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A Real Options Approach to Wildfire Evacuations

Joint work with Daniel Guerrero and Doug Woolford

Wildfires pose an increasing threat to human life and property in Canada. Approximately 12% of Canada's population resides in the wildland-urban interface and forest fires are increasing both in frequency and severity. Significant research efforts has been devoted to understanding different components of wildfire risk, including the way in which wildfire moves on the landscape. When fire approaches populated areas, it can be optimal to evacuate the area to reduce danger to life. Evacuating too late will be much more expensive, if possible at all; evacuating too early risks disruptive unnecessary evacuations. In this talk I will examine how financial mathematics approach can help frame this problem in useful ways that not only allow evacuation decisions to be made, but which also provides a way to compare, apples to apples, to financial benefit of measures taken to prevent wildfire spread against their cost.