



Changes in escape fire occurrence rate under climate change

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There has been considerable study of the general impacts of climate change on the circumpolar boreal forest, and in particular on potential changes in the level of forest fire activity. Recent studies have shown that overall fire occurrence (from both human and lightning causes) is expected to increase across the boreal forest in Canada (and in many other regions of the world) under the changed fire weather expected to accompany climate change over the 21st Century. In terms of fire on a managed forest landscape, it is not so much the total number of fires occurring but that very small number of fires that escape initial attack that have the greatest impact in terms of area burned or loss of values. We developed models of the probability of fire occurrences escaping initial attack based on weather-based outputs of the Canadian FWI System and general fire cause type. Using these with outputs from recent GCM scenarios from the Hadley and Canadian Climate Centre we find an overall increase in expected fire escapes as well across the forested region of Canada. Increases in some areas can be higher than the increases expected in total number of fires. Assumptions going into this analysis are that fire management agency effort in terms of response time and suppression resource levels remains constant over time.