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Ongoing Activities for the Planned Canadian OSIRIS-REx Sample Curation Facility

PATRICK HILL, CAROLINE-EMMANUELLE MORISSET, TIMOTHY HALTIGIN, STÉPHANE ROUTHIER AND RÉMY GRENIER

Canadian Space Agency

Presenting Author: patrick.hill@asc-csa.gc.ca

On October 20, 2020, the OSIRIS-REx mission collected a sample from the asteroid Bennu, which will be delivered to Earth on September 24, 2023 [1]. The study of the sample will make it possible to tackle some of the fundamental questions about the early composition and evolution of the solar system. Through Canada's contribution of the OSIRIS-REx Laser Altimeter (OLA) instrument [2], Canada will receive 4% of the returned Bennu sample. The Canadian Space Agency (CSA) is currently planning its Curation Facility, the first laboratory of its kind in Canada. The facility will allow for the storage and manipulation of the sample under a curation-grade nitrogen atmosphere preventing contamination and degradation from the terrestrial environment. The CSA has also begun developing its cleaning procedures for all stainless steel, glass, and Teflon tools that would be used to manipulate the sample. In tandem, contamination monitoring protocols are being developed to ensure that the contamination of the sample is minimal and an archive of contamination knowledge is kept. Sub-samples will be available for loans to the scientific community and will be prepared using a variety of techniques (e.g., pristine grains, thick and thin sections, polished grain-mounts, etc.). Information collected through early observations and subsequent studies will be catalogued to record both the analytical history and the growing knowledge of the sample. The catalogue will facilitate sample requests from researchers from around the world.

References

[1] Lauretta et al. (2021) in *Sample Return Missions* (Elsevier), 163–194. [2] Daly et al. (2017) *Space Science Reviews* 212, 899–924.