

Fire and Disasters: Examining Fire Incidents During Major Disasters and Emergencies in Canada

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redefine THE POSSIBLE.



“rapid fire” presentation to the CAFC Board of Directors and National Advisory Council February 2018

Research question: What are the patterns of fire incidents during major disasters and emergencies in Canada ? ◀ ▶



Slave Lake Wildfire, 2011



Flash Flood in Toronto, 2013



Toronto Propane Explosion, 2008



Alberta Flood, 2013



Ice Storm in GTA, 2013



Vancouver Riot, 2011

Findings:



Overall during major disaster and emergency events:

- The number of *fire incidents are rising*.
- Fire incidents show *different temporal and spatial patterns*.
- These patterns *vary among different jurisdictions*.
- *Different disaster* type exhibit *different patterns*.
- Fire incidents could rise up to **100s times compared to** daily averages.
- Expect more disaster related fire incidents between **April to September**.
- “*Distance to fires*” **increases** in some disaster events.
- *Residential buildings* are the most common occupancy groups.
- “Smoker’s material and open flame” and “exposure” are the most common ignition sources.
- “Mechanical and electrical failures” and “human failing” as the most **common cause**.
- “Outside area” is the most common **origin**.
- Fires are more likely to **extend beyond the building of origin**.

Next steps



- **Communicating the current findings with the fire departments and emergency managers through:**
 - Professional conferences
 - Seminars
 - Publications
- **Communicating the current findings to academia through:**
 - Academic conferences
 - Peer reviewed journal publications
- **More in depth analysis of fire incidents during major disasters and emergencies by:**
 - Acquiring more complete datasets for the selected disaster and emergency events.
 - Using more advanced data analytic tools
- **Developing machine learning and artificial intelligence tools for:**
 - Forecasting fire incidents attributes during major disaster & emergency events