

Canadian Statement
Agenda Item 7 – Space Debris
Delivered by: Sarah Pacey-Parker, Canadian Space Agency

Committee on the Peaceful Uses of Outer Space
Scientific and Technical Subcommittee
Sixtieth session, Vienna, February 6-17, 2023

Mr. Chair, Distinguished Delegates,

International collaboration, particularly through the Scientific and Technical Subcommittee, is key to addressing the challenges posed by the growing volume of space debris. Addressing space debris is crucial to the long-term sustainability of space operations as well as future deep-space exploration.

As of the end of last year, there were over 47,500 debris objects regularly tracked and catalogued by the US Space Surveillance Network. The majority of these objects are over ten centimeters in size, which is a mere fraction of the total percentage of debris in space. Debris smaller than ten centimetres is estimated to be closer to one million objects. Damages caused from these objects, even the smaller ones moving at high velocities, could be detrimental to space assets. Monitoring, prediction and mitigation of close approaches with space debris has become a routine reality for space operators in all space-faring nations. In an effort to promote and advance transparency and spaceflight safety in light of the space debris challenge, we encourage all nations to routinely review and update the compendium of space debris mitigation standards maintained by UNOOSA. We commend the European Space Agency's 'net zero' space debris objective to improve end-of-life management of space objects, for example, by promoting 'design for removal' requirements. Advancements such as these are positive developments in this field.

Mr. Chair,

Space Situational Awareness (SSA) continues to be a priority for Canada. Canada continues to contribute operational data to the US Space Surveillance Network through the SAPPHIRE satellite and perform advance SSA research through the NEOSSat satellite. Both SAPPHIRE and NEOSSat are optical space telescopes operating in low-Earth orbit since 2013 and follow-up satellite projects have been initiated to ensure continuity of these capabilities for years to come.

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Consistent with the UN guidance for space safety, sustainability and data sharing, the NEOSat mission's onboard GPS-based precision ephemeris is now published on the CSA Open Data website. This data provides precise orbital positioning data of NEOSat for the prior week and Canada's best prediction of the future position of NEOSat to help reduce the risk of space object collision. This data may also assist the geoscience community advance atmospheric density models. We are encouraged by continued efforts on the part of the US Department of Commerce to advance the Open Architecture Data Repository to enable SSA data sharing.

Canada's Conjunction Risk Assessment and Mitigation System (CRAMS) continues to provide invaluable analysis services to help satellite operators, in Canada and internationally, to quickly make the best decision in response to on-orbit close approaches identified by the SSN. Canada continues its active participation in the Inter-Agency Debris Coordination Committee (IADC) and the Inter-Agency Operations Advisory Group (IOAG) to develop and promote best practices in collaboration with other space agencies, including emphasis on the sustainability of space operations.

Mr. Chair, Distinguished Delegates,

In 2022, Canada concluded an exciting test to evaluate the effectiveness of drag sails to remove nanosatellites from higher altitudes. The test, using a drag-sail deployment on CanX-7 reduced its orbital lifetime by approximately 170 years; an impressive demonstration of the drag sail's effectiveness. The drag-sail deployment occurred 4 May 2017 and CanX-7 re-entered 21 April 2022 off the west coast of Africa. A few days after drag sail deployment we immediately noticed a sharp increase in the rate of altitude decay, indicating the sail was working as intended. Without drag sails, CanX-7 would have remained in orbit until 2181.

Finally, Mr. Chair, Distinguished Delegates,

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We recognize that at the multilateral level there are increasing calls for a more integrated approach to SSA and a comprehensive approach to space traffic management as one element of addressing the space debris challenge. A growing issue of interest is the operational, policy, and regulatory measures taken to minimize the impact of space debris and on-orbit congestion. Indeed, we have noted increasing calls at COPUOS to discuss this matter given that the continued increase in activity in outer space increases the risk of debris-generating collisions. This is why we believe that one area for potential future guidelines, under the Working Group on the Long-term Sustainability of Outer Space, is the consideration of Active Debris Removal. These issues cannot be addressed in isolation. The challenges we face regarding space sustainability, and particularly space debris, must be addressed holistically.

Thank you for your kind attention.