

Tony E. Wong

Assistant Professor

School of Mathematical Sciences
Rochester Institute of Technology
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Rochester, NY 14623

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Website: <https://tonywong.github.io/>

Positions

Assistant Professor

School of Mathematical Sciences, Rochester Institute of Technology
August 2019 - Present, Rochester, NY

Assistant Teaching Professor (Instructor)

Department of Computer Science, University of Colorado Boulder
August 2017 - July 2019, Boulder, CO

Postdoctoral Scholar

Earth & Environmental Systems Institute, Pennsylvania State University
June 2016 - July 2017, University Park, PA

Graduate Research Assistant

Cooperative Institute for Research in Environmental Sciences, University of Colorado Boulder
January 2011 - May 2016, Boulder, CO

SIParCS Graduate Student Intern

National Center for Atmospheric Research/National Oceanic and Atmospheric Administration
June 2011 - July 2011, Boulder, CO

REU Student Intern

Harvard-Smithsonian Center for Astrophysics
June 2009 - July 2009, Cambridge, MA

Education

PhD, Applied Mathematics / University of Colorado Boulder

August 2010 - May 2016, Boulder, CO
The Impact of Stable Water Isotopic Information on Parameter Calibration in a Land Surface Model
Advisors: W. Kleiber (CU-Boulder) and D. Noone (Oregon State)

MS, Applied Mathematics / University of Colorado Boulder

August 2010 - May 2012, Boulder, CO

BA, Mathematics (honors), Astrophysics / Ohio Wesleyan University

August 2006 - May 2010, Delaware, OH

Research Interests

model calibration, uncertainty, and sensitivity
climate change impacts
Earth system modeling
decision analysis and climate risk management

Publications (peer reviewed)

(my students in **bold**)

In preparation:

Wong, T.E., **M. Peeks**, and M. Cox (2022), An analysis of the class size effect in undergraduate mathematics and computer science courses.

In review:

Wong T.E., C. Ledna, L. Rennels, H. Sheets, F. Errickson, D. Diaz, and D. Anthoff (2022), Uncertainty in Future Sea Level Raises High-End Coastal Adaptation Costs.

Errickson, F.C., T.E. Wong, K. Keller, and D. Anthoff (2022), Improved Climate Modeling Reduces the Upper Tail of the Social Costs of Carbon.

Published:

- 26) **Hough, A.** and T.E. Wong (2022), Evolution of Parametric Drivers of High-End Sea-Level Hazards, *Advances in Statistical Climatology, Meteorology and Oceanography*, DOI: 10.5194/ascmo-8-117-2022
- 25) T.E. Wong, **H. Sheets, T. Torline** and **M. Zhang** (2022), Evidence for increasing frequency of extreme coastal sea levels, *Frontiers in Climate*, DOI: 10.3389/fclim.2022.796479
- 24) Wong T.E., G.M. Thurston, N. Barlow, N.D. Cahill, L. Carichino, K. Maki, D. Ross, and J. Schneider (2021), Evaluating the Sensitivity of SARS-CoV-2 Infection Rates on College Campuses to Wastewater Surveillance, *Infectious Disease Modelling*, DOI: 10.1016/j.idm.2021.09.003
- 23) Wong, T.E., Y. Cui, D. Royer, and K. Keller (2021), A tighter constraint on Earth-system sensitivity from long-term temperature and carbon-cycle observations, *Nature Communications*, DOI: 10.1038/s41467-021-23543-9
- 22) Vega-Westhoff, B., R. Sriver, C. Hartin, T. Wong, and K. Keller (2020), The Role of climate sensitivity in extreme sea-level rise projections, *Geophysical Research Letters*, DOI: 10.1029/2019GL085792
- 21) Wong, T.E. (2019), Lasting coastal hazards from past greenhouse gas emissions, *Proceedings of the National Academy of Sciences*, DOI: 10.1073/pnas.1917051116
- 20) Brady, E., Stevenson, S., Bailey, D., Liu, Z., Noone, D., Nusbaumer, J., Otto-Bliesner, B., Tabor, C., Tomas, R., Wong, T., Zhang, J., Zhu, J. (2019), The connected isotopic water cycle in the Community Earth System Model version 1, *Journal of Advances in Modeling Earth Systems*, DOI: 10.1029/2019MS001663
- 19) Vega-Westhoff, B., R.L. Sriver, C.A. Hartin, T.E. Wong, and K. Keller (2019), Impacts of observational sea-level change constraints on estimates of climate sensitivity, *Earth's Future*, DOI: 10.1029/2018EF001082
- 18) Wong, T.E. (2018), An Integration and Assessment of Covariates of Nonstationary Storm Surge Statistical Behavior by Bayesian Model Averaging,

Advances in Statistical Climatology, Meteorology and Oceanography, DOI:
10.5194/ascmo-4-53-2018

- 17) Wong, T.E., **A. Klufas**, V. Srikrishnan, and K. Keller (2018), Neglecting Model Structural Uncertainty Underestimates Upper Tails of Flood Hazard, *Environmental Research Letters*, DOI: 10.1088/1748-9326/aacb3d
- 16) Tabor, C., B. Otto-Bliesner, E. Brady, J. Nusbaumer, J. Zhu, M. Erb, T.E. Wong, Z. Liu, and D. Noone (2018), Interpreting precession driven $\delta^{18}\text{O}$ variability in the South Asian monsoon region, *Journal of Geophysical Research: Atmospheres*, DOI: 10.1029/2018JD028424
- 15) **Fuller, R.**, T.E. Wong, and K. Keller (2017), Probabilistic inversion of expert assessments to inform projections about Antarctic Ice Sheet responses, *PLoS ONE*, DOI: 10.1371/journal.pone.0190115
- 14) Zhu, J., L. Zhengyu, E. Brady, B.L. Otto-Bliesner, S.A. Marcott, J. Zhang, X. Wang, J. Nusbaumer, T.E. Wong, A. Jahn, and D. Noone (2017), Investigating the direct meltwater effect in terrestrial oxygen-isotope paleoclimate records using an isotope-enabled Earth system model, *Geophysical Research Letters*, DOI: 10.1002/2017GL076253
- 13) Wong, T.E. and K. Keller (2017), Deep Uncertainty Surrounding Coastal Flood Risk Projections: A Case Study for New Orleans, *Earth's Future*, DOI: 10.1002/2017EF000607
- 12) Wong, T.E., A.M.R. Bakker, and K. Keller (2017), Impacts of Antarctic Fast Dynamics on Sea-Level Projections and Coastal Flood Defense, *Climatic Change*, DOI: 10.1007/s10584-017-2039-4
- 11) Wong, T.E., A.M.R. Bakker, K.L. Ruckert, P.J. Applegate, K. Keller (2017). BRICK v0.2, a simple, accessible and transparent model framework for climate and regional sea-level projections, *Geoscientific Model Development*, DOI: 10.5194/gmd-10-2741-2017
- 10) Zhu, J., L. Zhengyu, E. Brady, B.L. Otto-Bliesner, J. Zhang, D. Noone, R. Tomas, J. Nusbaumer, T.E. Wong, A. Jahn, and C. Tabor (2017), Reduced ENSO Variability at the LGM Revealed by an Isotope-enabled Earth System Model, *Geophysical Research Letters*, DOI: 10.1002/2017GL073406
- 9) Wong, T.E., W. Kleiber, D.C. Noone (2017), The Impact of Error Accounting in a Bayesian Approach to Calibrating Modeled Turbulent Fluxes in an Open-Canopy Forest, *Journal of Hydrometeorology*, DOI: 10.1175/JHM-D-17-0030.1
- 8) Bakker, A.M.R, T.E. Wong, K.L. Ruckert, and K. Keller (2017), Sea-level projections representing deeply uncertain ice-sheet contributions, *Scientific Reports*, DOI: 10.1038/s41598-017-04134-5
- 7) Wong, T.E., V. Srikrishnan, D. Hadka, and K. Keller (2017). A Multi-Objective Decision-Making Approach to the Journal Submission Problem, *PLoS ONE*, DOI: 10.1371/journal.pone.0178874
- 6) Nusbaumer, J., T.E. Wong, C. Bardeen, D.C. Noone (2017). Evaluating hydrological processes in the Community Atmosphere Model Version 5 (CAM5) using stable isotope ratios of water, *Journal of Advances in Modeling Earth Systems*, DOI: 10.1002/2016MS000839
- 5) Wong, T.E., J. Nusbaumer, D.C. Noone (2017). Evaluation of modeled land-atmosphere exchanges with a comprehensive water isotope fractionation scheme in the NCAR Community Land Model, *Journal of Advances in Modeling Earth Systems*, DOI: 10.1002/2016MS000842

- 4) Teschner, B., N.M. Smith, Z.O. John, T. Borillo-Hutter, T.E. Wong (2017). How efficient are they really? A minimally invasive testing method of small-scale gold miners' gravity separation systems in the Guianas, Minerals Engineering, DOI: 10.1016/j.mineng.2017.01.005
 - 3) Ruckert, K.L., G. Shaffer, D. Pollard, Y. Guan, T.E. Wong, C.E. Forest, K. Keller (2017). Assessing the impact of retreat mechanisms in a simple Antarctic ice sheet model using Bayesian calibration, PLoS ONE, DOI:10.1371/journal.pone.0170052
 - 2) Berkelhammer, M., D. Noone, T.E. Wong, S. Burns, J. Knowles, A. Kaushik, P. Blanken, M. Williams, (2016). Convergent approaches to determine an ecosystem's transpiration fraction, Global Biogeochemical Cycles, DOI:10.1002/2016GB005392
 - 1) Wong, T.E. (advisors: D.C. Noone and W. Kleiber) (2016). The Impact of Stable Water Isotopic Information on Parameter Calibration in a Land Surface Model. PhD Thesis, University of Colorado, Boulder, Colorado, USA, DOI:10.13140/RG.2.2.30181.40162
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**Book/Tutorial
Chapters
(not peer reviewed)**

Tony E. Wong, Kelsey L. Ruckert, and Klaus Keller, 2018, Sensitivity Analysis for a Simple Sea-Level Change Model. In: Risk Analysis in the Earth Sciences: A Lab Manual with Exercises in R (Applegate, P. J., and Keller, K., eds.). <https://leanpub.com/raes> (version in progress here: http://www.personal.psu.edu/vxs914/RAES/raes_v3p0.pdf)

Kelsey L. Ruckert, Tony E. Wong, Yawen Guan, and Murali Haran, 2018, Applying Markov chain Monte Carlo to sea-level data. In: Risk Analysis in the Earth Sciences: A Lab Manual with Exercises in R (Applegate, P. J., and Keller, K., eds.).
<https://leanpub.com/raes>
(version in progress here: http://www.personal.psu.edu/vxs914/RAES/raes_v3p0.pdf)

Kelsey L. Ruckert, Tony E. Wong, Yawen Guan, Murali Haran and Patrick J. Applegate, 2018, A Calibration Problem and Markov chain Monte Carlo. In: Risk Analysis in the Earth Sciences: A Lab Manual with Exercises in R (Applegate, P. J., and Keller, K., eds.).
<https://leanpub.com/raes>
(version in progress here: http://www.personal.psu.edu/vxs914/RAES/raes_v3p0.pdf)

Kelsey L. Ruckert, Tony E. Wong, Benjamin Seiyon Lee, Yawen Guan, and Murali Haran, 2018, Bayesian Inference and Markov chain Monte Carlo Basics. In: Risk Analysis in the Earth Sciences: A Lab Manual with Exercises in R (Applegate, P. J., and Keller, K., eds.). <https://leanpub.com/raes>
(version in progress here: http://www.personal.psu.edu/vxs914/RAES/raes_v3p0.pdf)

**White Papers and
Other Writing
(not peer reviewed)**

Wong, T. (29 March 2021), If everyone on Earth sat in the ocean at once, how much would sea level rise? The Conversation "Curious Kids" article with over 450k reads, translated into Japanese and Arabic. Available from:
<https://theconversation.com/if-everyone-on-earth-sat-in-the-ocean-at-once-how-much-would-sea-level-rise-156626>

Wong, T. and B. Zaharatos (2018), The Road to T1 and the Critical Role of Teaching Faculty, white paper submitted to University of Colorado Boulder Academic Futures Committee. Available from:
<https://www.colorado.edu/academicfutures/response-papers>

T. Mortlock, P. Somerville, T. Wong, and A. Bakker (2018), Thwaites and Pine Island

Mentoring

PhD:

- 1) Meghan Childs / PhD, Mathematical Modeling, RIT
2021 - present

Master's:

- 4) Alana Hough / MS, Data Science; BS, Applied Mathematics, RIT
2020 - 2022
- 3) Jaser Iniguez / MS, Applied Statistics, RIT
2021
- 2) Ken Shultes / MS, Applied and Computational Mathematics, RIT
2020 - 2021
- 1) Robert Fuller / MS, Geosciences, PSU
2016 - 2017

Undergraduate:

- 19) Kayleigh Patterson / BS, Physics, RIT
2022 - present
- 18) Mikayla MacIntyre / BS, Applied Statistics, RIT
2022 - present
- 17) Allison Dennis / DBER REU, Mathematics, TAMU
2022 - present
- 16) Hannah Sheets / BS, Applied Statistics, RIT
2020 - 2022
- 15) Jenny Bogart / BS, Applied Mathematics, RIT
2022
- 14) Matthew Dunham / DBER REU, Statistics, UC Monterey Bay
2021
- 13) Mason Tedeschi / DBER REU, Neurodiversity Studies, New College Florida
2021
- 12) Tiana Hose / BS, Applied Mathematics, RIT
2021 - 2022
- 11) Grayson Olin / BS, Applied Mathematics, RIT
2021
- 10) Matthew Peeks / BS, Applied Mathematics, RIT
2021
- 9) Patrick Ribas / (co-op) BS, Computer Science, RIT
2020
- 8) Devansh / BS, Computer Science, RIT
2020
- 7) Travis Torline / BS, Computer Science, CU Boulder
2019
- 6) Kyle Rosenberg / BS, Computer Science, CU Boulder
2019
- 5) Jon Oulton / BS, Computer Science, CU Boulder

2019

- 4) H. Nihar Nandan / BS, Computer Science, CU Boulder
2018 - 2019
 - 3) Mingxuan Zhang / BS, Applied Mathematics, CU Boulder
2018 - 2019
 - 2) John Letey / BS, Computer Science, CU Boulder
2018
 - 1) Alexandra Klufas / (Climate Science REU) BS, Mathematics, Wellesley College
2017
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Student Committees

Second-year Project Committee Member

Jenna MacDanold (RIT)
Victoria McGraw (RIT)
Trevor Lax (RIT)

Undergraduate Thesis Committee Member

Kris Edelman (Philosophy, RIT)
Mehmet B. Karaoglu (Computer Science, CU Boulder)

Teaching

Primary Instructor (RIT)

Risk Analysis with Applications in the Earth Sciences (MATH 589/689)
Probability & Statistics I (MATH 251)
Stochastic Processes (MATH 505/605)
Climate Change: Science, Technology & Policy (ENVS 531/631; team-taught)
Project-Based Calculus 1 (MATH 181)

Primary Instructor (CU Boulder)

CS1: Starting Computing (CSCI 1300)
Discrete Structures (CSCI 2824)
Discrete Structures Workgroup (CSCI 2830)
Intro. to Data Science with Prob/Stats (CSCI 3022)
Intro. to Artificial Intelligence (CSCI 3202)
Calculus 2 for Engineers (APPM 1360)
Calculus 3 for Engineers (APPM 2350)
Differential Equations with Linear Algebra (APPM 2360)
Calculus 1 for Engineers Workgroup (GEEN 1350)
Calculus 2 for Engineers Workgroup (GEEN 1360)
Seminar in Teaching Excellence (APPM 7500)

Primary Instructor (Penn State)

The Earth System (EARTH 002)

Teaching Assistant (CU Boulder)

Calculus 1 for Engineers (APPM 1350)
Calculus 1 for Engineers (APPM 1350)
Calculus 2 for Engineers (APPM 1360)
Differential Equations with Linear Algebra (APPM 2360)

Laboratory Assistant (Ohio Wesleyan University)

The Astronomical Universe (ASTR 111)

Grants and Funding (PI/co-PI only)

Dean's Research Initiation Cross-Disciplinary Seed Grant / PI, RIT internal
\$29,842, Dec 2021 - Dec 2022
Examining disciplinary variation in computational literacy: faculty perspectives on tools, practices, knowledge, and beliefs

Seed Grant / PI, RIT internal
\$5,000, Jul 2020 - Jun 2021
Characterizing uncertainty in future coastal hazards and damages from sea-level rise

Dean's Research Initiation Seed Grant / PI, RIT internal
\$14,000, Dec 2019 - Dec 2020
Evaluating drivers of uncertainty in deep-time paleoclimate constraints on the CO₂-temperature relationship

Undergraduate Research Opportunities Program / PI, CU Boulder internal
\$2,000, May 2019 - July 2019
Comparison of Methods for Estimating Future Flood Risk in New Orleans, Louisiana

Invited Talks

Wong, T.E., G. Thurston, N. Barlow, N. Cahill, L. Carichino, K. Maki, D. Ross, and J. Schneider, Evaluating the Sensitivity of SARS-CoV-2 Infection Rates on College Campuses to Wastewater Surveillance, Ithaca College Mathematics Department Colloquium, Ithaca, NY, 22 Feb 2021.

Wong, T.E. and K. Keller, Managing Risk in a Changing Climate, Muller Award Lecture presented at Ohio Wesleyan University, Delaware, Ohio, 13 Apr 2017.

Wong, T.E., A.M.R. Bakker, K. Keller, The Impacts of Fast Antarctic Dynamics on Sea-Level Rise and its Implications on Coastal Defense, presented at Resources for the Future, Washington, D.C., 14 Nov 2016.

Wong, T.E., W. Kleiber, D.C. Noone, Optimization of Modeled Land-Atmosphere Exchanges of Water and Energy by Bayesian Parameter Estimation, presented at U.S. Geological Survey, Denver, Colorado, 8 Jul 2014.

Selected Presentations

(my students in **bold**)

T. Hose, M. Tedeschi, E.K. Mehlman, S. Franklin, T.E. Wong, Measuring the downstream impact of Learning Assistants with Markov chains, presented at 2022 UP-STAT Upstate New York ASA Chapters Joint Conference, Buffalo, NY, 2-4 May 2022.

Dunham, M., & Wong, T. The Functionality of Student Interviews and Artifacts in Assessing Computational Literacy. Presented at the American Statistical Association Rochester Chapter Meeting, Rochester, NY, Feb 2022.

T.E. Wong, C. Ledna, L. Rennels, H. Sheets, F.C. Errickson, D. Anthoff, Propagating uncertainty in future sea levels increases anticipated coastal adaptation costs, presented at 2021 Fall Meeting, American Geophysical Union, New Orleans, LA, 13-17 Dec 2021.

A. Hough, T.E. Wong, Analysis of the Evolution of Parametric Drivers of High-End

Sea-Level Hazards, presented at 2021 UP-STAT Upstate New York ASA Chapters Joint Conference, Buffalo, NY, 23-24 April 2021.

H. Sheets, T.E. Wong, The Price of Procrastinating Coastal Adaptation to Sea-Level Rise, presented at 2021 UP-STAT Upstate New York ASA Chapters Joint Conference, Buffalo, NY, 23-24 April 2021.

Wong, T.E., G. Thurston, N. Barlow, N. Cahill, L. Carichino, K. Maki, D. Ross, and J. Schneider, Sensitivity of SARS-CoV-2 Infection Rates on College Campuses to Wastewater Surveillance, Rochester Science Cafe, Rochester, NY, 23 Feb 2021.

T.E. Wong, Y. Cui, D.L. Royer, K. Keller, A tighter constraint on Earth-system sensitivity from long-term temperature and carbon-cycle observations, presented at 2020 Fall Meeting, American Geophysical Union, online (Covid-19), 1-17 Dec 2020.

T.E. Wong, V. Srikrishnan, B.A. Vega-Westhoff, Probabilistic projections for timing of global sea-level thresholds, presented at 2019 Fall Meeting, American Geophysical Union, San Francisco, CA, 9-13 Dec 2019.

Wong, T.E. and **M. Zhang**, An Integration and Assessment of Nonstationary Storm Surge Statistical Behavior, presented at US CLIVAR Workshop on Sea Level Hotspots from Florida to Maine: Drivers, Impacts, and Adaptation Workshop, Norfolk, VA, 23-25 Apr 2019.

Vega-Westhoff, B., Sriver, R. L., Hartin, C., Wong, T., and Keller, K., A Hector application: Sea-level constraints tighten climate sensitivity and temperature projections, Hector, sea-level rise and probability, presented at 2018 GCAM Community Modeling Workshop, College Park, MD, October 2018.

Sriver, R. L., Vega-Westhoff, B., Hartin, C., Wong, T., and Keller, K., Pinning the Tails on HECTOR: Recent Model Developments and Bayesian Calibration using Global Sea-level Rise Information, Poster presented at DOE Modeling PI meeting, Washington DC, November 2018.

V. Srikrishnan, T.E. Wong, G.G. Garner, K. Keller. Combining Remote and Local Observations In A Direct Policy Search for Coastal Flood Defense Under Deep Uncertainty, presented at Society for Decision Making Under Deep Uncertainty 2017 Workshop, Oxford, UK, 14-15 Nov 2017.

Wong, T.E. and K. Keller, Probabilistic Projections of Coastal Flood Risk: A Case Study for New Orleans, presented at 2017 Regional Sea Level Changes and Coastal Impacts Conference, WCRP/IOC, New York, NY, 10-14 Jul 2017.

Wong, T.E. and K. Keller, What are robust coastal risk management strategies? presented at 2016 Fall Meeting, American Geophysical Union, San Francisco, CA, 12-16 Dec 2016.

Wong, T.E., W. Kleiber, D.C. Noone, Optimization of Modeled Land-Atmosphere Exchanges by Bayesian Parameter Calibration, presented at 2015 Society for Industrial and Applied Mathematics Front Range Student Conference, Denver, CO, 28 Feb 2015.

Nusbaumer, J., T.E. Wong, D.C. Noone, The Impact of Differing Land Surface Models and Water Isotopic Parameterizations to the Distribution of Water Isotopes in a Coupled Atmosphere-Land Global Climate Model, presented at 2014 Fall Meeting, AGU, San Francisco, CA, 15-19 Dec 2014.

Wong, T.E., M. Berkelhammer, D.C. Noone, A model-based evaluation of evapotranspiration partitioning from stable water isotopes, presented at 2014 Society for Industrial and Applied Mathematics Front Range Student Conference, Denver, CO, 1 Mar 2014.

Wong, T.E., Stable water isotopes in CLM, presented at Land Model Working Group Meeting, National Center for Atmospheric Research, Boulder, CO, 24-26 Feb 2014.

Noone, D., S. Langford, J. Nusbaumer, T.E. Wong, Toward deeper understanding of climate history from isotope proxy records by exploiting the synergy of process models and contemporary observations. Workshop on Isotopes of Carbon, Water and Geotracers in Paleoclimate Research, Bern, Aug 2013.

Wong, T.E., M. Berkelhammer, D.C. Noone, Constraining rooting profile and the partitioning of evapotranspiration by optimization and sensitivity analysis in an isotopically-enabled land surface model, presented at 2012 Fall Meeting, AGU, San Francisco, CA, 3-7 Dec 2012.

Wong, T.E. and R. Oehmke, Expanding Regridding Capabilities of the Earth System Modeling Framework, SIParCS Final Presentations, Boulder, CO, 26 Jul 2011.

Honors and Awards

IOP Outstanding Reviewer Award, 2021

CIRES Graduate Fellowship, 2014

Robert L. Wilson Mathematics Prize (Ohio Wesleyan U.), 2010

Rogers D. Rusk Prize in Astrophysics (Ohio Wesleyan U.), 2010

BA awarded summa cum laude (cumulative GPA ≥ 3.97) (Ohio Wesleyan U.), 2010

Professional Service

2021-present, RIT Faculty Affairs Committee

2020-present, DOE Multi-Sector Dynamics Uncertainty Quantification and Scenario Discovery Working Group (core member)

2020-present, Treasurer, American Statistical Association Rochester Chapter

2019-present, Rochester Museum & Science Center Water Worlds science advisory committee

2017-present, European Geosciences Union

2016-present, Society for Decision Making Under Deep Uncertainty

2013-present, American Geophysical Union

2019-2021, Undergraduate Curriculum Committee (RIT School of Mathematical Sciences)

2018-2019, CU Boulder Instructor-Track Faculty Affairs Committee

2017-2019, Undergraduate Curriculum Committee (CU Boulder, Dept. of Computer Science)

2016, Vice President, CU Boulder Graduate Student Chapter, Society for Industrial and Applied Mathematics

2015, Department of Applied Mathematics Program Fees Committee

2014-2015, Organizing Committee Member, SIAM Front Range Student Conference

2013-2016, Judge, Prospect Ridge Academy, Corden Pharma Colorado Regional, Boulder Country Day School Science Fairs

2013-2016, NCAR Land Model Working Group

2013-2015, President, CU Boulder Graduate Student Chapter, Society for Industrial and Applied Mathematics

2011-2012, Lead Graduate Teaching Assistant, Department of Applied Mathematics, CU Boulder

2009-2010, President, OWU Student Chapter of Society of Physics Students

2009-2010, Student Board Chair, OWU Depts of Mathematics, Physics and Astronomy

2009, Assistant Conference Coordinator, Fall 2009 Meeting, Ohio Section, American Physical Society

Reviewer

New York City Panel on Climate Change 2018 Report
NSF CAREER program, ad hoc reviewer

Referee

Advances in Statistical Climatology, Meteorology and Oceanography
Climatic Change
Complexity
Earth's Future
Earth System Dynamics
Environmental Modeling and Software
Environmental Research Letters
Environmental and Resource Economics
Environmetrics
Geophysical Research Letters
Journal of Climate
Journal of Geophysical Research - Biogeosciences
Journal of Hydrometeorology
Journal of Marine Science and Engineering
Natural Hazards
Nature
Proceedings of the National Academy of Sciences
Water