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SPACE TECHNOLOGIES FOR WILDFIRE MONITORING BY GOVERNMENTAL ORGANIZATIONS

Abstract

The Space Generation Advisory Council (SGAC) is a global non-governmental, non-profit organisation and network which aims to represent university students and young space professionals to the United Nations. The SGAC's Space Technology for Disaster Management (STDM) Project Group promotes awareness of how space technologies contribute to improve Disaster Risk Reduction (DRR) and management. The University of Toronto Aerospace Team (UTAT) is Canada's largest student design team that designs and builds drones, rockets, and satellites for competitions and scientific research. With a vested interest in the future of space technology, UTAT is involved in educational outreach and policy research on space and its societal implications. The team has been developing a set of policy proposals focused on utilizing Canadian national space assets to monitor and manage wildfires throughout the country. These original proposals reviewed current Canadian wildfire monitoring services such as the Canadian Wildland Fire Information Service (CWFIS) and efforts lead by federal agencies such as Natural Resources Canada, and the National Research Council. It then presented a detailed overview of leveraging current space assets and capacity building at CSA which includes Radarsat Constellation Mission (RCM), hyperspectral, thermal and multispectral satellite remote sensing and image processing along with Geographical Information Service (GIS). Finally, the proposals described the necessary interfaces and organizational structure to work effectively in the Canadian federal government. In collaboration with the United Nations Space Generation Advisory Council (UN SGAC), the existing research and recommendations are expanded to cover this matter on a global scale. The enabling technologies, political structures, and methodologies outlined in the original proposal are reevaluated and applied to countries with different geographies, communities, and political frameworks. Specifically, technical solutions requiring imaging and data collection, capacity building, and the maintenance of space assets are constrained or modified depending on the context of different countries. Thus, an initial set of proposals is adapted to suit the diverse group of countries and regions affected by wildfires.