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# Mitchell Dickau

## Curriculum Vitae

*Department of Geography, Planning and Environment, Concordia University*  
*1455 de Maisonneuve Blvd. W., Montréal, Québec, H3G 1M8, Canada*  
email: Mitchell.dickau@mail.concordia.ca — phone: (514) 430-3075

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## 1 Affiliation

### Current Affiliations

**Concordia University**, Montreal, Canada September 2017 – Present  
Department of Geography, Planning and Environment  
• Post-doctoral fellow – Matthews Climate Lab: CSIM

## 2 Educational History

1. **Concordia University**, Montreal, Canada September 2020 – January 2026  
Department of Geography, Planning and Environment  
• PhD in Geography, Planning, and Environmental Studies  
• Date Awarded: January 2026  
• Supervisor: Dr Damon Matthews  
• Thesis Title: *Informing climate policy through advancements in our understanding of the Earth system response to emissions, temperature overshoot, and temporary carbon storage*
2. **Concordia University**, Montreal, Canada September 2019 – August 2020  
Department of Geography, Planning and Environment  
• Master of Science in Environmental Science  
• Date Awarded: Fast-tracked to PhD  
• Supervisor: Dr Damon Matthews
3. **Concordia University**, Montreal, Canada September 2013 – May 2018  
• Bachelor of Arts Honours in Human Geography, Minor in Sociology  
• Date Awarded: May 2018  
• Honours Thesis Title: *Daily weather variability and ice conditions: How do weather and climate affect outdoor skating and hockey in Montréal?*  
• Supervisor: Dr. Damon Matthews

## 3 Scholarly and Professional Contributions

### Publications in Refereed Journals

## PUBLICATIONS AND CITATIONS SUMMARY

- **Number of refereed journal publications:** 6
- **Total citations:** 206
- **h-index:** 5

## PUBLISHED / IN PRESS

1. **Dickau, M.**, K. Zickfeld, & Matthews, H. D. Irreversible climate changes driven by degree-years of temperature overshoot. *Communications Earth Environment*. (Accepted, 2026). <https://doi.org/10.21203/rs.3.rs-7603499/v1>
2. **Dickau, M.** & Matthews, H. D. Temporary land carbon storage can avoid slow-responding climate changes. *Nature Communications*. (Under Review, 2026). <https://doi.org/10.21203/rs.3.rs-8725232/v1>
3. Wynes, S., Davis, S.J., **Dickau, M.** et al. Perceptions of carbon dioxide emission reductions and future warming among climate experts. *Communications Earth Environment*. 5, 498 (2024). <https://doi.org/10.1038/s43247-024-01661-8>
4. Wynes, S., **Dickau, M.**, Kotcher, J. E., Thaker, J., Goldberg, M. H., Matthews, H. D., & Donner, S. D. (2022). Frequent pro-climate messaging does not predict pro-climate voting by United States legislators. *Environmental Research: Climate*, 1(2), 025011. <https://doi.org/10.1088/2752-5295/aca8c4>
5. **Dickau, M.**, Matthews, H. D., & Tokarska, K. B. (2022). The Role of Remaining Carbon Budgets and Net-Zero CO2 Targets in Climate Mitigation Policy. *Current Climate Change Reports*. <https://doi.org/10.1007/s40641-022-00184-8>
6. Matthews, H. D., Zickfeld, K., **Dickau, M.**, MacIsaac, A. J., Mathesius, S., Nzotungicimpaye, C.-M., & Luers, A. (2022). Temporary nature-based carbon removal can lower peak warming in a well-below 2 °C scenario. *Communications Earth & Environment*, 3(1), 65. <https://doi.org/10.1038/s43247-022-00391-z>
7. **Dickau, M.**, Matthews, D., Guertin, É., & Seto, D. (2020). Projections of declining outdoor skating availability in Montreal due to global warming. *Environmental Research Communications*, 2(5), 051001. <https://doi.org/10.1088/2515-7620/ab8ca8>

## Non-Refereed Publications

1. Matthews, H. D. and Dickau, M. (2024) Réchauffement planétaire : l'hiver canadien n'est plus ce qu'il était. *The Conversation*. February 2024.
2. Matthews, H. D. and Dickau, M. (2024) How global warming is reshaping winter life in Canada. *The Conversation*. February 2024.

## Presentations, Seminars and Workshops

### INVITED PRESENTATIONS AND SEMINARS

- **Climate change: An introduction and a look ahead**

- Invited speaker at for seminar series, Dawson College, Enriched Science Program, September 2023.
- **Implications of the remaining carbon budget or SDG13- Climate Action**
  - Guest lecturer, Concordia University undergraduate level course, *LOYC 398: Perspectives on the United Nations Sustainable Development Goals*, October 2021.
- **Introduction to Climate Modelling and Carbon Budgets**
  - Guest lecturer, Bishop's University undergraduate level course, *ESG 100: Introduction to Environmental Science*, September 2020.
- **Climate Science Workshop for Climate Activists**
  - Panel member, Concordia University, September 2021.
- **Introduction to Climate Data Visualization Using R**
  - Guest lecturer, Concordia University Masters level course, *HENV 660: Climate change*, September 2020.
- **Climate Science Workshop for Climate Activists**
  - Panel member, Concordia University, September 2020.
- **Climate Change Workshop for FACE high school**
  - Co-organizer & presenter, Concordia University, November 2019.
- **Successful strategies for conducting research**
  - Invited presenter, Concordia University Undergraduate class, November 2018 & October 2020.
- **Climate Change Debate Event**
  - Co-organizer & presenter, Concordia University, April 2018.

## ORAL CONFERENCE PRESENTATIONS

1. **The proportionality between tonne-years of temporary carbon storage and inertial climate variables**
  - Authors: **Mitchell Dickau** and H. Damon Matthews
  - European Geophysical Union General Assembly, Vienna, Austria, May 2025
2. **Effect of land carbon accounting methods on the climate response to cumulative CO<sub>2</sub> emissions**
  - Authors: H. Damon Matthews, Kirsten Zickfeld, Alexander MacIsaac, **Mitchell Dickau**
  - European Geophysical Union General Assembly, Vienna, Austria, May 2025
3. **Projections of declining outdoor skating availability in Montreal due to global warming**
  - Authors: **Mitchell Dickau** and H. Damon Matthews
  - 27<sup>th</sup> International Union of Geodesy and Geophysics General Assembly, Montreal, Canada, 2019.
4. **Projections of declining outdoor skating availability in Montreal due to global warming**
  - Authors: **Mitchell Dickau** and H. Damon Matthews
  - Sustainability in the City and Beyond, Montreal, Canada, 2019

## POSTER PRESENTATIONS

1. **Application of tonne-year accounting to track the durability and climate impact of temporary land carbon storage**
  - Authors: H. Damon Matthews, Amy Luers, and **Mitchell Dickau**
  - American Geophysical Union, Washington DC, USA, December 2024
2. **Investigating the path dependence of climate changes in a 200-member ensemble of overshoot scenarios**
  - Authors: **Mitchell Dickau** and H. Damon Matthews
  - European Geophysical Union General Assembly, Vienna, Austria, May 2024
3. **Temporary nature-based carbon removal can lower peak warming in a well-below 2°C scenario**
  - Authors: H. Damon Matthews, Kirsten Zickfeld, **Mitchell Dickau**, Alexander MacIsaac, Sabine Mathesius, Claude-Michel Nzotungicimpaye, Amy Luers
  - European Geophysical Union General Assembly, Vienna, Austria, May 2022
4. **Are the planned rates of CO<sub>2</sub> sequestration in the IPCCs aggressive mitigation scenarios achievable and sustainable?**
  - Authors: Mitchell Dickau
  - Sustainability and the Climate Crisis, Montreal, Canada, March 2020

## 4 Grants, Scholarships, Awards, and Honours Received

### Research Grants Awarded

1. **NSERC PGS-D Doctoral Scholarship**
  - *Granting Agency:* Natural Sciences and Engineering Research Council of Canada
  - *Title:* The Effect of Aggressive Mitigation of non-CO<sub>2</sub> Emissions on the Effective Transient Climate Response to Cumulative CO<sub>2</sub> Emissions
  - *Principle Investigator:* Mitchell Dickau
  - *Value:* \$63,000      *Period Held:* 2021-2024.
2. **NSERC CGS Master's Scholarship**
  - *Granting Agency:* Natural Sciences and Engineering Research Council of Canada
  - *Title:* The Effect of Aggressive Mitigation of non-CO<sub>2</sub> Emissions on the Effective Transient Climate Response to Cumulative CO<sub>2</sub> Emissions
  - *Principle Investigator:* Mitchell Dickau
  - *Value:* \$17,500      *Period Held:* 2020-2021.
3. **FRQNT - Master's program of Scholarship for 2nd cycle (B1X)**
  - *Granting Agency:* Fonds de recherche Nature et technologies Quebec
  - *Title:* L'effet de la mitigation des émissions de gaz autres que le CO<sub>2</sub> sur les budgets carbone globaux
  - *Principle Investigator:* Mitchell Dickau
  - *Value:* \$23,334      *Period Held:* 2021-2022.

#### 4. Project Grant

- *Granting Agency:* Peter Gilgan Foundation
- *Title:* #PledgeToLead: a new website to support ambitious individual climate pledges
- *Principle Investigator:* H. Damon Matthews
- *Value:* \$25,000      *Period Held:* 2019.

#### 5. Sustainability Action Fund Grant

- *Granting Agency:* Sustainability Action Fund, Concordia University
- *Title:* Mobilizing individual climate action
- *Principle Investigator:* Alexander MacIsaac
- *Value:* \$8,000      *Period Held:* 2018-2019.

### Awards and Honours Received

#### 1. Graduate Research Communicator of the Year award for 2024

- *Awarded By:* Concordia University as a part of President's Media Outreach Awards
- *Date Awarded:* June 2025

#### 2. Faculty of Arts and Science Graduate Fellowship Scholarship (Doctoral)

- *Awarded By:* Concordia University
- *Date Awarded:* August 2020
- *Value:* \$56000      *Period Held:* 2020-2024

#### 3. Faculty of Arts and Science Graduate Fellowship Scholarship (Masters)

- *Awarded By:* Concordia University
- *Date Awarded:* September 2019
- *Value:* \$7000      *Period Held:* 2019-2020

#### 4. Hydro-Quebec Master's Scholarship

- *Awarded By:* Hydro Quebec
- *Date Awarded:* January 2020
- *Value:* \$5000      *Period Held:* 2020

#### 5. Second Prize in Undergraduate Oral Presentation for the Sustainability in the City and Beyond Conference

- *Awarded By:* Concordia University
- *Date Awarded:* March 2019

#### 6. Top 1% Scholar - Faculty of Arts and Science

- *Awarded By:* Concordia University
- *Date Awarded:* October 2017

#### 7. Dean's List

- *Awarded By:* Concordia University
- *Date Awarded:* May 2015, 2016, 2017 & 2018

#### 8. Concordia University Shuffle ICB Grant

- *Awarded By:* Concordia University
- *Date Awarded:* September 2017

## 5 Teaching

### a. Courses Taught

1. Geography 272 – The Natural Environment: Air and Water
  - Department of Geography, Planning and Environment, Concordia University.
  - Introductory level course (first-year) undergraduate course (125 students). Winter 2023.

## **b. Lab Instruction as Teaching Assistant**

1. GEOG 264 – Intro to Scientific Programming in R. Winter 2020.
  - Undergraduate class. Department of Geography, Planning and Environment, Concordia University
2. HENV 660 – Climate change. Fall 2019.
  - Graduate class. Department of Geography, Planning and Environment, Concordia University
3. GEOG 498 – Geospatial Programming in Python. Winter 2021.
  - Undergraduate class. Department of Geography, Planning and Environment, Concordia University

## **6 Service and Professional Activities**

### **a. Media and Public Relations**

#### MEDIA COVERAGE

##### **1. General Media Activities**

- Interviewed by Agence France Presse (AFP) article on outdoor skating in Canada January 24<sup>th</sup>, 2024
  - *Warming world dampening winter sports in Canada* by Geneviève Normand
  - Published by Barron's, Phys.org, Yahoo News Singapore, Sportstar, KPC News, Manila Times, Northeast Mississippi Daily Journal
  - <https://www.barrons.com/news/warming-world-dampening-winter-sports-in-canada-ee810e0d>
- Live radio interview to discuss the effects of climate change on outdoor skating
  - CBC Radio 1 Montreal, Radio Noon Quebec with Shawn Apel, January 4<sup>th</sup>, 2024
  - <https://www.cbc.ca/listen/live-radio/1-102/clip/16033145>
- Live radio interview to discuss the effects of climate change on outdoor skating
  - CBC Radio Montreal, Daybreak Montreal with Sean Henry, December 22<sup>nd</sup>, 2023
- Live radio interview to discuss the effects of climate change on outdoor skating
  - CBC Radio 1 Montreal, Let's Go with Sabrina Marandola, January 5<sup>th</sup>, 2023

- <https://www.cbc.ca/listen/live-radio/1-383-lets-go/clip/15958168-outdoor-skating-season-dramatically-shorter-reduce-carbon-emissions>
  - Interviewed to discuss the effects of climate change on outdoor skating in Montreal
    - CBC Montreal evening news, January 4<sup>th</sup>, 2023
  - Interviewed to discuss the effects of climate change on outdoor skating in Montreal
    - *No snow, warm temperatures mean only rinks fit for skating in Montreal are refrigerated* by Kwabena Oduro and Isaac Olson
    - CBC News, January 4<sup>th</sup>, 2023
    - <https://www.cbc.ca/news/canada/montreal/montreal-ice-skating-1.6702667>
  - Interviewed to discuss the effects of climate change on outdoor skating
    - *For the love of the ice rink, let's fight climate change* by Patricia Lane
    - National Observer, May 17<sup>th</sup>, 2021
    - <https://www.nationalobserver.com/2021/05/17/news/love-ice-rink-fight-climate-change-emissions-global-warming-Montreal>
  - Interviewed to discuss the effects of climate change on outdoor skating
    - *Outdoor hockey traditions under shadow of climate change* by Stephen Whyno
    - CBC News, January 8<sup>th</sup>, 2021
    - <https://www.cbc.ca/news/canada/edmonton/outdoor-hockey-traditions-under-shadow-of-climate-change-1.5866126>
  - Interviewed to discuss the LEADS research project
    - *Concordia takes on global sustainability in the digital: The LEADS program is funded by a \$1.65-million Collaborative Research and Training Experience grant* by Amy Sharaf
    - Concordia University News, May 13<sup>th</sup>, 2021 8<sup>th</sup>
    - <https://www.concordia.ca/news/stories/2021/05/13/concordia-takes-on-global-sustainability-in-the-digital-age.html?c=/news/authors/amy-sharaf>
2. **Research coverage:** *Projections of declining outdoor skating availability in Montreal due to global warming* (Dickau et al., 2020)
- *Patiner... à l'intérieur*, L'actualité, November 2020.  
<https://lactualite.com/environnement/un-point-cinq/patiner-a-linterieur/>
  - *Outdoor hockey is the sport's great equalizer — but it's slowly melting away* by Dave Levitan, Grid News, February 17<sup>th</sup>, 2022.  
<https://www.grid.news/story/climate/2022/02/17/climate-change-threatening-hockey-nhl-olympics/>

## b. University and Departmental Service and Committees

1. Member, Dept. Hiring Committee (Environmental Science) January 2020
  - Department of Geography, Planning and Environment, Concordia University

## c. Peer-Review Activities

1. Peer reviewer for *EGUsphere*
  - 2025

- Smith, C., et al. Overshoot and (ir)reversibility to 2300 in two CO<sub>2</sub>-emissions driven Earth System Models. *EUGsphere* (2025). <https://doi.org/10.5194/egusphere-2025-5292>
- 2. Peer reviewer for *Climatic Change*
  - 2024
    - Visser, H., van Prooije, H., de Vries, H. et al. The likelihood of holding outdoor skating marathons: the past, present and future of a climate-change indicator, and a way to adapt. *Climatic Change* 178, 83 (2025). <https://doi.org/10.1007/s10584-025-03920-9>
- 3. Peer reviewer for *Bulletin of the American Meteorological Society*
  - 2024
    - Sato, H., & Kohyama, T. (2024). Warm Air Temperatures Generate Home Runs. *Bulletin of the American Meteorological Society*, 105(12), E2300-E2304. <https://doi.org/10.1175/BAMS-D-24-0139.1>
  - 2022
    - Callahan, C. W., N. J. Dominy, J. M. DeSilva, and J. S. Mankin, 2023: Global Warming, Home Runs, and the Future of America’s Pastime. *Bull. Amer. Meteor. Soc.*, 104, E1006–E1016, <https://doi.org/10.1175/BAMS-D-22-0235.1>.
- 4. Peer reviewer for *Environmental Research Letters*
  - 2021
    - Oda, T., Haga, C., Hosomi, K., Matsui, T., & Bun, R. (2021). Errors and uncertainties associated with the use of unconventional activity data for estimating CO<sub>2</sub> emissions: the case for traffic emissions in Japan. *Environmental Research Letters*, 16(8). <https://doi.org/10.1088/1748-9326/ac109d>
  - 2020
    - Froemelt, A., Geschke, A., & Wiedmann, T. (2021). Quantifying carbon flows in Switzerland: top-down meets bottom-up modelling. *Environmental Research Letters*, 16(1), 014018. <https://doi.org/10.1088/1748-9326/abcd5>

#### d. Professional Training

1. **Leadership Training by Margaret Krebs (coordinator of the Leopold Leadership Program)**
  - Concordia University. April 2022.
2. **The 5<sup>th</sup> Training Course on Advances in Land Carbon Modelling**
  - Center for Ecosystem Science and Society at Northern Arizona University. May 2022
3. **35 Hour Graduate Seminar in University Teaching**
  - Centre for Teaching and Learning at Concordia University. January 2022.

## 7 Non-Academic Work Experience

1. **Environment and Climate Change Canada – Canadian Centre for Climate Services, Data Products Office**
  - *Student researcher*: October 2023 – April 2025
  - *Project*: Working on projections of fire weather in Canada
2. **Reimagine AI**
  - *Consulting on climate change education*: June 2021 – July 2022
3. **Terram Vero Consulting**
  - *Data Analyst*: December 2018 – September 2019
  - *Mineral Analyst*: August 2017
  - *Archivist*: May 2016 – September 2016
4. **Concordia University**
  - *GIS Lab Monitor*: September 2017 – May 2018