THE UNIVERSITY OF BRITISH COLUMBIA

Climate Solutions Research Collective

CLIMATE SOLUTIONS RESEARCH COLLECTIVE
2025-26 SUMMARY REPORT

We acknowledge that UBC's campuses are situated within the traditional territories of the Musqueam, Squamish and Tsleil-Waututh, and in the traditional, ancestral, unceded territory of the Syilx Okanagan Nation and their peoples.

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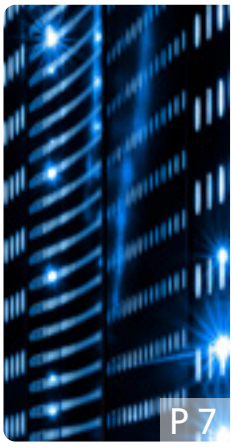

Cover image: The Centre for Sustainable Food Systems at the UBC Farm is exploring ways to reduce climate-warming emissions and helping farmers adapt to climate change.

NEW THINKING, NEW PARTNERSHIPS AND BOLD CLIMATE SOLUTIONS

When I began studying the science of climate change thirty years ago, there were a few common assumptions about the obstacles to solving the unfolding crisis. They were repeated in most conversations about the subject, by researchers, activists and critics alike.

Climate change feels distant to people in North America, Europe and the rest of the Global North, which are insulated from the worst impacts due to relative wealth and infrastructure.

Renewables, like wind and solar, will never be able to generate reliable energy cheaper than fossil fuels like coal.

The developed world will need to lead the transition away from fossil fuels, so that China and the Global South can follow.

All of those assumptions turned out to be wrong.

Heat domes, floods and forest fires have brought climate change to our doorsteps. People in Canada and around the world are increasingly living with extreme events which can be attributed to climate change.

The economics of energy have changed due to advancements in manufacturing. Today, more than 95 per cent of new solar and onshore wind energy facilities can generate cheaper electricity than coal and natural gas. Renewables are poised to soon overtake coal as the largest source of electricity on the planet, with overall fossil fuel demand possibly peaking before the end of the decade.

China is leading the world in the development and production of the key technologies needed to transition away from fossil fuels, with ripple effects across the Global South. People across Pakistan installing inexpensive solar photovoltaics on their rooftops have quickly made solar power the largest source of electricity in the country. Electric vehicle sales are surging across Asia and Latin America, far outpacing the transition in North America, Europe and Japan.

The signs of these changes abound. On my morning cycle into campus, I am now passed by the quiet whirr of electric vehicles and e-bikes. In winter, I also pass the sandbags that now must be stacked along the shoreline to protect the road from increasingly high tides.

Progress, however, is not a straight line. Despite the growing clean energy revolution around the world, climate action continues to face headwinds across North America. There is a risk of reverting to the comfortable policies and practices of the fossil fuel dominant past, rather than embracing the changes needed to address climate change and thrive in a low-carbon future.

The Climate Solutions Research Collective was launched in 2023 to foster engagement across campus, encourage new collaborative research and help university researchers contribute to climate solutions at the national and international levels. The Steering Committee and I focused the past year's activities on how UBC research can meet this unique moment.

Through the ongoing Solutions Scholars program, the Collective sponsored timely new projects on addressing public polarization about climate change, communicating about extreme events, advancing teacher education about climate justice, reducing the emissions footprint of AI, and improving wildfire preparedness.

With additional support from the Pacific Institute for Climate Solutions, we launched the new Catalyst Awards, offering support to early career researchers to pursue new ideas and build their research program, as well as to teams of researchers for convening meetings and other knowledge exchange activities.

We also hosted international experts like Professor Andrew Dessler and Dr. Kate Marvel to spark discussion among UBC researchers, as well as a series of targeted conversation events on pressing issues like electric vehicle policy, materials demand, and international climate negotiations.

These activities culminated in the development of the 2026-2027 Future Canada Initiative, which is bringing together UBC researchers and students from across disciplines and faculties to identify the steps to a healthy and prosperous low-carbon future for Canada.

The Collective is for everyone at UBC. Join us!

Simon Donner

Director, Climate Solutions Research Collective

FUNDING

Faculties at the Vancouver and Okanagan campuses continued to provide financial support for the CSRC, with VPRI providing matching contributions. In 2025, the Pacific Institute for Climate Solutions began providing additional funding to support research and engagement with UBC faculty and students.

This past year, funding for both Solutions Scholars research projects and new Catalyst Awards were distributed across ten faculties: in the Okanagan, the Faculty of Creative and Critical Studies, Irving K. Barber Faculty of Arts and Social Sciences, and Irving K. Barber Faculty of Science; in Vancouver the Faculties of Applied Science, Arts, Education, Forestry and Environmental Stewardship, Land and Food Systems, Medicine and Science.

$120K
SOLUTIONS SCHOLARS FUNDING

8
CATALYST AWARDS
to
13
FACULTY

$53K
CATALYST AWARD RECIPIENTS FUNDING

TOOLS AND RESOURCES

The Find a Climate Researcher website continues to grow, with faculty members added throughout the year. Researchers can submit their profiles on our website or by reaching out to climate.collective@ubc.ca. The tool receives daily visitors from colleagues looking to connect with external partners engaging with UBC researchers and their expertise.

The CSRC events calendar acts as an aggregator of resources, providing an online space to share climate activities at both campuses, in the broader communities of Kelowna and the Lower Mainland, as well as virtual events. The website also includes a Solutions Library full of project tools and deliverables from the three years of the Solutions Scholars program.

135+
EVENTS
shared on our climate calendar

2300+
FOLLOWERS
across social media accounts

460
USES
of the
FIND A CLIMATE RESEARCHER
website

EVENTS

In the CSRC's third year, eighteen events were hosted on topics ranging from materials in the sustainability transition to relational approaches to climate engagement; from climate change, renewables and the cost of electricity to EV policy and practice in Canada. These events featured twenty faculty, fourteen students and six invited visitors to UBC who all contributed to advancing conversations related to climate solutions.

The CSRC also collaborated with on-campus partners the Sustainability Hub, Institute for Community Engaged Research, and BC Agricultural Climate Action Research Network as well as off-campus presenters from the Community Energy Association, Project Drawdown, Texas A&M University, and Colorado State University. See more about our events on pages 10 and 11.

18
EVENTS
hosted by CRSC

~1000
REGISTRANTS
in-person and online

40
PRESENTERS
faculty, students and guests

SOLUTIONS SCHOLARS

The Solutions Scholars program provides an opportunity for students to engage in interdisciplinary solutions-oriented projects proposed by teams of faculty from different disciplines. In 2025/26, seven graduate students from UBC Vancouver and five from UBC Okanagan joined faculty mentors on research projects related to addressing polarization in climate discourse, developing wildfire preparedness tools, communicating climate impacts, understanding the climate impacts of data centres, and developing a climate education cohort for K-12 practitioners.

"The Solutions Scholars program pushed me to think about the interdisciplinary nature and practical applications of my work more deeply through conversations with peers, alumni, and faculty across a variety of fields. I was introduced to ... community organizations across the province with whom I could see myself working alongside in the future that I would never have interacted with otherwise" 2025/26 Solutions Scholar.

12
SCHOLARS

7 UBCV **5** UBCO

6
PROJECTS
with faculty across
11
DISCIPLINES

2
SUMMITS
with
~100
PARTICIPANTS

LAYING THE FOUNDATIONS FOR THE ESTABLISHMENT OF A CLIMATE ENGAGEMENT CENTRE (CEC) IN A BC INTERIOR TOWN

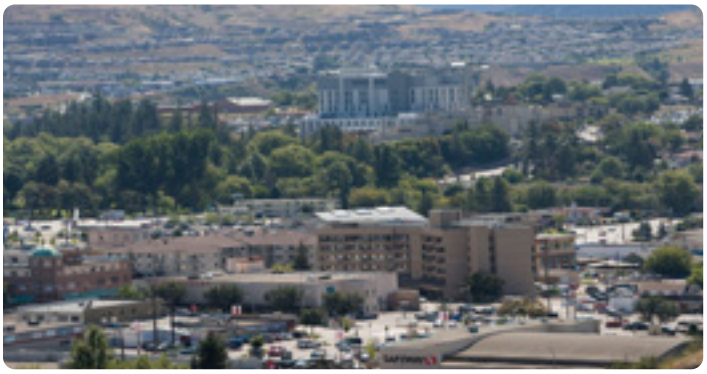

Photo credit: Richvernon, Wikipedia Commons

Mentors: Mary Stockdale and Jon Corbett Community, Culture and Global Studies and Maged Senbel, School of Community and Regional Planning

Scholars: Theresa Dearden and Blair Visscher, Interdisciplinary Studies (Sustainability)

Climate engagement must extend beyond progressive environmentalists to build a broad social mandate for action. In this project, Solutions Scholars aimed to build the foundation for a Climate Engagement Centre (CEC) in Vernon, BC by combining insights from the UK's Climate Emergency Center network with on-the-ground deep canvassing in the local community.

Through a desktop review of online materials and demographic data, coupled with semi-structured interviews with prominent UK CEC organizers, Dearden coded themes and identified practical strategies and best practices for developing a CEC in Vernon. Concurrently, Visscher and the research team worked with several local groups to conduct deep canvassing across nine neighbourhoods.

Prioritizing personal storytelling and emotional resonance, trained canvassers asked open-ended questions about residents' experiences with climate change and community resilience, focusing on listening rather than debating. Through canvasser debriefs, researchers uncovered issues of trust, agency, identity, and place.

Across the neighborhoods involved in the study, canvassers found a genuine longing for community connection. Researchers found that 52 per cent of people with whom canvassers had a full conversation agreed to join a "Friends of the CEC" newsletter, and 63 per cent rated their support of the CEC at eight out of 10 or higher.

"A wonderful program that came around at the right time to make a big difference."

Mary Stockdale, Mentor

COMMUNICATING CLIMATE EXTREME IMPACTS TO MOBILIZE ACTION: DOES FRAMING MATTER?

Mentors: Jiaying Zhao, Psychology and IRES and Rachel White, Earth, Ocean, and Atmospheric Science

Scholars: Adedayo Adeyanju, Chemical and Biological Engineering and Hayley Simpson, IRES

The goal of this project was to examine the most effective ways to communicate about heatwaves to mobilize the public towards climate action and behaviors. The rationale for this project is that there are many ways to communicate facts about extreme weather events that are scientifically and statistically identical but may have different psychological impacts.

Building on this idea, we conducted an online experiment to compare the effect of different statistical formats on the risk threshold at which people report feeling more concerned about a heatwave. Specifically, we asked all participants to respond to the question "For you to feel more concerned about this heat wave, how much worse would it have to be?" in three formats: likelihood (e.g., "X times more likely"), frequency (e.g., "X times every 10 or 1,000 years"), or temperature (e.g., "X°F higher peak temperature") for either a moderate or severe heatwave.

We found that participants indicated a lower threshold of increased concern for moderate heatwaves than severe heatwaves, and the lowest threshold for increased concern in the likelihood format, followed by frequency and temperature. We are submitting this paper for consideration in a scholarly journal with anticipated publication in the coming year.

"I'm really hopeful for the different ways that we can continue to explore the intersection between the physical science of climate change and the way we are communicating about it... I am excited to see where this goes"

Rachel White, Mentor

Photo credit: Luis Graterol / Unsplash

DEVELOPING A CLIMATE JUSTICE EDUCATION COHORT IN TEACHER EDUCATION: NEEDS ASSESSMENT, RESOURCE BUILDING, AND MAPPING ANALYSIS

Photo: Solutions Scholars share research at the 2026 Solutions Summit.

Mentors: Sandra Scott and Douglas Adler, Curriculum and Pedagogy and Kshamta Hunter

Scholars: Balraj Rathod Curriculum Studies and Mahfida Tahniat Educational Studies

This project lays the foundation for the development of a climate justice-themed Bachelor of Education (B.Ed.) cohort for elementary teachers at UBC. The Solutions Scholars, Balraj Rathod and Mahfida Tahniat, conducted a needs assessment through curriculum mapping of current science, technology, education and math (STEM) and climate change education offerings, focusing on STEM and justice-informed curricula and pedagogies.

Using a mixed-method approach, the Scholars interviewed and surveyed teacher candidates and practicing teachers about what is important, what is needed, and what is lacking in climate justice teacher education. Their findings suggest that becoming a climate justice teacher involves building interdisciplinary approaches, centering Indigenous and multicultural perspectives, strengthening community connections, supporting student well-being, and grounding pedagogy in nature, daily life, and relational responsibility.

To make the educational research accessible, the Solution Scholars created an open resource which climate justice educators can use to learn about specialized pedagogies or theories. As a final outcome, the scholars created a B.Ed. curriculum framework outlining the different steps needed to facilitate the creation of a climate justice cohort.

"I felt really supported in ensuring that the climate knowledge and skills which I was developing would be translated into a tangible solution ... the camaraderie that I was able to develop with my partner and the team was really conducive for making this project happen."

Solutions Scholar

END-TO-END GHG EMISSIONS TRACKING OF ONLINE SERVICES

Mentors: Mohammad Shahrad, Electrical and Computer Engineering and Ivan Beschastnikh, Computer Science

Scholars: Hanan Awwad, Electrical and Computer Engineering and Ted Scott, Geography

Modern software systems consume energy, and as they become larger and more distributed, understanding their environmental impact is increasingly important. This project makes software carbon emissions easier to measure accurately, helping researchers and developers build more sustainable systems.

In this project, we developed a tool called Firefly to track carbon emissions from distributed software systems. We have progressed from simulated datasets to capture data from real software benchmarks under high-load scenarios. We implemented and evaluated carbon-tracking instrumentation under realistic processing demands to measure fine-grained energy consumption and operational carbon during system execution.

One of the main outcomes is evidence that our methodology can generate more accurate energy estimates than existing state-of-the-art approaches by dynamically adjusting measurement granularity and better aligning estimates with actual system behavior. Firefly adjusts the frequency of measurement to balance computational overhead with the accuracy of energy estimates.

We are currently validating and optimizing Firefly to minimize its own energy footprint. Next steps include expanding the evaluation to additional processing demands, conducting broader comparisons with baseline tools, and preparing a research paper for submission to a leading conference.

"The system we are building is ultimately intended to be open sourced, so the community can build on it, we can build on it ... I'm very excited to have people use it and give us feedback."

Mohammad Shahrad, Mentor

Photo credit: unsplash

ENHANCING WILDFIRE PREPAREDNESS THROUGH A MULTI-PLATFORM DIGITAL TOOL

Photo credit: unsplash

Mentors: Ifeoma Adaji, Computer Science and Niyi Asiyanbi, Geography

Scholars: Emon Sarker and Jason Xu, Computer Science

Wildfires are an increasing threat due to climate change, posing significant risks to communities, infrastructure, and ecosystems. To improve wildfire preparedness, we completed the development of broader mobile and web versions of WISEC, a wildfire planning tool originally developed for Whistler, British Columbia in collaboration with frontline fire management stakeholders.

The enhanced platform now provides preparedness information, resources, and guidance for communities across Canada, expanding beyond the original local focus. It also includes an optimized retrieval-augmented generation (RAG) chatbot that delivers location-specific, evidence-based wildfire preparedness information and recommendations.

With development complete thanks to the Solutions Scholars program, the next phase of our work will involve comprehensive user testing of both platforms to evaluate usability and preparedness outcomes, followed by a formal stakeholder review to gather feedback, identify refinements, and inform broader deployment and long-term implementation.

"The program gave me a meaningful opportunity to translate climate adaptation research into a practical, public-facing tool … The experience deepened my understanding of how technology, trusted information, and community needs intersect in climate solutions."

Solutions Scholar

ADDRESSING POLARIZATION: ARTS-LED SOCIAL INFRASTRUCTURES FOR ANTICOLONIAL CLIMATE JUSTICE

Mentors: Astrida Neimanis, English and Cultural Studies and Community, Culture and Global Studies; Onyx Sloan Morgan, Community, Culture and Global Studies and Naomi Klein, Geography

Scholars: Jamie Stevens, Interdisciplinary Studies (Sustainability) and Estraven Lupino-Smith, Geography

This project was grounded in the conviction that the central promise of climate justice — sustainable and meaningful lives for all current and future generations — is desired by all communities, but action moving towards this is hampered by a lack of opportunities to explore commonalities and hold tensions across differences.

We scoped the drivers and manifestations of social and cultural polarization, gathering research in Indigenous studies, ecofeminism, political science, public policy, environmental studies, and media studies. We identified story-telling through podcasts as a creative and arts-led approach for meaningful climate justice action in rural BC.

To share our learnings we hosted skill-sharing workshops, wrote posts ("FEELed Notes") for the FEELed Lab's online research blog, and produced a series of short podcasts. To continue the work after this project, we prepared funding applications to host intersectional collaborations for anti-colonial, feminist climate justice and to establish an ongoing FEELed Lab podcast.

"I found that the program and my research project greatly supported my own research …. in ways that are not always as easy to gain through the graduate program alone."

Solutions Scholar

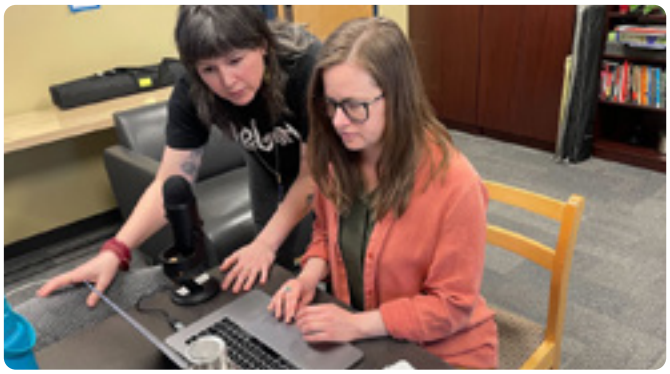

Photo: Solutions Scholars hosting a podcasting workshop, UBCO 2026.

CARBON OFFSETS: BRINGING RESEARCHERS TOGETHER

Photo: Solutions Scholar Isabella Morgante

Solutions Scholars alumni (2024/25): Lucy Binfield, Peter McCartney, and Isabella Morgante undertook an exploratory research initiative examining the use of carbon offsets in the Canadian context, with mentors Werner Antweiler, Kathryn Harrison, Gregory Paradis, and Hisham Zerriffi. The project combined three interconnected research strands to critically assess offset systems, with particular attention to forest-based projects in BC, where questions of effectiveness and permanence remain contested.

Reflecting on the project's legacy, Scholar Isabella Morgante notes that the team's work continued well beyond the program's formal end, including a full-day event held in spring 2026 that brought together experts from different universities and disciplines to brainstorm future research. As she puts it:

"There are still many avenues to explore, and I think the groundwork we laid opens the door for continued work and collaboration."

The Scholars organized an interactive workshop at the Institute for Society and Natural Resources Conference in Vancouver, which drew strong attendance and engagement, and was recognized in the conference's opening plenary. Their work also led to a professional internship opportunity in carbon markets analysis and the publication of a *Medium* think piece.

Photo credit (right): Daniel Sax

SHARING RESEARCH: SCHOLAR PUBLICATIONS

The first cohort of Solutions Scholars continue to share their scholarship through publications and presentations. Examples of the growing impact across research and practice:

Amir Hassanpour's (alumnus 2023-24) primary research interests are the emerging transportation technologies and policies that aim to create an equitable and sustainable transportation system. He published his Solution Scholars work, "Four-year trends of personal mobility devices in metropolitan Vancouver: The evolution of mode shares, speeds, and comfort in off-street paths", in the journal *Transportation Research Part A: Policy and Practice*.

He has also shared his work widely with both academic and professional audiences. Amir strongly believes that a multimodal street is a livable street and creates opportunities for all and hopes that his research makes a positive impact on all people and the communities in which they live.

He was supervised by Alexander Bigazzi and Julia Harten. He now works as a Project Engineer at the Capital Regional District in Victoria, BC.

Photo credit: UBC

Daniel Sax's (alumnus 2023-24) research interests sit at the intersection of urban forestry and environmental justice. His work critically examines urban greening practices and explores how innovative, community-centered research methods can support more equitable and just outcomes for residents. His recent article, "Learning on the Go: Experiences Researching Urban Stewardship Practices Through Walking Interview," published in the *International Journal of Qualitative Methods*, reflects the lasting impact of his Solutions Scholar research.

He was supervised by Lorien Nesbitt and Michael Brauer, and is currently a PhD candidate in the Faculty of Forestry and Environmental Stewardship.

CLIMATE CONVERSATIONS

The Climate Conversation series continued this year as an informal way for UBC researchers to connect on pressing climate topics, in person and online, across both campuses. At these events, hosts shared their expertise on topics including: using different research approaches to advance climate action; how fossil fuel supply in Canada is shifting under evolving mandates, weighing recent progress against pushback and reversals; and AI's potential for advancing climate solutions alongside the risks of its growing energy and water demands, drawing on Solutions Scholars projects tackling emissions tracking and wildfire preparedness. Attendees had the opportunity to share their own experiences and engage in two-way dialogue.

CONNECTING WITH PARTNERS

Our conversations carried into the new year with sessions exploring policy, community and the human dimensions of climate research with invited guests from industry and visiting faculty. In January, a panel examined the state of electric vehicle uptake in Canada, weighing policy incentives and infrastructure gaps against the barriers of affordability and critical mineral supply chains, and considered how EV policy gets implemented alongside communities and different levels of government. In May, hosts explored relational approaches to climate research engagement, considering how researchers build trust and connection with research partners and community members. A June session turned to materials and the sustainability transition, examining the intersection of global human and physical Earth systems and what it means for how we think about resource use.

Megan Lohmann, CEO Community Energy Association, and UBC's Drs. Milind Kandlikar and Werner Antweiler explore EV policy and action, January 2026.

Carol Liao, Robert Godin, Hisham Zerriffi, Kate White, and Sean Smukler at UBC Vancouver's COP30 event November 2025.

CLIMATE VOICES

This year the Collective welcomed two leading voices in climate science to campus. In March, Professor Andrew Dessler (Texas A&M) presented The Climate Brink: On the Brink of Disaster and the Brink of Salvation, examining the tension between climate reality and the political power of fossil fuel interests, how that friction plays out in the public fight over the science behind the US EPA's endangerment finding, and how researchers can coordinate responses to policy proposals. In April, climate scientist and author Kate Marvel took the stage for UBC Reads Sustainability, presented jointly with the UBC Sustainability Hub, drawing on her book Human Nature to explore the science and stories of a changing planet through nine different emotions, from grief and fear to wonder and hope. Together, the two events offered UBC audiences both a clear eyed look at the politics standing in the way of climate action, and a reminder of the human feeling underneath it.

POLICY AND PRACTICE

Policy and law remained central to CSRC programming this year, particularly around the international frameworks shaping climate action. The year opened with a presentation from Dr. David Boyd, former UN Special Rapporteur on human rights and the environment and Professor in the Institute for Resources, Environment and Sustainability. Dr. Boyd unpacked landmark advisory opinions issued in July 2025 from the Inter American Court of Human Rights and the International Court of Justice which both affirmed legal obligations to address the climate crisis, and considered their implications for Canada's next Nationally Determined Contribution and ongoing youth-led litigation. In the fall, we held events at both campuses to discuss the COP30 negotiations: a Climate Conversation in Kelowna featuring PhD candidate Thais Ayres Rebello, who attended COP30 as part of UBC's official delegation, and Professor John Janmaat, as well as a panel as part of UBC Vancouver's Negotiation to Innovation: Advancing Climate Action Through Research and Learning day.

CATALYST AWARDS

The Collective is excited to share the recipients of the 2026 Climate Catalyst Awards, which provide seed funding to grow and strengthen collaborative climate solutions research across disciplines at UBC.

EARLY CAREER RESEARCHER WINNERS

Catalyst awards of $10,000 each were awarded to:

Adeniyi Asiyanbi
Faculty of Arts and Social Sciences

Dr. Adeniyi Asiyanbi studies climate justice at the intersection of climate change and forests, examining both how forests are being reshaped into spaces for carbon offsetting and how wildland-urban interfaces create wildfire risk. His project tackles a striking gap: how wildfires affect racialized immigrants in British Columbia and Alberta, a fast-growing population whose risk perceptions and adaptation barriers remain largely understudied. With the award, Dr. Asiyanbi aims to map affected communities and synthesize existing evidence, while leading consultations with community leaders across four major wildfire sites. These early relationships will shape locally relevant tools and resources for building wildfire resilience and adaptive capacity. The work lays the groundwork for future research directions and new partnerships with collaborators both inside and beyond UBC.

McKenzie Kuhn
Faculty of Arts

Dr. McKenzie Kuhn investigates how climate change is reshaping carbon cycling in northern ecosystems, monitoring how greenhouse gases are stored, transported, and released from Arctic ecosystems as the region warms. Her project targets retrogressive thaw slumps, rapidly expanding permafrost features that release previously stored carbon-rich material to the environment. Upon release, this carbon can be transformed into greenhouse gasses or transported downstream, ultimately increasing regional and global carbon emissions. Working with PermaC Land and Environment Inc, Dr. Kuhn's group will use field-based techniques to quantify carbon storage and emissions at permafrost thaw sites with and without PermaC's innovative mitigation technology. The ultimate goal of this research is to produce empirical evidence for the carbon-avoidance potential of permafrost thaw slump mitigation efforts as a natural climate solution.

Karthik Akkiraju
Faculty of Applied Science

Dr. Karthik Akkiraju works at the intersection of materials design, environmental assessment, well-being, and public policy, developing frameworks that define the material resources needed for a good life within equitable ecological limits. His project shifts from his bottom-up work on individual lifestyles to a top-down question: have real-world policies actually reduced material demand and emissions while improving well-being? Focusing on North American cities, he will compile and evaluate city-level demand-side policies, and assess their measurable outcomes. The result will be an open-access dataset of demand-side climate solutions, paired with an op-ed and roadmap for city planners. Developed with Dr. M.V. Ramana (School of Public Policy and Global Affairs), the project formalizes a new UBC collaboration and seeds future grant applications.

KNOWLEDGE EXCHANGE WINNERS

Catalyst awards of $2,500 - $5,000 each were awarded to:

BUILDING A CLIMATE ADVERTISING DASHBOARD: A UBC–TMU KNOWLEDGE EXCHANGE COLLABORATION

David Tindall
Faculty of Arts

Heidi Tworek
Faculty of Arts

This project brings together UBC's Climate Disinformation and Obstructionism Research Cluster and the Social Media Lab at Toronto Metropolitan University to lay the groundwork for a public dashboard tracking Facebook and Instagram ads on climate change and climate policy. The tool aims to surface key advertisers, common messaging frames, ad spend, and audience reach, turning complex advertising data into insights the public can actually use. The team will host a fall 2026 workshop at UBC featuring Social Media Lab director Anatoliy Gruzd, who will demonstrate the Lab's existing migration and dashboard as a working model. A pre-workshop focus group with government, civil society, and First Nations representatives will help shape the design, and a student training session will round out the visit. The work will produce a policy report and an op-ed, while setting up a larger monitoring initiative. Additional partners: Laura Nelson (Associate Professor, Department of Sociology), Chris Tenove (Assistant Director, Centre for the Study of Democratic Institutions).

CLIMATE CHANGE EDUCATION: AN INTERNATIONAL PERSPECTIVE

Robert VanWynsberghe
Faculty of Education

Will Valley
Faculty of Land and Food Systems

This project gathers international scholars and practitioners working on community-based climate action, food security, and just transitions, and turns their expertise into teaching resources for UBC students, educators, and community partners. Through professionally recorded interviews and live Q&A sessions, it makes globally diverse climate solutions accessible, with particular attention to Global South and Indigenous knowledge systems. Following a successful pilot, the Catalyst Award will contribute to advancing a larger two-year speaker series. The award will directly support two featured speakers in the series: Dr. Pierre Paul Audate of the Université de Montréal, whose work spans food security and urban agriculture across Quebec, Haiti, and Ecuador; and Kailea Frederick, a Native Hawaiian climate educator working on just transitions and policy change. The team will produce two video modules and two interactive sessions, then embed them into graduate courses, teacher professional development, and broader programming. The goal is to move past one-way information sharing toward genuine dialogue, helping develop graduates ready to advance low-carbon and resilient futures.

COORDINATING CLIMATE-RELEVANT POLICY ENGAGEMENT WITHIN THE CENTRE FOR SUSTAINABLE FOOD SYSTEMS

Sean Smukler
Faculty of Land and Food Systems

Juliet Lu
Faculty of Forestry and Environmental Stewardship

With Canada's Agricultural Policy Framework nearing the end of its term, this project seizes a timely opening to keep climate mitigation, adaptation, and resilience central to the next framework. Researchers at the Centre for Sustainable Food Systems produce extensive climate-relevant work with clear policy implications, but the Centre lacks shared infrastructure to translate that research into coordinated, well-timed engagement. The project addresses this through a short facilitated workshop series. The first session will identify priority policy issues and clarify how the Centre's research can best contribute to climate policy solutions. The second will put the strategy into practice by coordinating a Centre response to the federal consultation on the next framework. Expected outcomes include a Centre-wide policy engagement strategy, a set of practical tools and reference materials, and a draft federal policy response ready for submission. The work builds collective capacity rather than relying on scattered individual efforts. Developed with Dr. M.V. Ramana (School of Public Policy and Global Affairs), the project formalizes a new UBC collaboration and seeds future grant applications. Additional partners: Risa Sargent (Associate Professor, Faculty of Land and Food Systems).

Knowledge Exchange Winners continued:

GROUNDED INFRASTRUCTURE SYMPOSIUM: CO-CREATING CLIMATE RESILIENCE WITH COMMUNITIES

Bavisha Kalyan
Faculty of Applied Science

Theodore Lim
Faculty of Applied Science

This project convenes a UBC symposium and workshop for researchers, practitioners, and community partners to tackle a gap in community-based engineering for climate-resilient infrastructure. Civil and environmental engineering offers little structured space to examine how participatory approaches shape the design, building, and long-term resilience of infrastructure, especially for communities that have historically been left out of decisions about the systems they depend on. Research shows that meaningful participation produces infrastructure that works better and earns greater public trust, which matters as communities face growing climate variability. Ahead of the symposium, the core team will complete a systematic review of community-based and participatory engineering approaches, including Indigenous research methods. The symposium workshop will then explore key gaps, opportunities, and the resources needed to move this work forward. Outputs will include a white paper setting priorities for the field and stronger interdisciplinary collaborations to support future funding proposals. Additional partners: Danilo Caron (UBC Civil Engineering).

ENGAGEMENT, AND KNOWLEDGE DISSEMINATION OF MITIGATION STRATEGIES FOR THE IMPACT OF CLIMATE CHANGE ON HEALTH

Janny Xue Chen Ke
Faculty of Medicine

Matthias Görges
Faculty of Medicine

Climate change is already disrupting healthcare and harming patients, from extreme heat and wildfire smoke to storms and flooding that cut power and limit access to surgical and emergency care. British Columbia saw 619 deaths directly tied to the 2021 heat wave. Yet, responses have stayed siloed, with no shared framework for prioritizing the adaptations that protect quality of care, and patients and caregivers have largely been left out of the conversation. This project forms a multidisciplinary working group to identify the highest-priority vulnerabilities and strategies, drawing on both research and lived experience. The team will host a hybrid Café Scientifique bringing together clinicians, patients and caregivers, policymakers, engineers, Indigenous leaders, and climate scientists to review the findings and build consensus on how to respond. The work will produce a review manuscript and public-facing materials to share what they learn.

image: UBC community members gather outdoors for a Climate Conversation, June 2026.

CLIMATE RESEARCH AT UBC: NEW FUNDING IN 2025/26

From internal competitions to national and international awards, UBC researchers are engaging in climate solutions research from across disciplines. This list features only a few highlights from the diverse range of projects funded during 2025/2026.

NSERC GRANTS 2026

Discovery Grants were awarded to researchers exploring the relationship between oceans and climate, including Dr. Villy Christensen (Institute for the Oceans and Fisheries) **Evaluating Impact of Climate Change for the Global Ocean** and Dr. Stephanie Waterman (Science) **Understanding ocean mixing to better understand and predict the effects of climate change.**

The built environment continues to be a critical area of climate solutions research at UBC, including Discovery Grants to Dr. Kasun Hewage (School of Engineering) **Planning and development of climate-resilient and occupant-centric net-zero-energy building clusters**, and Dr. Omar Swei (Civil Engineering) **Adaptive Pavement Asset Management for Climate Resilience and Sustainability**.

Several researchers are exploring land management and agriculture including a five-year Alliance grant led by Dr. Khanh Dao Duc (Mathematics) exploring **Closing the Gap in Agricultural Climate Action: Harmonizing Data, Enhancing Emission Models, and Empowering Canadian Farmers**. Discovery Grants have been awarded to Dr. Tianjia Liu (Geography) with **Mapping and modeling wildfires and smoke under land management interventions and climate extremes**, Dr. Jonathan Proctor (Land and Food Systems) with **The influence of climate change on global agricultural productivity: the roles of heat, water, light, and adaptive technologies** and Dr. Coralie Salesse-Smith (Botany) with **Understanding how to optimize photosynthesis to engineer climate-resilient crops**.

Researchers continue to develop models and tools to advance climate science and solutions, including Dr. Yan Song (Statistics) with **Climate Data Emulation, Fusion, and Prediction** and Dr. Riddhi Dave (Earth, Ocean and Atmospheric Sciences) with **Constraining reliable models of lithospheric architecture to advance critical mineral exploration, renewable energy potential, and climate change models**.

Energy systems research continues in the Faculty of Applied Science, including Discovery Grants awarded to Dr. Johan Foster (Chemical and Biological Engineering) with **Sustainable Carbon Interfaces for Environmental and Energy Technologies**, Dr. Arman Bonakdarpour (Chemical and Biological Engineering) with **Advanced Na-based Battery Materials and Systems for Energy Storage in Northern Canada and Harsh-Temperature Environments**, and Dr. Juri Jatskevich (Chemical and Biological Engineering) **Enabling Future Energy Systems with Power Hardware-In-the-Loop Simulations**.

NEW FRONTIERS 2026

New Frontiers in Research Funding Exploration stream target opportunities for Canadian researchers to conduct innovative high-risk, high-reward interdisciplinary research. In 2026, three awards granted to UBC researchers focussed on climate solutions.

Dr. Kiana Amini (Materials Engineering) leading **A Breathable Future: Engineering Sustainable Biomass-Derived CO_2 Capture Technologies Informed by Social Science Insights, Environmental Assessments, and Economic Analysis** with co-applicants Drs. Karthik Akkiraju (Materials Engineering), Andrew Jorgenson (Sociology), and Kwang Ho Kim (Wood Science).

Drs. Bhushan Gopaluni and Naoko Ellis (Chemical and Biological Engineering) leading **Hybrid Multifunctional Materials for Reactive Carbon Capture: A Multiscale Artificial Intelligence Approach** with co-applicant Dr. Eva Nichols (Chemistry).

Drs. Mauricio Ponga de la Torre (Mechanical Engineering) and Jian Liu (School of Engineering) leading **Quantum Tunneling Interfaces for Ultrafast Charging Batteries**.

RESEARCH CLUSTERS (2026-2027)

Two new UBC Research Clusters were announced that directly address climate solutions.

Dr. Christine Chen (Electrical and Computer Engineering) is leading **ARISE: Accelerating Research Interdisciplinarity in Sustainable Electricity**. This cluster is positioned at the convergence of technical and socioeconomic approaches for decarbonization. The vision is an interdisciplinary research cluster across engineering, science, and social science that will catalyze student training, industry practice, and public policy aimed at economy-wide decarbonization, proliferation of artificial intelligence, and an equitable energy transition.

Dr. Liv Yoon (Kinesiology) is leading the **Urban Climate & Health Collective**. This cluster will build an interdisciplinary research and action hub to advance understanding of how extreme heat and air quality affect health and well-being. Through collaboration the cluster will foster community-engaged research and generate equitable, innovative, and community-informed solutions for climate resilience.

SSHRC GRANTS 2025 / 2026

SSHRC funding supports social sciences and humanities research across disciplines. In 2026, Insight Grants were awarded to UBC researchers across multiple disciplines.

Research exploring questions related to transportation, from faculty in the Sauder School of Business, including Dr. Werner Antweiler and co-applicant Dr. Guillermo Marshall Manriquez with **The Impacts and Cost-Effectiveness of Electric Vehicle Adoption Policies in BC**, and Dr. Anming Zhang with **Air Transport, Economic Growth, and Emission Reduction**.

Research focussed on barriers and opportunities to climate-solutions such as Dr. Jessica Dempsey (Arts) and Dr. Rashid Sumaila (Institute for the Oceans and Fisheries; Public Policy and Global Affairs) with **Beyond the status quo: Political economic barriers to reform and pathways for change in BC's extractive economy** and Drs. Simon Donner (Geography; Institute For Resources Environment And Sustainability) and Jiaying Zhao (Psychology; Institute For Resources Environment And Sustainability) with **Urban Future Walks: Can guided tours promote support for climate solutions and positive climate engagement in urban environments?**

Insight Development Grants were awarded to Dr. Patrick Baylis for **Climate Risks, Markets, and Adaptation in Agriculture** and Dr. Seok Min Moon with **Mandatory Carbon Disclosure Impacts on Firms and Workers**, both from the Vancouver School of Economics.

CANADA FOUNDATION FOR INNOVATION

The Canada Foundation for Innovation supports research infrastructure projects. In 2025 and 2026 several awards were presented to UBC faculty addressing climate solutions.

Dr. Haibo Feng's (Wood Science) **Infrastructure for innovative building materials and systems toward zero carbon buildings**, Dr. Jennifer Grenz's (Forest Resources Management; Land and Food Systems) **Relational restoration after climate event unit**, Dr. Gregory Paradis's (Forest Resources Management) **Cumulative effects of Climate Change, Anthropogenic and Natural Disturbances on forest Ecosystem Services (CCCANDiES)**, Dr. Isla Myers-Smith (Forest and Conservation Sciences) **Capturing High-latitude Landscape Responses to Climate Change**.

Dr. McKenzie Kuhn's (Geography) **Advanced infrastructure for studying greenhouse gas cycling in under-represented Arctic-boreal ecosystems**.

WALL RESEARCH AWARDS

The Wall Research Awards push forward innovative faculty and student research tackling major sustainability challenges in British Columbia and around the world.

In 2025, several awards focussed on the energy transition, including **Securing a community-led, sustainable, and resilient energy future for BC**, led by Dr. Tarun Khanna (Lead PI) (SPPGA), Dr. Christine Chen (Electrical and Computer Engineering) and Dr. Dominic Liao-McPherson (Mechanical Engineering) and **BATTERY-MAP (Management, Assessment & Policy): A Strategic Framework for Second-Life and Recycling of EV Lithium-Ion Batteries**, led by Dr. Eric Lees (Lead PI) (Chemical and Biological Engineering), Dr. Elod Gyenge (Chemical and Biological Engineering), and Dr. Mauricio Ponga (Mechanical Engineering).

Individual Research Awards included **SHADE: Solar Hybrid Air-Conditioning for Decarbonized Environments** with Dr. Alexandra Tavasoli (Mechanical Engineering).

A Wall Fellowship was awarded to Dr. Melissa McHale (Forest Resources Management) for **Rising Heat, Roaring Flames, and Waning Waters: Building a Climate-Resilient Research Hub for British Columbia**.

CANADIAN INSTITUTES OF HEALTH RESERACH

CIHR has supported Brittany Bingham (Medicine) (PI) and Shannon Waters (Population and Public Health) with their project **When the Land Speaks: BC First Nations Sovereignty, Language, and Public Health Governance in Climate Emergencies**.

Dr. Sarah Henderson (Population and Public Health) is leading the project **Understanding the public health impacts of evacuations due to climate-related disasters: A mixed methods approach**.

ADDITIONAL RESEARCH FUNDING

Dr. Pasang Sherpa (Asian Studies) has been awarded funding from the Wellcome Trust (UK) for **Development of Policy Products on Indigenous Knowledges in Global Scientific and Climate Policy Making Processes**.

The Canada First Research Excellence Fund with principal investigatorsDr. Walter Mérida (Mechanical Engineering) and Dr. Naoko Ellis (Chemical and Biological Engineering) added three projects in 2025/2026 including **Worldviews in Energy and Climate Engagement and Aligning Community Priorities and Technical Pathways for Renewable Hydrogen in Northern BC**.

The Simons Foundation has awarded Dr. Allan Bertram (Chemistry) for **SOLACE: Sustainable Organic and Inorganic Laboratory Aerosols for Climate Engineering**.

LOOKING FORWARD

This is a pivotal moment in Canada's history. We are facing geopolitical and economic pressures unlike anything since World War II. Climate change and extreme weather events continue to threaten homes, lives, and livelihoods. At the same time, much of the world is rapidly transitioning to clean energy, and we risk being left behind.

Canada needs to chart a path to a low carbon future to help slow climate change, to benefit from the clean energy revolution, and to reshape the economy. It needs a new roadmap that pushes the conversation about building a future beyond fossil fuels, one in which future prosperity depends on electrification and exports tied to the global clean energy revolution.

The Future Canada Initiative was created to help UBC researchers collectively respond to this moment. The initiative brings together teams of UBC faculty and graduate students through the 2026-2027 Solutions Scholar program to develop a multi-sector assessment report, following a coordinated process modeled on that of the Intergovernmental Panel on Climate Change. It is an opportunity for students and faculty to lend their expertise to the pressing challenges of today, to identify key knowledge gaps, and to catalyse new solutions-oriented research projects.

Each team of faculty and scholars will be identifying a vision for the future of a chosen area or set of activities, an assessment of current actions, policies and technologies, the current obstacles to accelerated action, recommended actions, and pressing gaps and research needs. Cross-cutting themes including Indigenous reconciliation, justice, adaptation co-benefits, material demands and human health implications will be addressed within individual chapters.

As part of their fellowships, the 2026-27 Solutions Scholars will work collaboratively with the author teams on the assessment, participating in research activities, expert dialogues, data synthesis, and report writing. In addition, the Solutions Scholars will take part in professional development opportunities as a cohort.

Faculty recruitment for the initiative began in the spring, with an open call for participation and for proposed subject areas. From dozens of applications, six subject areas and initial author teams were identified:

Buildings (heating and cooling, efficiency)

- Milind Kandlikar (Institute for Resources, Environment and Sustainability; Public Policy and Global Affairs)
- Karthik Akkiraju (Materials Engineering)
- David Boyd (Institute for Resources, Environment and Sustainability)

Clean Power (electricity generation and transmission)

- Joshua Brinkerhoff (School of Engineering)
- Holly Caggiano (Community and Regional Planning)
- Christine Chen (Electrical and Computer Engineering)
- Justin Zhang (Electrical and Computer Engineering)

Forestry and Agriculture

- Hisham Zerriffi (Forest Resources Management)
- John Janmaat (Economics, Philosophy and Political Science)
- Navin Ramankutty (Institute for Resources, Environment and Sustainability)

Heavy Industry (including oil and gas)

- Kathryn Harrison (Political Science)
- Alexandra Tavasoli (Mechanical Engineering)
- Chris Bataille

Medium and Heavy-Duty Transportation (freight, rail, marine, aviation)

- Amanda Giang (Mechanical Engineering; Institute for Resources, Environment and Sustainability)
- Pat Kirchen (Mechanical Engineering; Clean Energy Research Centre)

Passenger Transportation (electric vehicles, public transit)

- Werner Antweiler (Sauder School of Business)
- Sumeet Gulati (Land and Food Systems)

These research teams are only the initial foundation for this large collective effort. There will be opportunities for additional UBC researchers to join over the 2026-27 academic year as contributing authors, reviewers, and participants in expert dialogues. The initiative may also expand in future years to include other activities and sectors.

In addition to Future Canada, the CSRC is also developing new programming at both the Vancouver and Okanagan campuses for the 2026-27 academic year, including:

- Kickoff events in September and events in January to provide an opportunity for the UBC research community to gather around climate solutions
- Climate Conversations throughout the year to spark conversation about timely climate and energy issues
- A second round of Catalyst Awards to support faculty in developing fresh climate-solutions focused research ideas and in knowledge translation
- Fresh Graduate Student Programming to provide professional development opportunities aimed at preparing the next generation of climate researchers

Stay tuned for more!

2023-2026 FUNDING PARTNERS

- Allard School of Law (UBCV)
- Faculty of Applied Science (UBCV and UBCO)
- Faculty of Arts (UBCV)
- Faculty of Education (UBCV and UBCO)
- Faculty of Forestry and Environmental Stewardship (UBCV)
- Faculty of Land and Food Systems (UBCV)
- Faculty of Management (UBCO)
- Faculty of Medicine (UBCV)
- Faculty of Pharmaceutical Sciences (UBCV)
- Faculty of Science (UBCV)
- Irving K. Barber Faculty of Arts and Social Sciences (UBCO)
- Irving K. Barber Faculty of Science (UBCO)
- Sauder School of Business (UBCV)
- Office of the Vice-President, Research & Innovation

Additional funding provided through the Collaborative Research Mobility Awards, the UBC Work Learn Program, and the Pacific Institute for Climate Solutions.

STEERING COMMITTEE

- Director: Simon Donner, Professor, IRES (Science) and Geography (Arts)
- Sally Aitken, Professor, Forest and Conservation Sciences (Forestry and Environmental Stewardship)
- Werner Antweiler, Associate Professor, Strategy and Business Economics Divion (Sauder School of Business)
- Michael Brauer, Professor, School of Population and Public Health (Medicine)
- Naoko Ellis, Professor, Chemical and Biological Engineering (Applied Science)
- Robert Godin, Assistant Professor, Chemistry (Irving K. Barber Faculty of Science)
- Sumeet Gulati, Professor, Food and Resource Economics (Faculty of Land and Food Systems)
- Kathryn Harrison, Professor, Political Science (Arts)
- John Janmaat, Professor, Economics, Philosophy and Political Science (Irving K. Barber Faculty of Arts and Social Sciences)
- Milind Kandlikar, Professor, IRES (Science) and School of Public Policy and Global Affairs (Arts)
- Carol Liao, Associate Professor, (Peter A. Allard School of Law)
- Derek Gladwin, Associate Professor, Department of Language and Literacy Education (Education)