

TIMOTHY M. MERLIS

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Research Interests

Climate and atmospheric dynamics, extreme weather and climate change, hurricanes, polar climate, atmospheric hydrological cycle & surface coupling

Awards

- 2019–2022 Natural Sciences and Engineering Research Council of Canada Discovery Grant Accelerator Award
- 2018–2019 Tomlinson Professorship Award, McGill University
- 2015–2022 Canada Research Chair (Tier II)
- 2014 James R. Holton Early Career Scientist Award, Atmospheric Sciences Section of the American Geophysical Union Conference

Scientific Leadership Roles

- Lead Organizer of Princeton University/Geophysical Fluid Dynamics Laboratory Global km-Scale Hackathon, 2025
- Chair of AMS Atmospheric and Oceanic Fluid Dynamics Committee, 2024–2027
- Program Chair of AMS Atmospheric and Oceanic Fluid Dynamics Meeting, 2024
- Organizer of Princeton University/Geophysical Fluid Dynamics Laboratory Atmospheric Dynamics group meeting, 2022–
- Vice-chair of AMS Atmospheric and Oceanic Fluid Dynamics Committee, 2021–2024
- Associate Editor *Journal of Climate*, 2021–
- Program Chair of AMS Atmospheric and Oceanic Fluid Dynamics Meeting, 2022
- Co-organizer of Princeton Center for Theoretical Science Workshop From Spectroscopy to Climate, 2022
- National Representative, International Association of Meteorology and Atmospheric Sciences, 2019–2022
- Chair of Canadian Meteorological and Oceanographic Society Scientific Committee, 2017–2020

Positions

- 2022– **Princeton University Atmospheric and Oceanic Sciences & Cooperative Institute for Modeling Earth Systems**
Manager, Science
- 2018–2022 **McGill University Department of Atmospheric and Oceanic Sciences**
Associate Professor & Member of McGill Space Institute
Canada Research Chair (Tier II) in Atmospheric and Climate Dynamics

- 2013–2018 **McGill University Department of Atmospheric and Oceanic Sciences**
Assistant Professor & Canada Research Chair (Tier II, 2015–2018)
- 2011–2013 **Princeton University and Geophysical Fluid Dynamics Laboratory**
Princeton Center for Theoretical Science Postdoctoral Fellow, Hosted by Isaac Held
- 2006–2011 **Ph.D. California Institute of Technology**

Refereed Journal Publications (See <http://timothymerlis.com/publications.html> for up-to-date list.) Advisees are underlined. H-index 32, cumulative citations 2637 (Google Scholar, Oct 2025).

- [70] Zhang, B. and T. M. Merlis (2025): The equilibrium response of atmospheric machine-learning models to uniform sea surface temperature warming. *npj Climate and Atmospheric Science*, submitted.
- [69] Gettelman, A. et al. including T. M. Merlis (2025): Hacking km-scale models: A participative model for climate information. *Bulletin of the American Meteorological Society*, submitted.
- [68] Sokol, A. B., T. M. Merlis, and S. Fueglistaler (2025): No “wet gets wetter” in kilometer-scale mock-Walker circulations. *AGU Advances*, submitted.
- [67] Williams, A. I. L. and T. M. Merlis (2025): State-dependence of polar amplification in an idealized, ice-free GCM. *Geophysical Research Letters*, in revision.
- [66] Merlis, T. M., C.-Y. Chang, P. Zurita-Gotor, and I. M. Held (2025): Radiation-circulation destabilization of ITCZ position in an idealized GCM: Response to hemispherically asymmetric forcing. *Geophysical Research Letters*, in revision.
- [65] Bolot, M., O. Pauluis, L. M. Harris, K.-Y. Cheng, T. M. Merlis, S. K. Clark, A. Kaltenbaugh, L. Zhou, and S. Fueglistaler (2025): Precipitation-induced dissipation limits storm kinetic energy in a warming climate. Submitted.
- [64] Chang, C.-Y., P. Lin, I. M. Held, T. M. Merlis, and P. Zurita-Gotor (2025): Resolution dependence of tropical poleward energy transport in aquaplanet GCMs. *Journal of Advances in Modeling Earth Systems*, accepted.
- [63] Merlis, T. M. (2025): Perturbing the surface energy balance to emulate the historical pattern of tropical Pacific sea surface temperature trends. *Journal of Climate*, **38**, 6193–6206, doi:10.1175/JCLI-D-24-0496.1.
- [62] Guendelman, I., T. M. Merlis, K.-Y. Cheng, L. Harris, C. S. Bretherton, M. Bolot, L. Zhou, A. Kaltenbaugh, S. K. Clark, and S. Fueglistaler (2025): Detecting changes in large-scale metrics of climate in short integrations of a global storm-resolving model of the atmosphere. *Environmental Research: Climate*, **4**, 025010, doi:10.1088/2752-5295/add615.
- [61] Caballero, R. and T. M. Merlis (2025): Polar feedbacks in radiative-advective equilibrium from an air mass transformation perspective. *Journal of Climate*, **38**, 3399–3416, doi:10.1175/JCLI-D-24-0031.1.
- [60] Merlis, T. M., I. Guendelman, K.-Y. Cheng, L. Harris, Y.-T. Chen, C. S. Bretherton, M. Bolot, L. Zhou, A. Kaltenbaugh, S. K. Clark, and S. Fueglistaler (2024): The vertical structure of tropical temperature change in global storm-resolving model simulations of climate change. *Geophysical Research Letters*, **51**, e2024GL111549.

- [59] Merlis, T. M., K.-Y. Cheng, I. Guendelman, L. Harris, C. S. Bretherton, M. Bolot, L. Zhou, A. Kaltenbaugh, S. K. Clark, G. A. Vecchi, and S. Fueglistaler (2024): Climate sensitivity and relative humidity changes in global storm-resolving model simulations of climate change. *Science Advances*, **10**, eadn5217, doi:10.1126/sciadv.adn5217.
- [58] Guendelman, I., T. M. Merlis, K.-Y. Cheng, L. Harris, C. S. Bretherton, M. Bolot, S. K. Clark, A. Kaltenbaugh, T. M. Merlis, L. Zhou, and S. Fueglistaler (2024): The precipitation response to warming and CO₂ increase: A comparison of a global storm resolving model and CMIP6 models. *Geophysical Research Letters*, **51**, e2023GL107008, doi:10.1029/2023GL107008.
- [57] Chen, Y.-T., T. M. Merlis, and Y. Huang (2024): The cause of negative CO₂ forcing at the top-of-atmosphere: the role of stratospheric vs. tropospheric temperature inversions. *Geophysical Research Letters*, **51**, e2023GL106433, doi:10.1029/2023GL106433.
- [56] Meera, M., T. M. Merlis, and D. J. Kirshbaum (2024): Response of the current climate to land-ocean contrasts in parameterized cumulus entrainment. *Journal of Advances in Modeling Earth Systems*, **16**, e2023MS003691, doi:10.1029/2023MS003691.
- [55] Bolot, M., L. Harris, K.-Y. Cheng, T. M. Merlis, P. Blossey, C. S. Bretherton, S. K. Clark, A. Kaltenbaugh, L. Zhou, and S. Fueglistaler (2023): Kilometer-scale global warming simulations and active sensors reveal changes of convective velocities in the tropics. *npj Climate and Atmospheric Science*, **6**, 209, doi:10.1038/s41612-023-00525-w.
- [54] Feldl, N. and T. M. Merlis (2023): An analytical model for radiative feedbacks in comprehensive climate models. *Geophysical Research Letters*, **50**, e2023GL105796, doi:10.1029/2023GL105796.
- [53] Chang, C.-Y. and T. M. Merlis (2023): The role of diffusivity changes on the pattern of warming in energy balance models. *Journal of Climate*, **36**, 7993-8006, doi:10.1175/JCLI-D-23-0121.1.
- [52] Zurita-Gotor, P., I. M. Held, T. M. Merlis, C.-Y. Chang, S. A. Hill, C. G. MacDonald (2023): Non-uniqueness in ITCZ latitude due to radiation-circulation coupling in an idealized GCM. *Journal of Advances in Modeling Earth Systems*, **15**, e2023MS003736, doi:10.1029/2023MS003736.
- [51] Chen, Y.-T., Y. Huang, and T. M. Merlis (2023): The global patterns of instantaneous CO₂ forcing at the top-of-atmosphere and surface. *Journal of Climate*, **36**, 6331-6347, doi:10.1175/JCLI-D-22-0708.1.
- [50] Fortin, A.-S., C. O. Dufour, T. M. Merlis, and R. Msadek (2023): Drivers of the decline of the Atlantic Meridional Overturning Circulation under climate change in a hierarchy of climate models. *Journal of Climate*, **36**, 6481-6498, doi:10.1175/JCLI-D-22-0561.1.
- [49] Labonté, M.-P. and T. M. Merlis (2023): Evaluation of changes in dry and wet precipitation extremes with warming using a passive water vapor modelling approach. *Journal of Climate*, **36**, 2167-2182, doi:10.1175/JCLI-D-22-0048.1.
- [48] Cheng, K.-Y., L. Harris, C. S. Bretherton, T. M. Merlis, M. Bolot, L. Zhou, A. Kaltenbaugh, S. K. Clark, and S. Fueglistaler (2022): Impact of warmer sea surface temperature on the global pattern of intense convection: insights from a global storm resolving model. *Geophysical Research Letters*, **49**, e2022GL099796, doi:10.1029/2022GL099796.
- [47] Merlis, T. M., N. Feldl, and R. Caballero (2022): Changes in poleward atmospheric energy transport over a wide range of climates: Energetic and diffusive perspectives and a priori theories. *Journal of Climate*, **35**, 2933-2948, doi:10.1175/JCLI-D-21-0682.1.
- [46] Hill, S. A., N. J. Burls, A. V. Fedorov, and T. M. Merlis (2022): Symmetric and antisymmetric components of polar-amplified warming. *Journal of Climate*, **35**, 3157-3172, doi:10.1175/JCLI-D-20-0972.1.

- [45] Kim, D., H. Kim, S. M. Kang, M. F. Stuecker, and T. M. Merlis (2022): Weak future Hadley cell intensity changes due to compensating effects of tropical and extratropical forcing. *npj Climate and Atmospheric Science*, **5**, 61, doi:10.1038/s41612-022-00287-x.
- [44] Navarro, T., T. M. Merlis, N. B. Cowan, and N. Gomez (2022): Atmospheric gravitational tides of Earth-like planets orbiting low mass stars. *Planetary Science Journal*, **3**, 162, doi:10.3847/PSJ/ac76cd.
- [43] Rousseau-Rizzi, R., T. M. Merlis, and N. Jeevanjee (2022): The connection between Carnot and CAPE formulations of TC potential intensity. *Journal of Climate*, **35**, 941-954, doi:10.1175/JCLI-D-21-0360.1.
- [42] Kim, D, S. M. Kang, T. M. Merlis, and Y. Shin (2021): Atmospheric circulation sensitivity to changes in the vertical structure of polar warming. *Geophysical Research Letters*, **48**, e2021GL094726, doi:10.1029/2021GL094726.
- [41] Feldl, N. and T. M. Merlis (2021): Polar amplification in idealized climates: the role of ice, moisture, and seasons. *Geophysical Research Letters*, **48**, e2021GL094130, doi:10.1029/2021GL094130.
- [40] Bembenek, E., T. M. Merlis, and D. Straub (2021): Influence of latitudinal and moisture effects on the barotropic instability of an idealized ITCZ. *Journal of the Atmospheric Sciences*, **78**, 2677-2689, doi:10.1175/JAS-D-20-0346.1.
- [39] Feng, P.-N., H. Lin, J. Derome, and T. M. Merlis (2021): Forecast skill of the NAO in Subseasonal-to-Seasonal Prediction Models. *Journal of Climate*, **34**, 4757–4769, doi:10.1175/JCLI-D-20-0430.1.
- [38] Rollings, M. and T. M. Merlis (2021): The observed relationship between Pacific SST variability and Hadley cell extent in reanalyses. *Journal of Climate*, **34**, 2511–2527, doi: 10.1175/JCLI-D-20-0410.1.
- [37] Henry, M., T. M. Merlis, N. J. Lutsko, and B. E. J. Rose (2021): Decomposing the drivers of polar amplification with a single column model. *Journal of Climate*, **34**, 2355–2365, doi: 10.1175/JCLI-D-20-0178.1.
- [36] Henry, M. and T. M. Merlis (2020): Lapse rate changes dominate residual polar warming in solar radiation management scenarios. *Geophysical Research Letters*, **47**, e2020GL087929, doi: 10.1029/2020GL087929.
- [35] Labonté, M.-P. and T. M. Merlis (2020): Sensitivity of the Atmospheric Water Cycle within the Habitable Zone of a Tidally-Locked, Earth-like Exoplanet. *Astrophysical Journal*, doi:10.3847/1538-4357/ab9102.
- [34] Bembenek, E., D. Straub, and T. M. Merlis (2020): Effects of Moisture in a Two-Layer Model of the Midlatitude Jet Stream. *Journal of the Atmospheric Sciences*, **77**, 131-147, doi:10.1175/JAS-D-19-0021.1.
- [33] Merlis, T. M. and I. M. Held (2019): Aquaplanet simulations of tropical cyclones. *Current Climate Change Reports*, doi:10.1007/s40641-019-00133-y.
- [32] Maher, P., E. P. Gerber, B. Medeiros, T. M. Merlis, S. Sherwood, A. Sheshadri, A. H. Sobel, G. K. Vallis, A. Voigt, and P. Zurita-Gotor (2019): Model hierarchies for understanding atmospheric circulation. *Reviews of Geophysics*, **57**, 250-280, doi:10.1029/2018RG000607.
- [31] Menzel, M. E. and T. M. Merlis (2019): Connecting direct effects of CO₂ radiative forcing to ocean heat uptake and circulation. *Journal of Advances in Modeling Earth Systems*, **11**, 2163-2176, doi:10.1029/2018MS001544.
- [30] Yang, J., J. Leconte, E. T. Wolf, T. M. Merlis, D. D. B. Koll, F. Forget, and D. S. Abbot (2019): Simulations of Water Vapor and Clouds on Rapidly Rotating and Tidally Locked Planets: A 3D Model Intercomparison *The Astrophysical Journal*, **875**, doi:10.3847/1538-4357/ab09f1.

- [29] Li, Y., D. W. J. Thompson, S. Bony, and T. M. Merlis (2019): Thermodynamic control on the poleward shift of the extratropical jet in climate change simulations: The role of rising high clouds and their radiative effect. *Journal of Climate*, **32**, 917–934.
- [28] Henry, M. and T. M. Merlis (2019): The role of the nonlinearity of the Stefan-Boltzmann law on the structure of radiatively forced temperature change. *Journal of Climate*, **32**, 335–348.
- [27] Merlis, T. M. and M. Henry (2018): Simple estimates of polar amplification in moist diffusive energy balance models. *Journal of Climate*, **31**, 5811–5824.
- [26] Jansen, M., L.-P. Nadeau, and T. M. Merlis (2018): Transient vs equilibrium response of the ocean’s overturning circulation to warming. *Journal of Climate*, **31**, 5147–5163.
- [25] Kirshbaum, D. J., T. M. Merlis, J. R. Gyakum, R. McTaggart-Cowan (2018): Sensitivity of idealized moist baroclinic waves to environmental temperature. *Journal of the Atmospheric Sciences*, **75**, 337–360.
- [24] O’Gorman, P. A., T. M. Merlis, and M. S. Singh (2018): Increase in the skewness of extratropical vertical velocities with climate warming: fully nonlinear simulations versus moist baroclinic instability. *Quarterly Journal of the Royal Meteorological Society*, **144**, 208–217.
- [23] Defforge, C. L. and T. M. Merlis (2017): Evaluating the evidence of a global sea surface temperature threshold for tropical cyclone genesis, *Journal of Climate*, **30**, 9133–9145.
- [22] Viale, F. and T. M. Merlis (2017): Variations in tropical cyclone frequency response to solar and CO₂ forcing in aquaplanet simulations. *Journal of Advances in Modeling Earth Systems*, **9**, 4–18, doi:10.1002/2016MS000785.
- [21] Defforge, C. L. and T. M. Merlis (2017): Observed warming trend in sea surface temperature at tropical cyclone genesis. *Geophysical Research Letters*, **44**, 1034–1040, doi:10.1002/2016GL071045.
- [20] Seo, J., S. Kang, and T. M. Merlis (2017): A model intercomparison of the tropical precipitation response to a CO₂ doubling in aquaplanet simulations. *Geophysical Research Letters*, **44**, 993–1000, doi:10.1002/2016GL072347.
- [19] Feldl, N., S. Bordoni, and T. M. Merlis (2017): Coupled high-latitude climate feedbacks and their impact on atmospheric heat transport. *Journal of Climate*, **30**, 189–201.
- [18] Galbraith, E. D., T. M. Merlis, and J. B. Palter (2016): Destabilization of glacial climate by the radiative impact of Atlantic Meridional Overturning Circulation disruptions. *Geophysical Research Letters*, **43**, 8214–8221, doi:10.1002/2016GL069846.
- [17] Yang, J., J. Leconte, E. T. Wolf, C. Goldblatt, N. Feldl, T. M. Merlis, Y. Wang, D. D. B. Koll, F. Ding, F. Forget, and D. S. Abbot (2016): Differences in water vapor radiative transfer among 1D models can significantly affect the inner edge of the habitable zone. *The Astrophysical Journal*, **826**, doi:10.3847/0004-637X/826/2/222.
- [16] Trossman, D., J. Palter, T. M. Merlis, Y. Huang, and Y. Xia (2016): Large-scale ocean circulation-cloud interactions reduce the pace of transient climate change. *Geophysical Research Letters*, **43**, 3935–3943.
- [15] Merlis, T. M. W. Zhou, I. M. Held, and M. Zhao (2016): Surface temperature dependence of tropical cyclone-permitting simulations in a spherical model with uniform thermal forcing. *Geophysical Research Letters*, **43**, 2859–2865.
- [14] Merlis, T. M. (2016): Does humidity’s seasonal cycle affect the annual-mean tropical precipitation response to extratropical forcing? *Journal of Climate*, **29**, 1451–1460.

- [13] Merlis, T. M. (2015): Direct weakening of tropical circulations from masked CO₂ radiative forcing. *Proceedings of the National Academy of Science*, **112**, 13167–13171.
- [12] Ballinger, A. P., T. M. Merlis, I. M. Held, and M. Zhao (2015): The sensitivity of tropical cyclone activity to off-equatorial thermal forcing. *Journal of the Atmospheric Sciences*, **72**, 2286–2302.
- [11] Merlis, T. M. (2014): Interacting components of the top-of-atmosphere energy balance affect changes in regional surface temperature. *Geophysical Research Letters*, **41**, 7291–7297, doi:10.1002/2014GL061700.
- [10] Merlis, T. M., I. M. Held, G. L. Stenchikov, F. Zeng, and L. Horowitz (2014): Constraining transient climate sensitivity using coupled climate model simulations of volcanic eruptions. *Journal of Climate*, **27**, 7781–7795.
- [9] Merlis, T. M., M. Zhao, and I. M. Held (2013): The sensitivity of hurricane frequency to ITCZ changes and radiatively forced warming in aquaplanet simulations. *Geophysical Research Letters*, **40**, 4109–4114, doi:10.1002/grl.50680.
- [8] Merlis, T. M., T. Schneider, S. Bordoni, and I. Eisenman (2013): The tropical precipitation response to orbital precession. *Journal of Climate*, **26**, 2010–2021.
- [7] Merlis, T. M., T. Schneider, S. Bordoni, and I. Eisenman (2013): Hadley circulation response to orbital precession. Part II: Subtropical continent. *Journal of Climate*, **26**, 754–771.
- [6] Merlis, T. M., T. Schneider, S. Bordoni, and I. Eisenman (2013): Hadley circulation response to orbital precession. Part I: Aquaplanets. *Journal of Climate*, **26**, 740–753.
- [5] Merlis, T. M. and T. Schneider (2011): Changes in zonal surface temperature gradients and Walker circulations in a wide range of climates. *Journal of Climate*, **24**, 4757–4768.
- [4] Merlis, T. M. and T. Schneider (2010): Atmospheric dynamics of Earth-like tidally locked aquaplanets. *Journal of Advances in Modeling Earth Systems*, **2**, Art. #13, doi:10.3894/JAMES.2010.2.13
- [3] Merlis, T. M. and T. Schneider (2009): Scales of linear baroclinic instability and macroturbulence in dry atmospheres. *Journal of the Atmospheric Sciences*, **66**, 1821–1833.
- [2] Merlis, T. M. and S. Khaliwala (2008): Fast dynamical spin-up of ocean general circulation models using Newton-Krylov methods. *Ocean Modelling*, **21**, 97–105.

Book Chapters

- [1] Showman, A. P., R. D. Wordsworth, T. M. Merlis, and Y. Kaspi (2013): Atmospheric Circulation of Terrestrial Exoplanets. *Comparative Climatology of the Terrestrial Planets*, S. J. Mackwell, A. A. Simon-Miller, J. W. Harder, and M. A. Bullock, Eds., University of Arizona Press, pp. 277–326.

Teaching

2020	McGill ESYS 301: Earth System Modelling, Winter 2020
2018	Instructor of McGill's ATOC/PHYS 404: Climate Physics, Fall 2018
2017-2018	Instructor of McGill's ATOC 215: Oceans, Weather and Climate, Winter 2017, 2018
2016-2019	Instructor of McGill's ATOC 531: Dynamics of Current Climates, Winter 2016, Fall 2016, Fall 2017, Fall 2018, Fall 2019
2015	Instructor of McGill's ATOC 183: Climate and Climate Change, Winter 2015

2014-2016 Instructor of McGill's ATOC 513: Waves and Stability, Winter 2014, 2015, 2016

Outreach & Training

2025 Weather Climate Livestream presenter

2023 Mental Health First Aid Training

2019, 2021 Lecturer at McGill University undergraduate outreach event *Soup & Science*

2016 Lecturer at McGill University high school outreach event *Snappy Science*

2016 McGill University Atmospheric and Oceanic Science department high school outreach *Canada Wide Science Fair*

2014 Lecture on physical climate science for McGill University *Under the Weather: Climate Change Research and Justice* series

2014 Lecture on climate change for Science Undergraduate Society of McGill University

Advising

Post-doc Advisees, current (3): Yan-Ting Chen (2024–present with Stefan Fueglistaler), Adam Sokol (2024–present with Stefan Fueglistaler), Bosong Zhang (2025–present)

Post-doc Advisees, past (4): Chiung-Yin Chang (2024–2025 with Isaac Held), Ilai Guendelman (2022–2025 with Stefan Fueglistaler), Thomas Navarro (2019–2022, co-advisor with Natalya Gomez & Nicholas Cowan), Eric Bembenek (2021, co-advisor with David Straub)

Ph.D. Advisees, completed (6): Matthew Henry (2016–2019), Eric Bembenek (2014–2020, co-advisor with David Straub), Pei-Ning Feng (2014–2020, co-advisor with Hai Lin, ECCC), Nicholas Soulard (2015–2020, co-advisor with Hai Lin, ECCC), Marie-Pier Labonté (2018–2023) Yan-Ting Chen (2019–2024, co-advisor with Yi Huang)

M.Sc. Advisees, completed (7): Flora Viale (2014–2016), Cécile Defforge (2015–2016), Molly Syme (2015–2017), Marie-Pier Labonté (2016–2017, fast tracked to Ph.D.), Zhong Yi Chia (2016–2018, co-advisor with Prof. Daniel Kirshbaum), Michael Rollings (2017–2019), Anne-Sophie Fortin (2018–2021, co-advisor with Prof. Carolina Dufour), Meera Mohan (2020–2023, co-advisor with Prof. Daniel Kirshbaum)

Undergraduate Research Assistants (8): Bryn Ronalds (2013–2014), Valérie Losier (2013–2014, co-advisor with Prof. Daniel Kirshbaum), Luke Davis (2014–2016), Kaiti Jiang (2015), Michael Rollings (2017), Anne-Sophie Fortin (2018), Jessica Di Bartolomeo (2019), Han Szeptycki (2020–2021), Stephanie Ortiz-Rosario (2024)

Advisee Awards and Fellowships

2024 Stephanie Ortiz-Rosario, Outstanding Student Presentation Award NOAA Office of Education Science and Education Symposium

2022 Yan-Ting Chen, Outstanding Student Presentation Award (2nd Place) AMS Conference on Atmospheric Radiation

2021 Yan-Ting Chen, Mysak Fellowship (McGill AOS Department Award)

2019 Thomas Navarro, McGill Space Institute Post-doc Fellowship

- 2019 Matthew Henry, Eben Hopson Fellowship, McGill University
- 2018 Michael Rollings, NSERC M.Sc. Fellowship (CGS-M)
- 2018 Anne-Sophie Fortin, Hydro-Quebec Fellowship, McGill Faculty of Science
- 2016 Cécile Defforge, Best Student Poster Award AMS Hurricanes and Tropical Meteorology Meeting
- 2016 Marie-Pier Labonté, McGill Space Institute M.Sc. Fellowship
- 2015 Arkadiusz Bembenek, NSERC Ph.D. Fellowship
- 2015 Cécile Defforge, Mysak Fellowship (McGill AOS Department Award)

Additional Professional Activities and Memberships

Member of AMS Atmospheric and Oceanic Fluid Dynamics Committee, 2017–2020

Member of US CLIVAR Working Group: Changing Width of the Tropical Belt, 2016–2018

Co-organizer of California Institute of Technology workshop “Monsoons: Past, Present and Future” in May, 2015.

Member of AMS Atmospheric and Oceanic Fluid Dynamics Committee, 2011–2013

Co-convenor of session “Atmospheric Circulations and Climate Change” at AGU Fall Meeting, 2010

Reviewer for funding agencies: *NSF*, *NSERC*, *CRC*, *NASA*, *ISF*.

Reviewer for journals: *Journal of the Atmospheric Sciences*, *Journal of Climate*, *Geophysical Research Letters*, *Nature*, *Nature Geoscience*, *npj Climate and Atmospheric Science*, *Nature Communications Earth & Environment*, *Bulletin of the American Meteorological Society*, *Proceedings of the National Academy of Science*, *Nature Climate Change*, *Journal of Marine Research*, *Quarterly Journal of the Royal Meteorological Society*, *Journal of Geophysical Research*, *Environmental Research Letters*, *Biogeosciences*, *Geoscientific Model Development*, and *Climate Dynamics*

Department Seminars

- 2025 MIT, Stanford University, Institute of Science and Technology Austria, Stockholm University
- 2024 Geophysical Fluid Dynamics Laboratory
- 2023 UCLA, San Jose State University
- 2022 Peking University, Lamont Doherty Earth Observatory
- 2021 University of Michigan, Yale University
- 2020 Columbia University (canceled due to COVID-19), Yale University (rescheduled due to COVID-19)
- 2019 University of Waterloo, University of Chicago
- 2018 Stony Brook University

- 2017 Scripps Institution of Oceanography, UCSD (Climate, Atmospheric Sciences, and Physical Oceanography Department), Seoul National University
- 2016 McGill University (Department of Physics), Columbia University, Lamont Doherty Earth Observatory

Conference Presentations

- 2024 AMS Annual Meeting (invited), CFMIP, AMS Conference on Atmospheric and Oceanic Fluid Dynamics
- 2023 AMS Annual Meeting, Tropospheric Lapse Rate workshop, CFMIP, ECS Symposium
- 2022 AMS Conference on Atmospheric and Oceanic Fluid Dynamics, MIT Symposium in Honor of Kerry Emanuel, GEWEX Pan-GASS Understanding and Modeling Atmospheric Processes, Princeton University From Spectroscopy to Climate, 2nd Model Hierarchies Workshop
- 2021 AGU Fall Meeting
- 2020 AMS Annual Meeting, AGU Fall Meeting
- 2019 AMS Conference on Atmospheric and Oceanic Fluid Dynamics, IUGG/CMOS Congress, Northeast Tropical Workshop
- 2018 CMOS Congress (invited plenary), MIT Lorenz Center Water and Climate Change (invited), Princeton University Heldfest (invited)
- 2017 CMOS Congress, AMS Conference on Atmospheric and Oceanic Fluid Dynamics, Northeast Tropical Workshop, AGU Fall Meeting (invited)
- 2016 AMS Conference on Hurricanes and Tropical Meteorology, CMOS Congress, AGU Fall Meeting (invited), WCRP Model Hierarchies Workshop, CLIVAR Width of the Tropical Belt Workshop