

WildFireSat: The Canadian Operational Mission

¹Johntson, M. Joshua, ¹Cantin, S. Alan, ¹McFayden, B. Colin, ¹DeBoer, Stephanie, ²Dufour, Denis, ²Lefebvre, Luc, ²Micael, Miriam, ²Houde, Genevieve, ¹Thompson, Dan, ¹De Jong, Mark and ¹Crowley, Morgan

¹*Natural Resources Canada, Canadian Forest Service*

²*Canadian Space Agency*

Abstract

The Government of Canada has committed to delivering the WildFireSat operational satellite mission, to be launched in 2029. The mission aims to adapt fire monitoring science to deliver the world's first dedicated operational wildfire monitoring satellite mission. WildFireSat is designed with a uniquely Canadian solution to address critical gaps in satellite fire monitoring for Canada's diverse geography, and to primarily address the needs of wildfire and smoke management. This presentation provides a summary of the system design, the concept of operations, alignment with existing systems, value-added data products, data delivery systems, and knowledge exchange strategy. The mission will deliver comprehensive situational awareness to wildfire managers and decision-makers in near-real-time, support smoke and air quality forecast services and carbon emission estimates.

Keywords: wildfire, fire monitoring, mapping, thermal infrared, wildfire management, carbon emission reporting, air quality forecasting, smoke forecasting, data services, earth observation, satellite, remote sensing