

ADRIA K. SCHWARBER, PH.D.

EDUCATION

University of Maryland, College Park | 2013 – 2019

Ph.D. Atmospheric and Oceanic Science (December 2019)

M.S. Atmospheric and Oceanic Science (May 2016)

University of Louisville, Kentucky | 2008 – 2013

B.A. Chemistry, B.A. Political Science (May 2013, double-major, cum laude)

Study abroad: KIIS Program to Japan on the Benjamin Gilman Scholarship (Summer 2010)

Study abroad: Ritsumeikan Asia Pacific University, Japan on the David L. Boren Scholarship (2010-2011)

PROFESSIONAL EXPERIENCE

American Institute of Physics | November 2018 – Present

Science Policy Analyst with FYI Science Policy News

- Author and edit summaries and feature-length articles on legislative activity, budget proposals, leadership changes, and other policy developments relevant to the physical sciences that are sent to over 7,000 subscribers
- Participate in weekly editorial meetings and collaborate with team members to meet publication deadlines
- Contribute content to a suite of FYI newsletters and resources, including social media and web-based tools for tracking federal science budgets, legislation, and leaders
- Identified and improved organizational processes, including developing a team orientation manual to reduce managerial burden, writing a Twitter strategy to effectively engage with over 3,000 followers, and contributing to an internal AIP White Paper report exploring future directions of the organization

USAID Office of Global Climate Change | September 2015 – June 2016

Virtual Student Foreign Service Intern

- Supported the USAID Office of Global Climate Change by cataloging resources and integrating competencies by sector for 10 hours per week

Nuplex Resins Inc. | June 2013 – August 2013

Quality Assurance Intern

- Developed and tested polymer paints in an independent working environment, culminating in a company-wide presentation

RESEARCH AND ACADEMIC EXPERIENCE

Joint Global Change Research Institute (cooperative institute between the University of Maryland and PNNL)

Graduate Research Assistant | Advisors: Dr. Steven J. Smith and Dr. Corinne Hartin | August 2013 – December 2019

Ph.D. Dissertation Thesis: “Decadal to Centennial Climate Dynamics in Models of Varying Complexity”

Project 1: Short-Term Climate Response in Models and Implications for Understanding Short-Lived

Climate Forcers

- Elucidate the role short-lived climate forcers, like methane and black carbon, have in modifying climate in the near-term by examining the spatial (e.g. Northern/Southern Hemisphere, land/ocean, Arctic/Antarctica) and temporal evolution of the climate response in complex models (Phase 5 of the Coupled Model Intercomparison Project, CMIP5) and four observational datasets (HadCRUTv4.3, GISTEMP, Berkeley Earth, and MLOST) using R

Project 2: Characterization of Model Noise in CMIP5 Models

- Evaluated how realistic complex models are compared to paleoclimate reconstructions and four in-situ observational datasets using R statistical packages
- Robustly assessed complex model variability at time periods and regional levels important to human systems
- Compiled results into publishable paper to support climate modeling communities

M.S. Scholarly Paper: "Simple Climate Model Characterization and Evaluation Using Fundamental Impulse Tests"

Project 3: Simple Climate Model Characterization and Evaluation Using Fundamental Impulse Tests

- Tested the climate and gas-cycle components within several simple climate models to improve model development
- Synthesized perturbation experiments into weekly updates to independently explain progress to supervisors and a publishable paper
- Provides a comprehensive assessment of simple climate models, which have implications for decision science, and recommended a standard set of validation test for any simple model available on Github

Project 4: A simple object-oriented and open-source model for scientific and policy analyses of the global climate system-Hector v1.0

- Supported an interdisciplinary team of scientists and collaborated with end users to identify needed components within Hector, an open-source simple climate model available on Github, and a publishable paper
- Improved atmospheric components within Hector (coded in C++) to better simulate global climate for decision-maker support, resulting in a co-authored publication

Project 5: Using Integrated Assessment Models to Estimate the Economic Damages from Temperature Related Human Health Effects in the US

- Supported an interdisciplinary team of scientists by estimating future economic damages using complex model output of future temperatures from the Representative Concentration Pathways from the CMIP5 archive scaled to U.S. state levels

University of Maryland, Graduate Level Atmospheric Dynamics | September 2015 – December 2015 *Graduate Teaching Assistant*

- Independently prepared weekly class resources, such as study guides and quizzes, and assisted with examination preparation for 20 graduate students

University of Louisville, Kentucky

Undergraduate Researcher | Advisor: Dr. Mark Noble | January 2012 - June 2013

Thesis: "Investigation of Protonation of $[Mo_2(NTo)_2(S_2P(OEt)_2)_2(SO)(SBz)(O_2CMe)]_2$ "

- Prepared and characterized molybdenum-sulfur complexes for applications in air quality using wet-lab techniques, NMR, and UV-Vis spectroscopy

SUMMARY OF LEADERSHIP AND ENGAGEMENT ACCOMPLISHMENTS

Science Policy Leadership

National Science Policy Network | January 2020 – Present

- Provide editorial support to early-career scientists, resulting in four graduate student-led publications in local newspapers across the U.S. and a published memo in the Journal of Science Policy and Governance
- Coordinated and led a coalition of 8 Kentucky-based science organizations in delivering a [nonpartisan questionnaire](#) asking Kentucky candidates about their science policy priorities ahead of the November 2020 election

University of Maryland Graduate Student Government | July 2014 – July 2018

- Served on University-level committees and investigated policies pertaining to the academic and professional development of graduate students while representing over 10,000 graduate students on the Graduate Student Government, leading to the implementation of a grievance procedure and Science Advocacy Day event
- Led a team to successfully execute Graduate Research Appreciation Day, the largest graduate-student-only, on-campus conference at the University of Maryland for two years (Budget of approx. \$28,000 with 200+ attendees)

Science Diplomacy Activities

- S4D4C European Science Diplomacy Online Certificate Program | November 2020 (anticipated)
- Co-authored an article and online resources as part of the National Science Policy Network's Science Diplomacy Committee | January 2020 – Present
- Negotiated with diverse teams in simulations of real-world biodiversity and climate change negotiations as part of the World Climate Simulation at the 2018 AAAS Science Diplomacy Workshop, DC-based Inter-University Climate Change Negotiation Simulation 2015, and Japan Model United Nations in Tokyo, Japan 2010

Advisory Roles

STGlobal Organizing Committee | March 2020 – April 2021

- Supporting a team of graduate students and professionals in organizing a conference on the social and policy dimensions of science and technology, in addition to organizing a panel on the intersection of disability studies and science and technology development

American Physical Society | January 2019 – January 2021

- Improved professional development resources for graduate students as part of the American Physical Society's Topical Group on the Physics of Climate, resulting in the establishment of a conference travel grant for students studying the physics of climate, which was featured in an [APS News story](#)

ComSciCon-AIP Organizing Committee Member | December 2018 – September 2019

- Organized and moderated a science policy panel featuring representatives from the National Science Policy Network, MIT DC Office, and Union of Concerned Scientists

Science Communication and Public Engagement

- Performed a spoken science story at Story Collider DC: The (Un)beaten Path | February 2018
- Shared the basics of my research at the University of Maryland's Terps Exchange event | November 2018
- Synthesized and communicated technical information to members of Congress in collaboration with professional organizations during Climate Science Week 2016 - 2018, UCAR Capitol Hill Visit Day 2017, AAAS Making Our CASE Workshop Congressional Visit Day 2017
- Pursued opportunities to engage with K-12 communities, including at the Teen Earth Optimism Event at the Smithsonian National Museum of Natural History, KID Museum's Invent the Future Challenge

Summit, and serving as a volunteer science fair judge across Prince George's County, Maryland

HONORS AND AWARDS

- Graduate Student Distinguished Service Award Finalist 2019
- AOSC Ann Wylie Green Fund Scholarship (\$1,088) 2018
- UMD Ann G. Wylie Dissertation Fellowship (\$15,000) 2017
- UCAR Capitol Hill Scholar 2017
- AAAS Catalyzing Advocacy for Science and Engineering Workshop Attendee (funded by AAAS) 2017
- MIT/WHOI Graduate Climate Conference Travel Grant 2017
- UMD Jacob A. Goldhaber Travel Grant 2016
- AOSC Department-sponsored American Meteorological Society Annual Meeting Travel Grant 2015
- Departmental Excellence in Graduate Student Service Award 2015
- Society for Risk Analysis Travel Grant 2014
- UMD Dean's Fellowship 2013
- Fulbright Research Grant Alternate 2013
- David L. Boren Scholarship (\$10,000) 2010
- U.S. Department of State's Benjamin A. Gilman International Scholarship (\$3,5000) 2010

SELECT PUBLICATIONS

Science Policy Publications

1. Vasquez K.*, **Schwarber A.***, Novack V.* 2021. "Ensuring Disability Equity in Climate Adaptation Frameworks and Disaster Preparedness." White Paper in prep for submission to the Journal of Science Policy & Governance and UK Science and Innovation Network Special Topics Issue for Climate Change Solutions. *Denotes equal authorship
2. Tripathi S., Gu L., Arora A., Brown J., and **Schwarber A.** 2020. "Role of Early Career Researchers in Navigating Geo-Political Conflicts: Lessons from the Past and a Pathway for the Future." Submitted to the AAAS Science & Diplomacy magazine.
3. **Schwarber, A.K.** "Space Weather Preparedness Bill Clears Congress." *FYI Science Policy News*, 25 Sept. 2020, <https://www.aip.org/fyi/2020/space-weather-preparedness-bill-clears-congress>.
4. **Schwarber, A.K.** "Universities Make Case for Pandemic Relief Funds." *FYI Science Policy News*, 18 Sept. 2020, <https://www.aip.org/fyi/2020/universities-make-case-pandemic-relief-funds>.
5. **Schwarber, A.K.** "NSF Seeks 'Systems Approach' to Earth Science." *FYI Science Policy News*, 28 Aug. 2020, <https://www.aip.org/fyi/2020/nsf-seeks-%E2%80%98systems-approach%E2%80%99-earth-science>.
6. **Schwarber, A.K.** "PCAST Delivers Roadmap to Spur 'Industries of the Future'." *FYI Science Policy News*, 05 Aug. 2020, <https://www.aip.org/fyi/2020/pcast-delivers-roadmap-spur-%E2%80%98industries-future%E2%80%99>.
7. **Schwarber, A.K.** "House Democrats Release Expansive Climate Crisis Action Plan." *FYI Science Policy News*, 09 July 2020, <https://www.aip.org/fyi/2020/house-democrats-release-expansive-climate-crisis-action-plan>.
8. **Schwarber, A.K.** "'Physics of Living Systems' Survey to Delineate New Subfield." *FYI Science Policy News*, 06

May 2020, <https://www.aip.org/fyi/2020/%E2%80%98physics-living-systems%E2%80%99-survey-delineate-new-subfield>. Republished in APS News, <https://www.aps.org/publications/apsnews/202006/fyi.cfm>.

9. **Schwarber, A.K.** "ADA at 30: Scientists Urge Efforts Beyond Compliance." *Physics Today*, American Institute of Physics, 23 Mar. 2020, <https://physicstoday.scitation.org/doi/10.1063/PT.6.2.20200803a/full/>.
10. **Schwarber A.K.** "Let's train UMD's grad students how to communicate their research to the public." *The Diamondback*. 09 October 2018. <https://dbknews.com/2018/10/09/umd-graduate-students-research-gsg-resolution-workshop-series/>. Editorial.

Technical Journal Articles

11. **Schwarber A.K.**, Smith S. J., Hartin C. A., and Link R.P. 2020. "Characterization of Variability in Complex Models." *Submitted*.
12. **Schwarber A.K.**, Smith S. J., Hartin C. A., Vega-Westhoff B. A., and Sriver R. "Evaluating climate emulation: fundamental impulse testing of simple climate models." *Earth Syst. Dynam.*, 10, 729–739, <https://doi.org/10.5194/esd-10-729-2019>, 2019.
13. Hartin C.A., Patel P.L., **Schwarber A.K.**, Link R.P., and Bond-Lamberty B. 2015. "A simple object-oriented and open source model for scientific and policy analyses of the global climate system-Hector 1.0." *Geoscientific Model Development* 8(4):939-955. doi:10.5194/gmd-8-939-2015.

SELECT FIRST-AUTHOR PRESENTATIONS

Science Policy Presentations

1. "Examining Political Influence in Climate Science and Weather Forecasting," 500 Women Scientists-DC Pod Event, March 2020 (invited virtual presentation)
2. "Researching Your Congressperson," 500 Women Scientists-DC Pod Event with Georgetown University's Women in Science and Education and the Postdoc Association, November 2019 (invited presentation)
3. "Researching Your Congressperson," 500 Women Scientists-DC Pod Event with Union of Concerned Scientists, February 2019 (invited presentation)

Technical Presentations

4. "Characterization of Model Variability in CMIP5," American Geophysical Union Annual Meeting, December, 2018 (Poster)
5. "Simple Climate Model Evaluation Using Fundamental Impulse Tests," American Geophysical Union Annual Meeting, December 2017 (Poster)
6. "Simple Climate Model Evaluation Using Fundamental Impulse Tests," WHOI-MIT Graduate Climate Conference at Woods Hole, MA, November 2017 (Poster)
7. "Investigating Short-Term Climate Responses in Stylized CMIP5 Experiments," American Association for the Advancement of Science Annual Meeting, February 15-20, 2017 (Poster)
8. "Investigating the Short-Term Responses of Climate in Stylized CMIP5 Experiments," American Geophysical Union Virtual Poster Session, December 2016 (Poster)
9. "Transient Climate Sensitivity of Simple Climate Models," American Meteorological Society Annual Meeting, January 10-14, 2016 (Oral presentation)
10. "Quantifying Human Health Effects from Climate Change in an Integrated Assessment Model," Society for Risk Analysis Annual Meeting, December 7-14, 2014 (Poster)