

International Academy of Astronautics

6, rue Galilée, 75116 Paris

<http://www.iaaweb.org>

Commission 4 Space Operation and Utilization

Minutes of Meeting

26 March 2018 – 13h30-15h00

6, rue Galilée, 75116 Paris

1. **Welcome**

Commission Chair

Chair of commission 4 Dr. Tsuchida opened the commission meeting and welcomed all participating commission 4 members, ex officio members and interested participants. He provided a brief overview on the just finished restricted commission plenary meeting and summarized the main topics presented by vice-president and scientific activities committee (SAC) chair Anatoly Perminov”:

- (1) SAC requests more visibility of commission activities, the commission chair needs to increase communication with commission officers (secretary, etc.)
- (2) Another IAA sponsored “HEADS OF SPACE AGENCIES SUMMIT” (HOSA Summit) is planned in 2020 in Washington DC in USA. Next HOSA focuses on “Human Spaceflight”, and “Planetary Robotic Exploration” (similar to HOSA Summit 2014), On “Disaster Management”, and “Climate Change” another meeting will be scheduled later that year at another location.

As a preparation of this summit, each commission is requested to initiate and compile studies related to the fields of Robotics Exploration and Human Spaceflight.

- (3) The commission list on the IAA website (<http://iaaweb.org/content/view/718/945/>) has only commission leadership (chair, vice-chair, secretary, and past-chair), commission leadership can propose members of commission who have each a specific role (study groups, stand-alone conferences, etc.) to support commission activities.

(Chair’s note: the initial membership list was provided to IAA secretary as table 1 below.)

2. **Adoption of the Agenda**

Commission Chair

The agenda was adopted by the commission without additions to the agenda.

3. Adoption of the Minutes of Commission 4, Adelaide, 23 September 2017

Commission Chair

The chair walked through the minutes of meeting of the last commission 4 meeting at the IAC 2017 in Adelaide. The commission 4 agreed on the minutes of meeting.

4. IAA Cosmic Studies

4.1 *Current Studies*

Study Group 4.8 Chair or representative: Esper/D'errico/Herrel/ Mendham
Public Space Systems Cross-Compatibility

Study Group 4.9 Chair or representative: Menshikov/Murthi
Long International Aerospace System for Monitoring of Global Geophysical Phenomena)

Study Group 4.11 Chair or representative: Gu Xingfa/Zhou Xiang
Coordination and Cooperation for Global Environmental Impact

Chair stated these items above (SG 4.8, 4.9, 4.11) should be deleted because already closed or no one worked on these item at this point and he needs to coordinate with SAC secretary to delete from next meeting agenda in Bremen.

Study Group 4.17 Chair or representative: Cappelletti/Graziani/ Massimiani
Space Systems for Biomedical Research

A latest status report was not received but Dr. Cappelletti reported that several sections were drafted and the study group is going forward.

Study Group 4.19 Chair or representative: Horikawa/Coradini
Promoting Global Space Knowledge & Expertise in Developing Countries
Unclear

Commission 4 chair stated that no update was received for a while, he will contact to Dr. Horikawa.

Study Group 4.20 Chair or representative: Bao Weimin/Contant
Space Information Application in Earthquake Emergency Response

A status report was provided and showed significant progress for "compilation and protocol formulation of remote sensing earthquake emergency application".

Study Group 4.22 Chair or representative: Teofilatto/Filatyeu
Through Optimization of Aerospace Trajectories

A status report was provided, the list of study group members was expanded and a preliminary schedule of activities was discussed.

Small satellite-related study group reports via the IAA Permanent Committee on Small Satellite Missions (represented by committee co-chairs Dr. Sandau and Dr. Laufer):

Study Group 4.16 Chair or representative: Alkalai/Graziani/ Bousquet/Laufer
The Applications of Micro-Satellites and Cube-Sats to Planetary Science and Exploration Missions Closed

As agreed at the commission 4 meeting at the IAC 2017 in Adelaide based on a meeting of study group chair and commission 4 leadership at the IAC 2016 in Guadalajara the study group is to be closed without a study group report. The commission 4 leadership renews its proposal to conclude the activities with a paper presenting the status at an upcoming IAC.

Study Group 4.18 Chair or representative: Cho/Graziani/Polansky
Definition and Requirements of Small Satellites Seeking Low-Cost and Fast-Delivery
(Publication Process)

As stated by commission 4 chair and confirmed by IAA Technical Director the study group report is in publication.

Study Group 4.21 Chair or representative: Belokonov/Schilling
Distributed, Networked, Smart, Cooperating Small Satellite Formations

A status reported was provided, the study group is working actively but did not complete the 1st draft yet.

Study Group 4.23 Chair or representative: McKnight/Hanada/da Silva Curiel/Martinez
Post-Mission Disposal for Micro and Smaller Satellites: Concepts and Trade Studies

The study group just started its activities after commission 4 leadership endorsed the study group to SAC. An initial kick-off meeting was held at the IAC 2017 in Adelaide and another meeting will take place during this Paris meeting with a 1st draft send around to all study group members right after the Paris meeting. A draft report is expected for IAC 2018 in Bremen and a status presented at the IAC within the B4 symposium and at the commission 4 meeting.

4.2 New Studies Proposals

All

Study Group 4.XX Open knowledge management in communities and link to Integrated Application (Potential Chair is Mugellesi Roberta (ESA))

Proposal was sent to commission 4 leadership for review and possible endorsement. Commission 4 leadership requested narrowing the scope and focusing more on a specific area. The study group will be advertised at the 2018 global applications conference in Montevideo to recruit more members

Study Group 4.XX Chair or representative: Ishikawa/TBD (Proposer: Dr. Tsuchida)

ISS Privatization (Tentative title: “Next Step of International Cooperation involving private sector – New concept of ISS Operations”)

(Brief explanation was provided by Dr Ishikawa and Dr. Tsuchida)

Overall Goal:

Position Paper to develop recommendations to ISS member countries on how ISS (International Space Station) is transferred into private and commercial operations.

Intermediate Goals:

To hold workshop at 3rd IAA PHAS (Private Human Access to Space) in Hsinchu, Taiwan, Nov. 19-21, 2018, so that private/commercial sectors opinions can be added this position paper.

A proposed outline of an IAA Position Paper for ISS Privatization may contain the following contents:

1. Background, results from ISEF2 March 2018 in Japan, including all agencies' position
2. Challenges to achieve Privatized ISS
 - (1) Which elements will be privatized: (a) all or (b) partial
 - (2) Cost breakdown – ISS operations
 - (3) Who will terminate ISS: (a) space agencies or (b) private sector
 - (4) External interface supporting ISS (examples are space debris monitoring, TDRS communications, etc.)
3. Customizing to meet private sector's demand
 - (1) ultimate efficient operations (smaller operations team)
 - A) Critical module operations
 - B) Visiting vehicle operations
 - C) Non-critical module operations
 - (2) Space agency's (governments) role and responsibility
 - A) in case of loss of redundant system
 - B) in case of emergency
4. Business plan - how ISS can make a profit.
5. Marketing plan - how to advertise on purpose/usefulness of commercial ISS
6. Recommendations and Conclusion

Comments were provided by several commission 4 members and meeting participants regarding the broad scope and possible outcome of the proposed study. The input will be compiled and reviewed to iterate the study group proposal.

Small satellite-related study group proposals via the IAA Permanent Committee on Small Satellite Missions (represented by committee co-chairs Dr. Sandau and Dr. Laufer):

Study Group 4.XX Chair or representative: Nogawa/TBD

Small Satellites Constellation Missions for Planetary Exploration (Tentative)

Mr. Nogawa (New member of Commission 4) stated he is preparing a study group proposal. The commission 4 leadership strongly recommended that this topic is included into study group 4.21 with a very similar but broader topic on small satellite constellations. Study group 4.21 chair Dr. Schilling offered to discuss immediately such inclusion. Commission 4 members offered help to start perform this activity.

5. IAA Conferences

5.1 *Current and upcoming IAA Conferences*

5.1.1 Stand-alone conferences

5th IAA Conference on Space Systems as Critical Infrastructures

Mamaia, Romania, Date: August 3-4, 2017

Program Committee Chair or representative: Marius-Ioan Piso

More information at <http://iaaweb.org/content/view/717/944/>

IAA Space Flight Safety Symposium (SFS)

Saint-Petersburg, Russia, Date: September 24-27, 2018

Program Committee Chair or representative: TBD

5.1.2 IAA Symposia at IAC

51st IAA Symposium on Safety, Quality and Knowledge Management in Space Activities, Bremen, Germany

(IAC D5 symposium)

Program Committee Chairs or representatives: J. Holm/ R. Mugellesi-Dow

Number of submissions and session activities were reported by Dr. Romero

Small satellite-related conference reports via to the IAA Permanent Committee on Small Satellite Missions (represented by committee co-chairs Dr. Sandau and Dr. Laufer):

10th Pico and Nano Satellite Workshop

Wuerzburg, Germany, Date: September 13-15, 2017

Program Committee Chair or representative: Klaus Schilling

More information at

<http://www7.informatik.uni-wuerzburg.de/conferences/pina2017/>

The next workshop is expected to be in September 2018, probably again in Wuerzburg, Germany

4th IAA Conference on University Satellite Missions and Cubesat Workshop

Rome, Italy, Date: December 4-7, 2017

Program Committee Chair or representative: Filippo Graziani

A report on participation and activities were provided

More information at <http://iaaweb.org/content/view/712/937/> and

<http://univsatmissions.iaaweb.org>

ESA-CNES 4S Symposium

Sorrento, Italy, Date: May 28-June 1, 2018

Program Committee Chair or representative: Rainer Sandau

More information at
<https://atpi.eventsair.com/QuickEventWebsitePortal/4s2018/4s>

**IAA-RACTs Conference on Scientific and Technological Experiments
on Automatic Space Vehicles and Small Satellites (SPEXP 2018)**

Samara, Russia, Date: September 4-6, 2018

Program Committee Chair or representative: Igor Belokonov

Deadline for abstract submission is June 10, 2018. Invitation flyers to participate were distributed during the meeting.

More information at <http://iaaweb.org/content/view/747/982/>

3rd IAA Latin America Cubesat Workshop 2018

Ubatuba, Brazil, Date: 3-7 December 2018

Program Committee Chair or representative: Chantal Capelletti/ Mikhail
Ovchinnikov

More information at: <http://iaaweb.org/content/view/744/977/>

12th IAA Symposium on Small Satellite for Earth Observation

Berlin, Germany, Date: Spring 2019

Program Committee Chair or representative: Rainer Sandau

13th IAA Low-Cost Planetary Missions Conference

Location TBD, Date: 2019

Program Committee Chair or representative: Gregg Vane

It was also announced that follow-up events are planned for the following regional symposia:

2nd IAA Latin American Symposium on Small Satellites

Program Committee Chair or representative: Livio Gratton & Rainer Sandau
Argentina or Brazil, Date: 2019

2nd North-East Asia Symposium on Small Satellites

Program Committee Chair or representative: Rainer Sandau
Japan, Date: 2019

5.1.2 IAA Symposia at IAC

25th IAA Symposium on Small Satellite Missions, Bremen, Germany

(IAC B4 Symposium)

Program Committee Chairs or representatives: A. Da Silva Curiel/ R. Hornstein
and

**19th Workshop on Small Satellite Programmes at the Service of
Developing Countries, Bremen, Germany**

IAC B4.1 session as part of the B4 Symposium)

Program Committee Chairs or representatives: S. Mostert/H. Du

Number of submissions as well as session activities (update of number and list of sessions) and update on symposium leadership (after R. Hornstein's retirement) were presented by Dr. Laufer

5.2 *New Conferences proposals*

All

None

6. Report from the IAA Permanent Committee on Small Satellite Missions

See input at the corresponding agenda items above. Permanent committee leadership and members will participate in several meetings during the Paris meeting and the next permanent committee meeting will take place during the IAC 2018 in Bremen.

7. IAA Heads of Space Agencies Summit

Summary on that topic from plenary commission meeting provided by commission 4 chair (see above)

8. Other Business

All

- (1) Commission 4 Membership List – Table 1, Dr. Tsuchida
- (2) Results from ISEF2 March 2018 in Japan, Dr. Ishikawa

9. Adjourn

Commission 4 chair Dr. Tsuchida concluded the commission 4 meeting and invited everyone to participate in the next meeting at the IAC 2018 in Bremen

Table-1 IAA Commission 4 Member List Draft (As of March 26)

IAA Commission 4 Member List 2017-2019

March 26, 2018

						For IAA Spring Meeting March 2018 Commission 4 meeting								
						Chair	Vice-Chair	Secretary	Past Chair	Space Activities and New concepts	Com/Remote Sensing/Nav	Safety, Rescue, Quality	EVA	Utilization/ISS
Name	Prenoms	SEC	Grade	Nationality	Member	Rationales				Leadership		Commission Scope		
Cho	Mengu	2	M	South Korea	X	Regular Participant				X				
da Silva Curiel	Alex	2	M	Netherlands	X	IAC B4 Coordinator								
Gasbarri	Paolo	2	M	Italy				X		X				
Gratton	Livio R	2	CM	Argentina	X	new CM, Latin American symposium coordinator								
Graziani	Filippo	1	M	Italy	X	Regular Participant, Cubesat Workshop coordinator								
Hetscher	Matthias V	2	CM	Germany	X	new CM, Berlin Symposium coordinator, recent participant								
Ishikawa	Yoji	2	CM	Japan	X	From Industries, Future Space Infrastructure Researcher						X		X
Kashanov	Oleksandr	2	M	Ukraine	X	regular participant, commission member 2015-2017								
Kawashima	Rei	4	M	Japan	X	UNISEC-Global, MIC coordinator, recent participant								
Laufer	Rene	2	M	Germany			X			X				
Mugellesi Dow	Roberta	2	CM	Italy	X	regular participant, IAC D5 coordinator							X	
Nogawa	Yuichiro	2	CM	Japan	X	recent participant, JAXA ISS Flight Director, HTV Flight Director						X		X X
Ovchinnikov	Michael	2	M	Russia				X						
Schilling	Klaus J	2	M	Germany	X	regular participant, pico/nano sat workshop coordinator								
Tsuchida	Akira	2	M	Japan		JAXA Flight Director, Space Elevator, International Policy				X		X		X X