

2026 CSSL–CMRR–WindEEE Multi-hazard Risk and Resilience Workshop Agenda

Date: 14–15 October 2026

Venue: WIRB 1170, Western University, ON, Canada

Day 1 — Wednesday, October 14th, 2026

09:00 – 09:30 AM **Registration**
Facilitator: Dr. Nova Roosmawati

09:30 – 09:40 AM **Opening Speech**
Prof. Katsuichiro Goda

Session 1: Urban Heat Hazard
Conveners: Prof. James Voogt¹ and Dr. Jinhyung Lee¹

Time	Presentation Title	Speaker	Co-author(s)
09:40–09:55 AM	Intra-neighbourhood simulation of pedestrian heat stress across cities with a meteorological model	Charlie Gibbs ²	-
09:55–10:10 AM	Urban Heat and Air Pollution Exposure in Waterloo Region, Ontario: An Integrated Remote Sensing and In-Situ Approach	Felix Adebayo ³	-
10:10–10:25 AM	Thermal comfort accessibility: Measuring the impacts of extreme heat on space-time accessibility under climate change	Naser Ahmed ¹	-
10:25–10:40 AM	How does transit service unreliability impact rider heat exposure? Evidence from real-time transit data and microclimate simulations	Henry Shaver ¹	Dr. Luyu Liu ⁴ , Prof. James A. Voogt ¹ , Dr. Jinhyung Lee ¹
10:40–10:55 AM	Identifying impacts of thermal stress on daytime mobility patterns during the 2021 Vancouver Heat Dome event	Hui (Hailyee) Ha ¹	-

¹ Department of Geography and Environment, Western University, ON, Canada

² School of Environmental Sciences, University of Guelph, ON, Canada

³ Department of Geography and Environmental Management, University of Waterloo, ON, Canada

⁴ Department of Geosciences, Auburn University, Alabama, USA

10:55–11:10 AM Coffee Break ☕

Session 2: Community Resilience & the Built Environment: CIRCLE Project & Related Research
Convener: Prof. Katsuichiro Goda^{1,2}

Time	Presentation Title	Speaker	Co-author(s)
11:10–11:40 AM	Exposure Is Not Static: Probabilistic Household–Building Portfolios for Current and Future Risk	Dr. Rodrigo Costa ³	-
11:40–12:00 PM	Community Asset Mapping for Disaster Resilience: Lessons Learned, Challenges, and Opportunities	Dr. Szymon Parzniewski ⁴	-
12:00–12:20 PM	From National Social Vulnerability to Local Stress Testing: An Indonesia – Bali Perspective	Dr. Nova Roosmawati ¹	-
12:20–12:30 PM	Discussion	-	-

¹ Department of Earth Sciences, Western University, ON, Canada

² Department of Statistical and Actuarial Sciences, Western University, ON, Canada

³ Department of Systems Design Engineering, University of Waterloo, ON, Canada

⁴ School of Social Work, Dalhousie University, NS, Canada

12:30–12:45 PM 📷 Group Photo & Lunch 🍽️ 12:45–01:45 PM

Session 3: Climate and Flood Hazards

Convener: Prof. M. Reza Najafi¹

Time	Presentation Title	Speaker	Co-author(s)
01:45–02:00 PM	Changing Climate, Changing Flood Risk: From Hydroclimatic Extremes to Compound and Cascading Hazards	Prof. M. Reza Najafi ¹	-
02:00–02:15 PM	Leveraging Dynamical and Machine Learning Models to Improve Future Projections of Hydro-climatic Change across Canada	Dr. Chris Fletcher ²	-
02:15–02:30 PM	Estimating Catchment Runoff in a Changing Climate	Dr. Hamed Ibrahim ³	-
02:30–02:45 PM	Machine Learning-driven Hydrological Modelling for Operational Forecasting	Dr. Andre Erler ⁴	-
02:45–03:00 PM	Characterizing Compound Flooding in a Changing Climate: Implications for Risk Assessment	Dr. Anaïs Couasnon ⁵	-

¹ Department of Civil and Environmental Engineering, Western University, ON, Canada

² Department of Geography and Environmental Management, University of Waterloo, ON, Canada

³ Department of Civil & Mineral Engineering, University of Toronto, ON, Canada

⁴ Aquanty Inc., Waterloo, ON, Canada

⁵ Deltares, Delft, The Netherlands

03:00–03:15 PM Coffee Break ☕

Session 4: Student Session (03:15–05:15 PM)
Conveners: Prof. Katsuichiro Goda^{1,2}, Prof. M. Reza Najafi³, and Dr. Nova Roosmawati¹

Time	Presentation Title	Speaker
Start at 03:15 PM	Towards Modelling Hydrological Processes in Boreal Forest Wetlands: Implications from a High-Latitude Site and Multi-Model Analysis	Reforce Okwei ⁴
TBD	Designing Sustainable Systems with Immersive Climate Analytics	Shene Abdalla ⁵
TBD	Simplified Assessment of Compound Flooding under Tropical Cyclones and Future Mean Sea-Level Rise	Bryan Pérez León ⁶
TBD	EVAMIC: A Multivariate Probabilistic Framework for Compound Coastal Flooding Hazard Assessment in Havana	Kevin Cruz Batista ⁷
TBD	Shade Deserts: Mapping Shade Supply-Demand Gaps Using Hyperlocal Microclimate Simulations	Naser Ahmed ⁴
TBD	Flood frequency under climate change in the Great Lakes Basin: reliability of non-asymptotic extreme value inference with short records and GCM-driven WRF-Hydro projections	Jiajin Feng ³
TBD	Modelling Vertical Wind Angle Effects by Varying Building Roof Slopes	Jihan Pacer ³
TBD	Evaluation of SWOT Lake Levels and their Uncertainties in the Mackenzie River Basin	Sara Enns ⁸
TBD	Towards Automated National-Scale Regional Flood Modelling in Canada: A Modular Geospatial Preprocessing Workflow	Mahta Nazari ⁹
TBD	Multi-Hazard Coastal Flooding in Tofino: Sea-Level Rise, Cascadia Deformation, Storm Surge, and Extreme Rainfall	Mehrdad Jafarzadeh Khoshroudi ³
TBD	A Data-Driven Machine Learning Framework for Predicting the Undrained Shear Strength of Bio-Treated Soils for Infrastructure Resilience	Nazanin Alidoustsalimi ³
TBD	Extreme Wind-Driven Rain Across Canada Under Global Warming: Projected Changes and Drivers	Yasaman Masaeli ³
TBD	Addressing the validation paradox in large-scale vulnerability assessment: subdistrict-level tropical cyclone vulnerability in India	Ravi Ranjan ¹⁰
TBD	Implementation of the Performance-Based Hurricane Engineering framework for concurrent multi-hazard analysis in Cuban coastal communities	Alejandro M.G. González ¹¹
TBD	Escaping Gases: How Global Warming contributes to gases escaping Earth's Atmosphere	Phani Kamesh Pamidipati ¹

¹ Department of Earth Sciences, Western University, ON, Canada ² Department of Statistical and Actuarial Sciences, Western University, ON, Canada ³ Department of Civil and Environmental Engineering, Western University, ON, Canada ⁴ Department of Geography and Environment, Western University, ON, Canada ⁵ Department of Systems Design Engineering, University of Waterloo, ON, Canada ⁶ Hydraulic Research Center, Technological University of Havana, Cuba ⁷ Department of Hydraulic Engineering, Faculty of Civil Engineering, Universidad Tecnológica de La Habana, Cuba ⁸ Environmental Science and Engineering Department, Indian Institute of Technology Bombay, Mumbai, India ⁹ Civil and Environmental Engineering Department, University of Waterloo, ON, Canada ¹⁰ Department of Geography and Environmental Management, University of Waterloo, ON, Canada ¹¹ Universidad Tecnológica de La Habana José Antonio Echeverría, Cujae, Cuba

Starting at 05:30 PM Group Dinner 🍴

End of Day 1

Day 2 — Thursday, October 15th, 2026

09:30 — 10:30 AM Keynote Speaker

Dr. John Allen¹

Climate Change and Thunderstorms - A Multi-hazard and Complex Future

¹ Department of Earth and Atmospheric Sciences, Central Michigan University, Michigan, USA

10:30–10:45 AM Coffee Break ☕

Session 6: Storm/Hail Hazard

Conveners: Prof. Gregory Kopp^{1,2} and Dr. Connell Miller³

Time	Presentation Title	Speaker	Co-author(s)
10:45–11:00 AM	Urban Vulnerability to Extreme Hail: A worst-case scenario for the 2024 Calgary hailstorm	Madeleine Richer ¹	-
11:00–11:15 AM	Physics and Modelling of Canadian Pyrocumulonimbus Storms	Dr. Morgan O'Neill ⁶	-
11:15–11:30 AM	Multi-Hazard Convective Storm Damage Surveys – Examples Using the June 6-10, 2026, Prairie Outbreak Series	Simon Eng ⁴	Dylan Painchad-Niemi ⁸ , Matthew Woodward ^{4,8}
11:30–11:45 AM	Severe Storm Stories: Examining Canadians' Experiences with Severe Weather Events	Jadyn Zajac ²	Dr. Jennifer Spinney ⁷ , Dr. Jeremy Trombley ⁵ & Dr. Connell Miller ³
11:45–12:00 PM	Development of derecho hazard maps for Canada	Dr. Christoph Gatzen ¹	-

¹ Department of Civil and Environmental Engineering, Western University, ON, Canada

² The Canadian Severe Storms Laboratory (CSSL), Western University, ON, Canada

³ Northern Mesonet Project, Western University, ON, Canada

⁴ Northern Hail Project, Western University, ON, Canada

⁵ Western University, ON, Canada

⁶ Department of Civil & Mineral Engineering, University of Toronto, ON, Canada

⁷ York University, Toronto, ON, Canada

⁸ Northern Tornado Project, Western University, ON, Canada

12:00–01:00 PM Lunch 🍽️

**Session 7: Digital WindEEE: Bridging Experimental, Computational, and
AI Research for Climate-Resilient Buildings through Digital Twins**
Convener: Prof. Girma Bitsuamlak^{1,2}

Time	Presentation Title	Speaker	Co-author(s)
01:00–01:15 PM	Digital Twins and AI: Wind Engineering Research at WindEEE	Dr. Tibebu H. Birhane ¹	Prof. Girma Bitsuamlak ^{1,2}
01:15–01:30 PM	Computational Approaches to Wind, Ventilation, and Building Science for Climate-Resilient Buildings	Dr. Anwar Awol ¹	Prof. Girma Bitsuamlak ^{1,2}
01:30–01:45 PM	Computational Wind Engineering Standards and Workflows for Wind Load Evaluation	Dr. Tsinuel N. Geleta ¹	Prof. Girma Bitsuamlak ^{1,2}
01:45–02:00 PM	Building a Sustainable and Resilient Northern Built Environment: From Digital Models to Real-World Impact	Dr. Muna Younis ¹	Prof. Girma Bitsuamlak ^{1,2} and Dr. Laxmi Sushama ³
02:00–02:15 PM	Digital Twin Workflows	Dr. Dagimawi Eneyew ¹	Dr. Tsinuel N. Geleta ¹ , Dr. Anwar Awol ¹ , and Prof. Girma Bitsuamlak ^{1,2}
02:15–02:30 PM	A Coupled OpenFOAM-OpenSees Framework for Fluid-Structure Interaction Analysis of Solar Array Trackers	Dr. Jonathan D. Assefa ¹	Dr. Tibebu H. Birhane ¹ , Dr. Tsinuel N. Geleta ¹ , and Prof. Girma Bitsuamlak ^{1,2}
02:30–02:45 PM	A wind-based workflow for the multi-scale design of sustainable neighborhoods	Dr. Kimberly Adamek ¹	Prof. Girma Bitsuamlak ^{1,2}

¹ The Wind Engineering, Energy and Environment (WindEEE) Research Institute, Western University, ON, Canada

² Department of Civil and Environmental Engineering, Western University, ON, Canada

³ Civil Engineering, McGill University, Montreal, QC, Canada

02:45–03:00 Closing Remarks and Announcement of Best Student Presenters
Prof. M. Reza Najafi

Workshop Concluded — Thank You for Attending!

Affiliation List

- Department of Earth Sciences, Western University, ON, Canada
- Department of Statistical and Actuarial Sciences, Western University, ON, Canada
- Department of Geography and Environment, Western University, ON, Canada
- School of Environmental Sciences, University of Guelph, ON, Canada
- Department of Geography and Environmental Management, University of Waterloo, ON, Canada
- Department of Systems Design Engineering, University of Waterloo, ON, Canada
- School of Social Work, Dalhousie University, NS, Canada
- Department of Civil and Environmental Engineering, Western University, ON, Canada
- The Canadian Severe Storms Laboratory (CSSL), Western University, ON, Canada
- Northern Mesonet Project, Western University, ON, Canada
- Northern Hail Project, Western University, ON, Canada
- Northern Tornado Project, Western University, ON, Canada
- The Wind Engineering, Energy and Environment (WindEEE) Research Institute, Western University, ON, Canada
- Department of Civil & Mineral Engineering, University of Toronto, ON, Canada
- Aquanty Inc., Waterloo, ON, Canada
- Deltares, Delft, The Netherlands
- Department of Physics, University of Toronto, Toronto, ON, Canada
- Department of Geosciences, Auburn University, Alabama, USA
- CIRCLE Project, Western University, ON, Canada
- Hydraulic Research Center, Technological University of Havana, Cuba
- Department of Hydraulic Engineering, Faculty of Civil Engineering, Universidad Tecnológica de La Habana, Cuba
- Department of Earth and Atmospheric Sciences, Central Michigan University, Michigan, USA
- York University, Toronto, ON, Canada
- Civil and Environmental Engineering Department, University of Waterloo, ON, Canada
- Environmental Science and Engineering Department, Indian Institute of Technology Bombay, Mumbai, India
- Universidad Tecnológica de La Habana José Antonio Echeverría, Cujae, Cuba