

Amanda Giang

Institute for Resources, Environment and Resources
Department of Mechanical Engineering
University of British Columbia
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PROFESSIONAL APPOINTMENTS

Assistant Professor of Environmental Modelling and Policy 01/2018 - present
University of British Columbia
Institute for Resources, Environment and Sustainability and Department of Mechanical Engineering

Postdoctoral Associate 09/2017-12/2017
Massachusetts Institute of Technology
Institute for Data, Systems and Society

Visiting Postdoctoral Fellow 09/2017-12/2017
John F. Kennedy School of Government, Harvard University
Program on Science, Technology and Society

EDUCATION

PhD, Institute for Data, Systems and Society
Massachusetts Institute of Technology, June 2017
Dissertation: Science to support toxics governance: tracking mercury and other pollutants from policy to impacts
Committee: Noelle E. Selin (Chair), Elsie M. Sunderland, Lawrence Susskind
Research areas: Environmental Modeling, Environmental Health, Environmental Governance

M.S., Technology and Policy
Massachusetts Institute of Technology, 2013
Thesis: Quantifying the health and economic impacts of mercury pollution: an integrated assessment approach

B.A.Sc. with Honours, Engineering Science
University of Toronto, 2011
Major: Biomedical Engineering
Thesis: Metabolic engineering to improve cellulosic ethanol fermentation by *S. cerevisiae*

AWARDS AND HONOURS

UBC Sustainability Initiative Fellow (2018-2019)
Daniel and Eva Roos Engineering Systems Dissertation Prize (2017)
Best Environmental Policy Paper in *Environmental Science & Technology* for Wolfe et al. 2016 (2016)
Harvard Distinction in Teaching Award, Derek Bok Center for Teaching and Learning (Fall 2016)
Outstanding Student Paper Award – American Geophysical Union Fall Meeting, San Francisco, CA (2016)
Best Paper – Technology Management Policy Graduate Consortium, Cambridge, UK (2016)
Best Environmental Policy Paper in *Environmental Science & Technology* for Giang et al. 2015 (2015)
Martin Family Society of Fellows for Sustainability (2015-2016)
NSERC Canada - Postgraduate Doctoral Scholarship (2015-2017)

MIT Socio-technical Systems Research Center Stokes Fellow (2013-2014)
NSERC Canada - Julie Payette Research Scholarship (2012-2013)
Ontario Graduate Scholarship (Declined)
University of Toronto - Centre for Global Change Science Internship Award (2009)
University of Toronto Scholar Award (2007-2008)
Canada Millennium Scholarship (2007-2008)
National Biology Scholar with Distinction - Canada (2007)

RESEARCH AND CURRICULUM DEVELOPMENT GRANTS

University of British Columbia Sustainability Initiative Interdisciplinary Education Grant, 2018-2019
Title: Integrating case-based learning into the interdisciplinary design of sustainable energy-systems
Role: Principal Applicant (Total: CAD \$8,383)

Compute Canada Resource Allocation Competition, 2018-2019
Title: Simulation and data analysis for air pollution policy assessment
Role: PI (Total in-kind compute and storage valued at: CAD \$9,663)

University of British Columbia Faculty of Science, Skylight Development Grant, 2018-2019
Title: Integrating case-based learning about energy systems into ENVR 410
Role: Principal Applicant (Total: CAD \$3,455)

Natural Sciences and Engineering Research Council (NSERC) Discovery Grants, Canada, 2018-2023
Title: Evaluating the impacts of technology and policy on long-range transport of toxic pollutants
Role: PI (Total: CAD \$100,000)

Social Sciences and Humanities Research Council (SSHRC) Insight Grants, Canada, 2018-2022
Title: Environmental justice and air quality in Canada – Identifying and evaluating inequities in the production, distribution, and regulation of industrial air pollution
Role: Co-Investigator (PI: David Boyd, Total: \$201,600)

Cascadia Urban Analytics Co-operative, 2018-2019
Title: Data analytics strategies for understanding and improving urban air quality and health in Cascadia
Role: PI (Total: CAD \$20,000)

OTHER PROFESSIONAL EXPERIENCE

Graduate Research Assistant, 09/2011 - 06/2017
Prof. Noelle E. Selin, MIT

Project Member, 05/2011-09/2011
Centre for Research in Healthcare Engineering, University of Toronto

Undergraduate Research Assistant, 09/2010-05/2011
Prof. Krishna Mahadevan, University of Toronto

Junior Fellow in International Development, 05/2010-09/2010
Engineers Without Borders Canada, Choma, Southern Province, Zambia

Undergraduate Research Assistant, 05/2008-09/2008, 05/2009-09/2009
Prof. Miriam Diamond, University of Toronto

TEACHING EXPERIENCE

Instructor

ENVR 410, "Energy, Environment and Society," UBC, Scheduled for W2018 T2
Earth, Ocean and Atmospheric Sciences; Undergraduate Lecture

CEEN 525, "Energy Policy," UBC, Schedule for W2019 T1
Clean Energy Engineering Master's Program; Graduate Lecture

Faculty Sponsor

Student Directed Seminar on "Engineering in the Face of Climate Change," Scheduled for W2018 T2

Teaching Assistant

"Environmental Politics," Harvard University, Prof. Sheila Jasanoff, Fall 2016
Undergraduate Lecture; Undergraduate Discussion Section

"Modeling for Assessment and Policy," MIT, Prof. Noelle E. Selin, Spring 2016
Graduate Seminar

"Science, Technology, and Public Policy," MIT, Prof. Ken Oye, Fall 2015, Fall 2017
Undergraduate/Graduate Lecture; Graduate Discussion Section

"Praxis I: Engineering Design," University of Toronto, Profs. Jason Foster and Alan Chong, Fall 2010
Undergraduate Tutorial

Guest Lectures

The role of engineers in sustainability policy and governance, Winter 2018
VANT 150, Sustainability and Engineering Design, UBC

Mercury Science and Policy, Spring 2017
Air Pollution, UNC Asheville

Benefit Cost Analysis, Spring 2016, 2017
Modelling for Assessment and Policy, MIT

Discussant: An Interdisciplinary Approach to Studying Wicked Problems, Spring 2016
Center for Water and Society Colloquium, Michigan Technological University

Infrastructure and Culture, Fall 2015
Technology and Culture, MIT

Formal Training

Kaufman Teaching Certificate Program, MIT, Spring 2016
Canadian Engineering Education Association Institute of Engineering Teaching, UBC, Spring 2018

RESEARCH SUPERVISION**Graduate Students**

Hannah Barnard-Chumik (MSc), Mrinmoy Chakraborty (PhD, with N Zimmerman), Bassam Javed (PhD, with M Kandlikar)

Undergraduate Students

Erika Luna (UBC), Carlina Kim (UBC), Nick Hoffman (MIT, with H Angot and NE Selin; 2017-2018), Elizabeth Berg (MIT, with NE Selin; 2015-2016), Abby Harvey (MIT, with NE Selin; 2015-2016)

Research Assistants

Kaity Castellani

REFEREED JOURNAL ARTICLES

12. **Giang A**, Song S, Muntean M, Janssens-Maenhout G, Harvey A, Berg E, Selin NE. (accepted) Understanding factors influencing the detection of mercury policies in modelled Laurentian Great Lakes wet deposition. *Environmental Science: Processes & Impacts*.
11. Muntean M, Janssens-Maenhout G, Song S, **Giang A**, Selin NE, Zhong H, Zhao Y, Olivier J, Guizzardi D, Crippa M, Schaaf E, Dentener F. (2018) Evaluating EDGARv4.tox2 speciated mercury ex-post scenarios and their impacts on modelled global and regional wet deposition patterns. *Atmospheric Environment*. 184:56-68.
10. Kwon SY, Selin NE, **Giang A**, Karplus V, Zhang D. (2018) Present and future mercury concentrations in Chinese rice: Insights from modeling. *Global Biogeochemical Cycles*. 32: 437-467.
9. Perlinger JA, Urban NR, **Giang A**, Selin NE, Hendricks AN, Zhang H, Kumar A, Wu S, Gagnon VS, Gorman HS, Norman ES. (2018) An Approach to Model the Time to Fish Consumption Safe from Methylmercury Exposure in a Tribal Community. *Environmental Science: Processes & Impacts*. 20(1): 195-209.
8. Wolfe PJ, **Giang A**, Ashok A, Selin NE, Barrett SRH. (2016) Costs of IQ Loss from Leaded Aviation Gasoline Emissions. *Environmental Science & Technology*. 50(17):9026-33.
7. Stokes LC, **Giang A**, Selin, NE. (2016) Splitting the South: China and India's Divergence in International Environmental Negotiations. *Global Environmental Politics*. 16(4):12-31.
6. Song S, Selin NE, Gratz LE, Ambrose JL, Jaffe DA, Shah V, Jaeglé L, **Giang A**, Yuan B, Kaser L, Apel EC. (2016) Constraints from observations and modeling on atmosphere-surface exchange of mercury in eastern North America. *Elementa: Science of the Anthropocene*. 4(1):000100.
5. **Giang A**, Selin NE. (2016) Benefits of mercury controls for the United States. *Proceedings of the National Academy of Sciences*. 113(2):286-91.
4. **Giang A**, Stokes LC, Streets DG, Corbitt ES, Selin NE. (2015) Impacts of the Minamata Convention on mercury emissions and global deposition from coal-fired power generation in Asia. *Environmental Science & Technology*. 49(9):5326-35.
3. Weiss-Penzias P, Amos HM, Selin NE, Gustin MS, Jaffe DA, Obrist D, Sheu GR, **Giang A**. (2015) Use of a global model to understand speciated atmospheric mercury observations at five high-elevation sites. *Atmospheric Chemistry and Physics*. 15(3):1161-73.
2. Csiszar SA, Daggupaty SM, Verkoeyen S, **Giang A**, Diamond ML. (2012) SO-MUM: A coupled atmospheric transport and multimedia model used to predict intraurban-scale PCB and PBDE emissions and fate. *Environmental Science & Technology*. 47(1):436-45.
1. Robson M, Melymuk L, Csiszar SA, **Giang A**, Diamond ML, Helm PA. (2010) Continuing sources of PCBs: The significance of building sealants. *Environment International*. 36(6):506-13.

BOOK CHAPTERS

1. Gorman HS, Gagnon VS, **Giang A**, Perlinger JA, Urban NR. (in press). Policy, Science, and Transdisciplinary Research: When Will it Be Safe to Eat as Much Fish as Desired? A Research Agenda for Environmental Management. ed. Halvorsen KE, Schelly C, Handler R, Knowlton JL. Edward Elgar Publishing.

SELECTED CONFERENCE PRESENTATIONS/PAPERS

* indicates supervised UBC student or other research staff

13. Castellani K*, Boyd D, **Giang A** (2018) “Towards a Systematic Review of Environmental Injustice in Canada: National Patterns of Environmental Risks and Benefits” Poster. *Joint Annual Meeting of the International Society of Exposure Science and the International Society for Environmental Epidemiology*, Ottawa, ON, August 29.
12. **Giang A**. (2018) “Understanding the epistemic influence of non-state actors in treaty implementation: Case Study of the Minamata Convention.” Paper and presentation. *International Studies Association 59th Annual Convention*, San Francisco, CA, April 6.
11. **Giang A**. (2017) “Engaging, empowering, and enacting community: Case study of the Superfund Research Program.” Presentation. *Annual Meeting of the Society for Social Studies of Science*, Boston, MA, August 30.
10. **Giang A**, Monier E, Couzo E, Thackray C, Selin NE. (2017) “Understanding the impact of meteorological variability on global atmospheric mercury monitoring for policy.” Presentation. *13th International Conference on Mercury as a Global Pollutant*, Providence, RI, July 19.
9. **Giang A**, Monier E, Couzo E, Thackray C, Selin NE. (2017). “Understanding Meteorological Drivers of Variability in Atmospheric Mercury.” Poster. *100th Canadian Chemistry Conference and Exhibition*, Toronto, Canada, June 1.
8. **Giang A**, Monier E, Couzo E, Thackray C, Selin NE. (2016) “Implications of climate variability for monitoring the effectiveness of mercury policy.” Poster. *American Geophysical Union Fall Meeting*, San Francisco, CA, December 12.
7. **Giang A**, Thackray CP, Muntean M, Harvey A, Berg E, Song S, Selin NE. (2016) “Leveraging environmental monitoring networks for policy evaluation.” Presentation. *Technology Management Policy Graduate Consortium*, Cambridge, UK, June 28.
6. **Giang A**, Selin NE. (2015) “Developing Monitoring Indicators to Support Community Needs through Modelling: Detecting Anthropogenic Mercury Emissions Changes in the Great Lakes” Poster. *Society of Environmental Toxicology and Chemistry North America 36th Annual Meeting*, Salt Lake City, UT, November 4.
5. **Giang A**, Zhang H, Amos H, Song S, Zhang Y, Selin NE. (2015) “Can we ‘see’ signals of anthropogenic mercury emissions changes in modelled Great Lakes deposition?” Presentation. *12th International Conference on Mercury as a Global Pollutant*, Jeju, South Korea, June 18.
4. **Giang A**, Stokes LC, Streets DG, Corbitt ES, Selin NE. (2014) “Impacts of the Minamata Convention for Mercury Emissions and Transport from Coal-fired Power Generation in Asia.” Poster. *American Geophysical Union Fall Meeting*, San Francisco, CA, December 18.
3. **Giang A**, Stokes LC, Selin NE. (2014) “Mercury emissions in the Minamata Convention: Asia, North America, and Europe.” Paper and presentation. *International Studies Association 55th Annual Convention*, Toronto, ON, March 26-29.
2. **Giang A**, Zhang Y, Selin NE. (2013) “Quantifying US Benefits from Mercury Policy: an integrated assessment.” Presentation. *11th International Conference on Mercury as a Global Pollutant*, Edinburgh, Scotland, July 28-August 2.
1. **Giang A**, Selin NE. (2013) “Quantifying the health and economic benefits of mercury policy” Poster. *6th International GEOS-Chem Conference*, Cambridge, MA, May 6-9.

OTHER PUBLICATIONS

5. Stokes L, Selin N, **Giang A**. “Splitting the South: China and India’s Divergence in International Environmental Negotiations.” *ISEP Policy Brief*, Initiative for Sustainable Energy Policy, Johns Hopkins University. April 2018.

4. Stokes L, Selin N, **Giang A**. “Green Leadership From a Divided South? China and India’s Divergence Shape Outlook for International Negotiations.” *New Security Beat: the blog of the Environmental Change and Security Program.*, Woodrow Wilson International Center for Scholars. December 5, 2016.
3. Selin NE, **Giang A**. “Are tighter EPA controls on mercury pollution worth it?” *The Conversation*. February 9, 2016.
2. **Giang A**, Mulvaney K, Selin NE. “Public Comment to the US EPA on ‘Supplemental Finding That It Is Appropriate and Necessary To Regulate Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units’.” January 15, 2016.
1. Selin NE, Stokes LC, Alpert A, Czaika E, Edwards B, **Giang A**, Rumore D, Saari R, Staples M, van der Hoop J, Wolfe P. “Mercury Science Bulletin – Recent Findings from Scientific Research.” Fifth Session of the Intergovernmental Negotiating Committee to prepare a globally legally binding instrument on mercury, UN Environment Programme, Geneva, Switzerland. January 13-18, 2013.

INVITED TALKS AND FACILITATION

5. “Charrette: Codesign Tools for Public Education on Ann Arbor’s Dioxane Plume” Michigan Sustainability Cases Galaxy, University of Michigan, June 9, 2018.
4. “Getting from Emissions to Impacts: Insights from policy analysis research.” Canadian Electricity Association – Sustainable Electricity Steering Committee, March 13, 2018.
3. “Science to support toxics governance: tracking mercury from policy to impacts.” Civil and Environmental Engineering Seminar, Michigan Technological University, October 16, 2017.
2. “Impacts assessment to support policy-making across scales: regional implications of global mercury policy.” Southern Ontario Centre for Atmospheric Aerosol Research Seminar, University of Toronto. November 2, 2016.
1. “Assessing the impacts of mercury policy under global environmental change.” Climate and Health Seminar, Columbia University Mailman School of Public Health. October 20, 2016.

PROFESSIONAL MEMBERSHIPS

Engineer-in-Training, Engineers & Geoscientists British Columbia
 International Society for Exposure Sciences
 Canadian Engineering Education Association
 American Geophysical Union
 Society for Social Studies of Science

SERVICE AND OUTREACH

Service

Manuscript referee for *Environmental Science & Technology*, *Environmental Pollution*, *Critical Reviews in Environmental Science and Technology*, *Atmospheric Chemistry & Physics*, *Journal of Cleaner Production*, *Nature Communications*

Local Organizing Committee Member for 13th International Conference on Mercury as a Global Pollutant, Providence, RI (2016-2017)

ESL Tutor for MIT ESL Program for Service Employees (2017)

MIT Joint Program on the Science and Policy of Global Change Student Lunch Seminar Coordinator (2015-2016)

Engineering Systems Student Society Research and Education Co-Chair (2014-2015)

Outreach

Women in Science and Engineering Mentor, UBC (2018)

“Understanding Air” Activity Facilitator - Annual New England Tribal Environmental Conference (2015) and MIT Open House (2016)

MIT Joint Program on the Science and Policy of Global Change Student Public Lecture Series - Climate Policy 102 lecturer (2015) and “Dispatches from Paris” panel moderator (2016)

MIT Women’s Initiative Co-Director - STEM outreach for Gr. 6-12 girls (2013-2015)

LANGUAGES

Mandarin (advanced oral, beginner written), French (intermediate), German (lower intermediate)

Programming: MATLAB, Python, IDL, Fortran, bash, C, C++