

IAF SPACE EDUCATION AND OUTREACH SYMPOSIUM (E1)
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SEDS-CANADA'S DEVELOPMENT OF HIGHLY QUALIFIED PERSONNEL THROUGH
ENGINEERING PROJECTS AT THE UNDERGRADUATE LEVEL

Abstract

This abstract outlines the role of Students for the Exploration and Development of Space (SEDS-Canada) in fostering the development of highly qualified personnel in the Canadian space sector. Established as a student-run non-profit, SEDS-Canada is committed to bolstering Canada's future in space exploration and development. It achieves this by offering post-secondary students unique projects, research programs, and professional development opportunities in collaboration with governmental and industrial space entities. Central to this abstract is an examination of SEDS-Canada's flagship initiatives, including the Canadian Reduced Gravity Experiment Design Challenge (CAN-RGX), Canadian Stratospheric Balloon Experiment Design Challenge (CAN-SBX), Young Space Entrepreneurs Competition (YSpace), and the new Canadian Analog Research Expedition (CAN-ARX). These programs immerse students in real-world research and experimental design, offering unique opportunities to engage in microgravity, high-altitude balloon experiments, space business, and analog research. The hands-on experience gained through these projects is instrumental in equipping students with essential skills in STEM. A comprehensive analysis of the outcomes and impacts of these projects, measured through key performance indicators such as the number of students participating in flight campaigns, grants received, poster presentations, conferences attended, and transitions into space sector-related jobs has been performed. The data highlights the significant role of SEDS-Canada in not only enhancing the students' academic and professional trajectories but also contributing to the innovation and knowledge base of the Canadian space sector. Furthermore, it is important to highlight the integral role of these projects in developing highly qualified personnel. Students are exposed to aspects of project management and research, fostering a generation of professionals adept in navigating the complexities of space exploration and development. The experiential learning approach adopted by SEDS-Canada emphasizes a tangible, student-led impact, marking a paradigm shift in pedagogical strategies aimed at preparing students for the multifaceted challenges of the future space sector. SEDS-Canada stands as a cornerstone in bridging the gap between academic learning and practical application in space science. Through its innovative projects and collaborative initiatives, it is sculpting a future where the Canadian space sector is propelled by a workforce that is not only highly qualified but also deeply engaged in the intricacies of space exploration and development.