INTERAGENCY OPERATIONS ADVISORY GROUP

IOAG-18d Meeting

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Prepared by: Barbara Adde, IOAG Secretariat

Date: 25 February 2015

IOAG-18d Teleconference
25 February 2015
Minutes

Attendance:

Chair: Michael Schmidt/ESA
Secretariat: Barbara Adde/NASA, Stephanie Wan/NASA

Members:
ASI: Fabio D'Amico
CNES: Jean-Marc Soula
CSA: Ken Lord
DLR: Martin Pilgram
ESA: Michael Schmidt, Gian-Paolo Calzolari, Enrico Vassallo, Nestor Peccia, Francois Allard
JAXA: Tsutomu Shigeta
NASA: Phil Liebrecht, Kelvin Nichols, Les Deutsch, Wallace Tai, James Miller, AJ Oria

Observers:
KARI: Sanghil Ahn
UKSA: Peter Allan

Invited Guest:
SANA – Marc Blanchet

All charts are available on the www.ioag.org website.

Introduction: M. Schmidt

The Chairman opened the meeting and thanked everyone for their participation in today's IOAG-18d teleconference, especially those at very early morning hours across the planet. He asked if there were any changes to the proposed agenda. Mr. Liebrecht requested the addition of MOSSG be to Any Other Business at the end of the meeting; this was approved.

Mr. Liebrecht noted that there have been several changes in the NASA team due to the retirements of Michael Kearney and Madeline Butler. Kelvin Nichols of NASA's Marshall Space Flight Center will cover all of Mr. Kearney's activities except the Mission Operations Systems Study Group (MOSSG), which will be handled by Dan Smith of NASA's Goddard Space Flight Center. Wallace Tai will take Madeline Butler's role as lead in the Spacecraft Emergency Cross-Support Working Group (SECSWG) with Thomas Beck of ESA. Mr. Liebrecht thanked the Chairman for the IOAG letters of support for both retirements, which were gratefully received.

Secretariat's Report: B. Adde

The Secretariat noted the markup that had been received to the draft minutes for both IOAG-18b and IOAG-18c, and requested approval by the members, which was provided. These minutes will be made public on the IOAG website.

The Annual Report, drafted by the Chairman, was approved by all members and will also be made public on the IOAG website. The Chairman noted the addition of the Coding and Modulation activity by NASA to the draft Work Plan, and asked the Secretariat to distribute a new draft to the agencies.

In reviewing the three open actions from IOAG-18c, it was noted that the due dates were inaccurate and the information is needed before the CCSDS meeting in mid-March. All agencies have provided their input except for NASA, which will provide its input before the end of the month. Mr. Liebrecht inquired as to the reason for updating Service Catalogue (SC)-1 and SC-2. Mr. Calzolari stated that there are several small changes pending that they wanted to resolve together for updated catalogues. He also asked NASA to appoint someone to this team.

Dr. Allan noted that the UKSA is fine with AI IOAG-18c-02. Mr. Calzolari requested that the Secretariat move CSA's input into the Comments section of the Action Item on the website.

Spacecraft Emergency Cross-Support Working Group (SECSWG): W. Tai

Mr. Tai provided a status briefing on the work of the SECSWG. He stated that they have held two very productive teleconferences since IOAG-18c. The working group has three potential recommendations to the IOAG:

1) Establish multilateral guidelines for spacecraft emergency cross-support;
2) Establish a point of contact at each agency;
3) Establish standard operating interface for spacecraft emergency cross-support.

At the IOAG-18c teleconference, the SECSWG was directed to elaborate on a concept for each before the IOAG can take a decision. Mr. Tai discussed each recommendation in turn. Regarding Recommendation #1, it is stated that the IOAG multi-lateral guidelines would provide a programmatic framework with common understanding by the member agencies in providing spacecraft emergency cross-support. Mr. Liebrecht noted that the point of contact recommendation is self-explanatory, and asked if the SECWG had discussed how to codify this commitment framework – perhaps as part of the IOAG charter? Mr. Tai answered that such a framework could exist with minimum level of "commitment," e.g., emergency contact point at each agency, to more extensive levels, e.g. guidelines for the standards operating interface level between the   requesting agency and the potential provider, with the understanding that it is on a voluntary basis. The policy level documentation would need to be addressed to ensure that there is no liability for negative consequences. Mr. Liebrecht then asked if the emergency technical interface cross-support services would be based on those for the standard services. Mr. Tai

answered that this was part of recommendation 3 – the use of some subset of technical parameters.

The second recommendation would require a statement of work at the highest level that each participating member agency would provide an Emergency Contact Point to enable the response to a call-for-request-for-emergency-support, similar to an SOS call, around the clock (24/7). Mr. Tai stated that it is important to recognize that even without multilateral guidelines, this is the minimum that could be done by the IOAG community.

The third recommendation focuses on standardized operational process, the IOAG asset table, mission information database, and spacecraft information database. Mr. Schmidt asked if the IOAG would define and mandate any standard procedures. Mr. Tai answered that standard operational procedures would be needed only in the interface between the service requester and provider. Mr. Schmidt agreed that while the implementation for the internal operations at each service providing system can be different, the interface procedures need to be defined. It was agreed that these procedures would be the responsibility of the IOAG, rather than the CCSDS.

Mr. Tai said that the SECSWG has responded to the IOAG request from the IOAG-18c telecon and asked the member agencies to accept, defer, or reject these potential recommendations at the conceptual level so that they can finalize the study report and release the document. The Chairman stated that the SECWG had done good work in the right direction to define the technical context of such guidelines and procedures. The study results presented by the SECSWG have addressed the key questions raised by his management. Mr. Tai noted that they carefully used the term "multilateral guideline," rather than "agreement," so as to keep it informal. Mr. Liebrecht agreed that any commitment needs to be carefully considered. Mr. Soula asked if the SECSWG would present its final report at the IOAG-19 meeting. Mr. Liebrecht suggested that a good draft before the meeting would be good; the Work Plan requires the final report by the end of the year, which should be achievable. Mr. Tai agreed that the working group would update the report and probably work a little more on the third recommendation in parallel. Mr. Liebrecht also noted that additional information is needed for the asset tables, and the other information database will have to be defined. Mr. Vassallo noted that the frequency license is needed well in advance so this information needs to be identified in advance.

Communication Asset Tables: Mr. Blanchet (SANA)

Mr. Blanchet presented his work on the normalization of IOAG data, which he had been coordinating with Mr. Kearney/NASA and Dr. Oria/NASA. He is awaiting comments regarding some of the fields to normalize properly. The assets are from the IOAG members and some non-members. He has contacted all seven non-members to ensure that they concur with the material being provided on the public IOAG website. So far, only two have responded, both in the affirmative. The Chairman asked him how he will ensure the data is updated and if he has a mechanism in place to ensure that the data has been coordinated with the Space Frequency Coordination Group (SFCG) tables. Mr. Pilgram recommended that each agency update its own information and ensure that it is consistent with the SFCG tables, to which all members concurred. The Chairman asked if SANA would be able to provide an extract of the table for

each agency. Mr. Blanchet confirmed that this is feasible. The Chairman stated that it is up to each delegation to ensure on an annual basis that they review the database and ensure their input is consistent with the SFCG database.

CCSDS Report: N. Peccia

Mr. Peccia provided a report on the status of the CCSDS work on standards. Mr. Calzolari noted again the outstanding responses to the ICPA from NASA, which needs to be provided before the CCSDS meeting in March. The Chairman asked Mr. Peccia what the CCSDS needs are. Mr. Peccia said the CCSDS is still missing resources, and that this is being discussed within the CCSDS. Mr. Calzolari noted that he expects to update the ICPA priorities in the next couple weeks. Mr. Soula concurred, noting that he expects to close this review cycle of the ICPA and a new cycle will start during the March CCSDS meeting in Pasadena, which will be reviewed by the IOAG in Daejeon in May.

The Chairman said that he had been asked by Mr. Merri if the list of priorities is still accurate. Mr. Soula said it will be discussed at the IOAG-19 meeting if priorities need to be changed. It is expected that the IOAG Top priorities would not change more often than every 3-4 years. The Chairman noted that in this context the trend towards optical communication would need to be considered. This aspect will need to be discussed at IOAG-19.

International Space Exploration Coordination Group (ISECG): M. Schmidt and P. Liebrecht

The Chairman reported that the IOAG has agreed with Ms. Laurini of the ISECG that IOAG involvement is not needed in rendezvous and docking (R&D) at this time. Mr. Liebrecht concurred, noting that the ISECG is investigating R&D at a very high Earth orbit to cis-lunar. An ISECG R&D group of experts will periodically update the IOAG. Mr. Schmidt added that ESA's Thomas Reiter is also responsible for robotic and crewed operations, and has nominated Mr. Schmidt to follow the related standardization issues at ESA. He will report to the IOAG on any related discussions.

Coding and Modulation: L. Deutsch and G-P. Calzolari

Mr. Calzolari noted that the website table for coding and modulation requires update to incorporate the late input from JAXA. The working group expects to have a draft report by IOAG-19.

IOAG-19 Agenda Topics: M. Schmidt

The Chairman presented a draft agenda for IOAG-19 and requested comments. He noted that the Work Plan will be finalized at this meeting. He mentioned that the Chinese National Space Agency (CNSA) will confirm its plans to send a representative to this meeting. Due to a major reorganization at Roscosmos, they have not indicated their intentions to participate. The South African National Space Agency (SANSA) may attend. Mr. Vassallo announced that he will attend; the IOAG-19 is well-timed after the CPM 15 and in preparation for the November World

Radiocommunication Conference (WRC) 2015. He is progressing on a recommendation in the SFCG.

The Chairman asked if the LEO 26 GHz Working Group would have anything to report at the annual meeting. Dr. Deutsch stated that the working group has not been active and would not need to report. Because Mr. Calzolari will not be able to attend IOAG-19, Mr. Vassallo and Dr. Deutsch will provide the Coding and Modulation report and Mr. Soula will provide the Service Catalogue update report, as well as the ICPA report. The Chairman also noted that Dr. He ShanBao/CNSA is planning to provide a presentation on laser communication. CNSA is interested in laser communication. NASA, ESA and CNES have already provided presentations on this topic at past meetings. The Chairman invited any other agency that wants to make such a presentation to inform the Secretariat and him so that it can be added to the agenda. Optical communications will be a major agenda item for IOAG-19.

The Chairman asked if the Space Internetworking Group would want to make a presentation at the annual meeting. Mr. Liebrecht noted that there is some progress with Delayed Tolerant Networking (DTN) on the International Space Station (ISS). The SISG team is in hibernation. The Chairman requested that Mr. Liebrecht investigate if NASA is planning to use DTN on the Multi-Purpose Crew Vehicle (MPCV). It was decided that this topic will be added to the agenda, and can be removed if it's not needed.

On the topic of IOAG membership, the Chairman recommended a discussion regarding the level of membership for CNSA, SANSA, and Roscosmos. This report should include a list of working group participation. Mr. Soula recommended adding an agenda item regarding the IOAG reference tables and vision for the future. The Chairman asked the Secretariat to send out a reminder to agencies to provide their updates and to assemble the updated tables and mission model.

Discussion followed regarding coordination of meeting time with the Space Ops Committee, which plans to meet in Daejeon on 13-15 May, and will include several of the IOAG delegates. Ms. Wan took the action to coordinate with KARI and Space Ops on the possibility of combining agency reports for both organizations on Wednesday, 13 May. It was noted that the Space Ops agency reports involve many more presentations from the Executive and Committee at Large members.

The Chairman asked agencies to send any input to the agenda to him, Ms. Adde, and Ms. Wan.

International Committee on Global Navigation Satellite Systems (ICG) Update: James Miller

Mr. Miller provided an update on the activities of the ICG, including their 9th annual meeting in Prague, Czech Republic in October 2014. He focused on Working Group B, which includes the IOAG issue of Space Service Volume (SSV). He said that the SSV is creating a great deal of interest; Japan and India have committed to provide a presentation on their related activities. Mr. Miller provided the ICG link to the presentations and asked that the delegations share the link with others in their agencies who work on GNSS. He also referred to an article in a recent edition

of "Inside GNSS," reflecting that the general public is starting to take notice of these activities and their benefits. Mr. Schmidt also attended ICG-9 and Working Group B.

Mr. Miller noted that the acting chairman of the National Space-Based Positioning, Navigation and Timing Advisory Board, Dr. Brad Parkinson, provided a presentation at ICG-9, which included the recommendation that each provider agency consider establishing their own advisory board with international membership.

Mr. Miller discussed a presentation by Stefan Wallner about how ESA is utilizing the Galileo signals from the first recently launched two spacecraft that are in a wrong orbit. The European Commission is still hesitant to commit to using those signals; this is still in work. Mr. Miller also noted that he requested more activity between meetings so that the ICG can be more productive. The ICG Secretariat, the United Nations Office of Outer Space Affairs (UNOOSA) is preparing an outreach booklet for the 10th anniversary of the ICG to educate the public on the benefits of its work.

Mr. Miller stated that Lockheed Martin has made its satellite patterns publicly available for the benefit of receiver manufacturers. Satellite patterns from Boeing's IIF spacecraft is awaiting approval to be posted on the www.gps.gov website as well. Transparency by all providers is encouraged.

The United States is the host for the next meeting, ICG-10, which will be held in Boulder, Colorado on 2-6 November. There will be a preparatory meeting in July in Vienna, Austria. NASA is coordinating a Science on a Sphere exhibit to demonstrate the enhanced coverage of the Global Positioning System (GPS), along with the other international providers.

The Chairman noted he has a conflict during the ICG-10 meeting, as do other IOAG delegates. Mr. Liebrecht noted that while Mr. Miller can represent IOAG, it is beneficial to have others, especially the chairman, participate in these meetings.

Mission Operations Systems Study Group (MOSSG) Update: Mr. Allard

Mr. Allard discussed the status of the MOSSG report. The study group met in London in November 2014; they will meet again on 19-20 March in Pasadena. Due to a rebalance from a complex project like the ISS, there is a major change from what had been planned. Much work remains to be done on chapter 4 of the report. The MOSSG has also had personnel changes, causing resource issues.

The Chairman asked if there would be more progress to report at the IOAG-19 meeting. Mr. Allard replied that he expects a lot of progress by then. The Chairman requested the Secretariat to include the MOSSG on the agenda.

IOAG-19 Logistics: Dr. Ahn

Dr. Ahn provided updated logistics for travel and accommodations during the IOAG-19 meeting in Daejeon. The Secretariat requested that all delegates register online so that Dr. Ahn will know

how many to expect in person and how many will be on the teleconference. The delegates look forward to their visit to South Korea.

Any Other Business/Summary: Mr. Schmidt

The Chairman asked if the delegates felt a need for another teleconference before IOAG-19. It was agreed that another teleconference is not required but that the Secretariat will send all the necessary reminders regarding open actions. If any issues arise, they can be handled by email.

The Chairman thanked everyone for their participation and looks forward to seeing them in May.