

15 June 2017

English only

**Committee on the Peaceful
Uses of Outer Space****Sixtieth session**

Vienna, 7 June-16 June 2017

**Working paper by Switzerland with a view to making
progress under UNISPACE+50 Thematic Priority 3 on
enhanced information exchange on space objects and events****Rationale**

The number of space objects has been rapidly increasing during the past years and is forecasted to increase at an ever higher rate in a near future given the planned new generation large constellations and the use of small-size satellites based on affordable and accessible technologies. Maintaining an acceptable level of safety of space operations in this environment will require bringing the international cooperation in monitoring of space objects and information sharing to a substantially higher level in the immediate future.

In view of the recent and rapid developments in the space sector, new challenges may for instance require to reliably and promptly identifying small-size objects after their deployment, (e.g. when more than hundred objects are deployed from a single launch vehicle into similar orbits in a short time interval) or to performing continuous conjunction assessment operations for many hundreds of new objects crossing the most populated low Earth Orbit (LEO) region at the same time, while reaching their target orbits higher up or on their way back from their operational orbits to be demised in the Earth atmosphere.

Background

The Working Group on the Long-term Sustainability of Outer Space Activities of the Scientific and Technical Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space, during the development of the draft guidelines, identified the need for a deeper analysis of a number of aspects related to information exchange aimed at supporting the safety of space operations. For certain aspects, it was also deemed premature to develop corresponding guidelines within the timeframe of the work-plan of the Working Group on the Long-term Sustainability of Outer Space Activities, as these would require substantial effort to be addressed comprehensively.



Acknowledging the needs for improved information exchange on space objects and events in Near-Earth space, several proposals¹ were presented by Member States over the last years. Building on these efforts, the subject “enhanced information exchange on space objects and events” was endorsed by the Committee on its 59th session as a thematic priority (“Thematic Priority 3”) of the fiftieth anniversary of the United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE+50) (A/71/20, para. 296). At its 54th session in 2017, the Scientific and Technical Subcommittee recommended that the Committee considers issues related to Thematic Priority 3 “during its 60th session, in June 2017, with a view to making progress towards establishing a dedicated mechanism under that thematic priority” (A/AC.105/1138, Annex I, para 16).

Swiss proposal during the current 60th session

On the first day of the current 60th session of the Committee, Switzerland presented a non-paper including a proposal for making progress under Thematic Priority 3 as foreseen in paragraph 16 of Annex I to the report of the Scientific and Technical Subcommittee on its 54th session (A/AC.105/1138).

The non-paper proposed that the Committee decided at its current 60th session on the establishment of a new working group on “enhancing information exchange on space objects and events”; that this new working group would not start working formally before the Working Group on the Long-term Sustainability of Outer Space Activities has finished its current work-plan; that it would be chaired by Thomas Schildknecht (Switzerland); that it would work under a multi-year work-plan covering the period 2019-2023 and under the agenda item on the long-term sustainability of outer space activities which would be established as a regular item of the Scientific and Technical Subcommittee from 2019 onwards; and finally, that the Chair of the new working group, together with the Secretariat, could start conducting consultations, if and when deemed appropriate, to prepare the ground for the new working group to start working in 2019.

The Swiss delegation invited all delegations to informal consultations which were held on the 8th of June and attended by 32 delegates. It came out of those consultations that some delegations were not ready to take, at the current 60th session of the Committee, the decisions proposed in the non-paper.

Proposal by Switzerland for further consideration

Objectives²

The new working group’s objectives would be:

1. To identify and address issues associated with information exchange and notification procedures relating to the international cooperation in the monitoring of objects and accidental events in Earth orbit, including the development of requirements for enhanced information exchange and notification procedures under the United Nations Register of Objects launched into Outer Space;
2. To identify cooperation mechanisms to support this objective;
3. To encourage capacity-building and outreach activities on transparency and confidence-building measures;

¹ Among others: A/AC.105/L.302 (10 March 2016) submitted by Canada, France, Germany, Italy, Japan, Romania, Sweden, the United Kingdom of Great Britain and Northern Ireland, and the United States of America; and A/AC.105/C.1/L.361 (30 August 2016) submitted by the Russian Federation.

² Taking into account previous proposals.

While taking into account:

(a) The recommendations contained in the report of the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities (A/68/189), and

(b) The future guidelines for the long-term sustainability of outer space activities specifically addressing risk-reduction notification needs with a view to enhancing the safety of space operations.

Possible tasks³

The working group could inter alia:

1. Examine options for collaborative information-sharing with the aim of ensuring the safety of space operations;
2. Identify and address issues associated with the sharing of relevant information and analyses, and with the associated interpretation of information required to support the safety of space operations;
3. Identify and address issues associated with ensuring the consistency and reliability of information exchanges relating to space objects and events;
4. Establish common criteria for the prediction of the trajectories of space objects, the assessment of conjunctions, and the probability of collisions;
5. Identify priorities and long-term objectives for standardization in international information sharing concerning objects and events in near-Earth space.

Swiss candidate for Chairmanship

Switzerland proposes **Prof. Dr. Thomas Schildknecht** to be Chair of a possible new working group on enhancing information exchange on space objects and events. Here is a short biography of the Swiss candidate:

Prof Dr. Thomas Schildknecht is the Director of the Swiss Optical Ground Station and Geodynamics Observatory Zimmerwald, and is leading the Optical Astronomy Group of the Astronomical Institute of the University of Berne, Switzerland. His research combines an interest in astrodynamics and optical survey observations, with a particular emphasis on space debris and space situational awareness. He has more than 25 years of experience in space debris research and established a research group which asserts a world-leading position in optical space debris surveillance and characterization. In this context he has been leading numerous European Space Agency (ESA) studies for the optical detection of space debris and Space Situational Awareness in general. Scientific highlights include the detection of decimeter-size debris in geostationary orbits and the discovery of an unexpected population of debris objects with extremely high area-to-mass ratios. Prof. Schildknecht has been a member of the ESA delegation in the Inter-Agency Space Debris Coordination Committee (IADC) since 1997, and, since 2010, a member of the Swiss delegation to the Committee and a member of the Working Group on the Long-term Sustainability of Outer Space Activities and of its Expert Group B on "space debris, space operations and tools to support collaborative space situational awareness". In 2010, he was also appointed as Chair of the Panel on the Potential Environmentally Detrimental Activities in Space (PEDAS) of the Committee on Space Research (COSPAR) and, in 2013, as Chair of the ESA Space Situational Awareness (SSA) Advisory Group advising the ESA Director responsible for the SSA programme. He is also member of the International Academy of Astronautics (IAA), the International

³ Taking into account previous proposals.

Astronomical Union (IAU) and the American Astronautical Society (AAS) Space Surveillance Committee.

Conclusion

Switzerland remains committed towards making progress on the important subject of enhancing the information exchange on space objects and events.
