FOR SMALL SATELLITES
Koki Ho, The University of TOKYO, Graduate school, Japan

IAC-10.E2.2.5
CONCEPTS FOR MODULARITY AND STANDARDIZATION OF ELECTRONIC BOARDS ON SMALL SATELLITES
Stéphanie Perez, Université de Montpellier II, France

IAC-10.E2.2.6
BROADBAND LIGHT SOURCE FOR FIBER-OPTIC MEASUREMENT SYSTEM IN SPACE APPLICATIONS
Max Rössner, Germany

IAC-10.E2.2.7
EXPERIMENTAL INVESTIGATION OF PERFORMANCE PARAMETERS FOR TRACTION SYSTEM OF LUNAR ROVING VEHICLE PROTOTYPE WHEELS
Nasim Kaveh-Moghaddam, McGill University, Canada

IAC-10.E2.2.8
ORBIT ANALYSIS OF A LOW-FLYING SPACECRAFT FOR ATMOSPHERIC RESEARCH
Johan Kütt, United Kingdom

IAC-10.E2.2.9
LUNAR REGOLITH IN SITU RESOURCE UTILIZATION: APPLICATIONS IN DUST MITIGATION AND VACUUM PYROLYSIS
Brandon Hall, University of Maryland, United States

IAC-10.E2.2.10
COMPUTATIONAL STUDY OF NASA'S NEXT ION ENGINE
Michael Jonell, Wright State University, United States

E2.3. Student Conference III

September 28 2010, 15:15 – Meeting Room 4.1

Chair: Stephen Brock (American Institute of Aeronautics and Astronautics (AIAA), United States); Mabel J. Matthews (National Aeronautics and Space Administration (NASA), United States)
Rapporteur: Benedicte Escudier (SUPAERO- Ecole Nationale Supérieure de l'Aéronautique et de l'Espace, France)

IAC-10.E2.3.1
FEASIBILITY STUDY OF MATERIALS FOR TRIS SYSTEM'S CATCHING SHIELD
Chiara Massimiani, Scuola di Ingegneria Aerospaziale, Italy

IAC-10.E2.3.2
ORBIT DETERMINATION AND CONTROL FOR THE EUROPEAN STUDENT MOON ORBITER
Federico Zuiani, University of Glasgow, Space Advanced Research Team, United Kingdom

IAC-10.E2.3.3
DEVELOPMENT OF A SOLID PROPELLANT TO ACCOMPLISH THE GOAL OF REACHING SPACE BY A STUDENT-BUILT ROCKET
Hein Olthof, Delft University of Technology (TU Delft), The Netherlands

IAC-10.E2.3.4
ATTITUDE DETERMINATION & CONTROL SYSTEM (ADCS) OF PICO-SATELLITE
Harish Rao Ramavaram, Kavikulguru institute of technology and sciences, India

IAC-10.E2.3.5
NAVIS: PERFORMANCE EVALUATION OF THE AAUSAT3 CUBESAT USING STRATOSPHERIC BALLOON FLIGHT
Hans Peter Mortensen, Aalborg University, Denmark

IAC-10.E2.3.6
FOCUS – FIRST ORBITAL CURING EXPERIMENT OF UNIVERSITY STUDENTS
Philipp Reiss, Technische Universität München, Germany

IAC-10.E2.3.7
CHANGES IN NATURAL RESISTANCE OF IMMUNE SYSTEM AT VOLUNTEERS-VERIFIERS IN LONG-TERM ISOLATION
Sergey Ponomaryov, Institute for Biomedical Problems of the Russian Academy of Sciences, Russia

IAC-10.E2.3.8
GREENER SPACE
Olga Zhdanovich, European Space Agency (ESA), The Netherlands

IAC-10.E2.3.9
HYPER 1: DEVELOPMENT OF A HYBRID PROPULSION SYSTEM FOR EXPERIMENTAL ROCKETS
Michael Deiml, Technische Universität München, Germany

IAC-10.E2.3.10
CORALCO: COSMIC RAYS – LIGHT, COMPACT & LOW-COST DEVICE FOR THE REAL-TIME RADIATION ENVIRONMENT MEASUREMENT IN THE ATMOSPHERE AND STRATOSPHERE
Jaroslav Urbář, Charles University, Faculty of Mathematics and Physics, Czech Republic

E3. 23rd SYMPOSIUM ON SPACE POLICY, REGULATIONS AND ECONOMICS

Coordinator: Kai-Uwe Schrogl (European Space Policy Institute (ESPI), Austria); Sergio Camacho (CRECTEALC – Regional Centre for Space Science and Technology Education for Latin American and The Caribbean, Mexico)

E3.1A. New Developments in National and International Space Policies and Programmes I

September 27 2010, 15:15 – Terrace 1

Chair: Kazuto Suzuki (Hokkaido University, Japan); Jan Kolář (Czech Space Office, Czech Republic)
Rapporteur: Catherine Doldirina (McGill University, Canada)

IAC-10.E3.1A.1
UNDERSTANDING THE NEW U.S. APPROACH TO HUMAN SPACE FLIGHT
John M. Logsdon, Space Policy Institute, George Washington University, United States

IAC-10.E3.1A.2
FIVE KEY TURNING POINTS IN THE AMERICAN SPACE INDUSTRY IN THE PAST 20 YEARS: ANALYZING MOMENTS THAT MOLDED SUPPLY, DEMAND, AND REGULATION TO PLAN AHEAD
Ariane Cornell, Space Generation Advisory Council (SGAC), Austria

IAC-10.E3.1A.3
SPACE POLICY PRIORITIES IN UKRAINE
Valerii Korepanov, Lviv Centre of Institute of Space Research, Ukraine

IAC-10.E3.1A.4
THE MAKING OF A NATION'S SPACE POLICY: AUSTRALIA'S APPROACH.
Noel Siemon, The PC Users Group (ACT) Inc, Australia

IAC-10.E3.1A.5
THE NATIONAL SPACE POLICY: MOVEMENT TOWARDS A MORE CO-ORDINATED APPROACH OF SPACE ACTIVITIES IN SOUTH AFRICA.
Lulekwa Makapela, South Africa

IAC-10.E3.1A.6
A MEDITERRANEAN SATELLITE TO REALIZE THE UNION FOR THE MEDITERRANEAN
Masmoudi Mustapha, ATUCOM - Tunisian Association for Communication and Space Sciences, Tunisia

IAC-10.E3.1A.7
A COMPREHENSIVE MAPPING OF THE EUROPEAN-AFRICAN COOPERATION USING SATELLITES AND POLICY PERSPECTIVES
Christina Giannopapa, European Space Policy Institute (ESPI), Austria

IAC-10.E3.1A.8
INFLUENCE IN SPACE POLICIES AND COOPERATION IN THE ASIA PACIFIC
Stephanie Wan, George Washington University, United States

IAC-10.E3.1A.9
THE MEXICAN SPACE AGENCY AS A CATALYST TO SOLVE NATIONAL PROBLEMS
Israel Ojeda Coronado, Space Generation Advisory Council (SGAC), United States

IAC-10.E3.1A.10
SPACE POLICY OF PRESIDENT LEE MYUNG-BAC GOVERNMENT OF KOREA
Nammi Choe, Korea Aerospace Research Institute, Korea, Republic of

IAC-10.E3.1A.11
SPACE POLICY AND GOVERNANCE AS BARRIERS TO INTERNATIONAL COLLABORATION
Joseph Fuller, Futron Corporation, United States

IAC-10.E3.1A.12
CONTEMPORARY SPACE EXPLORATION IN THE UNITED STATES AND EUROPE: A PUBLIC POLICY COMPARISON VERONICA CHKADUA THE UNIVERSITY OF ALABAMA IN HUNTSVILLE
Veronica Chkadua, United States

IAC-10.E3.1A.13
PROSPECTS OF MICRO AND NANO-SATELLITES IN GLOBAL TRENDS OF THE SPACE MARKET – DIRECTIONS AND OPPORTUNITIES FOR THE ISRAELI SPACE SECTOR
Yonatan Winetraub, INSA, Israel

IAC-10.E3.1A.14
THE ANALYSIS OF EXISTING INTERNATIONAL SPACE COOPERATION INITIATIVES FOR UNESCO'S WORLD HERITAGE SITES
Sandra Cabrera Alvarado, France

IAC-10.E3.1A.15
TRANSPARENCY AND CONFIDENCE-BUILDING MEASURES (TCBM) FOR SPACE SECURITY
Jana Robinson, European Space Policy Institute (ESPI), Austria

IAC-10.E3.1A.16
THE ROLE OF SPACE TECHNOLOGY AND ICTS IN GLOBAL ACTIVITIES ON FOOD SECURITY
Olufunke Ero-Phillips, Switzerland

E3.1B. New Developments in National and International Space Policies and Programmes II

September 28 2010, 15:15 – Terrace 1

Chair: Kazuto Suzuki (Hokkaido University, Japan); Jan Kolář (Czech Space Office, Czech Republic)
Rapporteur: Catherine Doldirina (McGill University, Canada)

IAC-10.E3.1B.1
TOWARDS A UN SPACE POLICY
Ciro Arevalo, Chairman, UN-COPUOS, Austria

IAC-10.E3.1B.2
LONG-TERM SUSTAINABILITY OF SPACE ACTIVITIES – WIDENING THE DEBATE
Peter Martinez, National Research Foundation (NRF), South Africa

IAC-10.E3.1B.3
ASSESSING THE CURRENT DYNAMICS OF SPACE SECURITY – RESULTS OF THE SWF-IFRI WORKSHOP ON THE CURRENT TRENDS IN SPACE SECURITY
Agnieszka Lukaszczyk, Secure World Foundation, Austria

IAC-10.E3.1B.4
RESPONDING TO THE THREAT OF POTENTIALLY-HAZARDOUS NEAR EARTH OBJECTS
Ray A. Williamson, Secure World Foundation, United States

IAC-10.E3.1B.5
WINNING ENTRY OF THE SPACE GENERATION ADVISORY COUNCIL'S ASTEROID GLOBAL WARNING SYSTEM TECHNICAL PAPER COMPETITION 2010
Andrew Bacon, Space Generation Advisory Council (SGAC), United Kingdom

IAC-10.E3.1B.6
SPACE APPLICATIONS FOR INTERNATIONAL DEVELOPMENT
Mariel John, United States

E3.2. Policy and Economic Aspects of Space Weather

September 28 2010, 15:15 – Terrace 1

Chair: Werner R. Balogh (United Nations Office for Outer Space Affairs, Austria); David Kendall (Canadian Space Agency, Canada)
Rapporteur: Jana Robinson (European Space Policy Institute (ESPI), Austria)

IAC-10.E3.2.1
IAA STUDY GROUP ON INTERNATIONAL COOPERATION ON SPACE WEATHER
Werner R. Balogh, United Nations Office for Outer Space Affairs, Austria

IAC-10.E3.2.2
DEVELOPMENT OF A COORDINATED EUROPEAN SPACE WEATHER INFRASTRUCTURE
Alexi Glover, ESA, Spain

IAC-10.E3.2.3
SWIFTER-ACTION – A SPACE WEATHER VIRTUAL ORGANIZATION
Larry Paxton, The John Hopkins University Applied Physics Laboratory, United States

IAC-10.E3.2.4
DID GEOMAGNETIC ACTIVITY POSE A CHALLENGE TO ELECTRIC POWER RELIABILITY DURING SOLAR CYCLE 23?: EVIDENCE FROM THE UNITED KINGDOM, THE NETHERLANDS, NEW YORK, AND PJM
Kevin Forbes, United States

IAC-10.E3.2.5
SPACE WEATHER AWESOME VLF MONITORING IN AZERBAIJANI SITE AND INTERNATIONAL COOPERATION
Elchin S. Babayev, Shamakhy Astrophysical Observatory, Azerbaijan

IAC-10.E3.2.6
CONTRIBUTIONS OF THE UNITED NATIONS OFFICE FOR OUTER SPACE AFFAIRS TO THE INTERNATIONAL SPACE WEATHER INITIATIVE (ISWI)
Werner R. Balogh, United Nations Office for Outer Space Affairs, Austria

E3.3. The Space Economy in Figures

September 29 2010, 10:15 – Terrace 1

Chair: Pierre-Alain Schieb (Organisation for Economic Co-operation and Development (OECD), France); Pierre Lionnet (Eurospace, France)

IAC-10.E3.3.1
THE SPACE ECONOMY AT A GLANCE 2010: THE OECD / IFP APPROACH
Claire Jolly, Organisation for Economic Co-operation and Development (OECD), France

IAC-10.E3.3.2
ANALYSIS OF GLOBAL SPACE BUDGETS AND REVENUE
Mariel John, United States

IAC-10.E3.3.3
SPACE ECONOMIC METRICS AS A TOOL FOR UNDERSTANDING AND ENHANCING NATIONAL SPACE COMPETITIVENESS
David Vaccaro, Futron Corporation, United States

IAC-10.E3.3.4
METHODOLOGICAL ISSUES AND HURDLES WITH SPACE ECONOMIC DATA
Pierre Lionnet, Eurospace, France

IAC-10.E3.3.5
CURRENT STATUS AND STATISTICS OF JAPANESE SPACE INDUSTRY
Norihiro Sakamoto, Society of Japanese Aerospace Companies (SJAC), Japan

IAC-10.E3.3.6
VALUING THE CANADIAN SPACE SECTOR CONTRIBUTION TO THE SPACE ECONOMY
Joan Harvey, Canadian Space Agency, Canada

IAC-10.E3.3.7
THE INDIAN SPACE PROGRAMME, ITS SALIENT FEATURES AND POLICIES
Radhika Ramachandran, Indian Space Research Organization (ISRO), France

IAC-10.E3.3.8
OVERVIEW OF THE ECONOMIC IMPACT REPORT FROM THE FAA OFFICE OF COMMERCIAL SPACE TRANSPORTATION
Ken Davidian, FAA Office of Commercial Space Transportation, United States

IAC-10.E3.3.9
SPACE INDUSTRY STATISTICS, METHODOLOGY AND PRACTICAL APPROACH: THE EUROSPACE EXAMPLE
Pierre Lionnet, Eurospace, France

IAC-10.E3.3.10
SOCIAL VALUES AND ECONOMIC IMPACT OF PUBLIC SPENDING ON SPACE-RELATED PROGRAMS
Ersilia Vaudo Scarpetta, European Space Agency (ESA), France

IAC-10.E3.3.11
THE SPACE INDUSTRY AND ITS RELATIONSHIP WITH THE SPACE SERVICES SECTOR AND THE REST OF THE ECONOMY
Giancarlo Graziola, University of Bergamo, Italy

IAC-10.E3.3.12
MEASURING THE IMPACTS OF GOVERNMENT INVESTMENT IN SPACE INFRASTRUCTURE DEVELOPMENT
Paul Guthrie, The Tauri Group, United States

IAC-10.E3.3.13
THE ROLE OF "INTEGRATED" FINANCING IN THE DEVELOPMENT OF ITALY'S SPACE SECTOR
Giacomo Primo Sciortino, Italian Space Agency (ASI), Italy

E3.4. Protecting the Environment of Celestial Bodies

October 1 2010, 14:00 – Club C

Chair: Mahulena Hofmann (University of Giessen, Germany); Petra Rettberg (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany)
Rapporteur: Marc Haese (European Space Agency (ESA), The Netherlands)

IAC-10.E3.4.1
PROTECTING THE SPACE ENVIRONMENT: A POLICY FRAMEWORK
Mark Williamson, Space Technology Consultant, United Kingdom

IAC-10.E3.4.2
THE COSPAR PLANETARY PROTECTION GUIDELINES AND THE DETECTION OF MICROBIOLOGICAL CONTAMINATION ON SPACE HARDWARE
Petra Rettberg, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.E3.4.3
PLANETARY PARKS – THE NEED OF A WILDERNESS POLICY IN SOLAR SYSTEM EXPLORATION
Gerda Horneck, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany

IAC-10.E3.4.4
MODELS OF INTERNATIONAL POLITICS FOR PROTECTING THE ENVIRONMENT OF CELESTIAL BODIES
Kazuto Suzuki, Hokkaido University, Japan

IAC-10.E3.4.5
ADVANCED MULTIDIMENSIONAL MULTITEMPORAL STRATEGY FOR GLOBAL AND COSMICAL PROTECTING THE ENVIRONMENT OF CELESTIAL BODIES
Zdravko Andonov, Space Research Institute - Bulgarian Academy of Sciences, Bulgaria

IAC-10.E3.4.6
HOW FAR-REACHING IS THE OBLIGATION TO PROTECT THE ENVIRONMENT OF CELESTIAL BODIES ACCORDING TO CONTEMPORARY INTERNATIONAL LAW?
Catherine Doldirina, McGill University, Canada

IAC-10.E3.4.7
THE PERSPECTIVE OF A NEW UN RESOLUTION
Mahulena Hofmann, University of Giessen, Germany

E3.5.-E7.6. 25th IAA/IISL Scientific-Legal Roundtable: The New Age of Small Satellite Missions (Invited Papers only)

September 30 2010, 10:15 – Terrace 1

Chair: Rainer Sandau (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany); Lesley Jane Smith (Leuphana University of Lüneburg/ Weber-Steinhaus & Smith, Germany)
Rapporteur: Nicola Rohner-Willsch (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany)

IAC-10.E3.5.-E7.6.1
SMALL SATELLITE MISSIONS FOR EARTH OBSERVATION – STATUS & TRENDS
Martin Sweeting, Surrey Space Centre, United Kingdom

IAC-10.E3.5.-E7.6.2
DISTRIBUTED SPACE SYSTEMS OF SMALL SATELLITES – OPPORTUNITIES AND CHALLENGES
Eberhard Gill, Delft University of Technology (TU Delft), The Netherlands

IAC-10.E3.5.-E7.6.4
ITU RADIO REGULATORY REQUIREMENTS FOR SMALL SATELLITE DESIGN AND OPERATION
Attila Matas, International Telecommunication Union (ITU), Switzerland

IAC-10.E3.5.-E7.6.5
LIABILITY AND RELATED LEGAL ASPECTS OF SMALL SATELLITES
Ram S. Jakhu, Institute of Air and Space Law, Canada

E4. 44th HISTORY OF ASTRONAUTICS SYMPOSIUM

Coordinator: Christophe Rothmund (Snecma, France); Ake Ingemar Skoog (Germany); Yasunori Matogawa (Japan Aerospace Exploration Agency (JAXA), Japan); Kerrie Dougherty (Powerhouse Museum, Australia)

E4.1. IAA 50th Anniversary

September 29 2010, 10:15 – Club D

Chair: Ake Ingemar Skoog (Germany); Kerrie Dougherty (Powerhouse Museum, Australia)
Rapporteur: Niklas Reinke (Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany)

IAC-10.E4.1.1
THE ORIGINS OF IAA – PERSONAL MEMORIES OF LES SHEPHERD
John Becklake, United Kingdom

IAC-10.E4.1.2
THE CREATION OF THE INTERNATIONAL ACADEMY OF ASTRONAUTICS AND ITS INSTITUTIONAL DEVELOPMENT
Vladimír Kopal, West Bohemian University, Czech Republic

IAC-10.E4.1.3
AN OVERVIEW OF THE USA FOUNDING MEMBERS OF THE INTERNATIONAL ACADEMY OF ASTRONAUTICS
Lance Warden, University of Alabama in Huntsville, United States

IAC-10.E4.1.4
THE SWEDISH INTERPLANETARY SOCIETY (1950–1969) AND THE FORMATION OF IAF AND IAA
Ake Ingemar Skoog, Germany

E4.2. Memoirs and Organisational Histories

September 30 2010, 10:15 – Club D

Chair: Marsha Freeman (21st Century Science & Technology, United States); Hervé Moulin (Institut Français d'Histoire de l'Espace, France)
Rapporteur: Theo Pirard (Space Information Center, Belgium)

IAC-10.E4.2.1
ERNST STUHLINGER – AN HISTORIAN
Charles Lundquist, University of Alabama in Huntsville, United States

IAC-10.E4.2.2
ARTHUR VALENTINE CLEAVER (1917–1977)
Andrew Chatwin, The British Interplanetary Society, United Kingdom

IAC-10.E4.2.3
ARY STERNFELD AND MODERN COSMONAUTICS
Vyacheslav V. Ivashkin, Keldysh Institute of Applied Mathematics, RAS, Russia

IAC-10.E4.2.4
MIGUEL SÁNCHEZ PEÑA (1925–2009) – ORGANIZER OF THE SPACE ACTIVITIES IN ARGENTINA
Pablo de Leon, Argentine Association for Space Technology, Argentina

IAC-10.E4.2.5
PEDRO PAULET – PERUVIAN PIONEER OF THE SPACE AGE
Alvaro Mejía, Institute of Aerospace Historical Studies, Peru

IAC-10.E4.2.6
ACADEMICIAN VASILIY SERGEYEVICH BUDNIK – ONE OF THE FOUNDERS OF SPACE INDUSTRY OF UKRAINE
A.V. Novak, Yuzhnoye State Design Office, Ukraine

IAC-10.E4.2.7
N.F.GERASYUTA AND HIS SCIENTIFIC AND TECHNICAL SCHOOL (TO 90-TH ANNIVERSARY OF THE BIRTH)
Irina Fedorenko, National Center of Aerospace Education, Ukraine

IAC-10.E4.2.8
ORGANIZATIONAL REVIEW OF HALF A CENTURY HISTORY OF ISAS
Yasunori Matogawa, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.E4.2.9
ASSESSING SPACE PROGRAM IMPACTS OF THE IGY
Ake Ingemar Skoog, Germany

IAC-10.E4.2.10
THE SPACE POLICY OF THE NIXON AND FORD ADMINISTRATIONS: ANOTHER DÉTENTE DIPLOMACY THROUGH PROJECT APOLLO AND ASTP
Hirotaka Watanabe, Osaka University, Japan

E4.3. Scientific and Technical History

September 30 2010, 15:15 – Club D

Chair: Susan McKenna-Lawlor (Space Technology (Ireland) Ltd., Ireland); Philippe Jung (AAAF, France)
Rapporteur: William Cuthbert Jones (Executive Intelligence Review News Service, United States)

IAC-10.E4.3.1
RELEVANT ANALYSIS REGARDING THE INNOVATIVE CONRAD HAAS MANUSCRIPT OF 1555
Alexandru Todericiu, Austria

IAC-10.E4.3.2
ROCKET HISTORY THROUGH AN ARTIFACT: THE AMERICAN ROCKET SOCIETY TEST STAND NO. 2 (1938–1942)
Frank Winter, United States

IAC-10.E4.3.3
"TAJFUN-F" THE SMALLEST LIQUID FUELLED ROCKET MISSILE OF WWII
Aleksander Kerstein, KATEH s.p., Slovenia

IAC-10.E4.3.4
SPACEPORT DARWIN: A PROPOSED EQUATORIAL LAUNCH FACILITY FOR ELDO
Kerrie Dougherty, Powerhouse Museum, Australia

IAC-10.E4.3.5
FROM MARUCA TO MASURCA AN HISTORY OF THE FIRST FRENCH NAVY'S SAM
Philippe Jung, AAAF, France

IAC-10.E4.3.6
THE VALOIS ENGINE AND THE DIAMANT-B LAUNCH VEHICLE FIRST STAGE PROPULSION SYSTEM
Christophe Rothmund, Snecma, France

IAC-10.E4.3.7
DASSAULT AVIATION'S AEROSPACE TRANSPORTER – AN HISTORICAL PERSPECTIVE
Philippe Ccoué, Dassault Aviation, France

IAC-10.E4.3.8
THE SATELLITE THAT ALMOST WAS – ABIR (KNIGHT), THE FIRST INDIGENOUS SATELLITE OF ISRAEL
Tal Inbar, Fisher Institute for Air and Space Strategic Studies, Israel

IAC-10.E4.3.9
UK X-RAY RESEARCH AND THE SPACELAB 2 X-RAY TELESCOPE
Douglas Millard, The Science Museum, United Kingdom

E4.4. History of Contributions to Astronautics of former Czechoslovakia

October 1 2010, 09:00 – Club D

Chair: John Becklake (United Kingdom); Luboš Perek (Astronomical Institute, Czech Academy of sciences, Czech Republic)
Rapporteur: Charles Lundquist (University of Alabama in Huntsville, United States)

IAC-10.E4.4.1
CIRCUMSTANCES OF A SPACE FLIGHT OF THE FIRST EUROPEAN ASTRONAUT
Vladimír Remek, European Parliament, Belgium

IAC-10.E4.4.2
BEGINNIG OF ROCKET DEVELOPMENT IN CZECH LANDS (CZECHOSLOVAKIA)
Michal Plavec, Czech Republic

IAC-10.E4.4.3
ARTIFICIAL SATELLITES OBSERVATIONS AND THEIR SCIENTIFIC USAGE IN CZECHOSLOVAKIA
Ladislav Sehnal, Astronomical Institute, Czech Academy of sciences, Czech Republic

IAC-10.E4.4.4
CONTRIBUTION OF CHARLES UNIVERSITY TO INVESTIGATIONS OF SOLAR-TERRESTRIAL RELATIONS
Zdeněk Němeček, Charles University, Faculty of Mathematics and Physics, Czech Republic

IAC-10.E4.4.5
SOLAR PHYSICS SPACE RESEARCH IN CZECH REPUBLIC – HISTORICAL SURVEY
František Fárník, Astronomical Institute, Czech Academy of sciences, Czech Republic

IAC-10.E4.4.6
A BRIEF HISTORY OF THE DEVELOPMENT OF SCIENTIFIC INSTRUMENTS FOR IONOSPHERIC AND MAGNETOSPHERIC RESEARCH, MAGION SATELLITES
František Hruška, Institute of Atmospheric Physics, Czech Republic

IAC-10.E4.4.7
LIFE SCIENCE SPACE RESEARCH IN CZECHOSLOVAKIA AND SLOVAK REPUBLIC
Ladislav Macho, Slovak Republic

IAC-10.E4.4.8
RESULTS OF THE LABORATORY SIMULATION OF LONG LASTING SPACE FLIGHTS IN CZECH REPUBLIC INCLUDING FORMER CZECHOSLOVAKIA
Jaroslav Sýkora, QED GROUP Ltd, Czech Republic

E5. 21st SYMPOSIUM ON SPACE ACTIVITY AND SOCIETY

Coordinator: Peter A. Swan (Teaching Science and Technology, Inc., United States); Geoffrey Languedoc (Canadian Aeronautics & Space Institute (CASI), Canada)

E5.1. Future and Current Space Missions: Including and Expanding All Aspects of Human Life On-board and in Other Worlds

September 28 2010, 10:15 – Club C

Chair: Nikolai Tolyarenko (France); Olga Bannova (University of Houston, United States)
Rapporteur: Ondřej Doule (International Space University (ISU), Czech Republic)

IAC-10.E5.1.1
MARS HABITABILITY PROJECT AT MDRS (SENSORY EXPERIENCE AND CREATIVE PERFORMANCE FOR MANNED PLANETARY EXPLORATION)
Irene Lia Schlacht, Technische Universität Berlin, Germany

IAC-10.E5.1.2
USE OF NATURAL AROMAS AS AN ARCHITECTURAL DESIGN ELEMENT IN LUNAR HABITATS
James Burke, The Planetary Society, United States

IAC-10.E5.1.3
HOW TO COLONIZE SPACE IN SEVEN EASY STEPS – PART I: ASTRONAUTICAL DEVELOPMENT FOR MAKING THE PEOPLE MORE SECURE
Marco C Bernasconi, MCB Consultants, Switzerland

IAC-10.E5.1.4
SPACE ARCHITECTURE EDUCATION AS A PART OF AEROSPACE ENGINEERING CURRICULUM
Olga Bannova, University of Houston, United States

IAC-10.E5.1.5
SINTERHAB – SINTERED LUNAR OUTPOST CORE MODULE
Tomas Rousek, International Space University (ISU), France

IAC-10.E5.1.6
ASTEROID MINING – AN INTERDISCIPLINARY STUDY
Chris Welch, Kingston University, United Kingdom

IAC-10.E5.1.7
MEDICAL CARE DURING EXPLORATION-CLASS MISSIONS AND TERRESTRIAL BENEFITS
Annie Martin, Ecole Polytechnique, Canada

IAC-10.E5.1.8
DESIGN-IN-USE STUDY OF EXTRA-TERRESTRIAL HABITATS FROM THE PERSPECTIVE OF HUMAN ACTIVITIES
Sandra Haeuplik-Meusburger, UT Vienna, Austria

IAC-10.E5.1.9
UNSETTLED SPACE: FOOTPRINTS OF THE STATE, MARKETS, AND CIVIL SOCIETY IN OUTER SPACE
Donna Burnell, University of Alabama in Huntsville, United States

IAC-10.E5.1.11
FIGMENTS OF IMAGINATION IN MOTION PICTURES FURTHERING SPACE RESEARCH
Arjun Reddy, PES School of Engineering, India

E5.2. Space Expectations: Involving the Public in Space Activities

September 28 2010, 15:15 – Club C

Chair: Peter A. Swan (Teaching Science and Technology, Inc., United States); Cathy Swan (SouthWest Analytic Network, United States)

Rapporteur: David Raitt (The Netherlands)

IAC-10.E5.2.1
ANYONE CAN BE A ROCKET SCIENTIST: COLLABORATION AND PARTICIPATION AT NASA
Jeanne Holm, Jet Propulsion Laboratory, United States

IAC-10.E5.2.2
2050 – LIVING ON MARS: CHILDREN DESIGN FUTURE HABITATS
Sandra Haeuplik-Meusburger, UT Vienna, Austria

IAC-10.E5.2.3
NASA'S CENTENNIAL CHALLENGES PROGRAM – PRIZES AS A MEANS OF PARTICIPATORY EXPLORATION
Douglas Comstock, National Aeronautics and Space Administration (NASA)/Ames Research Center, United States

IAC-10.E5.2.4
VIRTUALIZING THE 'WARP DRIVE' – CAN VISUAL ARTS INFLUENCE PIONEERING RESEARCH?
Alexandre Szames, France

IAC-10.E5.2.5
SPACE EXPECTATIONS OF YOUNG INDIANS
P R Goutham, PES School of Engineering, India

IAC-10.E5.2.6
SPACE EXPLORATION AND EXPLOITATION: TECHNICAL AND ECONOMICAL CAPABILITIES VERSUS LEGAL AND POLITICAL REGULATIONS: THE CIVIL AVIATION PARADIGM
Alvaro Azcarraga, SENER Ingenieria y Sistemas, S.A., Spain

IAC-10.E5.2.7
EMPOWERING SCIENTISTS AND CITIZENS THROUGH PARTICIPATION IN SPACE EXPLORATION
Linda Billings, George Washington University, United States

IAC-10.E5.2.8
THE BARCELONA MOON TEAM AT GLXP
Marc Zaballa Camprubi, Galactic Suite Design SL, Spain

IAC-10.E5.2.9
RISE ABOVE THE WHITE NOISE
Beth Beck, National Aeronautics and Space Administration (NASA), United States

IAC-10.E5.2.10
THE ANALYSIS AND SUGGESTIONS ON APPLYING SPACE TECHNOLOGY ON DEALING WITH GLOBAL CLIMATE WARMING ISSUE
Cai Hua, China

IAC-10.E5.2.11
FUTURE OR FANTASY – SPACE TOURISM FROM THE PERSPECTIVE OF ARCHITECTURE AND DESIGN PROFESSIONS
David Wong, United Kingdom

E5.3. Space Architecture: Exploration and Tourism

September 29 2010, 10:15 – Forum

Chair: Susmita Mohanty (Earth2Orbit (E2O), India); Anna Barbara Imhof (Liquifer Systems Group (LSG), Austria)
Rapporteur: Brent Sherwood (Jet Propulsion Laboratory, United States)

IAC-10.E5.3.1
RAMA – ROVER FOR ADVANCED MISSION APPLICATIONS
Anna Barbara Imhof, Liquifer Systems Group (LSG), Austria

IAC-10.E5.3.2
COMPARING FUTURE OPTIONS FOR HUMAN SPACE FLIGHT
Brent Sherwood, Jet Propulsion Laboratory, United States

IAC-10.E5.3.3
SPACE TOURISM: THE MARKET BEYOND EARTH'S ORBIT
Jay Gullish, Futron Corporation, United States

IAC-10.E5.3.4
THE DESIGN OF INTIMATE SPACES – A CASE STUDY IN THE CABIN INTERIOR DESIGN FOR THE XP SPACEPLANE
Charles Lauer, Rocketplane Global, Inc., United States

IAC-10.E5.3.5
PROJECT ENTERPRISE INTERIOR
Andreas Vogler, Architecture and Vision, Germany

IAC-10.E5.3.6
ASTRIUM SUBORBITAL SPACEPLANE CABIN INNOVATIVE DESIGN
Hugues Laporte-Weywada, EADS Astrium, France

IAC-10.E5.3.7
OMICRON SPACE HABITAT
Ondřej Doule, International Space University (ISU), Czech Republic

IAC-10.E5.3.8
INNOVATIONS IN ORBIT: BIGELOW AEROSPACE'S ARCHITECTURE AND PLANS FOR LEO AND BEYOND
Michael Gold, Bigelow Aerospace, United States

IAC-10.E5.3.9
THE GALACTIC SUITE SPACERESORT
Marc Zaballa Camprubi, Galactic Suite Design SL, Spain

IAC-10.E5.3.10
INNOVATIVE DESIGN INTERIORS FOR SPACE TOURISM: GALLEY AND HYGIENE FACILITIES
Taseer Ahmad, University of Kent at Canterbury, United Kingdom

IAC-10.E5.3.11
DAYS OF FUTURE PAST: FILM VISIONS OF SPACE EXPLORATION, COMMERCIALIZATION AND TOURISM
Robert K. Weiss, X PRIZE Foundation, United States

E6. BUSINESS INNOVATION SYMPOSIUM

Coordinator: Paul Eckert (The Boeing Company, United States)

E6.1. Encouragment of Government Purchasing from Commercial Providers: Models and Examples

September 28 2010, 10:15 – Terrace 2

Chair: Douglas Comstock (National Aeronautics and Space Administration (NASA)/Ames Research Center, United States); Richard Brook (Surrey Satellite Technology Ltd, United Kingdom)
Rapporteur: Rachel Villain (Euroconsult, France)

IAC-10.E6.1.1
METHODS FOR GOVERNMENTS TO BOOST SPACE ACTIVITIES TODAY: INDICATORS AND VALUATION
Jorge Fuentes, A_Ventures - Enterprising Management & Consultancy, Spain

IAC-10.E6.1.2
GOVERNMENT INVESTMENT IN COMMERCIAL SPACE TRANSPORTATION ENABLES THE CREATION OF NEW INDUSTRIES
Lawrence Williams, Space Exploration Technologies, United States

IAC-10.E6.1.3
HOW TO STIMULATE EMERGING SPACE MARKETS THROUGH SPECIFIC GOVERNMENT PROCUREMENT STRATEGIES
Dustin Kaiser, Futron Corporation, United States

IAC-10.E6.1.4
A COMPARATIVE ANALYSIS OF THE INSTITUTIONAL TRAJECTORIES OF SPACE ACTIVITIES DEVELOPMENT IN RUSSIA AND OVERSEAS
Dmitry Payson, Central Research Institute of Machine Building (FSUE/TSNIIMASH), Russia

IAC-10.E6.1.5
AN INTEGRATED APPROACH TOWARDS TECHNOLOGY TRANSFER
Leendert Van der Wal, TNO, The Netherlands

IAC-10.E6.1.6
FOSTERING TERRESTRIAL INNOVATION AND THE CREATION OF NEW STARTUPS VIA INSTITUTIONAL VENTURE CAPITAL
Joerg Kreisel, JOERG KREISEL International Consultant (JKIC), Germany

IAC-10.E6.1.8
RESULTS AND PLANS FROM NASA'S FAST AND CRUSR PROJECTS.
Douglas Comstock, National Aeronautics and Space Administration (NASA)/Ames Research Center, United States

IAC-10.E6.1.9
EXPANDING THE FINAL FRONTIER: THE BIGELOW AEROSPACE STORY AND THE PROMISE OF INNOVATIVE PUBLIC-PRIVATE COLLABORATIONS FOR SPACE EXPLORATION AND COMMERCIAL UTILIZATION
Michael Gold, Bigelow Aerospace, United States

IAC-10.E6.1.10
THE COTS PARADIGM AS A MODEL FOR GOVERNMENT/COMMERCIAL ENGAGEMENT
Max Vozoff, SpaceX, United States

IAC-10.E6.1.11
RESEARCH ON THE CHARACTERISTICS AND APPLICATIONS OF INNOVATION MANAGEMENT IN SPACE CORPORATIONS
Min Zhang, China Aerospace Science and Industry Corporation, China

IAC-10.E6.1.12
HISTORY HINTS AT A DECENTRALIZATION OF FUTURE SPACE ACTIVITIES
Marc G. Millis, Tau Zero Foundation, United States

E6.2. Space-related Commercial Applications and Markets

September 28 2010, 15:15 – Club D

Chair: Max Grimard (EADS Astrium, France); Aude de Clercq (European Space Agency (ESA), The Netherlands)
Rapporteur: Ken Davidian (FAA Office of Commercial Space Transportation, United States)

IAC-10.E6.2.1
GOVERNMENT DEMAND FOR SATELLITE APPLICATIONS AND SPACE SCIENCE DRIVING TWO DECADES OF SPACE ACTIVITIES
Matthew Bullock, Euroconsult, France

IAC-10.E6.2.2
USER COMMUNITIES OF SATELLITE INFORMATION AND SERVICES IN EUROPE – STRUCTURE, CHARACTERISTICS, CHALLENGES
Sebastian Rieder, EURISY, France

IAC-10.E6.2.3
COMMERCIAL SPACE APPLICATIONS IN INDIA – AN INDUSTRY PERSPECTIVE
K.R. Sridhara Murthi, Antrix Corporation, India

IAC-10.E6.2.4
DEFINING A BUSINESS CASE FOR COMMERCIAL SPACE
Kevin Miller, Ball Aerospace & Technologies Corp., United States

IAC-10.E6.2.5
FUTURE THINKING ON THE GALILEO AUTHENTICATION APPLICATION -INNOVATION BY LIVING MOBILE
Emanuele Barreca, European Commission - DG Enterprise, Belgium

IAC-10.E6.2.6
ESTIMATING COUNTRY LEVEL MARKET POTENTIAL FOR SPACEBORNE REMOTE SENSING DATA SERVICES
Murthy L.N. Remilla, Indian Space Research Organization (ISRO), India

IAC-10.E6.2.7
AT WHAT PRICE? – IP-RELATED THOUGHTS ON NEW BUSINESS MODELS FOR SPACE INFORMATION
Lesley Jane Smith, Leuphana University of Lüneburg/ Weber-Steinhaus & Smith, Germany

IAC-10.E6.2.8
ISS 2020 – SUSTAINED UTILIZATION OPPORTUNITIES FOR COMMERCIAL AND INDUSTRIAL R&D ON THE INTERNATIONAL SPACE STATION
Peter Bütfering, European Space Innovation AG, Germany

IAC-10.E6.2.10
NEW PRODUCT BASED APPROACH TO PROVIDE EXPERIMENT HARDWARE AND OPERATIONS FOR SCIENTIFIC UTILIZATION OF NEW COMMERCIAL AND GOVERNMENTAL USERS.
Ulrich Kuebler, EADS SPACE Transportation, Germany

E6.3. New Space Markets + Investment Opportunities

September 29 2010, 15:15 – Terrace 1

Chair: Ken Davidian (FAA Office of Commercial Space Transportation, United States)
Rapporteur: Aude de Clercq (European Space Agency (ESA), The Netherlands)

IAC-10.E6.3.1
INDUSTRY STRUCTURAL ANALYSIS OF COMMERCIAL CREW TO ORBIT SECTOR
Bradley Cheetham, University of Colorado, United States

IAC-10.E6.3.3
ISSUES, OPPORTUNITIES AND CHALLENGES POSED BY SPACE TOURISM AS AN INDUSTRY
Rushi Ghadawala, Aryavarta Space Organization, India

IAC-10.E6.3.4
SEGMENTATION OF TOURIST SPACEFLIGHTS MARKET – POSSIBLE WAYS OF ITS DEVELOPMENT
Sergey Shcherbak, S.P. Korolev Rocket and Space Corporation Energia, Russia

IAC-10.E6.3.5
SPACEPORT FLORIDA / JACKSONVILLE AS A CASE STUDY FOR SPACEPORT DEVELOPMENT SYNERGIES WITH TERRESTRIAL MASS-MARKET SPACE THEMED TOURIST ATTRACTIONS
Charles Lauer, Rocketplane Global, Inc., United States

IAC-10.E6.3.6
DEFINITION AND ANALYSIS OF THE INTERNATIONAL COMMERCIAL SPACEFLIGHT INDUSTRY, 2006–2009
Paul Guthrie, The Tauri Group, United States

IAC-10.E6.3.7
ENHANCING QUALITY OF LIFE IN SPACE, A DRIVER FOR SPACE COMMERCE
Misuzu Onuki, Space Frontier Foundation, Japan

IAC-10.E6.3.8
SUBORBITAL PAYLOAD MARKET OVERVIEW AND APPLICATION OF DISRUPTION THEORY
Ken Davidian, FAA Office of Commercial Space Transportation, United States

IAC-10.E6.3.9
MARKET CHARACTERIZATION: LAUNCH OF VERY-SMALL AND NANO SIZED PAYLOADS ENABLED BY NEW LAUNCH VEHICLES.
Ian Christensen, Futron Corporation, United States

IAC-10.E6.3.10
EXPANDING OUR SPHERE OF ECONOMIC INFLUENCE TO THE MOON
William Pomerantz, X PRIZE Foundation, United States

IAC-10.E6.3.11
A RATIONAL ROADMAP FOR DEVELOPING A FIRST REVENUE SPACE SOLAR POWER SATELLITE
A.C. Charania, SpaceWorks Commercial, United States

IAC-10.E6.3.12
SPACENTURE – A MARKETPLACE FOR SPACE RELATED BUSINESS IDEAS, SPACE TECHNOLOGIES AND INTELLECTUAL PROPERTIES
Bernd Weiss, isocores, Germany

IAC-10.E6.3.13
COMMERCIAL OPPORTUNITIES IN THE SPACE SECTOR AND ROUTES TOWARDS SUCCESSFUL EXPLOITATION
Joerg Kreisel, JOERG KREISEL International Consultant (JKIC), Germany

E7. 53rd COLLOQUIUM ON THE LAW OF OUTER SPACE

Coordinator: Corinne Contant-Jorgenson (International Institute of Air and Space Law, United States)

E7.1. Nandasiri Jasentuliyana Keynote Lecture on Space Law & Young Scholars Session

September 28 2010, 10:15 – Meeting Hall IV

Chair: Vladimír Kopal (West Bohemian University, Czech Republic); Tanja Masson-Zwaan (International Institute of Space Law, The Netherlands)
Rapporteur: Mark Sundahl (Cleveland State University, United States)

IAC-10.E7.1.1
A CONCISE HISTORY OF SPACE LAW
Stephen Doyle, United States

IAC-10.E7.1.2
THE LIFE AND WORK OF PROFESSOR VLADIMÍR MANDL – A PIONEER OF SPACE LAW
Vladimír Kopal, West Bohemian University, Czech Republic

IAC-10.E7.1.3
VLADIMIR MANDL AND ALEX MEYER: TWO PIONEERS OF SPACE LAW
Stephan Hobe, University of Cologne, Germany

IAC-10.E7.1.4
THE COMMERCIAL EXPLOITATION OF OUTER SPACE AND CELESTIAL BODIES – A FUNCTIONAL SOLUTION TO THE NATURAL RESOURCE CHALLENGE
Philip De Man, Catholic University of Louvain, Belgium

IAC-10.E7.1.6
POTENTIAL UNIFORM INTERNATIONAL LEGAL FRAMEWORK FOR REGULATION OF PRIVATE SPACE ACTIVITIES
Mariam Yuzbashyan, Excalibur Almaz Ltd., Russia

IAC-10.E7.1.7
YOU CAN LEAD AN ASTRONAUT TO WATER…: PROSPECTS FOR LEGAL USE AND WATER RIGHTS ON THE MOON AND OTHER CELESTIAL BODIES
Joshua Easterson, United States

IAC-10.E7.1.8
CURRENT STATUS AND RECENT DEVELOPMENTS OF NON-DISCRIMINATORY PRINCIPLE IN THE 1986 UN PRINCIPLES ON REMOTE SENSING
Masatoshi Fukunaga, Keio University, Japan

IAC-10.E7.1.9
LEGAL PLURALISM IN OUTER SPACE
Eduard van Asten, Netherlands Antilles

IAC-10.E7.1.10
SPACE AND LISBON – A NEW TYPE OF COMPETENCE TO SHAPE THE REGULATORY FRAMEWORK FOR COMMERCIAL SPACE ACTIVITIES
Matxalen Sanchez Aranzamendi, European Space Policy Institute (ESPI), Austria

IAC-10.E7.1.11
BEYOND THE LOOKING GLASS: THE APPLICATION OF PUBLIC CHOICE THEORY TO U.S. COMMERCIAL COMMUNICATION SATELLITE EXPORT CONTROLS
Michael Mineiro, McGill University, Canada

IAC-10.E7.1.12
FORUM-SELECTION CLAUSES IN SUBORBITAL SPACE TOURISM CONTRACTS AND EC LAW
Michael Chatzipanagiotis, Greece

IAC-10.E7.1.13
LEGALITY OF ORBITS AND SPECTRUM LEASING IN VIEW OF FUNDAMENTAL SPACE LAW PRINCIPLES
Sandeepa Bhat, India

IAC-10.E7.1.14
RE-THINKING RESPONSIBILITY IN THE LAW OF OUTER SPACE
Guillermo Duberti, Universidad de Belgrano, Argentina

IAC-10.E7.1.16
REFLECTIONS ON THE CONCEPTS OF 'LIABILITY' AND 'RESPONSIBILITY' IN A PRIVATISED ATMOSPHERE (poster)
Joyeeta Chatterjee, India

IAC-10.E7.1.17
COMPREHENSIVE SPACE LAW TREATY: NEW WINE IN NEW BOTTLES (poster)
Patthara Limsira, Yuth Law Office, Thailand

IAC-10.E7.1.18
INTELLECTUAL PROPERTY RIGHTS PROTECTION UNDER THE COMMERCIALIZATION OF OUTER SPACE (poster)
Zhuoyan Lu, Beijing Institute of technology, China

IAC-10.E7.1.19
LEGAL PERSPECTIVES ON SPACE NATURAL RESOURCE EXPLOITATION; MINING RIGHT ON THE MOON (poster)
Ro Yelim, Institute of Air and Space Law, McGill University, Canada

IAC-10.E7.1.21
ONE MAN'S SPACE JUNK IS ANOTHER MAN'S ARCHAEOLOGICAL TREASURE: THE POTENTIAL FOR CONFLICT AND COMPROMISE IN THE EMERGING FIELDS OF ENVIRONMENTAL AND HISTORIC PRESERVATION LAW IN OUTER SPACE (poster)
Diana Viggiano, Georgetown University Law Center, United States

IAC-10.E7.1.22
RECALIBRATING THE MOON TREATY TO THE DOMAIN OF DEVELOPMENT (poster)
Utsav Mukherjee, Clifford Chance LLP, United Kingdom

IAC-10.E7.1.25
THE LEGAL FRAMEWORK OF SATELLITE TRACKING, IN PARTICULAR ITS PROBLEMS RELATED TO PRIVACY (poster)
Henna Niemi, University of Lapland, Finland

IAC-10.E7.1.26
LEGAL IMPLICATIONS OF PLACING CONVENTIONAL/LASER WEAPONS IN OUTER SPACE: IN LIGHT OF THE OUTER SPACE TREATY (poster)
Upasana Dasgupta, India

IAC-10.E7.1.27
APPLICATION OF THE PRINCIPLES OF JUS IN BELLO AND JUS AD BELLUM IN OUTER SPACE (poster)
Prashant Upadhyay, India

IAC-10.E7.1.28
THE GPS GALILEO GNSS AGREEMENT, IMPLICATIONS FOR PEACEFUL INTERNATIONAL RELATIONS: AN ANALYSIS OF ARTICLES 4(2), 12, AND 16 OF THE "AGREEMENT ON THE PROMOTION, PROVISION, AND USE OF GALILEO AND GPS SATELLITE-BASED NAVIGATION SYSTEMS" (poster)
Michael Dodge, Institute of Air and Space Law, McGill University, Canada

IAC-10.E7.1.29
MANAGING THE CELESTIAL TREASURE HUNT – TOWARDS A FRAMEWORK GOVERNING THE EXPLOITATION OF NATURAL RESOURCES IN OUTER SPACE (poster)
Vinay Kesari, Luthra and Luthra, India

IAC-10.E7.1.30
PATENT IN OUTER SPACE: SPECIAL SOLUTION FOR NEW CHALLENGES (poster)
Fruzsina Tari, Hungarian Astronautical Society (MANT), Hungary

IAC-10.E7.1.31
REMOTE SENSING ACTIVITY: 'LEGAL ISSUES IN EMERGING TECHNOLOGY' (poster)
Animesh Sinha, India

IAC-10.E7.1.32
LEGAL ASPECTS OF REGIONAL SPACE COOPERATION IN LATIN AMERICA, ASIA AND AFRICA (poster)
Cynthia Jimenez Monroy, Leiden University, The Netherlands

E7.2. 30 Years of the Moon Agreement: Perspectives

September 28 2010, 15:15 – Meeting Hall IV

Chair: Mahulena Hofmann (University of Giessen, Germany); Maureen Williams (University of Buenos Aires / Conicet /Chair ILA Space Law Committee, Argentina)
Rapporteur: Michael Mineiro (McGill University, Canada)

IAC-10.E7.2.1
THE MOON TREATY AFTER 30 YEARS: RATIONALE FOR A UTILITARIAN FUTURE
Stephen Doyle, United States

IAC-10.E7.2.2
THE MOON AGREEMENT IN THE CURRENT SCENARIOS
Maureen Williams, University of Buenos Aires / Conicet /Chair ILA Space Law Committee, Argentina

IAC-10.E7.2.3
THE MOON AGREEMENT: AN ILLUSION OR A REALITY?
Luis F. Castillo Arganaras, National Council of Scientific and Technical Research (CONICET) of Argentina, Argentina

IAC-10.E7.2.4
IS SELLING LAND ON THE MOON ALLOWED IN CHINA?
Yan Ling, China

IAC-10.E7.2.5
SOME CONSIDERATIONS ON ESTABLISHING AN INTERNATIONAL REGIME ON EXPLORATION AND USE OF THE NATURAL RESOURCES OF THE MOON AND OTHER CELECIAL BODIES
Li Shouping, Beijing Institute of technology, China

IAC-10.E7.2.6
BALANCING THE COMPETING INTERESTS TO RESOLVE THE IMPASSE OVER THE EFFECTS OF THE COMMON HERITAGE OF MANKIND PROVISION IN THE MOON AGREEMENT
Ricky J. Lee, Schweizer Kobras, Australia

IAC-10.E7.2.7
MOON AGREEMENT – THE WAY FORWARD...
V. Gopala Krishnan, Indian Space Research Organization (ISRO), India

IAC-10.E7.2.8
ESTABLISHING A NATURAL RESOURCES REGIME ON THE MOON
Jonathan F. Galloway, Lake Forrest College, United States

IAC-10.E7.2.9
MOON AGREEMENT AS A TOOL OF PLANETARY PROTECTION
Mahulena Hofmann, University of Giessen, Germany

IAC-10.E7.2.10
A CONSIDERATION ON AN INTERNATIONAL REGIME OF THE MOON AGREEMENT
Fuki Taniguchi, Japan Aerospace Exploration Agency (JAXA), Japan

IAC-10.E7.2.11
TIDYING UP THE MOON TREATY PRIOR TO CONSTRUCTION
Edythe Weeks, United States

E7.3. Legal Aspects of Space Security

September 29 2010, 10:15 – Meeting Hall IV

Chair: Kai-Uwe Schrogl (European Space Policy Institute (ESPI), Austria); Ricky J. Lee (PricewaterhouseCoopers Legal, Australia)
Rapporteur: Ranjana Kaul (Dua Associates, India)

IAC-10.E7.3.1
SPACE SECURITY AND SPACE SAFETY: TWO CONCEPTS TO BE DISTINGUISHED
Stefan A. Kaiser, Germany

IAC-10.E7.3.2
THE CLAUSEWITZ NEBULAE: THE LEGITIMACY OF MILITARY ACTIVITIES IN OUTER SPACE DURING ARMED CONFLICTS AND ENVIRONMENTAL CONSIDERATIONS.
Michel Bourbonniere, Canadian Space Agency, Canada

IAC-10.E7.3.3
THE USE OF THE RIGHT OF SELF DEFENCE IN OUTER SPACE – THE JAPANESE PERSPECTIVE
Yasuaki Hashimoto, East Asian Strategic Review, Japan

IAC-10.E7.3.4
DEVELOPING A EUROPEAN-CHINESE/RUSSIAN APPROACH TO THE ISSUE OF NON-WEAPONIZATION OF OUTER SPACE: A FEASIBLE GOAL?
Fabio Tronchetti, Harbin Institute of Technology, China

IAC-10.E7.3.5
LESSONS FROM CONFIDENCE- AND SECURITY-BUILDING MEASURES TO SPACE SECURITY
Yuri Takaya-Umehara, Japan

IAC-10.E7.3.6
PRELIMINARY CONSIDERATIONS ON THE EUROPEAN PREPARATORY PROGRAMME ON SPACE SITUATIONAL AWARENESS
Marco Ferrazzani, ESA (European Space Agency), France

IAC-10.E7.3.7
INTERNATIONAL COOPERATION: THE KEY TO SPACE SECURITY LAW
PJ Blount, National Center for Remote Sensing, Air, and Space Law, United States

IAC-10.E7.3.8
FROM STAR WARS TO SPACE WARS – THE NEXT STRATEGIC FRONTIER: PARADIGMS TO ANCHOR SPACE SECURITY
Jackson Maogoto, University of Manchester, United Kingdom

IAC-10.E7.3.10
FAULT LIABILITY FOR 3RD PARTY DAMAGE IN SPACE: IS ARTICLE IV (1)(B) OF THE LIABILITY CONVENTION USEFUL TODAY?
Henry Hertzfeld, Space Policy Institute, George Washington University, United States

E7.4. The Current Status of the Rule of Law with Regard to Space Activities

September 29 2010, 15:15 – Meeting Hall IV

Chair: Stephan Hobe (University of Cologne, Germany); Peter Jankowitsch (Austrian Aeronautics & Space Agency, Austria)
Rapporteur: Irmgard Marboe (University of Vienna, Austria)

IAC-10.E7.4.1
ANALYSIS OF THE LEGAL INSTRUMENT SIGNED BETWEEN BRAZIL AND THE UNITED STATES OF AMERICA REGARDING THE RETURN OF A SPACE OBJECT
Alvaro Fabricio Dos Santos, Núcleo de Assessoramento Jurídico - NAJ/SJC, Brazil

IAC-10.E7.4.2
IS THERE A FUTURE FOR SPACE LAW BEYOND "SOFT LAW"?
José Monserrat-Filho, Brazilian Association of Air and Space Law, Brazil

IAC-10.E7.4.3
LEGAL STATUS OF TECHNICAL GUIDELINES AND FRAMEWORKS FOR OUTER SPACE ACTIVITIES
E. Jason Steptoe, National Aeronautics and Space Administration (NASA), United States

IAC-10.E7.4.4
IN SEARCH OF THE CURRENT LEGAL STATUS OF THE REGISTRATION OF SPACE OBJECTS
Setsuko Aoki, Keio University, Japan

IAC-10.E7.4.5
THE EXPANSION OF PRIVATE ACTIVITY IN SPACE AND ITS IMPACT ON THE DEVELOPMENT OF THE INTERNATIONAL LAW OF OUTER SPACE
Mark Sundahl, Cleveland State University, United States

IAC-10.E7.4.6
THE LEGAL CATEGORIES IN OUTER SPACE
Jose Humberto Castro Villalobos, Guyana

IAC-10.E7.4.7
SHOULD THERE BE AN ENVIRONMENTAL "CODE OF CONDUCT" FOR ACTIVITIES IN OUTER SPACE?
Leslie I. Tennen, Law Offices of Sterns and Tennen, United States

IAC-10.E7.4.8
THE LEGAL ISSUES SURROUNDING THE NEAR EARTH SPACE
Atsuyo Ito, Japan

IAC-10.E7.4.9
LAW AND ECONOMICS OF OUTER SPACE ACTIVITIES
Valnora Leister, United States

IAC-10.E7.4.10
NEED FOR REGULATORY MEASURES FOR PEACEFUL SUSTAINABLE DEVELOPMENT IN THE OUTER SPACE
Arjun Reddy, PES School of Engineering, India

IAC-10.E7.4.11
FROM GUIDELINE TO INTERNATIONAL TREATY FOR RULE OF LAW CONCERNING MITIGATION OF SPACE DEBRIS
Toshio Kosuge, University of Electro-Communications, Japan

IAC-10.E7.4.12
NON-COOPERATIVE SPACE DEBRIS MITIGATION
James Rendleman, United States

E7.5. Recent Developments in Space Law

October 1 2010, 09:00 – Meeting Hall IV
Chair: Frans G. Von der Dunk (University of Nebraska, College of Law, The Netherlands); K.R. Sridhara Murthi (Antrix Corporation, India)
Rapporteur: Sylvia Ospina (S. Ospina & Associates - Consultants, United States)

IAC-10.E7.5.1
FROM NATIONAL SECTORIAL SPACE STRATEGY TO INTERNATIONAL COOPERATION TO RACE INTO OUTER SPACE
Mohsen Bahrami, Aerospace Research Institute, Iran

IAC-10.E7.5.2
OUTER SPACE AND THE AGENDA FOR THE 2011 WORLD RADIO COMMUNICATION CONFERENCE
Carl Christol, University of Southern California, United States

IAC-10.E7.5.3
RECENT CHALLENGES FACING THE MANAGEMENT OF RADIO FREQUENCIES AND ORBITAL RESOURCES USED BY SATELLITES
Maria Buzdugan, Milbank, Tweed, Hadley & McCloy, United States

IAC-10.E7.5.4
INTERNATIONAL SATELLITE ORGANIZATIONS: THEIR EVOLUTION FROM "ISOS" TO "GSCS", AND THE LEGAL IMPLICATIONS OF THE PRIVATIZATION /COMMERCIALIZATION OF SPACE ACTIVITIES.
Sylvia Ospina, S. Ospina & Associates - Consultants, United States

IAC-10.E7.5.5
LEGAL PROBLEMS AND THEIR SOLUTIONS WITHIN THE REALM OF REMOTE SENSING AND SPACE COMMUNICATIONS
Gunnar K. A. Njalsson, The SPACEPOL Corporation (Europe), Finland

IAC-10.E7.5.6
SUN, SEA, SAND … AND SPACE: LAUNCHING TOURISTS INTO OUTER SPACE FROM THE DUTCH CARIBBEAN
Frans G. Von der Dunk, University of Nebraska, College of Law, The Netherlands

IAC-10.E7.5.7
SAFETY AND LIABILITY ASPECTS OF SOLAR POWER SATELLITES
Ram S. Jakhu, Institute of Air and Space Law, Canada

IAC-10.E7.5.8
SPACE PROCUREMENT: A EUROPEAN TOOLBOX
Stephan Hobe, University of Cologne, Germany

IAC-10.E7.5.9
IS THE EU LEGAL REGIME OF REMOTE SENSING DATA PROTECTION FACILITATING THE DEVELOPMENT OF THE MARKET APPLICATIONS?
Catherine Doldirina, McGill University, Canada

IAC-10.E7.5.10
NEW DEVELOPMENTS IN SPACE TECHNOLOGY: A REGULATORY ROADMAP FOR SPACE START-UP JURISDICTIONS
Lesley Jane Smith, Leuphana University of Lüneburg/ Weber-Steinhaus & Smith, Germany

IAC-10.E7.5.11
LOST IN SPACE? THE CHANGING NATURE OF AUSTRALIA'S SPACE POLICY
Steven Freeland, University of Western Sydney, Australia

IAC-10.E7.5.12
THE PROGRESS OF THE REGULATIONS-MAKING CONCERNING SPACE DEBRIS MITIGATION IN CHINA
Haifeng Zhao, Harbin Institute of Technology, China

IAC-10.E7.5.13
CONSEQUENCES OF THE FRENCH SPACE LAW ON SPACE OPERATIONS ON CNES' MISSION AS A SPACE AGENCY: THE CONFLICT OF INTEREST ISSUE
Philippe Clerc, Centre National d'Etudes Spatiales (CNES), France

IAC-10.E7.5.14
THE FRENCH SPACE OPERATIONS ACT IN THE INTERNATIONAL AND EUROPEAN CONTEXTS
Julien Mariez, CNES, France

IAC-10.E7.5.15
THE LEGAL CONSEQUENCES OF THE U.S LEGISLATIVE IMPLEMENTATION OF THE LIABILITY CONVENTION
Paul Larsen, Georgetown University Law Center, United States

6.7 Index of Authors

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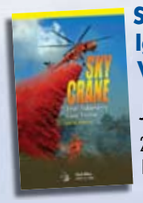

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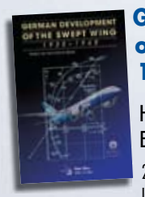

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Promoting Cooperative Solutions for Space Sustainability: Assuring Access to Space Benefits

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EXPERIENCE

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DEDICATION

As we at United Space Alliance mark 50 successful Space Shuttle missions, continue our support of the International Space Station and apply our unique capabilities to new customers, we look forward to the future...

because every mission matters.

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