

## **International Academy of Astronautics**

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### **Minutes of Meeting IAA Commission IV**

#### **Space Systems Operations and Utilization**

March 26, 2008

Location : IAA, Paris

#### **1. Welcome and Introduction**

Attendees: Larry Paxton (Chair), Amnon Ginati (Vice Chair), Max Grimard (Secretary), Rhoda Hornstein, Rock Jeng Shing Chern, Manola Romero

#### **2. Study Groups activities**

Commission 4 has 3 on-going Study Groups : Knowledge Management, Hitch-hiking to the Moon, and Quality considerations for space programmes. Proposals for two new Study Groups are in preparation : Integrated Applications and Interface Standards.

##### **SG 4.1 - Knowledge Management**

J. Holme was not able to attend the meeting, therefore the Study Group report will be delivered later.

##### **SG 4.5 - Hitch-hiking to the Moon (R. Chern)**

ILEWG conference in Sorrento in 2007 has allowed a meeting of the working group. L. Wu has moved to other professional duties, and will probably no longer lead the study group. Co-lead will be by L. Alkalai and B. Foing. List of members shall be formally transmitted to IAA management.

##### **SG 4.6 Quality considerations for space programmes**

No news from M. Hernandez. Progress status is unknown. M. Grimard shall contact M. Hernandez to get a report for IAC2008 meeting. The Study Group is supposed to deliver a draft report at IAC 08.

##### **New proposal : Integrated Applications (A. Ginati and M. Grimard)**

A. Ginati gave a report about the status of Integrated Applications initiative within ESA. The prospects are good to have a program decided at next Ministerial Conference end of 2008.

M. Grimard presented the proposed work plan and associated formal proposal of the study group (Attachment 1 and 2). The proposal will be sent to Commission 4 members for comments and recommendations about first participants to the Study Group (deadline

for review May 1<sup>st</sup>). The updated proposal will be formally approved by Commission 4 and transferred for SAC approval at Glasgow. Initial activities will start on the basis of the Glasgow session B4.4. L. Paxton says that it would be interesting to identify a list of potential external “sponsors” interested by the topic. Synergies shall be found with two other Commission 4 Study Groups (Knowledge management, and Interface Standards).

For future IAC's the Integrated Applications sessions shall find a specific positioning under the umbrella of the newly created IAF Technical Committee on Integrated Applications.

### **New proposal : Interface Standards (J. Esper and M. D'Errico)**

A formal Study Group proposal shall be prepared and forwarded to Commission 4 and IAA. L. Paxton will ask J. Esper and M. D'Errico to do so.

## **3. Program Committee Activities**

### **D.5 Safety & Quality (M. Grimard)**

The status of the Safety and Quality symposium for Glasgow is the following :

- D5.1 Safety of Space Tourism and Associated Regulations : 5 abstracts,
- D5.2 Quality and Knowledge Management in Aerospace Companies : 7 abstracts
- D5.3 Avoiding in orbit Failures by a better Knowledge of the Environment : 6 abstracts

This is a rather low score, which reflects the lack of dynamism of the Symposium. The main reason is coming from the fact that Max Grimard, who has replaced M. Romero and J. McReid as Coordinator when they left, has been far from the Safety & Quality domain for too long. Therefore he has no network, and no real resource to interactively address the Quality community to better participate to the Symposium. Max Grimard expresses his wish to stop his role as Coordinator of the Symposium, and to be replaced by people really involved in Quality in their operational work, e.g. J. Holm.

For Daejeon IAC2009, 2 or 3 sessions shall be proposed.

### **B.4 Small Satellite Missions (R. Hornstein)**

The Small Satellite Missions Symposium has received approximately 160-200 abstracts for Glasgow to be distributed over 8 sessions, including Integrated Applications Services (see §2.4).

B4.2 has got 8 abstracts only, B4.2 about 20, B4.3 about 15, B4.4 about 25, B4.6 about 65 (down selected to 24), B4.7 about 16 (reduced to 12), B4.8 about 17. This means another 3 hours slot for B4.6. Another way is to have a specific Poster Session, but the quality of organisation shall be increased with regard to usual IAF standard (best practice from IAA Small Satellite Berlin Symposium).

There is a need to create 1-2 additional sessions for 2009, since the interest for Small Satellites is raising.

A special issue of Acta Astronautica dealing with Small Satellites could be proposed to the new editor (Mr Gazer).

#### **4. Organizational Issues**

None

#### **5. Report to the Scientific Activities Committee and to the Board of Trustees**

L. Paxton will present the report, based on these Minutes.

#### **6. Next Meeting & Action Items**

The next meeting of Commission 4 will be held in Glasgow during IAC2008.

## **Attachment 1 : Work plan proposal for the IAA Study Group on Integrated Applications (M. Grimard – 06/03/08)**

### **Study scope (as proposed to IAA) :**

Promote Space as a key element to provide Integrated Applications Services for the benefit of Earth citizens :

- Define the concept of Integrated Applications
- Assess the benefits of Integrated Applications development for Space activities
- Identify the challenges of Integrated Applications development
- Make recommendations to foster Integrated Applications development

### **Working principles :**

Since all the SG members will serve on a voluntary basis, in addition to their day-to-day work in their home organisation, we have to take into account that they will not be able to devote a lot of time for the specific purpose of the SG. Therefore we should find as much as possible some synergetic ways to seek the contributions from the SG members, typically :

- Identify SG members whose day-to-day activities are close to the SG topic : membership selection is key for the success
- Build a reference document architecture and associated work plan, to be progressively filled through e-mail exchanges (somebody shall be the “book captain”)
- Use events such as IAC October congress and Spring IPC to hold working sessions
- Use the IAF Integrated Applications Symposium to feed the SG with analyses coming from the presented papers. The topics for Symposium sessions shall be defined according to the SG needs
- Organize specific IAA/IAF workshops on key topics, when felt relevant. Candidate topics could be : Private investment for Integrated Applications development, Role of space agencies to foster Integrated Applications development, Interoperability issues and solutions. Here again the idea is to get the basic material for the SG from the papers presented at these workshops

### **Proposed Work Structure : *illustrative topics, not exhaustive !***

#### **1. Definition and scope of Integrated Applications :**

- Integration of functions (Communications, Navigation, EO), integration of means (space, air, ground, sea)
- Positioning in the Value Chain
- Integration of infrastructures (architecture for system of systems) or integration of services ?
- Key domains of applications : illustrate through already existing examples

#### **2. Key challenges and solutions for Integrated Applications**

- Concept “buying” by the end users, in particular regarding the question : who shall support the initial implementation of space infrastructures ?
- Lack of market structuring : variety of users, customers with very different needs and financial capabilities, thus leading to a lot of small market segments

- Where is the space added value ? where is the business ? who will be the key actors of the field ? more an ICT world than a space one ?
- How to provide “transparency of means” to the users : interoperability, flexibility, “easy switches”, standard formatting for data exchanges, etc.
- Sustainability : who will pay for the space infrastructures (the initial capability, and the follow-on) ? business models, financial mechanisms.

### 3. Integrated Applications in main space faring countries

- Situation in USA, Europe, Russia, Japan, China, India : applications domains, role of space agencies, of industry (space and ICT), of end-users, of investors
- Potential for international initiatives : GEOSS, WHO, FAO, ...

### 4. Conclusion and recommendations

- Positive role of Space for Integrated Applications
- Benefits of Integrated Applications for Space activities development
- Tracks and actions to ease the development of Integrated Applications, using Space means

## **Attachment 2 : Proposal for Forming an IAA Study Group on Integrated Applications**

**Title of Study: Integrated Applications**

**Proposer(s): A. Ginati**

**Primary IAA Commission Preference : Commission 4**

*(From Commission 1 to Commission 6)*

**Secondary IAA Commission Interests : Commission 5**

*(From Commission 1 to Commission 6)*

### **Members of Study Team**

**Chairs:** M. Grimard (TBC) + TBD (ISRO if possible)

**Secretary:** A; Gaubert (TBC)

**Other Members:**

A. Ginati  
C. Haignerée  
J. Holm  
L. Paxton  
R. Sandau

### **Short Description of Scope of Study**

**Overall Goal:**

Promote Space as a key element to provide Integrated Applications Services for the benefit of Earth citizens.

**Intermediate Goals:**

Define the concept of Integrated Applications  
Assess the benefits of Integrated Applications development for Space activities  
Identify the challenges of Integrated Applications development  
Make recommendations to foster Integrated Applications development

**Methodology:**

- Define a Working roadmap, which will give the architecture of the Study Report
- Use the Symposium organized by IAF Integrated Applications Technical Committee, as a forum to exchange ideas, get data and analyses to feed the IAA Study Group
- Organize ad-hoc Workshops on specific key topics (e.g. Private investment for Integrated Applications development, Role of space agencies to foster Integrated Applications development, Interoperability issues and solutions, etc.)

**Time Line:**

Get agreement for SG at IAA SAC meeting September 08  
Finalize SG membership, organization and workplan at IAC 08 Glasgow  
Interim report after IAC 09, based on IAF Integrated Applications symposium  
Final report after IAC 10

**Final Product (Report, Publication, etc.):**

Report on SG activity  
Position Paper for promotion of Space and Integrated Applications

**Target Community:**

People working in downstream services  
User communities  
International organizations : UNCOPUOS, WHO, GEOSS, FAO, etc.

**Support Needed:****Potential Sponsors:**

*To be returned to IAA Secretariat Paris fax: 33 1 47 23 82 16 email: sgeneral@iaanet.org*

**Date:**

**Signature:**

*For IAA Use Only:*