



Western
Centre for Multi-hazard
Risk & Resilience

SPARK:
Seminar Platform for Adaptive Resilience Knowledge

"A Multi-Stage Framework for Modelling Flood-Induced Disruptions in Urban Road Networks"

Date: Friday, April 17, 2026, 10:00 AM EST
Online via Teams

A multi-stage framework is developed to quantify flood-induced disruptions to urban road networks by explicitly linking flood characteristics with vehicle stability and network performance. Unlike conventional binary road closure assumptions, the approach integrates depth-velocity-based vehicle accessibility into a deterministic network analysis, and introduces a probabilistic model to estimate functionality loss under uncertainty. An agent-based simulation further captures dynamic traffic responses, including rerouting and congestion propagation. Results reveal that partial functionality loss and vehicle-specific vulnerability significantly reshape accessibility and network efficiency. The framework provides a practical tool for predicting disruption patterns and supporting resilient transport planning under increasing flood risk.



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Further event details can be found in:

https://uwo.ca/multihazard_risk_resilience/SPARK_Seminar/index.html