

Maya V. Chung

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[Professional Website](#)

[Google Scholar](#)

[Github](#)

EDUCATION	Ph.D. Atmospheric and Oceanic Sciences , Princeton University Graduate certificate in Science, Technology and Environmental Policy	2020–2026
	B.A. Earth and Planetary Sciences , Harvard University <i>magna cum laude with highest honors</i> Secondary Field: Mathematical Sciences Language Citation: Mandarin Chinese	2015–2019
RESEARCH APPOINTMENTS	Postdoctoral Research Associate <i>High Meadows Environmental Institute, Princeton University</i> Advisors: Gabriel Vecchi (Geosciences), Lydia Lynch (Molecular Biology) Researching how extreme and moderate warm and cold temperatures impact physiology in mice and implications for climate change.	2026–Present
	Graduate Research Assistant <i>Princeton University Program in Atmospheric and Oceanic Sciences</i> Advisor: Gabriel Vecchi Committee Members: Laure Resplandy, Andrew Wittenberg, Rong Zhang, Sonya Legg (former) Investigated the ocean’s role in global climate, including how ocean circulation modulates climate feed-backs and stability under different solar forcing (paper) and how ocean salinity impacts the El Niño–Southern Oscillation (ENSO) using coupled general circulation models (GCMs).	2020–2026
	HMEI-STEP Fellow <i>High Meadows Environmental Institute, Princeton School of Public and International Affairs</i> Advisors: Jessica Metcalf and Bryan Grenfell Competitive fellowship for graduate students to take public policy courses and conduct a policy-relevant research project. Integrated climate and infectious disease modeling to study how ENSO impacts year-to-year variations in disease spread and population immunity (paper), and implications for public health policy.	2022–2024
	Undergraduate Research Assistant <i>Harvard Department of Earth and Planetary Sciences</i> Advisor: Peter Huybers Developed a novel warping technique to identify ocean profiles influenced by water mass intrusions and improve estimates of global ocean heat content. Projected variability onto seasonal modes and the El Niño–Southern Oscillation to discern heating trends and interannual changes in ocean heat content.	2017–2019
	Summer Student Fellow <i>Woods Hole Oceanographic Institution</i> Advisors: Geoffrey Gebbie and Peter Huybers Created a novel method to measure ocean heat uptake by adapting an algorithm commonly used for speech recognition (dynamic time warping).	Summer 2018
	Summer Undergraduate Research Fellow <i>Scripps Institution of Oceanography</i> Advisors: Ivana Cerovecki, Matthew Mazloff, Sarah Gille, Lynne Talley Characterized relationships between sea ice production and winds in West Antarctica and their connection to cooling and freshening events in the southeast Pacific. Compared model output to satellite and	Summer 2017

in-situ observations.

PEER-REVIEWED
PUBLICATIONS

3. **Chung, M. V.**, Yang, W., Vecchi, G. A. (2025). Runaway Cooling from Large Solar Reductions Modulated by Ocean Overturning Circulation and Heat Uptake. *Geophysical Research Letters*. <https://doi.org/10.1029/2025GL117821>
2. **Chung, M. V.**, Vecchi, G. A., Yang, W., Grenfell, B., and Metcalf, C. J. (2025). Intersecting memories of immunity and climate: Potential multiyear impacts of the El Niño-Southern Oscillation on infectious disease spread. *GeoHealth*, 9, e2024GH001193. <https://doi.org/10.1029/2024GH001193>
1. Knutson, T. R., **Chung, M. V.**, Vecchi, G., Sun, J., Hsieh, T-L. and Smith, A. J. P. (2021). ScienceBrief Review: Climate change is probably increasing the intensity of tropical cyclones. *Critical Issues in Climate Change Science*. <https://doi.org/10.5281/zenodo.4570334>

OTHER
PUBLICATIONS

2. (Book Chapter) Yang, W., Levin, E., Menemenlis, S., Scapin, N., Igbino, M., **Chung, M.**, Rios, G., Hsieh, T.-L., Deike, L., Mitevski, I., & Vecchi, G. A. (2025). Chapter 1—Overview of tropical cyclones and historical perspective. In G. Villarini, G. A. Vecchi, & E. Scoccimarro (Eds.), *Tropical Cyclones and Associated Impacts* (pp. 1–25). Elsevier. <https://doi.org/10.1016/B978-0-323-95390-0.00001-7>
1. (Senior thesis, award) **Chung, M. V.**, Gebbie, G., and Huybers, P. J. (2019). Quantifying Isopycnal Heave Using Dynamic Depth Warping (Senior thesis, Harvard College, Cambridge, MA).

MANUSCRIPTS
UNDER REVIEW

- Burrows, H., **Chung, M. V.**, Howerton, E., Kraemer, M., Grenfell, B.T., Metcalf, C.J.E. Expect the unexpected: infectious disease in an era of global change. *PLOS Biology*.
- Baker, R. E., Stamper, A. R., Burrows, H., Spacey, O. G., **Chung, M. V.**, Rice, B. L., Yang, W., Wagner, C. E., Metcalf, C. J. E. The future of infectious diseases in a changing climate. *Nature Medicine*.

MANUSCRIPTS IN
PREPARATION

- Chung, M. V.**, Liu, M., Soden, B. J., Vecchi, G. A. Sea surface salinity variability impacts the equatorial Pacific mean state.
- Chung, M. V.**, Liu, M., Soden, B. J., Vecchi, G. A. The influence of salinity variability and stratification on extreme El Niño events.
- Howerton, E. and **Chung, M. V.** Why infectious disease forecasting is not like weather prediction, but can learn from it.

UNIVERSITY
TEACHING &
LEADERSHIP

ENV 354/GEO 368: *Climate and Weather: Order in the Chaos*

Fall 2025

Guest Lecturer, Princeton University

Professor: Gabriel Vecchi

Guest lecture on the El Niño–Southern Oscillation for undergraduates.

SPI 586D: *Global Environmental Governance*

Spring 2024, 2025

Guest Lecturer, Princeton University and NYU School of Law

Professors: Michael Oppenheimer, Bryce Rudyk
 Guest lecture on solar radiation management, climate modeling, and international governance strategies for geoengineering.

Professional Development Associate, GradFUTURES, Princeton University 2024-25
 Supported science policy career pathways and professional development opportunities for Princeton graduate students. Co-organized the inaugural science policy learning cohort, science communication workshop, and evaluated AAAS CASE workshop applications.

Advisor, High Meadows Environmental Institute Summer Internship, Princeton University 2024-25
 Advised undergraduate researcher Emma Dornseif during the summer and senior thesis project on extreme temperature and mortality, joint with the Department of Anthropology.

GEO 425 / MAE 425: Introduction to Ocean Physics for Climate Fall 2022

Assistant in Instruction & Guest Lecturer, Princeton University

Professor: Gabriel Vecchi

Guest lectures (5): Surface heat fluxes / ocean heat budget, mixed layer dynamics, deep ocean circulation and global overturning climate impacts, ENSO observations, ENSO theory.

USW 35: Dilemmas of Equity and Excellence in American K-12 Education Fall 2018

Course Assistant, Harvard College Program in General Education

Professor: Katherine (Kay) Merseth

Topics: US public education history, current issues, and reform.

APMTH 120: Applied Linear Algebra and Big Data Spring 2018

Teaching Fellow, Harvard School of Engineering & Applied Sciences

Professor: Eli Tziperman

Topics: singular value decomposition, spectral clustering, neural networks, applications to economics & science.

OTHER TEACHING EXPERIENCE

AmeriCorps Member 2019–2020

City Year Boston, Henry Grew Elementary School

Provided holistic support and tracked student data in a 5th grade classroom, including individual and small-group tutoring in math and English language arts, social-emotional coaching, after-school enrichment, and school-wide programming.

Freelance Tutor 2019–2020

Tutored high school students, undergraduates, and adult learners.

Subjects: Earth Science, Chinese, MATLAB, college essay writing, SAT prep.

Science Teacher Summer 2019

Children's School of Science, Woods Hole, MA

Designed curricula and taught hands-on, field-based summer courses for students ages 8-12.

Courses: Marine Biology, Invertebrate Zoology.

Peer Tutor 2016–2019

Harvard College Bureau of Study Counsel

Tutored 11 undergraduates in linear algebra, multivariable calculus, statistics, probability, Chinese, and American Sign Language.

AWARDS & HONORS

First Place, Health in Climate Hackathon, Climate Week NYC, Cornell Tech 2025

Created an interactive AI agent that sends actionable weather and health alerts via text message before, during, and after extreme weather events.

Outstanding Student Presentation Award, American Geophysical Union 2025

Service and Outreach Award, Princeton Geosciences Department 2022

	magna cum laude with highest honors	2019
	Highest honors for research within the field of Earth and Planetary Sciences at Harvard College.	
	Thomas T. Hoopes Prize	2019
	Awarded to Harvard seniors nominated by faculty for conducting outstanding senior thesis research.	
	Student Travel Grant , American Geophysical Union Fall Meeting	2018
	Student Travel Grant , Ocean Sciences Meeting	2018
FELLOWSHIPS	High Meadows Environmental Institute Science, Technology, and Environmental Policy Graduate Fellowship (HMEI-STEP)	2022–2024
	National Science Foundation Graduate Research Fellowship (NSF GRFP)	2021–2024
	American Meteorological Society Graduate Fellowship	2020–2021
	Woods Hole Oceanographic Institution Summer Student Fellowship	2018
	Scripps Institution of Oceanography SURF REU	2017
CONFERENCE TALKS	M. V. Chung , W. Yang, G. A. Vecchi, B. Grenfell, and C. J. Metcalf, 2025: “Intersecting Memories of Immunity and Climate: Potential Multiyear and Nonlinear Impacts of the El Niño–Southern Oscillation on Infectious Disease Spread.” <i>American Geophysical Union Fall Meeting</i> , New Orleans, LA.	
	(invited) M. V. Chung , 2024: “Infectious Disease Dynamics in a Changing Climate.” <i>Detection and Attribution Science Workshop</i> , University of the West Indies, Mona, Kingston, Jamaica.	
	M. V. Chung , W. Yang, and G. A. Vecchi, 2023: “Abrupt Solar Changes Yield Asymmetric Responses in Deep Water Density and Meridional Overturning Circulation.” <i>American Geophysical Union Fall Meeting</i> , San Francisco, CA.	
	M. V. Chung , W. Yang, G. A. Vecchi, B. Grenfell, and C. J. Metcalf, 2023: “Multiyear Impacts of ENSO on Infectious Disease Spread in Weather-Disease Models.” <i>American Geophysical Union Fall Meeting</i> , San Francisco, CA.	
	M. V. Chung , M. Liu, B. Soden, and G. A. Vecchi, 2023: “The influence of sea surface salinity variability on the equatorial Pacific mean state and extreme ENSO events.” <i>Northeast Tropical Workshop</i> , University at Albany, Albany, NY.	
	M. V. Chung , M. Liu, B. Soden, and G. A. Vecchi, 2022: “The Role of Sea Surface Salinity in Extreme El Niño events.” <i>Ocean Salinity Conference</i> , Columbia University, New York, NY.	
	M. V. Chung , M. Liu, B. Soden, and G. A. Vecchi, 2021: “The Role of Sea Surface Salinity in Extreme El Niño events.” <i>American Geophysical Union Fall Meeting</i> , New Orleans, LA.	
OTHER FORMAL TALKS	(invited) M. V. Chung , W. Yang, G. A. Vecchi, 2025: “Runaway Cooling from Large Solar Reductions Modulated by Ocean Overturning Circulation and Heat Uptake.” <i>45th ECS & Cloud Feedback Virtual Symposium</i> . https://youtu.be/YJK-MvE-Pys?si=_X09i8-RqB4484r9&t=550	
	(invited) M. V. Chung , 2024: “ENSO forecasting and implications for infectious disease prediction.” <i>On the accuracy (and niceness) of prediction: From epidemics to climate and weather</i> , High Meadows Environmental Institute and Department of Ecology and Evolutionary Biology, Princeton, NJ.	
	M. V. Chung , W. Yang, G. A. Vecchi, B. Grenfell, and C. J. Metcalf, 2023: “Multiyear Impacts of ENSO on Infectious Disease Spread in Weather-Disease Models.” <i>STEP Seminar</i> , School for Public and International Affairs, Princeton, NJ.	
	M. V. Chung , 2023: “Climate Science at the IPCC: How Research Informs Policy.” <i>John Locke Institute Public Policy Symposium</i> , Princeton, NJ.	
	M. V. Chung , 2019: “Down with Density: A New Way to Quantify Ocean Warming due to Climate Change.” <i>Harvard College 3-Minute Thesis Finalist Presentations</i> , Harvard College Writing Center, Cambridge, MA.	

M. V. Chung, G. Gebbie, and P. Huybers, 2019: “Quantifying Isopycnal Heave Using Dynamic Depth Warping.” *2019 Senior Thesis Presentations*, Harvard University Department of Earth and Planetary Sciences, Cambridge, MA.

M. V. Chung, G. Gebbie, and P. Huybers, 2018: “Quantifying Layer Thickness Changes Using Dynamic Depth Warping.” *Summer Student Fellow Presentations*, Woods Hole Oceanographic Institution Physical Oceanography Department, Woods Hole, MA.

POSTER
PRESENTATIONS

M. V. Chung, W. Yang, G. A. Vecchi, 2025: "Runaway cooling from large solar reductions modulated by ocean overturning circulation and heat uptake." *American Geophysical Union Fall Meeting*, New Orleans, LA.

(Award) **M. V. Chung**, W. Yang, G. A. Vecchi, B. Grenfell, and C. J. Metcalf, 2024: “Intersecting memories of immunity and climate: Potential multiyear impacts of the El Niño—Southern Oscillation on infectious disease spread.” *American Geophysical Union Fall Meeting*, Washington, D.C.

M. V. Chung, W. Yang, G. A. Vecchi, B. Grenfell, and C. J. Metcalf, 2024: “Intersecting memories of immunity and climate: Potential multiyear impacts of the El Niño—Southern Oscillation on infectious disease spread.” *HMEI Discovery Day*, Princeton, NJ.

(invited) **M. V. Chung**, M. Liu, B. Soden, and G. A. Vecchi, 2023: “The Influence of Sea Surface Salinity on the Equatorial Pacific Mean State and Extreme ENSO Events.” *American Geophysical Union Fall Meeting*, San Francisco, CA.

M. V. Chung, M. Liu, B. Soden, and G. A. Vecchi, 2022: “The Influence of Sea Surface Salinity on the Equatorial Pacific Mean State and Extreme ENSO Events.” *American Geophysical Union Fall Meeting*, Chicago, IL.

M. V. Chung, G. Gebbie, and P. Huybers, 2020: “Quantifying Ocean Heat Content Changes Related to ENSO, Seasonal Variability, and Trends in Isopycnal Heave.” *Ocean Sciences Meeting*, San Diego, CA.

M. V. Chung, G. Gebbie, and P. Huybers, 2018: “Quantifying Isopycnal Heave Using Dynamic Depth Warping.” *American Geophysical Union Fall Meeting*, Washington, D. C.

M. V. Chung, I. Cerovecki, F. A. Haumann, M. Mazloff, S. Gille, and L. Talley, 2018: “Variability of Sea Ice Production in the Ross Sea from 2006-2010 and its Relationship to the Amundsen Sea Low.” *Ocean Sciences Meeting*, Portland, OR.

M. V. Chung, I. Cerovecki, M. Mazloff, S. Gille, and L. Talley, 2018: “Variability of Ice Production in the Ross Sea in 2006-2010 and its Relationship to the Amundsen Sea Low.” *SURF Research Symposium*, Scripps Institution of Oceanography, La Jolla, CA.

MEDIA

["Training the Next Generation of Scientists to Connect with Policymakers"](#) (article by Maya Chung) – Princeton GradFUTURES, August 2025

["The Interplay of ENSO and Immunity in Infectious Disease Outbreaks"](#) (research highlight) – *Eos*, March 2025

["Why Hurricanes And Typhoons Will Become More Dangerous"](#) (quoted) – *Forbes*, March 2021

["Intensity of Tropical Cyclones is Probably Increasing Due to Climate Change"](#) (quoted) – University of East Anglia, March 2021

OTHER
CONFERENCES &
WORKSHOPS

"Geoengineering in Crisis: The Princeton Workshop on Geoengineering Ethics and Governance" 2024, Princeton, NJ

"Dynamics of the Global Water Cycle," 2022 Advanced Climate Dynamics Course (ACDC), Rondvassbu, Norway

2021 United Nations Climate Change Conference (**COP26**)

Glasgow, Scotland

Inclusive Leadership Learning Cohort, Princeton GradFUTURES

Fall 2020

COMPETENCIES	Languages English (native), American Sign Language (advanced), Chinese (intermediate) Computer Python, Matlab, R, L ^A T _E X, Microsoft Office	
SELECTED SERVICE	American Geophysical Union GeoHealth Early Career Committee	2025–Present
	Committee Member	
	Princeton AOS Outreach	2022–Present
	Head Organizer, Volunteer	
	<ul style="list-style-type: none"> • Bronx Community College STEM Day (2025) • Spring into Science at Princeton University (2025) • Bronx Community College / City University of New York research scholars career presentation on climate & health (2024) • NJ Ocean Fun Days (2024) • Mercer County Boys & Girls Club Women and Girls Conference career panelist (2023), mentor (2024) • Mercer County Boys & Girls Club Annual STEM Conference (2022, 2023) • Bronx Community College climate science & policy career presentation (2022) 	
	Princeton Women in Geosciences (PWIGS)	2022–2025
	Mentor	
	Mentored Princeton University graduate students in Geosciences.	
	AOS Applicant Mentorship Program (AMP)	2022–2024
	Organizer / Mentor	
	Helped prospective PhD students navigate the application process.	
OTHER EXTRA-CURRICULAR ACTIVITIES	Association to Benefit Children – Study Buddies Connect	June 2021–Dec 2024
	Volunteer Tutor / Mentor	
	Provided virtual and in-person one-on-one tutoring for a student for 2 hours/week in math, literacy, and science.	
	Princeton AOS Summer Workshop	2021, 2023
	Organizer	
	<ul style="list-style-type: none"> • 2023: Paleo, present, and future: Leveraging the past to understand and predict our changing climate • 2021: Climate Tipping Points 	
	Princeton Undergraduates in Geosciences Mentorship Program	2020–2022
	Graduate Mentor	
	Mentored Princeton University undergraduates in Geosciences and related fields.	
	Science Olympiad (Virginia, Massachusetts)	2017–2019
	Event Supervisor, Test Writer	
	Ran Earth Science events for middle and high school students at regional and state competitions.	
	Princeton Energy and Climate Scholars	2023–2025
	High Meadows Environmental Institute	
	<ul style="list-style-type: none"> • Helped run a three-part film screening and discussion series on the impacts of lithium mining on indigenous communities. • Created educational plaques and helped establish a community microforest, along with mentoring volunteer students from Princeton Middle School. 	
	Environmental Policy Associates Program	2023–2025
	Center for Policy Research on Energy and the Environment (C-PREE)	