

International Academy of Astronautics

6 rue Galilee, BP 1268-16, 75766 Paris Cedex 16

Tel +33 1 47 23 82 15, Fax +33 1 47 23 82 16

Email : sgeneral@iaaemail.org

Web : www.iaaweb.org

Minutes of Meeting

IAA Commission IV

Space Systems Operations and Utilization

March 23, 2010

Location: IAA, Paris, France

1 Welcome and Introduction

Welcome by chair (A. Ginati) and introduction of newly elected members of commission IV. Commission IV welcomes also two guests from China (Dr. Xiang Zhou) and Nigeria (Dr. S. O. Mohammed) as well as the Secretary General.

Attendees: see Attachment 1

2 Initiatives

The Commission IV is looking forward to IAC2011 Cape Town. Commission IV prepared and submitted (in Deajeon, Oct. 2009) to IAA and IAF an initiative document towards 2011 in South Africa (Space for Africa – Africa in Space) (This document was distributed to the attendees, see annex_1)

The Secretary General welcomes the initiative and reminds in third conference already taking place in Africa - IAA is present in Africa for some years, now with an African trustee, the meeting at COPUOS discussing activities in Africa is underlined. It was decided to postpone the Africa conference for one year due to IAC in South Africa. The African Leadership Conference will take place the week before IAC2011 in Kenia

The Secretary General requests to introduce and welcome two initiatives related to Commission IV activities. IAA has a new vice president from China and Secretary General points to Dr. Suresh (IAA/IAF relations) and Dr. Heugel (study groups) for further discussions and mentions the new offices in India and China as well as the new publication process located in China.

Dr. S. O. Mohammed (Nigeria) presents plans and initiatives: African IAA members interested in one more conference. Starting point is an African lead study on the use of equatorial plane with plans towards a stand-alone conference. Dr. Mohammed asks Commission IV for support, approval and review.

Dr. Xiang Zhou (China) presents the new proposal from China for a study group on Cooperation Programs for Global Environment Impact related to the topic disaster monitoring/management in a very strategic approach. China is seeking support and participation of international partners and requests from IAA suggestions for international members, especially members involved with other studies. Travel and accommodation would be covered for those who would like to participate in the initial meeting in May 2010 in Beijing. The chairman encourages to discuss the topic, interfaces and synergies with study group 4.9 as well as with study group 4.7.

AI: The chairman welcomes both initiatives and propose to requests executive summaries (1-2 pages) of the initiatives and to distribute through Commission IV members and study group participants to attract potential members. The chairman also proposes to release an open

invitation. Commission IV would be glad to provide a platform for review and distribution. Commission IV agrees and welcomes initiatives. It is suggested to provide also up-to-date references and programmatic information.

3 Study Group Activities

SG 4.1 – Knowledge Management for Space Activities (J. Holm)

The study group is concluding in 2010. Two conferences were held in the past, a third one will take place in 2010 in Darmstadt. The goal is to create an ongoing community and forum in addition to the IAC session. The outcome will not only be the study group report but also an anthology to create and foster information exchange via website. For this purpose one workshop is held during the spring meeting in Paris, another one in Darmstadt. The study group established collaboration space (via a Google group) with up to now 34 members and is still receiving new membership requests.

Detailed report see slides (attachment 2)

For detailed status see the SG 4.1 web page at <http://iaaweb.org/content/view/89/154/>

SG 4.5 – Hitch-Hiking to the Moon (L. Alkalai, presented by T. Balint)

An ISS related study was performed under the umbrella of the study group with results presented in Prague. Recent meetings took place in Berlin 2009, at AGU 2009 and at LPSC 2010. The report is planned to be submitted in Prague at IAC2010.

Detailed report see slides (attachment 3)

For detailed status see the SG 4.5 web page <http://iaaweb.org/content/view/244/376/>

SG 4.7 – Integrated Applications Services (A. Ginati)

The study group is on hold and looking for volunteer key person to be focal point and create momentum. Some new interesting initiatives and activities were launched recently by the European Union and the ESA, and the subject in Europe is moving. The study group asks for members.

For detailed status see the SG 4.7 web page <http://iaaweb.org/content/view/359/507/>

SG 4.8 – Space Systems Cross-Compatibility (J. Esper)

The last status was provided in September 2009 at the IAC. The study group is on schedule with having a new draft distributed before the spring meeting and planning for a final draft by IAC2010. The final report will be delivered for the Berlin symposium in 2011. To addressing some concerns regarding progress: group had issues in sharing technical information due to export control regulations in various countries and therefore the focus was shifted more to programmatic side

For detailed status see the SG 4.8 web page <http://iaaweb.org/content/view/314/459/>

SG 4.9 - International Aerospace System for Monitoring of Global Geophysical Phenomena and Forecasting of Natural and Man-Caused Disasters (presented by D. Kusnierkiewicz)

The first symposium was organized in 2009 and first results of the study group were presented at COPUOS in 2010 and approved. The Cyprus Symposium resulted in a concept, ready for distribution to members of the study group and commission IV members for review. A second symposium is in preparation.

For detailed status see the SG 4.10 web page <http://iaaweb.org/content/view/329/477/>

SG 4.10 – Distributed Space Mission (M. D'Errico)

A first session of the topic was offered last year. The outline and subgroups as well as initial participants are presented. The study group is currently collecting and covering ongoing missions and programs. A first draft is expected in May/June 2010, the final report is expected for the Berlin 2011 symposium. Preliminary results will be presented in Prague. It is suggested to involve SAR activities at OHB.

4 Program Committee Activities

4.2 Space Summit Working Group Status

IAA is co-organizing a Space Agencies Summit (involving head of agencies) in Washington, DC in November 2010 in context of IAA's 50th anniversary. Four working groups addressing the following topics: Climate Change/Green Systems, Disaster Management/Natural Hazards, Planetary/Lunar Exploration and Human Spaceflight. Commissions were asked at IAC2009 to submit proposals for the space summit. Every working group is now preparing the space summit according to their topics. A teleconference took place in February 2010, a first draft will be submitted to IAA on April 15, 2010, a second draft in June 2010 followed by discussions in July to select subjects for the space summit. Commission IV members (e.g. J. Holm, A. Valenzuela, D. Kusnierkiewicz) are involved in some working groups, more participation would be appreciated (e.g. in Planetary/Lunar Exploration working group)

Space Summit status web page <http://iaaweb.org/content/view/388/544/>

AI: Commission IV supported chairman to raise communication issues regarding the space summit at the SAC meeting.

4.3 Status Reports from PC chairpersons for IAC2010, Prague

Symposium D5: the sessions are in good shape, received an increasing number of submissions, in total 41 abstract in three sessions

Detailed report see slides (attachment 2)

Symposium B4: again an increasing number of submissions, in total 170 abstracts in eight sessions, covering nine slots (splitting B4.6), B4 is the third largest symposium of the IAC.

AI: before IAC2010 Prague, the chairman requests a Commission IV meeting wrt to all commission IV run sessions especially w.r.t. to number of allocated slots, chairman would like to encourage and ask the symposium organizers (Rhoda, Alex) to have a dedicated discussion in Prague to address and optimize the symposia due to the increasing number of submissions and slot allocations. (remark: IAF decided to "freeze" the number of slots of large symposia at the maximum allocation of nine slots, announced at the IAF spring meeting).

Berlin Small Satellite Symposium: preparation for the 2011 symposium will start soon, involving the newly created IAA Small Satellite Permanent Committee to coordinate

The IAA Small Satellite Permanent Committee reports to Commission IV chairman, the committee should coordinate all small satellite stand alone conferences and study groups, the committee will have its kick-off meeting during this spring meeting (today), the chairs are Rainer Sandau, Arnaldo Valenzuela, Rene Laufer, the secretary is Eberhard Gill, IAA asked for considering and update of the small satellite study

Session proposals/Plenary proposals of Commission IV: for IAC2011 Cape Town, no response was received yet on the Commission IV proposal. The Secretary General suggests to discuss the proposal with Dr. Suresh w.r.t. the African leadership conference, the Secretary General also suggests to proposed to SAC to dedicate the academy day 2011 to Africa. Both suggestions are agreed and supported by Commission IV. The Secretary General underlines the importance of participation in the African Leadership Conference.

The chairman asks for volunteers to organize the initiative: J. Holm and S. Lysy respond. Chairman suggests to stay in close contact with Dr. Mohammed and ask Sias Mostert (Commission IV member, IAC2010/11 IPC member) for support and involvement.

Topics discussed at SAC meeting (March 23, 2010)

- 19 participants including guests and Secretary General part of the time
- C4 welcomes Chinese initiative for study group/conference (International Cooperation on Global Environmental Impact) and African initiative for study group/conference (Use/Utilization of Equatorial Plane).
- C4 encourages members to participate, C4 requests 1-2 page executive summary to distribute to C4 members & community and seek support and involvement, SG 4.9 asked to link with Chinese initiative.
- C4 initiative for IAC2011 regarding African activities will be discussed with Dr. Suresh, C4 volunteers (to be) identified.
- Study Groups reports: two submit report in 2010 (4.1 & 4.5), two in 2011 (4.8 & 4.10), one started in 2009 (4.9), one on hold and plans to restart (4.7).
- Conferences/Symposia: IAC2010 (D5, >40 submissions, increased; B4, >170 submissions, increased), C4 requests further discussion about slot allocation especially for B4 in preparation for 2012, Berlin 2011 symposium in preparation
- Small Satellite Permanent Committee: newly founded, first meeting today, will coordinate small satellite related stand-alone conferences, sessions and study groups and report to Commission IV chairs
- Communications issues addressed, e.g. regarding DC summit

Topics discussed at IAF briefing (March 24, 2010)

- Number of submitted abstracts increased again after a small drop for Korea – now more than 2300 abstracts.
- IAF is “freezing” the number of slot allocations for symposia at the maximum number of nine slots.
- B4 is the third largest symposium.
- Parallel sessions within a symposium should be avoided.
- Interactive Mode not supported anymore for sessions, change take place immediately for IAC2010 Prague. Interactive Mode was not successful – back to oral presentation or poster.
- Session chairs are encouraged to select 11-13 papers per session. Only a small number of sessions (around 15) had nine papers or more showing up. The number of no-shows was still large.

Space for Africa & Africa in Space (Paris March 24, 2010)

Attendees: Jeanne Holm, Roberta Mugellesi-Dow, Rainer, S.O. Mohammed, R. Sandau, A. Ginati
Dedicate and interesting discussion took place right after Commission 4 meeting. The MoM (see annex 2) prepared by Jeanne.

Attachment 1: Participant List

Name	Organization	E-Mail
Manolo Romero	ONERA	manola.romero@onera.fr
Marco D'Errico	Univ. Naples	marco.derico@unina2.it
Jamie Esper	NASA-GSFC	jamie.esper@nasa.gov
Rene Laufer	Baylor Univ. /Univ. Stuttgart	rene.laufer@baylor.edu
Michael Ovchinnikov	Keldysh Institute	ovchinni@keldysh.ru
David Kusnierkiewicz	APL	david.kusnierkiewicz@jhuapl.edu
Jeng Shing Chern	China Institute of Technology	jschern@cc.hc.cust.edu.tw, jschern@ms19.hinet.net
Sergey Lysy	Khrunichev	sergeylsyy@gmail.com
Arnoldo Valenzuela	Media Lario Intl.	arnoldo_valenzuela@hotmail.com
Rainer Sandau	DLR	rainer.sandau@dlr.de
Carlo Ulivieri	Univ. Rome	ulivieri@psm.uniroma1.it
Roberta Mugeesi Dow	ESA	roberta.mugellesi.dow@esa.int
Xiang Zhou	China Academy of Sciences	xzhou08@gmail.com
Seidu O. Mohammed	National Space Research and Development Agency	dg@nasrda.net, somohed@yahoo.com
Jeanne Holm	NASA-JPL	jholm@jpl.nasa.gov
Tibor Balint	NASA-JPL	tibor.balint@jpl.nasa.gov
Amnon Ginati	ESA	amnon.ginati@esa.int
Mustapha Masmoudi	ATUCOM	mustaphamasmoudi@planet.tn
Jean-Michel Content	IAA	sgeneral@iaaemail.org



Symposium on Safety, Quality, and Knowledge Management in Space Activities


Jeanne Holm

23 March 2010


Symposium On Safety, Quality And Knowledge Management In Space Activities

- ◆ This 43rd Symposium organized by the International Academy of Astronautics addresses management approaches, methods, design solutions and regulations to improve the quality, efficiency and collaborative ability of space programs. All aspects are considered: risk management, complexity of systems and operations, knowledge management, human factors, economical constraints, international cooperation, norms and standards.


Collaborate




Communicate



Innovate



Motivate



23 March 2010

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D5.1 Safety of Vehicles and Ground Segment for Aerospace Missions

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Motivate



- ◆ Safety is a crucial issue for all steps of an aerospace mission. Risks associated with development, launch, in flight operation and landing vary with the nature of the mission from the use of nuclear devices for interplanetary exploration to the suborbital flight of "space tourists". This session deals with the methods tests, lessons learned, standards for analysis and mitigation of such risks.
- ◆ IPC members
 - Manola Romero, Chairman
 - Alexander Filatyev, Chairman
 - Garrett Smith, Rapporteur
- ◆ 14 papers submitted

23 March 2010

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D5.1 Safety of Vehicles and Ground Segment for Aerospace Missions

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- ◆ A New Chronological Method For Reliability Improvement / Risk Assessment
 - Prof. Haruki Takegahara
 - Tokyo Metropolitan Universit
- ◆ A New Evaluation Technology Of Safety And State Quality For Space Launch Site In Lunar Satellite CE-1 Mission
 - Dr. Yang Liu
 - Beijing Special Engineering Design Institute
- ◆ Commercial Space Launches Safety: A New Challenge In Brazil
 - Mr. Carlos Lino
 - Inpe
- ◆ Fault Prognosis Of Satellite Based On Independent Component Analysis And Support Vector Machine
 - Dr. Li Nan
- ◆ Intelligent Diagnosis For Launch System Using Mahalanobis Taguchi System
 - Mr. Yoshitaka Yoneda
 - The Graduate University Of Advanced Studies

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D5.1 Safety of Vehicles and Ground Segment for Aerospace Missions

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- ◆ Prognostics And Health Management Of Aerospace System Based On Fusion Of Model-based And Data-driven Approaches
 - Dr. Hongfeng Wang
 - University Of California
- ◆ Reliability Analysis Methods Study Of Space Launch Mission
 - Mr. Xu Chunming
 - China Xichang Satellite Launch Center
- ◆ Research On Active Testing Method Of Software In Spaceflight Launching Sites Based On Contracts
 - Prof. Jie Li
 - Beijing Special Engineering Design Institute
- ◆ Risk Hazard Analysis For Hifire Research Program Using Range Safety Template Toolkit
 - Mr. Michael Brett
 - Aerospace Concepts Pty Ltd
- ◆ Synthesis Of Critical Distributed Random Disturbances for Space Vehicles Safety Analysis
 - Dr. Olga Yanova
 - Central Aero-hydrodynamic Institute

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D5.1 Safety of Vehicles and Ground Segment for Aerospace Missions

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- ◆ System Safety Activity For IKAROS Spacecraft
 - Dr. Takayuki Yamamoto
 - Japan Aerospace Exploration Agency (JAXA)
- ◆ The Independent German National Surveillance Organisation In ESA's Launcher Product Assurance Framework
 - Mr. Jens Suedkamp
 - Industrieanlagen-betriebsgesellschaft Mbh (IABG)
- ◆ The Objective Analysis Of Risk Factors At
- ◆ Falling Of The Separated Parts Of Space Transportation Systems
 - Mr. Alexander Golikov
 - Central Aero-hydrodynamic Institute
- ◆ The Risks Analyses And Safety Barriers Elaboration For Stage Of Launch Preparation The Factors Of Stable Rocket Space Complex Operation
 - Dr. Vadim Kadzhaev
 - Design Bureau Of General Machine-building (KBOM)

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D5.2. Knowledge Management and Collaboration in Space Activities

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Motivate



- ♦ Working on complex space missions requires virtual teaming, learning lessons from the past, transferring knowledge from experts to younger generations, and developing deep expertise within an organization.
- ♦ This session focuses on the processes and technologies that organizations are using to sustain, energize and invigorate their ability to learn, innovate and share knowledge within and amongst organizations for sustainable, peaceful exploration of space. Case studies and defined approaches will discuss:
 - Analysis of successful projects and innovations in the application of knowledge management
 - Approaches to risk and opportunity management
 - Capture of technical expertise and lessons learned from previous successful projects that are applicable to new programs and focus on driving innovation
 - Methods that allow data, information or knowledge exchange within or amongst organizations
- ♦ IPC members
 - Jeanne Holm, Chairman
 - Roberta Mugellesi-Dow, Chairman
- ♦ 15 papers submitted

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D5.2. Knowledge Management and Collaboration in Space Activities

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- ♦ *Status of the IAA Knowledge Management Working Group*
 - Jeanne Holm, NASA/Jet Propulsion Laboratory
 - Roberta Mugellesi-Dow, European Space Operations Centre
- ♦ *A new information system architecture for a new space exploration paradigm: using stakeholder analysis to reengineer the value chain.*
 - Prof. Antoni Perez-Poch
 - Universitat Politècnica de Catalunya
- ♦ *CCSDS - Advancing Spaceflight Technology for International Collaboration*
 - Mr. Mike Kearney
 - NASA Marshall Space Flight Center
- ♦ *Comparison of Heterogeneous Space Projects through Complexity Indexes, for Technical and Managerial Evaluations*
 - Mr. Mauro Pasquinelli
 - Thales Alenia Space Italia
- ♦ *Development of the IAA Space Ontology enabling Knowledge Exchange*
 - European Space Agency (ESA)

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D5.2. Knowledge Management and Collaboration in Space Activities

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- ◆ *Enabling Engineering Excellence in NASA's Office of the Chief Engineer*
 - Mr. Harold Bell
 - National Aeronautics and Space Administration
- ◆ *Human Factor in team interaction, information flow and decision making within ISS Operations*
 - Mr. Andrea Guidi
 - HE Space Operations
- ◆ *Assembly, Integration and Test Centre In Malaysia*
 - Mrs. Elena Woo
 - Malaysian National Space Agency (ANGKASA)
- ◆ *Improving Knowledge Sharing with the help of a common framework for software tools*
 - Mr. Patrick Hambloch
 - Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)
- ◆ *Knowledge Capitalization in a Concurrent Engineering Environment*
 - Mr. Daniel Schubert
 - Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)

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D5.2. Knowledge Management and Collaboration in Space Activities

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- ◆ *Knowledge preservation: A Semantic Approach to Visualizing and Reusing Microgravity Material Science Data*
 - Mr. Alois Grimbach
 - DLR, German Space Agency
- ◆ *Knowledge sharing methods: assessment and implementation*
 - Ms. Roberta Mugellesi-Dow
 - European Space Agency (ESA)
- ◆ *Safety System*
 - Dr. Milan Pospisil
- ◆ *Sharing Knowledge Across Space Agencies—the IAA Knowledge Management Study Group*
 - Mrs. Jeanne Holm
 - Jet Propulsion Laboratory
- ◆ *The ULISSE environment for collaboration on ISS experiment data and knowledge representation*
 - Mr. Ed Kuijpers
 - National Aerospace Laboratory (NLR)

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D5.3. Space Weather Prediction and Effects on Space Missions

Collaborate



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Motivate



- ◆ Space missions are affected by solar activity and new exploration programs, especially manned programs, that stress the need for real "space weather". This session will deal with:
 - Space environment and affects on modeling and ground testing
 - Lessons learned from space mission failures due to the space environment
 - Space solar activity measurement
 - Space weather prediction
 - Standardization and data policy for space weather
- ◆ IPC members
 - Jean-Francois Roussel, Chairman
 - Mengu Cho, Chairman
- ◆ 12 papers submitted

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D5.3. Space Weather Prediction and Effects on Space Missions

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Motivate



- ◆ Collaboration And Policy For Space Weather Modeling And Risk Mitigation
 - Mrs. Jeanne Holm
 - Jet Propulsion Laboratory
- ◆ Evaluation Of Performance And Resistance To Space Environment Of Electron-emitting Film (ELF) For Spacecraft Charging Mitigation
 - Mr. Takahiro Sumida
 - Kyushu Institute Of Technology
- ◆ Experimental Study For Improving An ESD Ground Testing Method Of Solar Array
 - Prof. Kazuhiro Toyoda
 - Kyushu Institute Of Technology
- ◆ Impact Of Space Weather On Satellite Material Degradation
 - Ms. Funmilayo Einfojami
 - African Regional Center For Space Science And Technology Education
- ◆ Multi-scale Modeling To Investigate The Single Event Effects For Space Missions
 - Dr. Guillaume Hubert
 - Office National D'etudes Et De Recherches Aérospatiales (ONERA)

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D5.3. Space Weather Prediction and Effects on Space Missions

- ◆ Numerical Analysis Of Charged Particle Effects On Solar Sails For Interplanetary Flight
 - Dr. Takanobu MURANAKA
 - Japan Aerospace Exploration Agency (JAXA)
- ◆ Radiation Environment And Its Effect On Spacecraft Signal And Components
 - Mr. Kio Michael
 - National Space Research & Development Agency
- ◆ Space Environment Measurements By Jaxa Satellites And Iss
 - Prof. Takahiro Obara
 - Japan Aerospace Exploration Agency (JAXA)
- ◆ Space Weather And Radiation Risk
 - Mr. Temitope Owolabi
 - African Regional Center For Space Science And Technology Education

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D5.3. Space Weather Prediction and Effects on Space Missions

- ◆ Space Weather Effects In Space Missions Measured From Satellites And Ground-based Instruments Near The South Atlantic Magnetic Anomaly Center
 - Mr. 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
- ◆ The Global Muon Detector Network – Gmdn And Space Weather Prediction
 - Dr. 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
- ◆ Understanding The Effect Of Atomic Oxygen Exposure On Surface And Volume Resistivity Change In LEO
 - Mr. Noor Danish Ahrar Mundari
 - Kyushu Institute Of Technology

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Hitch-hiking to the Moon

Commission 4 Study

Leon Alkalai, JPL

IAA Member

Sunday, March 21, 2010

Status Report

- During the **past 6 months**, **John Elliott and Leon Alkalai** completed a study on the **utilization of the International Space Station (ISS)** as a platform for sending small satellites to the Moon, called *“ISS Lunar Transfer Vehicle”*
 - The study was initiated by a **dialogue between ESA and NASA HQ/SOMD** to see if there is an efficient way to **use the ISS to send small satellites to the Moon**.
 - The study looked at the assembly of a **Solar Electric Propulsion (SEP)** stage at the ISS **by astronauts**.
 - The **small payloads up to 6x50 kg** would be delivered separately **to the ISS**, attached to the transfer stage and sent towards the Moon.
 - The SEP stage would take a **low-energy trajectory, low-thrust propulsion maneuver to the Moon**, much like SMART-1 did (ESA), and deploy satellites in lunar orbit.
 - The study results will be presented at the **IAC in Prague 2010**

Milestones and Schedule

- Hitch-hiking to the Moon study meetings were held at the following venues over the past year:
 - IAA Symposium on Small Satellites, Berlin, May 2009
 - American Geophysical Union (AGU), San Francisco, December, 2009
 - Lunar and Planetary Sciences Conference (LPSC), Houston, Texas, March 2010
- The full study report will be completed and presented at the IAC in Sept/October in Prague.

New Opportunities for Hitch-hiking to the Moon

- Recent changes at NASA may provide a new incentive for hitch-hiking to the Moon.
- The recent restructuring of the Human Space Flight (HSF) Program at NASA which calls for the elimination of the Constellation Program in favor of a robust technology program and a series of precursor robotic programs for lunar exploration, will clearly favor the further investigation of opportunities to hitch-hike missions and payloads to the Moon.
- The need to expedite and complete this study report is clearly important, thus the IAC in Prague is a good opportunity to finish this report and present results.

Proposal for IAC 2011 Activities: IAA Commission IV Proposal

Cape Town, South Africa

2011

First IAC in Africa

- Take advantage of this unique opportunity to bring an awareness of space to Africa
- Provide themes and focus for the IAC 2011
 - Seek consensus from IAC participant organizations to develop a unified IAC
 - Seek input now from host nation and region to address their needs
 - Space for Africa
 - Africa in Space
- Produce a legacy of information for African nations and other parts of the world
 - “first flight”

Schedule

Friday	Saturday <i>Space for Africa</i>	Sunday <i>Africa in Space</i>	Monday	Tuesday	Wednesday	Thursday	Friday
IAF/UN/IAA Space Summit Space Round-table	IAF/UN/IAA Industry Day Open House	IAA Day and Workshop on Space Access <i>Space for Africa/ Africa in Space</i> celebration and closing ceremony	IAF/IAA	IAF/IAA	IAF/IAA	IAF/IAA	IAF/IAA
<div style="background-color: white; padding: 10px; border: 1px solid black;"> <p>Special Plenary and Keynote Events focused on African issues</p> </div>							

Themes: Space for Africa/Africa in Space

- GOAL
 - Provide an integrated set of talks, workshops, and public events that provide:
 - Public with an appreciation of what space does for Africa
 - Commercial Sector with information on how to utilize space information and/or how to participate in/stimulate space industry in Africa
 - Academia with an opportunity to educate themselves and others on space activities: small satellites, integrated applications, basic research, knowledge management, applied research, engineering
 - Governments with information on how to achieve “first flight”

Friday

- On Friday, focus of UN/IAF meeting remains global in scope
- IAA, UN/IAF sponsor a Space Roundtable with heads of African space activities
 - Summit of the heads of African Space Agencies
 - Private, in the morning, runs in parallel to UN/IAF activities – seek involvement of other space agencies to support unique opportunity
 - Public Roundtable in the afternoon as an event in the UN/IAF calendar

Theme 1: Space for Africa

- Saturday has activities that run in support of the UN/IAF activities
 - Industry Day Open House
 - Inform industry of the opportunity to directly market largest untapped market
 - Highlight Lecture(s) on “Space for Africa”
 - Examples:
 - Climate change
 - Impacts on Africa
 - Civil protection
 - Piracy
 - Border protection
 - Hazard mitigation and disaster relief
 - Integrated Applications
 - Environment and Public Health
 - Transportation
 - Communication, etc

Theme 2: Africa in Space

- “First Flight”
 - Options for “first flight” range from joint development, developing, building, launching, operating and utilizing the data in country in whole or in part.
 - Workshop and IAA talks are to provide resources to evaluate “first flight” options
 - THEME: How do you develop the end-to-end capability?
 - Hold a workshop on IAA Academy Day with the theme “First Flight” for the ½ day Sunday (open by approval to registered attendees)
 - Invite vendors to participate in developing the theme and provide information packages to the workshop attendees (charge them for inclusion to support travel funds, etc for participants?)

Expected Outcomes

- Africa nations will have been exposed to the full range of space activities for the first time, in one place.
 - Access to subject matter experts, policy makers, manufacturers, and service providers
- A resource will be provided to them to help them achieve “first flight”
 - Focused interchange with space leaders inside and outside Africa
 - “how to workshop” resources and “buyers guide” from Sunday
 - Access to full range of vendors as part of IAC
 - IAC proceedings – an introduction to subject matter experts for nations in transition

Space for Africa, Africa in Space
Sunday, IAA Day, 2 October 2010
Cape Town, South Africa

Goals

- Provide an integrated set of talks, workshops, and public events that provide:
 - Public with an appreciation of what space does for Africa
 - Commercial Sector with information on how to utilize space information and/or how to participate in/stimulate space industry in Africa
 - Academia with an opportunity to educate themselves and others on space activities: small satellites, integrated applications, basic research, knowledge management, applied research, and engineering
 - Governments with information on how to achieve “first flight”

Themes

- Space for Africa: Quality of life
- Africa for Space: First flight and solutions

Invitees

- Agencies, industry, universities. List will evolve as conversations occur in country over the next year.

Committee Members

- Amnon Ginati, S.O. Mohammed, Jeanne Holm, Roberta Mugellesi-Dow, Rainer Sandau, Larry Paxton, Leon Alkalai, Sias Mosfert
- Concurrence: Jean-Michel Contant

Morning

- ***Space for Africa***
 - How can space help in developing new capabilities for Africa
 - Quality of Life
 - Food and infrastructure security
 - Clean and sustained water (energy, etc.) accessibility
 - Telemedicine
 - Tele-education
 - Roundtable: leaders to discuss key issues and social impact
 - *Other topics to consider*
 - Disaster management
 - Climate change

- Impacts on Africa
- Related to deforestation, biodiversity, equatorial belt issues, energy, infrastructure, water
- How to achieve global, continuous coverage
- Civil protection
 - Piracy
 - Border protection
 - Hazard mitigation and disaster relief
- Integrated Applications
 - Environment and Public Health
 - Transportation
 - Communication, etc.
- Reference materials
 - UNEP World Water Day and reports:
<http://www.worldwaterday2010.info/>

Afternoon

- *Africa in Space*
 - What are national space programs doing to solve these problems and how are they evolving?
 - How do you develop the end-to-end capability?
 - Knowledge management and integrated applications
 - Keynotes: Sir Martin Sweeting and Dr. Abidun Abigun
 - *Other ideas*
 - “First flight” range from joint development, developing, building, launching, operating and utilizing the data in country in whole or in part
 - Workshop and IAA talks are to provide resources to evaluate “first flight” options
 - Invite vendors to participate in developing the theme and provide information packages to the workshop attendees (charge them for inclusion to support travel funds, etc for participants?)

Action Items

- Validate concepts and ideas with others and propose key presenters for the session/roundtable—S.O. Mohammed
- Coordinator from IAA local organizing committee to be identified—Jean-Michel Contant
- Coordinator from African Union to be identified—S.O. Mohammed
- Bring in potential investors to help evaluate implementable ideas—Amnon Ginati
- Coordinate program development—Jeanne Holm and S.O. Mohammed