



INTERAGENCY OPERATIONS ADVISORY GROUP

2013 Annual Report

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Prepared by: Michael Schmidt, Chairman

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Overview

This 2013 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 2013 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 and the third Interoperability Plenary (IOP-3) held in Toulouse in June 2013.

The focus of the work of the IOAG in 2013 was on the preparation and execution of the IOP-3. Several working groups that were running under the guidance of the IOAG concluded their work and reported to the IOP. In addition the chairmanship was handed over from Jean-Marc Soula (CNES) to Michael Schmidt (ESA).

This is a good place to highlight the excellent work that Mr. Soula performed as IOAG chairman over the past years. His activities culminated in the successful execution of the IOP-3.

The IOAG activities up to the IOP-3 were supported by the following member space agencies: ASI, CNES, DLR, ESA, JAXA, NASA, and the following observer space agencies: UKSA and KARI. Though ISRO and RFSA formally belong to the list of member space agencies, they did not contribute to the ongoing work for the past year. CSA has recently joined the IOAG as an observer and already participated in the IOAG teleconferences meetings and in IOP-3. In addition, CNSA and CLTC have shown an interest to participate in the IOAG activities and were involved in one of the teleconferences.

The IOAG had one face-to-face meeting at Rutherford Appleton Laboratory, UK, in May, which was mainly used to prepare the IOP-3 meeting. In addition, 5 teleconferences were held. The frequency of teleconferences was higher than in past years in order to ensure a smooth execution of the IOP-3.

The IOAG activities covered several areas:

- The basic task of providing a discussion forum regarding interoperability aspects for the participating agencies including the maintenance of the mission models and tables of communications assets.
- The coordination with various international working groups, which are the Consultative Committee for Space Data Systems [CCSDS], the International Space Exploration Strategy Group [ISECG], the Space Frequency Coordination Group [SFCG] and the International Committee on GNSS [ICG].
- The guidance of various working groups that were kicked off in the context of the IOAG, which were the Space Inter-networking Strategy Group (SISG), the Optical Links Study Group (OLSG), the LEO 26 GHz Study Group [LEO26SG] and the Mission Operations Services Coordination Group [MOSCG].

The participating space agencies have provided their agency reports for the IOP, which are available for information via the IOAG website. The website can also be used in order to access the mission models and the list of communication assets. These tables are also made available to the SFCG.

Interface to International Groups

The IOAG maintained a close relationship with the CCSDS. The “IOAG-CCSDS Product Agreement” (ICPA) was maintained by both sides. This ICPA identifies the priorities and the required target dates of the various space agencies regarding the cross support standards. This ICPA together with the two Service Catalogues that were produced in the past years provide the guidance to the CCSDS considering the evolution of the various standards. In addition a close coordination was maintained through the CCSDS liaison who participated regularly in the IOAG meetings and teleconferences and contributed also to the IOP.

The IOAG also maintained a close relationship with the SFCG, whose liaison participated in the meetings and teleconferences and was also involved in the IOP.

The interaction with the ISECG was less intense as the work status of the ISECG does not yet require a close involvement of the IOAG. The role of the IOAG is ensured through a statement in the Global Exploration Roadmap (GER) that is produced and maintained by the ISECG. This is to ensure that the achievements of the IOAG will also be used in the context of the ISECG products.

The interface to the ICG has been intensified. The IOAG chairman presented the IOAG activities and the outcome of the IOP to the ICG in the context of the ICG meeting in Dubai in November. Both groups agreed on a continuous cooperation.

Status of the IOAG Working Groups

Most of the IOAG working groups have concluded their work in 2013 and presented their achievements to the IOP. The regular work of the working groups will be stopped but the WGs will be kept alive in order to have a forum for discussions and to follow the progress when requested.

The SISG, which dealt with the definition of a Solar System Internetwork (SSI), finished successfully its tasks and presented its achievements to the IOP. A candidate architecture that was completed by a CCSDS WG and a suite of supporting standards, e.g. DTN, are available. This package will form the basis of the future SSI evolution. The progress will be followed by the IOAG

The OLSG provided an extensive report analyzing the various challenges considering the evolution of the optical links and presented its achievements to the IOP. It includes also the identification of mission opportunities to validate the capabilities of the optical links. The OLSG will be put into a dormant state and will be revived if necessary in order to assess the progress of the optical links. The two chairmen will follow the evolution of the optical links within the participating agencies.

The LEO26SG also provided an extensive report and presented its achievements to the IOP. The group showed the potential advantages of the 26 GHz Ka-Band (i.e. (25.5-27.0 GHz)

direct space to Earth data downlink for future LEO missions. It was agreed to keep the group alive in order to provide a forum for the regular exchange of information.

The MOSCG was revived in order to present the advantages of the Mission Operations Services (MOS) that were developed in the context of the CCSDS to the IOP. The IOP acknowledged the possible benefits and agreed to form the Mission Operations Services Strategy Group (MOSSG) that is to continue the work on the MOS and to provide guidance to the corresponding CCSDS WG. Several space agencies agreed to provide resources to continue the work. The two co-chairs will be from NASA and ESA.

Outcome of the IOP

The highlight of the year was the IOP-3, which was supported by representatives from 9 space agencies some at Directorate level. The IOP acknowledged the good work of the IOAG. A communique was generated that contains several resolutions, which can be summarized as follows:

- The IOP endorses the role of the IOAG as a focal point regarding the communications related cross-support of the participating space agencies, and that IOAG expands its charter to include Mission Operations functions.
- The IOP requests the IOAG to maintain the close interaction with the various international coordination groups (CCSDS, SFCG, ISECG and ICG).
- The IOP acknowledges the good work and endorses the recommendations of the various working groups regarding the evolution of the proposed communication techniques.
- The IOP encouraged the IOAG to establish contact with other space agencies that provide the relevant infrastructure and are interested in the activities and to foster the achievements.

Future Work

The IOAG has increased the number of participating space agencies. CSA has joined the IOAG as an observer and is likely to become a full member. In addition CNSA and CLTC have participated in the recent teleconferences and are assessing their plans to participate in the various activities. The IOAG chairman will maintain a close contact with ISRO and RFSA in order to re-establish the close link to these agencies.

The IOAG will keep follow the progress of the MOSSG and the LEO26SG working groups and the evolution of the various cross-support initiatives.

The next face-to-face meeting is planned in Rome in February 2014.

For any further information please consult the IOAG web site (www.IOAG.org) or contact the IOAG Secretariat (Stephanie.Wan@nasa.gov) or the IOAG chairman (Michael.Schmidt@esa.int).