

Canadian Statement
Agenda Item 11 – Near-Earth Objects
Delivered by: Jordan Miller, Canadian Space Agency

Committee on the Peaceful Uses of Outer Space
Scientific and Technical Subcommittee
Fifty-eighth Session, Vienna, April 19-30, 2021

Madame Chair,

Canada values the ongoing research performed by scientists in Canada and around the world to better understand and characterize the population of Near-Earth Objects or NEOs. We believe that international collaboration on this front is paramount, and we continue to support the work of the International Asteroid Warning Network (IAWN) and the Space Mission Planning Advisory Group (SMPAG) in that regard.

Madame Chair, distinguished delegates,

Through the Near-Earth Object Surveillance Satellite (NEOSSat), Canada continues to contribute to the international effort to catalogue the near-Earth population of asteroids, producing information that will be crucial to targeting new destinations for future space exploration missions. NEOSSat is a nimble Canadian space telescope supporting a dual mission of space situational awareness and space astronomy, and orbits approximately 800 kilometers above the Earth, searching for near-Earth asteroids that are difficult to spot using ground-based telescopes. Due to its lofty location, it is not limited by the day-night cycle, and can operate 24 hours a day, 7 days a week.

NEOSSat participated in a number of observation campaigns in 2020 and 2021, including the IAWN campaign tracking the potentially hazardous asteroid Apophis, continued observations of the interstellar comet 21/Borisov, and tracked several other near-Earth comets and asteroids, including the Comet 2020-F3 (NEOWISE), which inspired so many in the summer of 2020. All of NEOSSat's astronomy imagery is published on the Government of Canada's Open Data portal as well as the Canadian Astronomy Data Centre, managed by Canada's National Research Council.

Madame Chair, distinguished delegates,

The Guest Observer program for NEOSSat continues to provide opportunities for Canadian astronomers and international collaborators to propose new observation campaigns for NEOSSat. Since its inauguration, the Guest Observer program has selected nineteen proposals, including four proposals submitted during the third cycle earlier this year, enabling advanced space-based study

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of asteroids, comets as well as exoplanet transits and other variable star phenomenon. Canadian scientists look forward to building partnerships with scientists and researchers around the world to enhance NEOSat’s scientific and operational contributions to both communities.

Canadian astronomers continue to publish near-Earth asteroid and comet observation data to the International Astronomical Union’s Minor Planet Center, participate in international observation campaigns under IAWN, and support the photometric follow-up of exoplanet candidates from NASA’s Kepler and Transiting Exoplanet Survey Satellite (TESS), among other missions.

Canada continues to support the James Webb Telescope project, which is working toward an October 2021 launch date. Canada has provided two instruments: the Fine Guidance Sensor, a critical element of the mission used for the extremely precise pointing of the telescope; and the Near-Infrared Imager and Slitless Spectrograph which is sensitive to infrared wavelengths and will capture the light emitted by objects and gather information about the spectra from exo-planets to distant galaxies. This partnership with NASA and ESA will offer Canadian astronomers a share of the observation time on the most complex and powerful space telescope ever built.

In addition to studying Near-Earth Objects from space, much information can be gleaned by studying impact craters on Earth to better understand their impact over time and provide greater insight into this phenomena. Canadian researchers at the University of New Brunswick’s Planetary and Space Science Centre continue to host the Earth Impact Database, which has catalogued 190 confirmed asteroid impact crater sites on our planet, including 31 in Canada.

Madame Chair, distinguished delegates,

Although observing Near-Earth Objects from ground-based and space-based telescopes and studying Earth impact craters is important, to get a complete picture, a closer look at asteroids in space is necessary. Canada continues its exciting partnership with NASA on the OSIRIS-REx mission, the first spacecraft to visit an asteroid for the purposes of a sample return. In 2020, Canada’s OSIRIS-REx Laser Altimeter (OLA) successfully took the most detailed 3D measurements of any celestial body ever explored, which helped mission scientists select the best sample site.

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Two days after touching down on asteroid Bennu on October 20, 2020, NASA's OSIRIS-REx mission collected more than enough material to meet one of its main mission requirements – acquiring at least 60 grams of the asteroid's surface material.

After a successful stowing procedure, the sample is now in the Sample Return Capsule (SRC), where any loose material will be kept safe during the spacecraft's journey back to Earth. The OSIRIS-REx spacecraft remains in excellent health and is scheduled to return to Earth in September 2023.

Canada is thrilled by the success of the OSIRIS-REx mission so far, and proud of the critical role that Canadian science and technology has played. We wish this community continued success in 2021 and beyond, as each milestone brings us closer to humanity's understanding of our celestial bodies and beyond.

Thank you for your attention.