



# **INTERAGENCY OPERATIONS ADVISORY GROUP**

## **IOAG-16a Minutes**

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**Prepared by: Barbara Adde, Secretariat**

**IOAG-16a teleconference  
5 March 2013**

**Participants:**

Chair: Jean-Marc Soula  
Secretariat: Barbara Adde, Stephanie Wan

Members:

ASI: Giovanni Valentini  
CNES: Jean-Marc Soula  
DLR: Martin Pilgram  
ESA: Michael Schmidt, Gian-Paolo Calzolari, Octavio Camino, Ricard Abello, Klaus-Juergen Schulz  
JAXA: Shigeta Tsutomu, Iwata  
NASA: Phil Liebrecht, John Rush, Madeline Butler, Les Deutsch, Wallace Tai, Mike Kearney

Observers:

KARI: Sangil Ahn  
UK-SA: Peter Allan

Liaison:

CCSDS: Nestor Peccia

1) Introduction/Opening: Mr. Soula

The Chairman called the meeting to order, and a quorum was confirmed. He noted that the objective of today's meeting is to prepare for IOAG-17, as it related to IOP-3.

2) Approval of IOAG-16 minutes, 2013 Work Plan: Mr. Soula and Ms Adde

After reviewing the modifications to the draft minutes provided by DLR, ESA, JAXA, KARI, and UK-SA, the IOAG approved the minutes. The Secretariat will place them on the IOAG public website.

The Chairman reviewed the modifications received to the draft 2013 Work Plan from DLR and ESA. KARI input was received and will be included. NASA will provide comments to point out the role of IOAG interface with CCSDS. It was agreed that after these final modifications are made the document will final and can be posted on the IOAG website.

3) IOP-3 Preparation: Mr. Soula

The Chairman reported that letters of invitation have been sent to most of delegates; he and the Secretariat continue to attempt to locate IOP-3 delegates for CNSA, ISRO, and RFSA. The

Secretariat is tasked to prepare a letter for these non-participating agencies. There have been no formal replies to the invitation yet. Mr. Valentini informed the IOAG that Mr. Roberto Ibba, who had been the IOP-3 delegate for ASI, is no longer responsible for ASI's ground segment; he will inform the Secretariat of the new delegate once named.

The following actions were assigned:

AI 16a-01: Update the IOP website, including a registration page for all attending. [Assigned to: Secretariat; Due Date: 15 March, 2013]

AI 16a-02: Send reminder emails to IOP delegates and their IOAG representative, requesting responses by 29 March. Include website URL for online registration. [Assigned to: Secretariat; Due Date: 15 March, 2013]

Mr. Soula discussed options for the location of IOP-3, which will be hosted by CNES in Toulouse, France. He will provide information on the location by IOAG-17.

The Chairman next reviewed the latest draft agenda, which is now reduced to two days – 25-26 June. It was agreed that it would be decided at the conclusion of IOAG-17 if the IOAG needs to meet in Toulouse on 24 June to finalize preparations and a meeting soon after IOP-3 to discuss final results and plan next steps.

Mr. Schmidt recommended that the meeting time be built around travel schedules; it was agreed that the reminder email will ask delegates to provide their travel plans. Mr. Schmidt also suggested that time is permitted for delegates to interact prior to the meeting's start for those who had not previously met. It was agreed that delegates would be encouraged to arrive by the evening of 24 June.

In response to a comment received to the draft agenda, it was agreed that the host agency should act as IOP-3 chairman/moderator, following precedent. Mr. Soula offered to propose names for potential CNES moderator.

The Chairman volunteered the outgoing and incoming Chairman and Secretariat to serve on the Drafting Committee, and Mr. Liebrecht volunteered. The Chairman asked for other volunteers, to be determined in the near future. He also asked that names be provided for specific presentations by liaison and subgroups. Mr. Miller will present the ICG liaison report, either in person or by teleconference. Either Mr. Peccia or Mr. Tai will present the CCSDS liaison report. It was agreed that the Chairman will mention the International Lunar Network relationship in his opening introduction rather than provide a separate liaison report. Mr. Liebrecht stated that NASA's representatives will participate either in person or by teleconference. The Chairman said that the next version of the agenda will list co-chairs for each of the four subgroups.

The Drafting Committee meeting at the end of Day 1 may either be moved to the morning of Day 2 or be split between the two. After discussion, it was agreed that the organization of the key presentations between the two days was appropriate. Each subgroup will report on its activities,

conclusions and findings, and current status, with proposals for way forward. These reports and proposals should be ready at IOAG-17 for discussion in order to achieve agreement between all IOAG delegates.

AI 16a-03: Send an email to all co-chairs regarding expectations for IOAG-17 and IOP-3. [Assigned to: Chairman; Due Date: 8 March, 2013]

It was agreed that an Executive Summary and brief report on each Agency's activities be distributed to each IOP delegate, with proposed draft resolutions and communiqué.

AI 16a-04: Add Executive Summary to IOAG-17 agenda and provide proposals for standard format for Agency Report. [Assigned to: Chairman; Due Date: 13 May, 2013]

It was agreed that the IOP would close with discussion on key milestones to be achieved before IOP-4.

The Chairman then reviewed the status of IOAG-16 Action Items related to IOP-3:

AI 16-03 has been closed

AI 16-04 has been closed

AI 16-05 has been closed

AI 6-06 is a joint action for the outgoing and incoming chairmen regarding ISECG

AI16-07 has been closed

#### 4) IOAG-17 Preparation and Logistics: Chairman and Dr. Allan

It was agreed that the meeting will be held on Monday, 13 May through Thursday, 16 May. Mr. Peccia requested that the CCSDS portion of the agenda should be focused to one day. The Chairman stated that the agenda should include some of the regular agenda items at the IOAG face-to-face meetings, i.e., review of reference tables, and requested updates to these tables before IOAG-17 so that integrated tables can be completed.

After discussion, it was agreed that the format of the meeting would be to focus on each of the four key subject areas in turn, including presentations and consideration of related resolutions.

Dr. Allan discussed logistics for IOAG-17, which will be hosted by UK-SA at the Rutherford Appleton Laboratory. He offered to provide additional information regarding lodging and transportation.

#### 5) CCSDS Liaison Report: Mr. Peccia

Mr. Peccia, who now also serves as chair of the CCSDS Engineering Steering Group (CESG), provided an update on CESG polls since its last meeting in October 2012. Mr. Tai serves as his co-chair. At that meeting, the CESG reviewed its resources and shared its decisions with the CCSDS Management Council (CMC).

The Chairman noted that there are several actions to the IOAG regarding the IOAG-CCSDS Product Agreement (ICPA). There was only one response regarding a review of the ICPA,

which came from NASA, proposing to have a standard for uplink coding. The IOAG will have to analyze the formulation of this requirement, he said. Another action to review priorities based on the IOAG priority list was completed; Mr. Soula and Mr. Calzolari identified messages and interfaces that are not obvious as part of the either Service Catalogue #1 or Service Catalogue #2. He reminded delegates of his email of Friday, 1 March on IOAG priority statements concerning new services (Spacecraft Maneuver Message, Point Request Message, High Data Rate uplink channel coding codes) and requested their response by the 20 March due date, in order to provide the necessary feedback to CCSDS in advance of their April in Bordeaux. Mr. Schmidt stated that there is a preliminary response from ESA which should be finalized by next week.

Mr. Liebrecht remarked that forward link coding is important to NASA, which was originally submitted last fall; this needs to be resolved. The Chairman noted that this is also included in his 1 March email. Mr. Peccia said that this is important for CCSDS to have confirmation of ICPA input by the beginning of the second week of April in order to discuss resources. The Chairman agreed, saying that there is good agreement from IOAG-16 on most Priority 1 standards being developed by CCSDS; disagreement comes with standards that are not yet at work on CCSDS, which need to be started. In other cases, he said, these are long term activities, with implementation from 2020, so these should not be a major issue. The Priority 1 standards have been in place for several years, he said, without work from CCSDS; this discrepancy needs to be discussed in CESG. The IOAG will provide input by April on the two or three new standards, including high rate data link, he said. Everything else has been reviewed, and is reflected in a new version of the ICPA, available on CWE website. The Chairman requested that all delegates consult the ICPA and verify its accuracy today. Mr. Kearney confirmed that the URL is on a public website; the IOAG Secretariat will have a link to it on the homepage of the IOAG website within a week.

6) MOSCG Progress Report:IOP-3 Preparation: Mr. Kearney and Mr. Camino

Mr. Kearney provided his interpretation of the IOAG's two goals for the MOSCG:

- 1) Consensus on a recommendation to create (or not) the MOSSG (post-IOP-3), under the IOAG or some other body;
- 2) A recommended work plan for the MOSSG.

Other factors (benefits, missions, priorities, etc.) will only be examined preliminarily by the MOSCG to accomplish these two objectives, he said, and the related factors will be re-worked by the MOSSG after IOP-3. The MOSCG will also prepare a presentation for the IOP-3 which will be presented at the IOAG-17, for approval, he said.

Mr. Kearney stated that the survey was distributed on 15 February and the MOSCG is now awaiting results, due 15 March. He presented a chart to represent potential findings. He asked the delegates if there are other agencies that are expected to submit survey results. Dr. Allan noted that the UK-SA hope to be submitting results.

While the MOSCG is awaiting survey results, they have several other actions, including the development of a post-IOP3 MOSSG work plan, assuming a positive response, Mr. Kearney

said. The MOSCG is also looking at the “architecture in the Mission Operations green book, and considering whether it works for an eventual post-IOP-3 MOSSG architecture discussion, or whether higher view mission architecture is needed.

After survey results are received, the MOSCG should develop a few example pages of those future Service Catalogues that the MOSSG would later develop. It would also help communicate to the IOAG and IOP exactly what is being recommended for the IOAG to endorse and coordinate with the IOP. Ultimately, this would help focus MOSSG on what the end result is that is desired by the IOAG and IOP.

The delegates agreed that this is a good plan.

7) SISG Progress Report: IOP-3 Preparation: Mr. Rush

Mr. Rush reported that the SISG is conducting monthly videoconference meetings. The objective of the SISG, he said, is to validate the CCSDS Solar System Internetworking (SSI) architecture document to verify that it addresses the original intent of the SISG. The first videoconference was held on 14 February, where a review team was organized and a top level discussion was conducted. Mr. Rush said that members felt the overall architecture focus has shifted in the past few months, recognizing that network aspects of the architecture are a little further away for all of the agencies. One of the important findings, he said, is some aspects of the architecture, particularly Disruption Tolerant Networking (DTN), provide a near term opportunity to automate communications. This could result in near term reductions in cost of operations and many additional benefits in automating communications, he stated. The SISG will develop this concept and provide more detail on that aspect at IOAG-17.

Mr. Rush also reported that the SISG examined the status of standardization for DTN and noted only one Blue Book in final form at this point; however, there are a number of components moving through development stages. An action was assigned to the CCSDS Working Group chair, Mr. Keith Scott/NASA to report at the next SISG videoconference on 14 March to provide a plan for standardization of DTN capabilities. Mr. Rush said that the SISG is on track to complete this effort by IOAG-17 and will have its final product ready for IOP-3 as well. The SISG is preparing a briefing as well as a recommended resolution to move the activity forward.

Mr. Schmidt noted that in the past, relevant missions were always considered. The focus in the past was on Mars missions but this has changed. He inquired if any relevant scenario would be provided with this presentation. Mr. Rush answered that the working group is looking at scenarios, which will be addressed at their 14 March meeting. He said that they discussed two types of scenario: one which brings out the benefits of automating communication and the other, longer range scenario, which focuses on aspects of internetworking. In response to Mr. Schmidt’s query about refocusing on Earth observation, Mr. Liebrecht answered that this is one example of a representation of a user type. Another user class should include the International Space Station (ISS), and would also be important. He supports this focus on the users. Mr. Rush said that there are a number of scenarios that the SISG can present; their Working Group will address this. The near Earth scenario is an extension of what the SISG included in its initial

work; it is a very recent finding that there are advantages that the SISG probably didn't focus on that probably could have been in its initial SISG work.

The Chairman stated that the report will not be repeated; the SISG will provide a response that is appropriate for a global answer to the IOP. He acknowledged that mission scenarios have changed since IOP-2 and that it would be useful to provide information for all agency plans and new scenario as milestones for the future. He recommended that the experiments or demonstrators being accomplished after IOP-2 be reported, as these may be useful for IOP-3.

8) OLSG Progress Report: IOP-3 Preparation: Mr. Rush

Mr. Rush reported that the OLSG had conducted a videoconference on 20 February and put in place a team and action items on the question of "low hanging fruit" of related CCSDS standards to survey standards and provide their recommendations. Mr. Bernie Edwards/NASA is leading this team, and they are making good progress. Another team is studying weather statistics information and information exchanged for weather data between cross support ground stations, he said. Mr. Randy Allison/NASA is putting together a small team for this. CNES also took an action to study modulation and coding standardization versus scenarios, Mr. Rush said. Mr. Jean-Luc Issler will recommend standardizing on a set of modulation that matches the scenarios. A report on this will be presented at their next videoconference on 15 March.

The OLSG also discussed the aviation aspects, i.e., the interruptions that may come when aircraft imposes laser safety from the ground. Both Mr. Schulz and he are working to get quantitative data from their agencies' existing sites on the magnitude of this problem, Mr Rush stated. As with the SISG, the OLSG discussed preparing its IOAG-17 and IOP-3 presentation and a related draft resolution, targeting completion for IOAG-17.

In response to a request for access to minutes from these meetings, Mr. Rush agreed to provide their informal minutes. Mr. Liebrecht asked about the astronaut eye safety issue, to which Mr. Rush replied that the SISG is working with the NASA Astronaut Office regarding crewed vehicles, as well as with ICAO. He understands that there is a plan to adjust the ICAO eye safety standard, which was created by ANSI. He is trying to determine their plan and perhaps participate in ANSI standard modifications discussions.

Mr. Schultz noted that the Russians are active in optical communications on the ISS and would like the IOAG to ask them to participate in the OLSG or alternately, to provide information, as well as to attend IOP-3. The Chairman said that the IOP-3 invitation letter to RFSA will include this request.

9) 26 GHz Study Group Progress Report: IOP-3 Preparation: Mr. Abello

Mr. Abello reported that this Study Group has conducted 11 teleconferences already, with a 12<sup>th</sup> to be held tomorrow. The draft report is almost ready; he expects that it will be completed during a meeting in Washington, DC in two weeks. The draft report should be completed by 26 April for presentation at IOAG-17 in May, with an enhanced report completed for the June IOP-3 meeting.

Input from all agencies has been incorporated in all sections, including propagation, modulation, etc. and an executive summary for the decision maker. The Study Group is working to build an appendix for the technical material.

Mr. Schmidt asked if their presentation would include scenario to show the decision makers the possible applications of 26 GHz, to which Mr. Abello confirmed it would. Mr. Liebrecht asked if NOAA is now participating in this study group, and Mr. Abello confirmed that both NOAA and EUMETSAT are participants. Answering a question from the Chairman, he stated that the business case may come later; it will be a living document for some time.

#### 10) Miscellaneous: Chairman

The Chairman reviewed open action items with future due dates, which are all in work. The due date for Action Item 16-11 will be changed to 13 May, 2013. He also noted that he will coordinate with the SFCG liaison, Mr. Vassallo, regarding expectations.

In closing, he noted that the most urgent actions are those related to the ICPA in preparation for the CESG meeting in April.

The Chairman thanked all presenters and participants for their very good preparation and then adjourned the meeting.

**IOAG-16a Meeting / Teleconference**  
**Tuesday, 5 March, 2013**  
**13:00 – 16:00 UTC**

**DRAFT AGENDA**

<b>Time (UTC)</b>	<b>Presenter</b>	<b>Agenda Item</b>	<b>Action Items</b>
13:00 –13:10	Soula	1) Introduction/Opening	
13:10 –13:15	All	2) Approval of IOAG-16 minutes, 2013 Work Plan	
13:15 –13:50	Chair	3) IOP-3 Preparation - Review IOP-3 Agenda	AI 16-03, 16-04, 16-05, 16-06, 16-07
13:50 –14:20	Chair/Allan	4) IOAG-17 Preparation and Logistics - Objectives, Agenda	
14:20 –14:50	CCSDS Liaison	5) CCSDS Liaison Report (ICPA and the upcoming April Meeting)	AI 16-01, 16-02, 16-06,
14:50 –15:10	MOSCG Co-Chair	6) MOSCG Progress/IOP-3 preparation	
15:10 –15:20	SISG Co-Chair	7) SISG Progress/IOP-3 preparation	AI 16-09
15:20 –15:30	OLSG Co-Chair	8) OLSG Progress/IOP-3preparation	
15:30 –15:40	26 GHzSG Co-Chair	9) 26 GHzSG Progress/IOP-3 preparation	
15:40 –15:50	Chair	10) Miscellaneous - Review of Open Action Items	AI 16-11
15:50 –16:00	Chair	11) Closing Summary	

**IOAG-16a ACTION ITEMS**

AI 16a-01: Update the IOP website, including a registration page for all attending. [Assigned to: Secretariat; Due Date: 15 March, 2013]

AI 16a-02: Send reminder emails to IOP delegates and their IOAG representative, requesting responses by 29 March. Include website URL for online registration. [Assigned to: Secretariat; Due Date: 15 March, 2013]

AI 16a-03: Send an email to all co-chairs regarding expectations for IOAG-17 and IOP-3. [Assigned to: Chairman; Due Date: 8 March, 2013]

AI 16a-04: Add Executive Summary to IOAG-17 agenda and provide proposals for standard format for Agency Report. [Assigned to: Chairman; Due Date: 13 May, 2013]