

KAREN L. SMITH – CURRICULUM VITAE

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A. EDUCATION

2011 Ph.D, Physics, University of Toronto, Toronto, Canada
2007 M.Sc., Nutritional Sciences, University of Toronto, Toronto, Canada
2004 M.Sc., Environmental Science and Engineering, California Institute of Technology, Pasadena, CA, USA
2002 B.Sc. (1st Class), Mathematics and Engineering, Queen's University, Kingston, Canada

B. PROFESSIONAL EXPERIENCE

1. Current Academic Appointments

2017 - present **Assistant Professor, Teaching Stream**
Director, Climate Change Impacts and Adaptation MEnvSc Program
University of Toronto Scarborough (UTSC), Toronto, Canada
2017 - present **Adjunct Associate Research Scientist**
Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY, USA

2. Previous Academic Appointments

2014 - 2017 Associate Research Scientist
Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY, USA
2015 - 2017 Visiting Scientist
NASA Goddard Institute for Space Studies, New York, NY, USA
2013 - 2015 Natural Sciences and Engineering Research Council of Canada Postdoctoral Fellow
Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY, USA
2011 - 2013 Postdoctoral Research Scientist
Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY, USA

C. GRANTS, AWARDS, CERTIFICATES AND PROFESSIONAL DEVELOPMENT

1. Grants

1.1 Current

"Rapid Adjustments and Their Effects on Arctic Amplification", Principal Investigator: Michael Previdi (LDEO); Co-PIs: Lorenzo Polvani (LDEO/Columbia), Karen Smith (UTSC), National Science Foundation (USA) PLR-2234876, from 03/01/2023 to 02/28/2026; \$760,789 USD.

"Application of the University of Toronto Climate Downscaling Workflow to the Just Energy Transition", Principal Investigator: Paul Kushner (UTSG); Co-PIs: Oya Mercan (UTSG), Daniel Posen (UTSG), Marianne Touchie (UTSG), Karen Smith (UTSC), Sam Markolf (UC Merced), University of Toronto Climate Positive Energy Just Energy Transition Grant from 01/01/2023-02/29/2024; \$43,000.

"A Canadian Meteorological and Oceanographic Society (CMOS) Initiative in partnership with Canadian Water Resources Association (CWRA) and the Black Environmental Initiative (BEI) to

address Diversity and Inclusiveness in the meteorological, climatological, and hydrological science communities in Canada”, Principal Investigator: James Abraham (rep. CMOS); Co-PIs: Naolo Charles (BEI), Russel Boals (rep. CWRA), Karen Smith (rep. CMOS), from 09/01/2022-03/31/2025; \$175,000.

“A pilot micro-credential in the DPES MEnvSc Program: Indigenous perspectives in environmental sciences” Principal Investigator: Karen Smith (UTSC); Co-PIs: Stuart Livingstone (UTSC), Élyse Caron-Beaudoin (UTSC), David McLagan (Queen’s); Collaborator: Taylor Tabobondung (UTSC), University of Toronto Graduate Education Innovation Fund from 05/13/2022-08/31/2023; \$5,000.

“Climate change, extreme heat, and human mortality in the City of Toronto”, Principal Investigator: Rohan Alexander (UTSG); Team: Monica Alexander (UTSG); Karen Smith (UTSC); William Gough (UTSC); Samantha Green (UTSG); Edward Xie (UTSG); Laura Tozer (UTSC); Micah Hewer (UTSC), School of Cities Urban Challenge Grant 2.0 from 01/01/2022-04/30/2023; \$75,000.

“Climate Science for Engineering Decision, Education and Policy (CSE)”, Project Lead: Oya Mercan (UTSG), Team: Marianne Hatzopoulou (UTSG), Paul Kushner (UTSG), Graeme Norval (UTSG), Daniel Posen (UTSG), Karen Smith (UTSC), Marianne Touchie (UTSG). University of Toronto, Faculty of Applied Science, Dean’s Strategic Fund, DSF18-30, from 02/01/2019 to 06/30/2023; \$384,000.

1.2 Pending

“Unlearning Environment: Engaging Indigenous Perspectives in Environmental Sciences”, Principal Investigator: Stuart Livingstone; Co-PIs: Élyse Caron-Beaudoin, Karen Smith, Taylor Tabobondung, UTSC Pedagogies of Inclusive Excellence Fund; \$18,000

“Collaborative Case-based Experiential Learning: Online Platform Development”, Principal Investigator: James MacLellan; Co-PIs: Karen Smith, Laura Tozer, Nicole Klenk, UTSC Experiential Learning Fund; \$24,840.

1.3 Previously Funded

“Earth and Environmental Data Science Immersive Workshop”, Principal Investigator: Amir Feizpour (Aggregate Intellect); Co-PIs: Karen Smith (UTSC) and Andre Erler (Aquanty Inc.); Natural Resources Canada 2021-2022 Science Outreach and Engagement Grant (theme: “Hackathons or other data science challenges to help unlock the value of data for innovation and sustainable development in Canada’s natural resource sectors”) from 01/01/2022 to 06/30/2022; \$37,000.

“Building and Governing Climate Resilient Cities”, Principal Investigator: Fadi Masoud (UTSG); Team: Amy Buitenhuis (City of Toronto), Fariha Husain (City of Toronto), Jia Lu (City of Toronto), Paul Kushner (UTSG), Heather Marshall (Toronto Environmental Alliance), Oya Mercan (UTSG), Blake Poland (UTSG), Rehana Rajabali (TRCA), Imara Rolston (UTSG), John Robinson (UTSG), Karen Smith (UTSC), Linda Swanston (City of Toronto), University of Toronto School of Cities Urban Challenge Group (Stage 1 Approved, February 2019; Stage 2 Approved, March 2021).

“Engineering in a Changing Climate - A Transdisciplinary Workshop Series for Engineering and Climate Science Students”, Co-PIs: Karen Smith (UTSC) and Oya Mercan (UTSG), Team: Marianne Hatzopoulou (UTSG), Paul Kushner (UTSG), Reza Najafi (Western), Graeme Norval (UTSG), Daniel Posen (UTSG), Marianne Touchie (UTSG), eCampus Ontario Virtual Learning Strategy, from 04/15/2021 to 03/31/2022; \$39,456.45.

“The Impact of the Stratosphere on Arctic Climate”, Principal Investigator: Karen L. Smith (LDEO); Co-Principal Investigators: Lorenzo M. Polvani (LDEO/Columbia), Bruno Tremblay (McGill), Michael Previdi (LDEO); Collaborator: Douglas E. Kinnison (NCAR), National Science Foundation (USA) PLR-1603350, from 07/15/2016 to 12/31/2021; \$600,795 USD.

“Enhancing Climate Change Science Education at UTSC using Authentic, Model-based Inquiry”, Principal Investigator: Karen L. Smith (UTSC); Co-Principal Investigator: Tanzina Mohsin (UTSC), UTSC Teaching Software Grant, Winter 2018, \$2,647.30.

2. Awards

2.1 Professional Awards

2022 UTSC Assistant Professors and Lecturers Teaching Award

2.2 Postdoctoral and Student Fellowships and Awards

2016	Insight Data Science Fellowship, New York, NY, USA
2013	Natural Sciences and Engineering Research Council of Canada (NSERC) Postdoctoral Fellowship
2009	Marie Curie Sklodowska Association Award, University of Toronto
2009	Seymour H. Vosko Memorial Prize, University of Toronto
2009	Canadian Meteorological and Oceanographic Society Best Student Poster Prize
2007	NSERC Postgraduate Scholarship (PGS), Doctoral
2006	Max and Ruth Wiseman Graduate Student Fellowship, Baycrest Centre for Geriatric Care
2006	NSERC PGS, Master's
2003	Bill Davidow Graduate Student Fellowship, California Institute of Technology
2002	Vito Vanoni Fellowship, California Institute of Technology
2002	Special Institute Fellowship, California Institute of Technology
2002	Annie Bentley Lillie Prize in Mathematics, Queen's University

3. Certificates

2019 - 2020	Centre for Teaching and Learning (CTSI) - Association for College and University Educators (ACUE) Certificate in Effective Teaching Practice Certificate
2018	UTSC Centre for Teaching and Learning (CTL) Instructional Skills Workshop Certificate

4. Professional Development

This list shows a selection of professional development activities.

2023	American Geophysical Union Voices for Science Program, 2023-2024 Cohort
2022	Anisinaabe Teachings on Sustainability, School for the Environment, University of Toronto
2021	Digital Pedagogy Institute, hosted by UTSC, UWaterloo, Ryerson
2019	Earth Educators' Rendez-Vous, Nashville, TN, USA
2018	CTSI Course Design/Redesign Institute, Centre for Teaching Support and Innovation, University of Toronto
2018	Growing into Principled Climate Change Adaptation Professionals and Transforming the Adaptation Field Workshop, American Geophysical Union Fall Meeting
2017	Establishing and Sustaining an Undergraduate Research Program Workshop, American Geophysical Union Fall Meeting

D. TEACHING EXPERIENCE

1. Graduate Courses Taught

I developed the syllabus and all lectures, labs and assessments for the following University of Toronto graduate courses, for which I have sole responsibility (except for EES1100 which is co-taught). For information on Readings courses supervised, see Section E.

2017 - present	EES1133: Climate Change Science and Modeling , 8-21 students, 2 h/w lecture, 1h/w computer lab, Fall 2017, 2018, 2019, 2020 (virtual), 2021 (virtual), 2022
2017 - present	EES1132: Geophysical and Climate Data Analysis , 8-21 students, 3 h/w lecture, Fall 2017, 2018, 2019, 2020 (virtual), 2021 (virtual), 2022 (not offered)
2017 - present	EES1117: Climate Change Impact Assessment , 8-18 students, 1.5 h/w lecture, 1.5 h/w computer lab, Winter 2018, 2019, 2020, 2021 (virtual), 2022 (hybrid), 2023
2017 - present	EES1100: Advanced Topics in Environmental Science , 85-100 students, co-taught (three instructors), 1.5 h/w, every other week, Fall-Winter 2017-2018, 2018-2019, 2019-2020, 2020-2021 (virtual), 2021-2022 (virtual)

2. Undergraduate Courses Taught

2018 – present	EESC24: Advanced Readings in Environmental Science (Supervisor Only), 1-7 students, Fall-Winter-Summer, 2018-2019, 2019-2020, 2020-2021
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3. Co-curricular Workshops

2022	Earth and Environmental Data Science Immersive Workshop , Virtual (hosted by Aggregate Intellect)
2018 – present	Graduate Professional Development Workshop: Basic and Intermediate Python, University of Toronto
2020	Centre for Climate Science and Engineering Workshop: Global Climate Modeling and Regional Downscaling, University of Toronto

4. Other

2012 – 2016	Course Scientist, Seminars on Science American Museum of Natural History, New York, NY
2008 – 2011	Teaching Assistant, Patterns from Chaos Dept. of Physics, University of Toronto, Toronto, Canada
2006	Teaching Assistant, Advanced Nutritional Sciences Dept. of Nutritional Sciences, University of Toronto, Toronto, Canada
2004	Teaching Assistant, Atmosphere and Ocean Dynamics Dept. of Geological and Planetary Sciences, California Institute of Technology, Pasadena, CA

E. ACADEMIC AND RESEARCH SUPERVISION

1. Graduate Supervision

Jan. – Dec. 2022	Supervisor , Brian Bu, MEnvSc, UTSC, DPES, EES1114 Directed Readings in Environmental Science, EES1101 Research Paper in Environmental Science
Jun. 2022 – Sept. 2022	Supervisor , Qi Lin, MEnvSc, UTSC, DPES, EES1116 Internship
Jun. – Sept. 2021	Supervisor , Ravi Tiwari, MEnvSc, UTSC, DPES, EES1116 Internship
Jan. – Sept. 2021	Supervisor , Justin Wiens, MEnvSc, UTSC, DPES, EES1114 Directed Readings in Environmental Science, EES1101 Research Paper in Environmental Science
Jun. 2021 – present	PhD Committee , Taylor Tabobondung, PhD, UTSC, DPES
Dec. 2019 – Apr. 2022	PhD Committee , John Virgin, PhD, University of Waterloo, Dept. of Geography

Sept. 2017 – present	Advisory Committee , Tyler Janoski, Columbia University, Dept. of Earth and Environmental Sciences
Mar. 2019 – Jul. 2022	PhD Committee , Conor Anderson, PhD, UTSC, DPES
Sept. 2019 – Sept. 2021	Advisory Committee , Elise LaGlace, MEng, UTSG, Dept. of Civil Engineering
Jan. – Sept. 2020	Supervisor , Lukas Cheung, MEnvSc, UTSC, DPES, EES1114 Directed Readings in Environmental Science, EES1101 Research Paper in Environmental Science
May – Sept. 2020	Supervisor , Eric Moraitis, MEnvSc, UTSC, DPES, EES1116 Internship
Jan. – Apr. 2020	Supervisor , Abigail Harrichand, MEnvSc, UTSC, DPES, EES1116 Internship
May – Sept. 2019	Supervisor , Ricky Wong, MEnvSc, UTSC, DPES, EES1116 Internship
May – Dec. 2018	Supervisor , Teaching Fellow, Conor Anderson, PhD, UTSC, DPES, EES1117 Lab Book Development
Jan. – Sept. 2018	Supervisor , Sarah Maleska, MEnvSc, UTSC, DPES, EES1114 Directed Readings in Environmental Science, EES1101 Research Paper in Environmental Science
Jan. – Sept. 2018	Supervisor , John Virgin, MEnvSc, UTSC, DPES, EES1114 and EES1115 Directed Readings in Environmental Science, EES1101 Research Paper in Environmental Science

2. Undergraduate Supervision

May – Aug. 2021	Supervisor , Patricia Lumanto, UTSC Centre for Research in Earth System Science Summer Research Student
May – Aug. 2021	Co-Supervisor , Kerryn Van Rooyen, University of Toronto, Centre for Global Change Science (CGCS) Summer Research Student
May – Aug. 2020	Co-Supervisor , Natacha Prostran, CGCS Summer Research Student
May – Aug. 2019	Supervisor , Michael Maligaya, UTSC, DPES, PSCB90 Physical Sciences Research Experience
Sept. 2018 – Feb. 2019	Supervisor , Afzal Patel, MEnvSc web content update work-study
May – Sept. 2018	Co-Supervisor , Jun Zheng, Graduate Professional Skills Python Workshop development work-study

F. PUBLICATIONS

04/10/2023: 30 Peer-reviewed publications; 1573 citations; h-index = 21 (* indicates current or former graduate student)

1. Refereed; Submitted

34. Bu, S.*, **K. L. Smith**, F. Masoud, A. Sheinbaum: Spatial distribution of heat vulnerability in Toronto.
33. Liang, Y-C., Y.-O. Kwon, C. Frankignoul, G. Gastineau, **K. L. Smith**, L. M. Polvani, L. Sun, Y. Peings, C. Deser, R. Zhang, and J. Screen: The Weakening of the stratospheric polar vortex and the Subsequent Surface impacts as consequences to Arctic sea-ice loss.

32. Hewer, M., K. L. Smith, W. Gough: The Impact of Climate Change and Urbanization on Extreme Heat and Heat Stress in Toronto (Canada): A Human Health Perspective
31. Janoski, T. P.* , M. Previdi, G. Chiodo, **K. L. Smith**, and L. M. Polvani: Ultrafast Arctic amplification and its governing mechanisms.

2. Refereed; Published and In Press

30. Liang, Y-C., L. M. Polvani, M. Previdi, **K. L. Smith**, M. R. England and G. Chiodo, 2022: Stronger Arctic amplification from ozone-depleting substances than from carbon dioxide, *Environmental Research Letters*, 17, 024010, doi: 10.1088/1748-9326/ac4a31.
29. Anderson, C.* and **K. L. Smith**, 2021: A narrative approach to building computational capacity in professional Master's students, *Journal of Open Source Education*, doi: 10.21105/jose.00100.
28. Previdi, M., **K. L. Smith**, and L. M. Polvani, 2021: Arctic amplification of climate change: a review of underlying mechanisms, *Environmental Research Letters*, 16, 093003, doi: 10.1088/1748-9326/ac1c29.
27. **Smith, K. L.** and L. M. Polvani, 2021: Modeling-evidence for large, ENSO-driven interannual wintertime AMOC variability, *Environmental Research Letters*, 16, 084038, doi: 10.1088/1748-9326/ac1375.
26. Previdi, M., T. P. Janoski*, G. Chiodo, **K. L. Smith** and L. M. Polvani, 2020: Arctic amplification as a rapid adjustment to increased CO₂, *Geophysical Research Letters*, 47, e2020GL089933, doi: 10.1029/2020GL089933.
25. Maleska, S.* **K. L. Smith** and J. Virgin*, 2020: Impacts of stratospheric ozone extremes on Arctic high cloud, *Journal of Climate*, doi: 10.1175/JCLI-D-19-0867.1
24. Polvani, L. M, M. Previdi, M. England, G. Chiodo and **K. L. Smith**, 2020: Large Arctic warming from ozone depleting substances in the latter half of the 20th Century. *Nature Climate Change*, 10, 130–133, doi: 10.1038/s41558-019-0677-4.
23. Virgin, J.* and **K. L. Smith**, 2019: Is Arctic Amplification dominated by regional radiative forcing and feedbacks? Perspectives from the World-Avoided scenario, *Geophysical Research Letters*, 46, 7708–7717, doi:10.1029/2019GL082320.
22. Zhang, P., Y Wu, I Simpson, **K. L. Smith**, B. De, P. Callaghan, 2018: A stratospheric pathway linking a colder Siberia to Barents-Kara sea ice loss, *Science Advances*, 4, 7, eaat6025, doi: 10.1126/sciadv.aat6025.
21. **Smith, K. L.**, L. M. Polvani and L. Bruno Tremblay, 2018: The impact of stratospheric circulation extremes on minimum Arctic sea ice extent, *Journal of Climate*, 31, 7169–7189, doi:10.1175/JCLI-D-17-0495.1.
20. **Smith, K. L.**, G. Chiodo, M. Previdi and L. M. Polvani, 2018: No surface cooling over Antarctica from the negative greenhouse effect associated with instantaneous quadrupling of CO₂ concentrations, *Journal of Climate*, 31, 317–323, doi: 10.1175/JCLI-D-17-0418.1.
19. Zhang, P., Y. Wu and **K. L. Smith**, 2017: Prolonged effect of the stratospheric pathway in linking Barents-Kara Sea sea ice variability to the midlatitude

circulation in a simplified model, *Climate Dynamics*, doi: 10.1007/s00382-017-3624-y.

18. **Smith, K. L.** and L. M. Polvani, 2017: Spatial patterns of recent Antarctic surface temperature trends and the importance of natural variability: Lessons from multiple reconstructions and the CMIP5 models, *Climate Dynamics*, doi: 10.1007/s00382-016-3230-4.
17. England, M. R., L. M. Polvani, **K. L. Smith**, L. Landrum and M. M. Holland, 2016: Robust response of the Amundsen Sea Low to stratospheric ozone depletion, *Geophysical Research Letters*, doi: 10.1002/2016GL070055.
16. Wu, Y. and **K. L. Smith**, 2016: Response of the Northern Hemisphere midlatitude circulation to Arctic amplification in a simple atmospheric general circulation model, *Journal of Climate*, doi: 10.1175/JCLI-D-15-0602.1.
15. **Smith, K. L.** and R. K. Scott, 2016: The role of planetary waves in the tropospheric jet response to stratospheric cooling, *Geophysical Research Letters*, doi: 10.1002/2016GL067849.
14. Previdi, M., **K. L. Smith** and L. M. Polvani, 2015: How well do the CMIP5 models simulate the Antarctic Atmospheric Energy Budget, *Journal of Climate*, doi.org/10.1175/JCLI-D-15-0027.1.
13. Solomon, A., L. M. Polvani, R. Abernathy and **K. L. Smith**, 2015: The ozone hole's effects on the state of the Southern Ocean, *Geophysical Research Letters*, doi.org/10.1002/2015GL064744.
12. Neely, R. R., D. R. Marsh, **K. L. Smith**, S. M. Davis and L. M. Polvani, 2014: Biases in Southern Hemisphere climate trends induced by coarsely specifying the temporal resolution of stratospheric ozone, *Geophysical Research Letters*, doi: 10.1002/2014GL061627.
11. **Smith, K. L.**, R. R. Neely, D. R. Marsh and L. M. Polvani, 2014: The Specified Chemistry Whole Atmosphere Community Climate Model (SC-WACCM). *Journal of Advances in Modeling the Earth System*, doi: 10.1002/2014MS000346.
10. **Smith, K. L.** and L. M. Polvani, 2014: The surface impacts of Arctic stratospheric ozone anomalies. *Environmental Research Letters*, 9, 074015.
9. **Smith, K. L.**, M. Previdi and L. M. Polvani, 2013: The Antarctic atmospheric energy budget. Part II: The effect of ozone depletion and its projected recovery. *Journal of Climate*, Vol. 26, 9729-9744.
8. Previdi, M., **K. L. Smith** and L. M. Polvani, 2013: The Antarctic atmospheric energy budget. Part I: Climatology and intraseasonal-to-interannual variability. *Journal of Climate*, 26, 6406-6418.
7. Polvani, L. M. and **K. L. Smith**, 2013: Can natural variability explain the observed sea ice trends? New modeling evidence from CMIP5. *Geophysical Research Letters*, 40, 12, 3195–3199.
6. **Smith, K. L.**, L. M. Polvani and D. R. Marsh, 2012: Mitigation of 21st century Antarctic sea ice loss by stratospheric ozone recovery. *Geophysical Research Letters*, 39, 20, L20701.
5. **Smith, K. L.** and P. J. Kushner, 2012: Linear interference and the initiation of extratropical stratosphere-troposphere interactions. *Journal of Geophysical Research*, 117, D13107, doi.org/10.1029/2012JD017587.

4. **Smith, K. L.**, P. J. Kushner, and J. Cohen, 2011: The role of linear interference in Northern Annular Mode variability associated with Eurasian snow cover extent. *Journal of Climate*, 24, 6185-6202.
3. **Smith, K. L.**, C. G. Fletcher, and P. J. Kushner, 2010: The role of linear interference in the Annular Mode response to extratropical surface forcing. *Journal of Climate*, 23, 6036-6050.
2. **Smith, K. L.** and C. E. Greenwood, 2008: Nutritional considerations and Alzheimer's disease. *Journal of Nutrition for the Elderly*, 27, 3, 381-403.
1. Schneider, T., **K. L. Smith**, P. A., O'Gorman, and C. C., Walker, 2006: A climatology of tropospheric zonal-mean water vapor fields and fluxes in isentropic coordinates. *Journal of Climate*, 19, 5918-5933.

3. Non-refereed Publications

6. **Smith, K. L.**, Cassidy, C., Abraham, J., Charles, N., Goodman, A. (rep.). Canadian Meteorological and Oceanographic Society (CMOS), 2023: Report on Equity, Diversity, Inclusion and Accessibility (EDIA) Initiative.
5. Garny, H., H. Hendon; Co-Authors: M. Abalos, G. Chiodo, A. Purich, W. Randel, **K. Smith** and D. Thompson: Stratospheric Ozone Changes and Climate, Chapter 5 in World Meteorological Organization (WMO). Scientific Assessment of Ozone Depletion: 2022, GAW Report No. 278, 509 pp.; WMO: Geneva, 2022.
4. **Smith, K. L.** The unexpected link between the ozone hole and Arctic warming, The Conversation, February 2020.
3. Kushner, P. J., **K. L. Smith**, R. D. Brown, C. Dersken, C. R. Duguay, R. Fernandes, and W. R. Peltier. Workshop report: Simulation of the Canadian cryosphere. *CMOS Bulletin*, 38, 2, 2010, 60-65.
2. **Smith, K. L.**, C. E. Greenwood, H. Payette, and S. M. H. Alibhai, 2007: An approach to the non-pharmacologic and pharmacologic management of unintentional weight loss among older adults. *Geriatrics and Aging*, Vol. 10, No. 2, 91-98.
1. **Smith, K. L.**, C. E. Greenwood, H. Payette, and S. M. H. Alibhai, 2006: An approach to the diagnosis of unintentional weight loss in older adults: prevalence rates and screening. *Geriatrics and Aging*, 9, 10, 679-685.

4. Creative Works

1. Livingstone, S. and **K. L. Smith**, Emerging Environments Podcast, Seasons 1, 2021 (13 episodes + 2 bonus episodes), Season 2, 2022 (12 episodes).

G. INVITED INSTITUTIONAL AND CONFERENCE PRESENTATIONS

2023	Occupational and Environmental Health Seminar, Dalla Lana School of Public Health, University of Toronto, Toronto, Canada
2021	European Geosciences Union Conference (Session: The role of the middle atmosphere: composition changes and feedbacks, Vienna, Austria (virtual)
2021	University of Toronto, Centre for Global Change Science, Toronto, Canada (virtual)
2019	Royal Conservatory of Music, Toronto, Canada
2018	Université de Québec à Montréal, ESCER, Montréal, Canada

2017	Aspen Global Change Institute, Aspen, CO, USA
2016	American Geophysical Union (Session: The dynamical processes of stratosphere-troposphere interactions and their relationship with climate) , San Francisco, CA, USA
2016	University of Toronto, Department of Physics, Toronto, Canada
2016	University of Toronto Scarborough, DPES, Toronto, Canada
2016	University of Waterloo, Department of Applied Mathematics, Waterloo, Canada
2015	NASA Goddard Institute for Space Studies, New York, NY, USA
2015	Stony Brook University, School of Marine and Atmospheric Sciences, Stony Brook, NY
2015	University of California, Berkeley, Department of Earth and Planetary Science, Berkeley, CA, USA
2015	Lamont-Doherty Earth Observatory, Palisades, NY, USA
2014	University of Toronto, Department of Physics, Toronto, Canada
2014	York University, Department of Earth and Space Science and Engineering, Toronto, Canada
2013	NASA Goddard Institute for Space Studies, New York, NY, USA
2013	Dalhousie University, Department of Physics and Atmospheric Science, Halifax, Canada
2013	MIT, Department of Earth, Atmospheric and Planetary Sciences, Boston, MA
2013	McGill University, Department of Atmospheric and Oceanic Sciences, Montreal, Canada
2013	Pennsylvania State University, Department of Meteorology, State College, PA
2012	Johns Hopkins University, Department of Earth and Planetary Sciences, Baltimore, MD
2012	New York University, Courant Institute, New York, NY, USA
2011	Lamont-Doherty Earth Observatory, Palisades, NY, USA
2010	United Kingdom Meteorological Office, Exeter, UK
2010	University of Reading, Department of Meteorology, Reading, UK
2009	A.E.R., Inc., Lexington, MA, USA

H. SERVICE AND OUTREACH

1. Institutional Service

2017 – present	Director of Climate Change Impacts and Adaptation MEnvSc Program, DPES, UTSC
2017 - present	DPES Graduate Program and Curriculum Committee
2018 - present	DPES MEnvSc Admissions Committee
2018 - present	DPES Teaching and Curriculum Committee
2018 - present	DPES Outreach Committee
2020 – 2022	UTSC Library Advisory Committee
2021	DPES PTR Committee

2. Professional Service

2.1 Scientific Assessments

2021 – 2022 Co-author, Chapter 5: Stratospheric ozone changes and climate, World Meteorological Organization Scientific Assessment of Ozone Depletion 2022

2.2 Organizations and Committees

2019 – present Executive Team Member, Centre for Climate Science and Engineering, University of Toronto

2020 – present Chair, Canadian Meteorological and Oceanographic Society (CMOS) School and Public Education Committee

2019 – 2020 Member, CMOS School and Public Education Committee

2019 – 2022 Member, Canadian Centre for Climate Services, Training Sub-committee

2.3 Editor, Peer-reviewer

Editor: [Journal of Open Source Education](#)

Guest Editor: Focus Collection on Arctic Amplification, Environmental Research: Climate

Journals: Science, Nature Climate Change, Nature Communications, Journal of Climate, Journal of the Atmospheric Sciences, Journal of Geophysical Research (Atmospheres), Geophysical Research Letters*, Climate Dynamics, Environmental Research Letters, Ecological Informatics

**Received 2019 Editors' Citation for Excellence in Refereeing*

Funding Agencies: Natural Sciences and Engineering Research Council (Canada), National Science Foundation (USA), Israel Science Foundation (Israel), Marsden Foundation (New Zealand), New Zealand Antarctic Research Institute, Swiss Federal Institute of Technology

Scientific Assessments: World Meteorological Organization Scientific Assessment of Ozone Depletion 2014, 2018

Other: Toronto and Region Conservation Authority, Partners in Project Green, Building Business Resilience to Climate Change – Business Guide

3. Other

2022 ACUE Lunch and Learn Presenter, Centre for Teaching Support and Innovation, University of Toronto

2022 School of Cities, Knowledge Café Presenter, University of Toronto

2021 Doing Theology Amid a Changing Climate: Crossing Divides Panelist, Elliott Allen Institute for Theology and Ecology, University of Toronto

2021 Reviewing the Latest IPCC Report Panel Moderator, Minden Symposium, School of the Environment, University of Toronto

2021 JupyterHub for Researchers 101 Panelist, Centre for Research and Innovation Support, University of Toronto

2020 Computer Science Education Week, Elementary School Outreach, Coding Demo

2019 Building a Post-Carbon World: Designing 2050 Symposium Panelist, School of the Environment, University of Toronto

2018, 2019 DPES, High School Science Outreach, "Weather in a Tank" Demo

2019 Sidney Ledson Institute Primary School presentation

2018 Science Rendez-Vous faculty volunteer, UTSC

2018 Let's Talk Science High School Science Open House, UTSC

2018 ECO Canada, Toronto Environmental Professional Networking Event Panelist

2017 Earth-Sun Day volunteer at the American Museum of Natural History, NY

2015 Secondary School Field Research Program mentor, LDEO

2012, 2014	American Geophysical Union Fall Meeting Session Convener
2012	Ocean and Climate Physics Seminar Convener, LDEO
2010	Canadian Meteorological and Oceanographic Society, Toronto Student Chapter
2009 – 2010	Engineers Without Borders, Fundraising Lead – Toronto Professional Chapter
2007 – 2009	Graduate Student Union Representative, University of Toronto
2003 – 2004	Graduate Student Council Representative, Caltech

I. PROFESSIONAL ASSOCIATIONS

2008 – present	American Geophysical Union
2009 – present	Canadian Meteorological and Oceanographic Society
2009 – present	American Meteorological Society
2010 – present	European Geosciences Union