

CSSL-CMRR-WindEEE Workshop Agenda
London (ON), November 3rd- 4th, 2025

Day 1: November 3rd, 2025

Time	Session
09:00 – 09:30 AM	Registration Facilitators: Parva, Nova
09:30 – 09:40 AM	Opening Speech Katsuichiro Goda, Ph.D. ^{1,2} ¹ Department of Earth Sciences, ² Department of Statistical and Actuarial Sciences, Western University, Canada
Session#1: Tornado and Downburst Loading on Structures (Wind Engineering, Energy, and Environment Research) Conveners: Muna Younis and Girma Bitsuamlak Department of Civil and Environmental Engineering, Western University, Canada.	
09:40 – 09:55 AM	Presentation Title: Tornado and Atmospheric Boundary Layer (ABL) Wind Comparisons. Presenter: Girma Bitsuamlak Co-authors: Tibebu H. Birhane, Yonas S. Bekele, and Jin Wang Affiliation: Department of Civil and Environmental Engineering, Western University, Canada.
09:55 – 10:10 AM	Presentation Title: Downburst Loading on Vertical and Horizontal Structures. Presenter: Alessandro Mariotti ¹ Co-author: Girma Bitsuamlak ² Affiliation: ¹ Department of Civil and Industrial Engineering, University of Pisa, Italy, ² Department of Civil and Environmental Engineering, Western University, Canada.
10:10 – 10:25 AM	Presenter Title: Tornado Load on Structures. Presenter: Tibebu H. Birhane Co-author: Girma Bitsuamlak Affiliation: Department of Civil and Environmental Engineering, Western University, Canada.
10:25 – 10:40 AM	Presentation Title: Automated Geometric Model Generation for Digital Twin-based Climate Modelling. Presenter: JM. Hunde ¹ Co-authors: Miriam Capretz ¹ and Girma Bitsuamlak ² Affiliation: ¹ Department of Electrical and Computer Engineering, ² Department of Civil and Environmental Engineering, Western University, Canada.
10:40 – 10:55 AM	Presentation Title: Topographical Impacts on Downburst-induced Wind Loads: A Computational Fluid Dynamic (CFD) Study. Presenter: Muna Younis Co-author: Girma Bitsuamlak

Affiliation: Department of Civil and Environmental Engineering,
Western University, Canada.

10:55 – 11:10 AM Coffee Break

Session#2: Geohazards

Conveners: Sheri Molnar¹ and Bing Li²

¹Department of Earth Sciences, ²Department of Civil and Environmental Engineering,
Western University, Canada

11:10 – 11:25 AM Presentation Title: **Ground Failure and Soil Liquefaction During High-magnitude, Long-duration Megathrust Earthquakes.**
Presenter: Trevor Carey
Affiliation: Department of Civil and Mineral Engineering, University of Toronto, Canada.

11:25 – 11:40 AM Presentation Title: **Seismic-induces Liquefaction and Landslide Hazard Mapping of Metro Vancouver, British Columbia.**
Presenter: Sheri Molnar
Affiliation: Department of Earth Sciences, Western University, Canada.

11:40 – 11:55 AM Presentation Title: **Earthquake Declustering Using Supervised Machine Learning.**
Presenter: Robert Shcherbakov
Affiliation: Department of Earth Sciences, Western University, Canada.

11:55 – 12:10 PM Presentation Title: **Advancing Fault Displacement Hazard Assessment Using Stochastic Source Modelling of Complex Fault Systems.**
Presentation: Parva Shoaefar
Affiliation: Department of Earth Sciences, Western University, Canada.

12:10 – 12:25 PM Presentation Title: **Application of Advanced Laboratory Experiments in Understanding the Cause of Localized Damage Zones in Nuclear Waste Repository in Finland.**
Presenter: Farzine Nasseri
Affiliation: Department of Civil and Mineral Engineering, University of Toronto (Retired), Canada.

12:25 – 12:40 PM Presenter Title: **Fluid-driven Seismicity: Volcanic and Anthropogenic Systems.**
Presenter: Bang Li
Affiliation: Department of Civil and Environmental Engineering, Western University, Canada.

12:40 – 12:55 PM Group Photo

12:55 – 1:55 PM Lunch Break

Session#3: Transportation and Public Infrastructure Resilience

Convenors: Yili (Kelly) Tang^{1,2} and Bang Li¹

¹Department of Civil and Environmental Engineering, ²Department of Electrical and Computer Engineering, Western University, Canada.

1:55 – 2:10 PM Presentation Title: **Resilient Zero-emission Electric Mobility Solutions.**

	Presenter: Moataz Mohamed Affiliation: Department of Civil Engineering, McMaster University, Canada.
2:10 – 2:25 PM	Presentation Title: Characterizing and Forecasting Rockfall Hazard – Experience from Colorado. Presenter: Gabriel Walton Affiliation: Department of Geology and Geological Engineering, Colorado School of Mines, Golden (CO), USA.
2:25 – 2:40 PM	Presentation Title: An Automated Framework for Probabilistic Back-analysis of Rockfall Trajectories. Presenter: Arnold Xie Affiliation: Department of Civil and Environmental Engineering, Western University, Canada.
2:40 – 2:55 PM	Presentation Title: Toward AI-enabled Digitization of Resilient and Sustainable Civil Infrastructure. Presenter: Ayan Sadhu Affiliation: Department of Civil and Environmental Engineering, Western University, Canada.
2:55 – 3:10 PM	Presentation Title: Smart Railway AI Monitoring and Predictive Maintenance. Presenter: Yili (Kelly) Tang^{1,2} Affiliation: ¹Department of Civil and Environmental Engineering, ²Department of Electrical and Computer Engineering, Western University, Canada.
3:10 – 3:25 PM	Coffee Break
Session#4: Student Session (PICO Presentations) Conveners: TBD	
Danqiong Dai	Presentation Title: Towards Modelling Hydrological Processes in Boreal Forest Wetlands: Implications from a High-Latitude Site and Multi-Model Analysis. Affiliation: Department of Physics and Astronomy, Western University, Canada.
Yasaman Taleghani	Presentation Title: Future Changes in Coastal Compound Flood of Storm Surge and Significant Wave Height in Pacific Ocean. Affiliation: Civil and Environmental Engineering, Western University, Canada.
Mehrdad Jafarzadeh Khoshroudi	Presentation Title: Hydrodynamic Modelling of Lake Ontario for Flood Risk Assessment Using TELEMAC-2D. Affiliation: Mechanical and Materials Engineering, Western University, Canada.
Kanakom Thongmeesang	Presentation Title: Forecasting the Largest Expected Earthquake in Canadian Seismogenic Zones. Affiliation: Department of Earth Sciences, Western University, Canada.
Yasaman Masaeli	Presentation Title: Compound Hail-Wind-Rainfall Extremes, Convective Drivers, and Future Projections in Alberta's Hail Alley.

	Affiliation: Civil and Environmental Engineering, Western University, Canada.
Jiajin Feng	Presentation Title: Analysis of Hydroclimatic Extremes in the Great Lakes Basin under Climate Change Using WRF-Hydro and Metastatistical Extreme Value Distribution. Affiliation: Civil and Environmental Engineering, Western University, Canada.
Xiao Ma	Presentation Title: Future Changes in Extreme Winds and Tornado Environments across Canada from Convection-Permitting WRF Simulations. Affiliation: Department of Earth Sciences, Western University, Canada.
Issam Mohamed	Presentation Title: Drought Signals in Alberta's Hail Dynamics. Affiliation: Civil and Environmental Engineering, Western University, Canada.
Bishwas Sharma	Presentation Title: Interpretable Landslide Susceptibility Mapping in Far-Western Nepal Using Ensemble Machine Learning and Rainfall Extremes. Affiliation: Department of Earth Sciences, Western University, Canada.
Ahmed Mohamed Wahdan	Presentation Title: Hail Impact on the Clayey Soil. Affiliation: Civil and Environmental Engineering, Western University, Canada.
Ebrahim Gamaleldin	Presentation Title: Geotechnical Evaluation of Wind Speeds from Windthrow Resistance of Trees. Affiliation: Civil and Environmental Engineering, Western University, Canada.
Md Robiul Islam	Presentation Title: How Confident are Estimates of Extremely Low Probability Rainfall from Ensemble Pooling and Spatial Transposition. Affiliation: Civil and Environmental Engineering, Western University, Canada.
5:30 PM	Social Dinner at the Grad Club (all participants)

Day 2: November 4th, 2025

Time	Session
------	---------

Session#5: Wildfire

Conveners: Douglas Woolford & Nathan Phelps

Department of Statistical and Actuarial Sciences, Western University

09:30 – 09:45 AM	Presentation Title: How Does Science Inform Wildland Fire Management in Ontario?
------------------	---

Presenter: Melanie Wheatley

Affiliation: Ontario Ministry of Natural Resources, Canada.

09:45 – 10:00 AM	Presentation Title: Advancing Workplace Safety through Artificial Intelligence Integration.
------------------	--

Presenter: Kevin Alamanda

Affiliation: Aviation Forest Fire and Emergency Services, Ministry of Natural Resources, Canada.

10:00 – 10:15 AM	Presentation Title: Assessing the Impact of Wildfire Risk on Evacuation Patterns: A Case Study of the 2023 McDougall Creek Wildfire in Kelowna, British Columbia.
------------------	--

Presenter: Hui Jeong (Hailyee) Ha

Affiliation: Department of Geography and Environment, Western University, Canada.

10:15 – 10:30 AM	Presentation Title: Modelling Occurrence and Persistence of Smoke Events in Northwest Ontario.
------------------	---

Presenter: Shuai You

Affiliation: Department of Statistical and Actuarial Sciences, Western University, Canada.

10:30 – 10:45 AM	Coffee Break
------------------	--------------

Session#6: Flood Hazards and Climate Change

Convener: Mohammad Reza Najafi

Department of Civil and Environmental Engineering, Western University, Canada.

10:45 – 11:00 AM	Presentation Title: Multi-Scale Modelling of Compound Flood and Debris Hazards in Coastal Zones and Estuaries.
------------------	---

Presenter: Enda Murphy

Affiliation: Department of Civil Engineering, University of British Columbia, Canada.

11:00 – 11:15 AM	Presentation Title: Dynamic Assessment of Compound Coastal Floods across Malecón, Havana.
------------------	--

Presenter: Luis Cordova

Affiliation: Ciudad Universitaria José Antonio Echeverría (CUJAE), Cuba.

11:15 – 11:30 AM	Presentation Title: Assessment of Compound River and Coastal Flooding around Japan.
------------------	--

Presenter: Nobuhito Mori

Affiliation: Kyoto University, Japan.

11:30 – 11:45 PM	Presentation Title: Flood Risk Assessment in Urban Area.
------------------	--

Presenter: Farzad Fahimi

Affiliation: Lea Company, Canada.

11:45 – 12:00 PM Presentation Title: **Statistical and Physical Assessment of Compound Flooding across the Pacific Coasts under Climate Change.**
Presenter: Afshin Shaygani¹
Co-authors: Yasaman Taleghani¹, Mohammad Fereshtehpour¹, Mercè Casas-Prat¹, and Mohammad Reza Najafi²
Affiliation: ¹Environment and Climate Change Canada,
²Department of Civil and Environmental Engineering, Western University, Canada.

12:00 – 1:00 PM Lunch

Session#7: Tornadoes and Wind Hazards (Northern Tornadoes Project)

Convener: David Sills

Northern Tornadoes Project (NTP), Canadian Severe Storm Laboratory (CSSL).

1:00 – 1:15 PM Presentation Title: **When Train Cars Fly: Gleaning Tornado Characteristics Through Tracking Large Debris.**
Presenter: Connell Miller
Affiliation: Canadian Severe Storm Laboratory (CSSL)/Northern Mesonet Project (NMP)

1:15 – 1:30 PM Presentation Title: **Assessment of Tornado Wind Hazards in Canada.**
Presenter: Yongxu Liu
Affiliation: Department of Civil and Environmental Engineering, Western University, Canada

1:30 – 1:45 PM Presentation Title: **Significant Tornado Environments in Canada.**
Presenter: John Hanesiak
Affiliation: Department of Environment and Geography, University of Manitoba, Canada.

1:45 – 2:00 PM Presentation Title: **Significant Wind Damage from the 2024 Jasper Wildfire.**
Presenter: Aaron Jaffe
Affiliation: Canadian Severe Storm Laboratory (CSSL)/Northern Tornadoes Project (NTP).

2:00 – 2:15 PM Presentation Title: **Canada's New Tornado Climatology and Long-Term Trends.**
Presenter: David Sills
Affiliation: Canadian Severe Storm Laboratory (CSSL)/Northern Tornadoes Project (NTP).

2:15 – 2:30 PM Coffee Break

Session#8: Hail Hazards (Northern Hail Project)

Convener: Julian Brimelow

Northern Hail Project (NHP), Canadian Severe Storms Laboratory (CSSL).

2:30 – 2:45 PM Presentation Title: **Quantifying Hail Exposure in Calgary.**
Presenter: Madeleine Richer
Affiliation: Canadian Severe Storm Laboratory (CSSL)/Northern Hail Project (NHP).

2:45 – 3:00 PM Presentation Title: **Towards a Canadian Hail Climatology using ERA-5 Reanalysis Data and HAILCAST.**

Presenter: Jack Hamilton
Affiliation: Canadian Severe Storm Laboratory (CSSL)/Northern Hail Project (NHP).

3:00 – 3:20 PM Presentation Title: **Update on Forensic Hail Damage Surveys Across Canada.**

Presenter: Julian Brimelow/Simon Eng
Affiliation: Canadian Severe Storm Laboratory (CSSL)/Northern Hail Project (NHP).

3:20 – 3:45 PM Presentation Title: **Overview of the Recent ICECHIP Field Campaign.**

Presenter: John Allen
Affiliation: Department of Earth and Atmospheric Sciences, Central Michigan University, USA.

3:45 – 4:00 PM Coffee Break

Session#9: Remote Sensing / Surface Observations (Northern Mesonet Project)
Convener: Connell Miller

Northern Mesonet Project (NMP), Canadian Severe Storms Laboratory (CSSL).

4:00 – 4:15 PM Presentation Title: **MSC's Collaborative Monitoring Initiative: Enhancing Weather and Climate Monitoring Capacity through Collaboration.**

Presenter: Kristine Confalone
Affiliation: Environment and Climate Change Canada (ECCC).

4:15 – 4:30 PM Presentation Title: **Instant Impact: Building Canada's Largest Storm Reporting Community.**

Presenter: Adam Skinner
Affiliation: Instant Weather, Canada.

4:30 – 4:45 PM Presentation Title: **Synthetic Aperture Radar Usage in Severe Weather Damage Classification.**

Presenter: Sophia Slabon
Affiliation: Canadian Severe Storm Laboratory (CSSL)/Northern Tornadoes Project (NTP).

4:45 – 5:00 PM Presentation Title: **Semi-Automated Satellite Detection of Tornado Forest Damage Using Computer Vision.**

Presenter: Daniel Butt
Affiliation: Canadian Severe Storm Laboratory (CSSL)/Northern Tornadoes Project (NTP).

5:00 – 5:15 PM Presentation Title: **Advancing the Canadian Mesonet Portal: New Tools for Historical Surface Data and Quality Control.**

Presenter: Connell Miller
Affiliation: Canadian Severe Storm Laboratory (CSSL)/Northern Mesonet Project (NMP).

5:15 – 5:30 PM **Closing Remarks and Announcement of Best Student Presenters**

Mohammad Reza Najafi, Ph.D., P. Eng.