INTERAGENCY OPERATIONS ADVISORY GROUP

2012 Annual Report

Document Number: IOAG.A.AR.2012.001

Prepared by: Jean-Marc Soula, Chairman

Date: January 25, 2013

IOAG 2012 Annual Report

This 2012 Annual Report of the Interagency Operations Advisory Group (IOAG) provides an overview of the activities conducted over the past year, with reference to the objectives defined in the IOAG 2012 Work Plan. It is intended to keep all stakeholders and partners informed of the IOAG's work and achievements in the domain of space communications, in line with the mandate given by the second Interoperability Plenary (IOP-2) held in Geneva at the end of 2008.

At the IOAG-16 meeting in December 2012, the IOAG has elected a new Chairman, Mr Michael Schmidt (ESA), who will take over from Mr Jean-Marc Soula (CNES) right after the IOP-3 meeting, planned on June 25-26, 2013. It was agreed that a transition will be organized in the period preceding the IOP meeting.

Year 2012 was not simply a year of transition and preparation on the way to the IOP-3 meeting; it was also a year of significant achievements as identified below.

In the close relationship with the Consultative Committee for Space Data Systems [CCSDS], several significant contributions were made from both sides:

- Monitoring of the progress made by the CCSDS in the development of a Solar System Internetworking (SSI) candidate architecture and its suite of supporting standards (e.g.: DTN). In the first half of 2013, the IOAG's Space Internetworking Strategy Group (SISG) will be revived to verify that the CCSDS proposals meet the IOAG expectations and may be endorsed by the member agencies for future implementations. The acknowledgement of the SSI definition will be one of the main topics on the agenda of the IOP-3;

- Establishment of the web based "IOAG-CCSDS Product Agreement" by which IOAG will establish priorities and target dates in the production of cross support standards and by which CCSDS will report on the progress made and, eventually, on difficulties to meet the IOAG objectives;

- Contribution from IOAG to the identification of optimized requirements for the Service Management of the Cross Support services in the frame of the ground-based Cross Support Service Catalogue, called "IOAG Service Catalogue #1."

  The above activities have been reviewed on the occasion of the IOAG-16 held in the Kennedy Space Center in December 2012, part of this meeting being a joint session with the CCSDS Management Council. This meeting was also the occasion to exchange views on other subjects currently at work on the IOAG side and that may have implications on CCSDS plan of work in the future, depending the decisions of the IOP-3, in particular on Mission Operations Services and on Optical Communications (see below).

Several IOAG initiatives came to a conclusion in Year 2012; those include:

- The "Optical Links Study Group" (OLSG) was formed in late 2010, with the objective to assess the need and the conditions for cross support in various mission scenarios. The study was concluded in 2012 with a final report submitted at the IOAG-15b meeting and an addendum, on the technical aspects to be standardized, at the IOAG-16 meeting. The report will be the basis of a presentation to the IOP-3 aiming at pointing out the interest of optical communications, the insertion opportunities and the need to establish the supporting standards according to an agreed roadmap.

- The establishment of the collective IOAG top priorities on activities to be developed in the upcoming decade was finalized and reports were produced, on the priority standards and technologies that will lead to significant benefits (operational and/or financial) and standards for capabilities or services that will be committed to flight operations or tracking networks in the short term. These reports were sent first to the CCSDS and, more recently, to the Agencies Management, to stress the need for consistent support to the related studies and standards developments. Addressed are the domains of the coordination on space debris, the anticipated need for higher data rates, the space link security, the technologies for the exploration of the solar system and the management of cross support configurations.

The effort to strengthen the relationship with other international communities was pursued so as to establish the central role of the IOAG in the domain of Space Communications, in coordination with, on the one hand the projects and the international user communities and, on the other hand, the standardization organizations. Positive indications of this consolidation are:

- The coordination made with the International Space Exploration Strategy Group [ISECG] so that clear statement is made, in the next version of their roadmap, that the ISECG will rely on the recommendations of IOAG, jointly with the CCSDS and the SFCG, on communication architectures, standards and concepts to support their mission scenarios.

- The liaison with the Space Frequency Coordination Group [SFCG] concentrated this year on the consistency of the SFCG and IOAG mission models and on the preparation of the ITU WRC-15 on subjects of common interest, including frequency and spectrum utilization.

- The liaison with the International Coordination on GNSS [ICG], agreed in 2011, developed with the attendance of IOAG to the ICG-7 meeting in November 2012 that was an occasion for presentations and discussions on the user requirements and mission models in the domain of Positioning, Navigation and Timing (PNT), in particular for the GNSS Space Service volume.

In 2012, the IOAG also initiated new activities or resumed former ones that will develop in 2013, at least up to the IOP-3. This includes:

- The LEO 26 GHz Study Group [LEO26SG] was formed in the third quarter of 2012, with the objectives to:

- Facilitate the utilization of 26 GHz K-Band (i.e. (25.5-27.0 GHz) direct space to Earth data downlink for future LEO missions, in the context of cross-supports.
- Develop high level Concepts of Operations and preliminary Architecture inputs for a 26 GHz K-Band ground system for low Earth orbit.
- Determine the business case for cross support at 26 GHz for low Earth orbit applications.

A progress report is to be presented at the IOP-3, including High-Level Concepts of Operations and Business Case Analysis, Summary of preliminary Architecture, Definition of Standards, Models and Technologies Requiring Development.

- The "Mission Operations Services Coordination Group" [MOSCG] which had been suspended in mid-2011 was revived at the IOAG-16 meeting, in order to prepare for a presentation to the IOP-3 and decisions on the interest of the subject, the challenges and the implications of IOAG to elaborate a strategy and plans for interoperability in this domain. Considering the required expansion of the scope of IOAG to cover the Mission Operations domain, but also the significant efforts to be made in developing a third IOAG service catalog and its related standards, the IOAG will seek guidance from the IOP-3 on the way forward.

In 2012, the IOAG held four teleconferences, one intermediate meeting in Stockholm (June 2012) and one plenary session, IOAG-16, in Florida (December 2012). These meetings gave the IOAG the opportunity to address all of the above subjects but also to continue the exchanges between the members and to update the IOAG reference tables that are displayed on the web site: Communication Assets, Mission Model, Cross Support Mission Model and Standard Infusion Plans (in preparation). The IOAG continued to improve its processes so as to provide a forum for space agencies to share their cross support experiences and plans with the view to working collectively towards the further development and implementation of standardized interfaces.

In addition to the follow-up of the already engaged activities, on the agenda of the IOAG meetings for 2013 are the preparation of the IOP-3 and the continuous promotion of the services and their supporting standards as elected by the IOAG.

Tentatively, five meetings are scheduled in 2013 to iterate on these subjects:
- IOAG-16a: tele-videoconference on 5 March
- IOAG-17: plenary meeting hosted by the UK-Space Agency at the RAL, on the week of 13~17 May
- IOAG-17a: tele-videoconference on 4 or 11 June (TBC)
- IOP-3: meeting hosted by CNES in Toulouse, on June 25~26
- IOAG-17b: tele-videoconference, within one or two months after the IOP
- IOAG-18: plenary meeting hosted in the November - December timeframe

Involvement of all members and contributions to the actions in progress are the condition for a successful preparation of the IOP-3. This is being reminded to some members who were deficient in the last years.

For any further information please consult the IOAG web site (www.IOAG.org) or contact the IOAG Secretariat (Barbara.Adde@nasa.gov).