

AN ASSESSMENT OF GEOGRAPHIC INFORMATION TECHNOLOGIES IN FOREST FIRE SUPPRESSION – AN EMPIRICAL ANALYSIS

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Abstract

We assess the efficiency and effectiveness of geospatial tools as they are used for wildfire suppression in Saskatchewan. Specifically, we aim to provide a functional review by identifying and categorizing GIS and remote sensing applications. Our results show that geospatial technology as reflected by map provision has a significant effect on final fire size and total suppression cost although not damage. When a map is provided, fire size is on average 9,989 ha less than for when a map is not provided. Helicopter and aircraft costs are positively related to final fire size. When these terms are interacted with map provision (yes or no), results indicate that costs are negatively related with fire size. This suggests that maps enable fire managers to more efficiently allocate resources to reduce total costs. On average, when maps are provided, total suppression costs are \$534,000 lower. Also, affecting total suppression costs are distance to fire tower (negatively related) and distance to tanker base (positively related). While the relationship between distance to tanker base and cost is intuitive (increased distance is associated with increased cost), the distance from an observation tower is not.

[Abstract Only]

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