

What is a tornado?

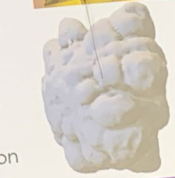
- A violently rotating column of air that extends through the lower part of a thunderstorm to the surface (land or water). This vortex is often made visible by the presence of a funnel cloud and dust/debris (land) / a spray vortex (water).
- Downbursts are damaging storm downdrafts caused by precipitation evaporation / loading

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Task 1

Characterization of hailstones and hailswaths using ground-based and remote-sensing techniques

- Collect hailstones in the field for detailed analysis
- Sample hailswaths using a hailpad network.
- Characterize hailswaths using UAVs equipped with multi-spectral and thermal cameras, and LIDAR.
- Evaluate Calgary's hail disdrometer network.
- Develop/advance satellite detection methods to identify hailswaths.
- Develop/advance radar tools for the identification of hail & determination of hail size.



Canadian Record –
Max. Diameter 12.3 cm
Mass = 292.7 g
Bulk density 0.85 g cm⁻³

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Social & Behavioral Science Studies

- **Improve the effectiveness of forecasts and warnings of severe & hazardous weather**
 - Improve and evaluate forecaster decision tools
 - Better forecast models and observations
 - Probabilistic output
 - Improve communication of threats & impacts
 - Expressions of uncertainty
 - Messages understood by key partners (broadcasters and emergency managers)
 - Improve public understanding and reception of information
 - Understandable
 - Actionable for personal decision-making

November 2022 NSSL Overview – Department of Commerce // National Oceanic & Atmospheric Administration // Oceanic & Atmospheric Research

Opening Conference

- On-site European Conference on Severe Storms in Bucharest, Romania
- Abstract submission is open until 12 January 2023

For more information on the conference and other ESSL events: see: www.essl.org


ECSS2023
Bucharest, Romania
8–12 May 2023



Local Organizing Partner: ECSS Main Sponsor: Munich RE Co-Sponsor: ESSL

Talking: Workshop room

You are screen sharing



What Most Fires Are Actually

(because we put most of them out)

A man in a maroon shirt stands to the left of the screen, looking at a device. A microphone is positioned in front of the screen.

Talking: Workshop room

Challenges: history... rules, guidelines, Commandments?



A man in a blue jacket stands to the left of the screen. A microphone is positioned in front of the screen.

Access our PDF Program online!

Max Size: 20MB



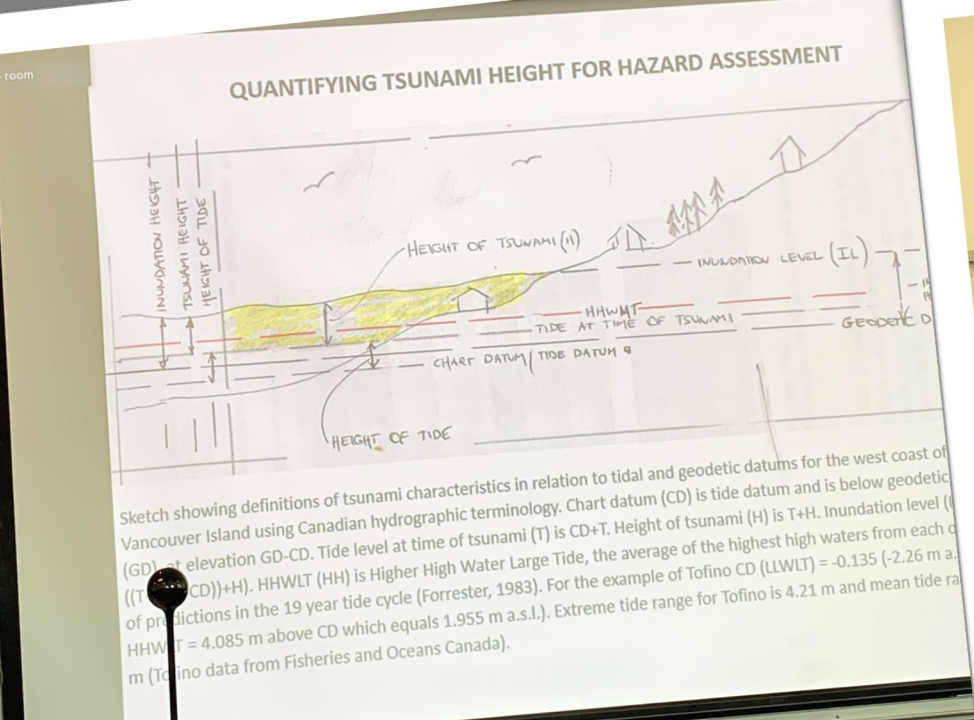
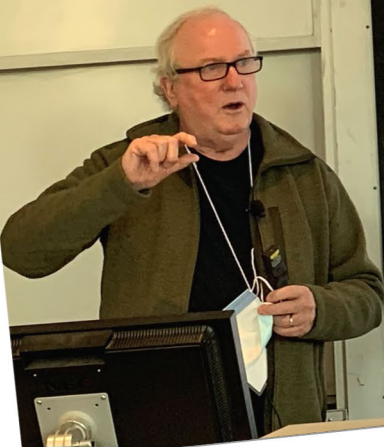
Continuous Space

KDE for Fires in Lightning

Beck, D.G., Woolford, D.G., Dean, C.B.
Between Spatio-Temporal Point Processes

Shared Effects in Space and Time

A man in a patterned shirt stands to the left of the screen, looking at a computer monitor. A microphone is positioned in front of the screen.



The application of geological, geotechnical, and 'Geo' data to seismic microzonation in Metro Vancouver

Sujan Raj Adhikari
Ph.D. Candidate in Geophysics with
Collaborative Specialization in Hazards, Risks, and Resilience
Department of Earth Sciences
Western University

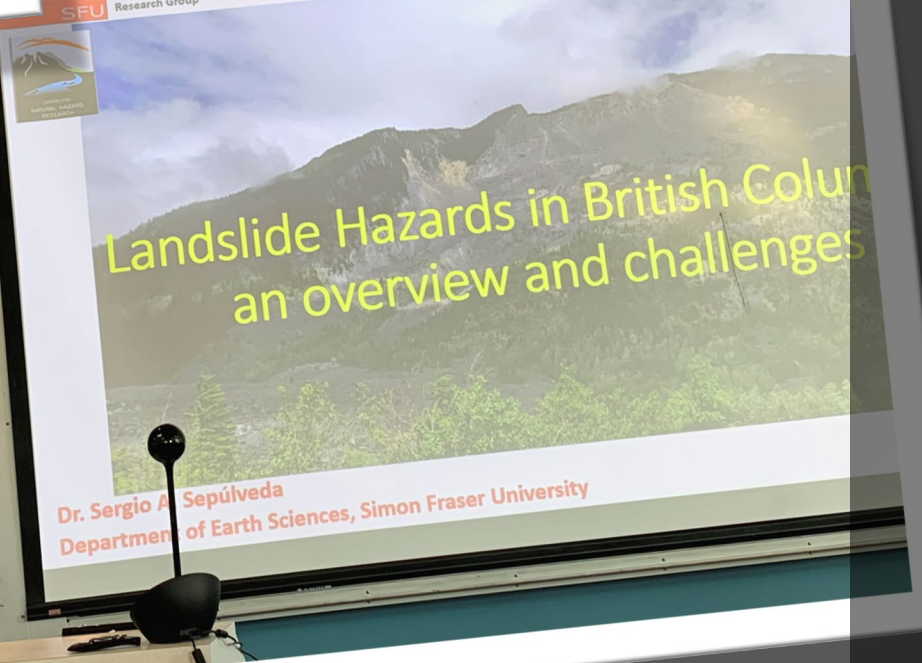
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Resilience



Simon Fraser University
Engineering Geology and Resource Geotechnics
Research Group

Landslide Hazards in British Columbia an overview and challenges

Dr. Sergio A. Sepúlveda
Department of Earth Sciences, Simon Fraser University



Introduction

Imagery-based analysis for FFH estimation is a more straightforward process that reduces the amount of data.

Deep Learning algorithms have recently been used for FFH estimation using imagery-based analysis.

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4. Experiments and Results

- Study area
 - In June 2013, a major flooding hit the Calgary city, Canada.
 - The optical aerial imagery (0.2-m spatial resolution) was captured in the early morning (8:00-9:30 a.m.) on June 22, 2013, by the City of Calgary.
 - Issue: There are many shadows in the aerial imagery, leading to a large underestimation of extraction results.

PageRank

High PR events (reference events)

- Waveform similarity: a pair of events with high CC value > 0.7
- High PageRank events: the events with the most extensive connections/similarity to other events.

Historical CF events:

- Hurricane Juan with \$200 million damage to eastern Canada and Nova Scotia (2003)
- Hurricane Igor with \$200 million damages to Newfoundland
- Hurricane Dorian with \$78.9 million damage to Nova Scotia (2019)

Goal and motivation:

Assessing the spatial and temporal variability of individual and compound events across Canada's coast

Background

- Zscheischler et al. (2022) organized the highly diverse compound event types according to four themes:
 - Preconditioned, where a weather-driven or climate-driven precondition aggravates the impacts of a hazard, e.g. Heavy precipitation on saturated soil. Rain on snow
 - Multiple drivers and/or hazards lead to an impact, e.g. Compound coastal and inland flooding
 - Multiple drivers and/or hazards leads to an impact, e.g. Temporal clustering
 - Multiple drivers and/or hazards leads to an aggregated impact, e.g. Compound extreme weather events

A vision towards a performance-based design approach for tall structures merging wind and seismic effects.

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