

Development of UN COPUOS guidelines for space sustainability

A status update

Peter Martinez
Chair, COPUOS WG on LTS

Outline

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 - Space sustainability on COPUOS' agenda
- ESTABLISHMENT OF WG ON LTS
 - Objectives and Challenges
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 - Progress in 2014 and 2015
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UN COPUOS - overview

- UN COPUOS (Committee on the Peaceful Uses of Outer Space) is the primary international forum for the development of laws and principles governing activities in outer space.
- A standing committee of the UN, founded in 1959 by 24 Member States.
 - Currently 77 Member States and a large number of permanent observers
 - The technical work of COPUOS is carried out by two subcommittees
 - Legal Subcommittee (LSC)
 - Scientific and Technical Subcommittee (STSC)
 - Decisions are reached by absolute consensus
 - Secretariat is the UN Office for Outer Space Affairs (Vienna)

Activities relating to space sustainability

- UN COPUOS Space Debris Mitigation Guidelines
- UN COPUOS/IAEA Safety Framework for Nuclear Power Source Applications in Outer Space.
- WG on Long-Term Sustainability of Outer Space Activities of the STSC

In recent years, tendency to discuss non-binding normative instruments, rather than treaties.

Sustainability of space activities on the agenda of COPUOS

COPUOS Main Committee

- Ways and means of maintaining outer space for peaceful purposes
- Implementation of UNISPACE III recommendations
- Future role of the Committee

STSC

- Space debris
- Use of NPS in outer space
- Use of GEO
- Space weather
- Long-term sustainability

LSC

- Application status of UN space Treaties
- Review of Principles on use of NPS in space
- Capacity building in space law
- National mechanisms relating to space debris
- National legislation on peaceful uses of space

LTS Working Group integrates discussions on space sustainability in COPUOS STSC

Objective & Challenges

WG ON LONG-TERM SUSTAINABILITY OF SPACE ACTIVITIES

OBJECTIVE

- The objective of the Working Group is to examine and propose measures to ensure the safe and sustainable use of outer space for peaceful purposes, for the benefit of all countries.

CHALLENGES

- A variety of views of what constitutes “sustainability”.
- Different understandings of some key terms (e.g. “SSA”, “space-faring”, “safety”)
- Established space actors concerned that any GA resolutions or guidelines should not limit their freedom to act in space.
- Emerging space nations concerned that any GA resolutions or guidelines should not impose unacceptable barriers to new entrants in the space arena.
- There are also legal and economic implications to be considered.

Terms of Reference

WG ON LONG-TERM SUSTAINABILITY OF SPACE ACTIVITIES

- The Working Group will examine the long-term sustainability of outer space activities in the wider context of sustainable development on Earth, including the contribution to the achievement of the Millennium Development Goals, taking into account the concerns and interests of all countries, in particular those of developing countries.
- The work will take into consideration current practices, operating procedures, technical standards and policies associated with the long-term sustainability of outer space activities, including, inter alia, the safe conduct of space activities throughout all the phases of the mission life cycle.
- The Working Group will take as its legal framework the existing United Nations treaties and principles governing the activities of States in the exploration and use of outer space.

Full Terms of Reference Given in UN General Assembly document A/66/20

Outcomes

WG ON LONG-TERM SUSTAINABILITY OF SPACE ACTIVITIES

- Prepare a report on the long-term sustainability of outer space activities containing a consolidated set of current best practices and operating procedures, technical standards and policies associated with the safe conduct of space operations.
- Produce a set of voluntary recommended guidelines that could be applied by international organizations, non-governmental entities, individual States and States acting jointly
 - to reduce collectively the risk to space operations for all spacefaring actors and
 - to ensure that all countries are able to have equitable access to the limited natural resources of outer space.
- Recommendations will be non-binding
 - Non-binding does not mean non-legal
 - Possible translation into national law, licensing practices

Organisation of work

- National focal points established (31 countries and 5 IGOs as of Feb 2015)
- Dedicated controlled-access web page in the UN OOSA website for this WG
- Four Expert Groups established (deliberative fora)
- Expert Groups met on margins of COPUOS and STSC meetings, and at other agreed times from 2011-2014.
- Membership of Expert Groups comprised experts nominated by
 - Member States
 - Inter-governmental organisations with PO status with COPUOS
- Inputs received from
 - States and intergovernmental organisations
 - International organisations (e.g. IAA, IADC, CCSDS, etc)
 - Non-governmental entities & industry associations (e.g. SWF, SDA)

Much of the work is done inter-sessionally

Topics for Discussion: 1/4

WG ON LONG-TERM SUSTAINABILITY OF SPACE ACTIVITIES

Expert Group A: Sustainable space utilization supporting sustainable development on Earth

CO-CHAIRS: FILIPE DUARTE SANTOS (PORTUGAL), ENRIQUE PACHECO CABRERA (MEXICO)

- The contribution of space science and technology to sustainable development on Earth
- The concept of sustainable development extended to the domain of outer space
- Equitable access to the limited resources of outer space benefits of space activities
- International cooperation in peaceful uses of outer space as a means of enhancing space sustainability and supporting sustainable development on Earth

23 States
5 IGOs



7 candidate guidelines
4 topics for future consideration

Topics for Discussion: 2/4

WG ON LONG-TERM SUSTAINABILITY OF SPACE ACTIVITIES

Expert Group B: Space Debris, Space Operations and Tools to Support Collaborative Space Situational Awareness

CO-CHAIRS: RICHARD BUENNEKE (USA), CLAUDIO PORTELLI (ITALY)

Space debris:

- Measures to reduce the creation and proliferation of space debris
- Re-entry notifications regarding substantial space objects

Space operations:

- Collection, sharing and dissemination of data on space objects
- Techniques to improve accuracy of orbital data on space objects
- Conjunction assessment during orbital phases of flight

Tools to support collaborative space situational awareness:

- Registries of operators and contact information
- Common standards for sharing information

23 States
4 IGOs



8 candidate guidelines
3 topics for future consideration

Topics for Discussion: 3/4

WG ON LONG-TERM SUSTAINABILITY OF SPACE ACTIVITIES

Expert Group C: Space Weather

CO-CHAIRS: TAKAHIRO OBARA (JAPAN), IAN MANN (CANADA)

- Collection, sharing and dissemination of data and forecasts
- Capabilities to provide a comprehensive and sustainable network of sources of key data in order to observe and measure phenomena related to space weather in real or near-real time
- Open sharing of established practices and guidelines to mitigate the impact of space weather phenomena on operational space systems
- Coordination among States on ground-based and space-based space weather observations in order to safeguard space activities

27 States
5 IGOs



5 candidate guidelines
2 topics for future consideration

Topics for Discussion: 4/4

WG ON LONG-TERM SUSTAINABILITY OF SPACE ACTIVITIES

Expert Group D: Regulatory Regimes and Guidance for Actors in the Space Arena

CO-CHAIRS: SERGIO MARCHISIO (ITALY), MICHAEL NELSON (AUSTRALIA)

Regulatory regimes:

- Adherence to existing treaties and principles on the peaceful uses of outer space
- Review of the regulatory framework and the tools for the use and transfer of space technologies within international cooperation and international turnover of controlled space-related goods
- National regulatory frameworks for space activities

Guidance for actors in the space arena:

- International cooperation as a means to promote LTS
- Sharing of experiences relating to LTS, such as technical standards, best practices and lessons learned
- Technical and legal capacity-building for emerging space actors countries

25 States
6 IGOs



11 candidate guidelines
5 topics for future consideration

Emerging candidate guidelines

- The Expert Groups produced 31 candidate guidelines for consideration by the WG.
- The candidate guidelines of the EGs are necessarily thematically oriented and some address cross-cutting issues from a thematic perspective.
- These guidelines can be broadly grouped into implementation-oriented categories:
 - Policy, regulatory and organizational,
 - Scientific and technical
 - International cooperation and capacity building
- In Feb 2014, the Working Group agreed on a framework for the consolidation of the candidate guidelines to eliminate duplication and to harmonise terminology.
- The WG also began to address definitional and translation issues to ensure clarity of the guidelines.
- New guidelines and/or amendments are also being proposed by the Member States.
- Provision is made for implementation mechanisms and for updating of guidelines in future.

Developments 2014

- Expert groups concluded their work and submitted their working reports and recommended draft guidelines
 - EG A, EG C, EG D: STSC 51st session docs, EB G COPUOS 57th session doc
- The focus of the work shifted from the expert groups to the WG
- The WG began process of clustering the 31 draft guidelines proposed by the expert groups into 18 consolidated guidelines
- The WG agreed on an extended plan of work up to 2016
- Produced compilation of clustered draft guidelines
 - A/AC.105/C.1/L.340 (18 consolidated guidelines)
- Produced first draft of WG report
 - A/AC.105/C.1/L.340

Developments 2015

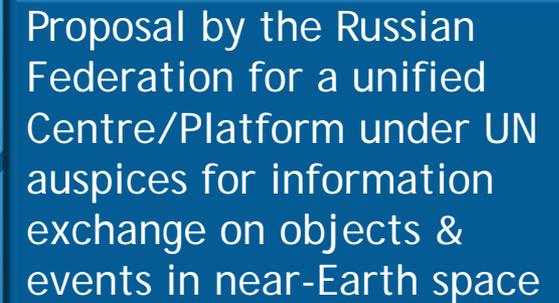
52nd session of STSC (2-13 Feb 2015)

- WG began consideration of the set of consolidated draft guidelines
- Ten new draft guidelines proposed
 - 8 by Russian Federation
 - 1 by Brazil
 - 1 by United States
- Proposal by France for a structure of the guidelines
 - Amended to incorporate similar proposals from Japan and USA
- Chair mandated to produce a revised version of the consolidated guidelines in all UN languages for the 57th session of COPUOS in June 2015

Guidelines proposed by 2014

POLICY, REGULATORY AND ORGANIZATIONAL

- Supervision of space activities
- Registration of space objects
- Contact information & information on space objects and orbital events
- Protection of electromagnetic spectrum
- Adoption of national regulatory frameworks
- Factors to consider in adopting regulations
- Security of foreign space-related ground & information infrastructures
- Awareness of space activities



Proposal by the Russian Federation for a unified Centre/Platform under UN auspices for information exchange on objects & events in near-Earth space

Guidelines proposed by 2014 - cont'd

SCIENTIFIC & TECHNICAL

- Research on ways to support sustainable use & exploration of outer space
- Data on space objects
- Conjunction assessment during controlled flight
- Research on debris and sharing of such information
- Development of space weather models & collection of practices to mitigate space weather effects
- Sharing operational space weather data & forecasts
- Investigation of measures to promote space sustainability in the long term

Guidelines proposed 2014 - cont'd

INTERNATIONAL COOPERATION & CAPACITY BUILDING

- International cooperation to support LTS
- Sharing of experiences related to LTS and procedures for information exchange
- Capacity building

Guidelines proposed 2015

UNITED STATES

- Security and resilience of terrestrial and supporting infrastructure

BRAZIL (ON BEHALF OF GRULAC)

- Commitment to conducting solely peaceful space activities

RUSSIAN FEDERATION

- Operational and technological self-restraints to forestall adverse developments in outer space
- Enhancement of practice in registering space objects

Guidelines proposed 2015 - cont'd

RUSSIAN FEDERATION

- Identification of conjunctions of newly launched objects with orbital objects
- Prevention of dangerous alterations to the space environment
- Preclusion of interference with the operation of foreign space objects
- Modalities for the safe conduct, in extreme cases, of operations to destroy orbital space objects
- Development of common understanding and safe practices for removal or destruction of unregistered space objects
- Establishment of frameworks for the implementation, promotion and review of the LTS guidelines

The way forward

GA Joint Mtg
I Comm & IV Comm

2015

Deadline for new GLs

Final set of
consolidated
draft GL

STSC

COPUOS

Revised list of
draft guidelines

- Consider draft guidelines
- Agree on guidelines to include
- Agree on consolidation scheme
- Agree on report structure
- Agree on workplan

2016

Prepare final draft
GL & report

Submission
to GA

STSC

COPUOS

- Amend draft guidelines
- Agree on report structure
- Discuss mode of submission to GA

- Consider final draft
- Agree on final amendments
- Agree on mode of submission to GA

GA
Resolution

JSF SSA Symposium, Feb 2015

Thank you