

# Miyuki Hino

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## EDUCATION

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*Stanford University*, Stanford, CA  
Ph.D., Environment and Resources 2019

*Yale University*, New Haven, CT  
B.S., Chemical Engineering (ABET) 2012

## ACADEMIC EXPERIENCE

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Fellow, Carolina Population Center July 2022 - present

Assistant Professor, Dept. of City and Regional Planning  
University of North Carolina at Chapel Hill Jan 2020 - present

Adjunct Assistant Professor, Environment, Ecology and Energy Program  
University of North Carolina at Chapel Hill Jan 2020 - present

Post-doctoral Researcher, Stanford Woods Institute for the Environment  
Stanford University 2019

## REFEREED PUBLICATIONS

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Mejía Duwan, J.\*, **Hino, M.**, and Mach, K.J., 2023. [Emissions redistribution and environmental justice implications of California's clean vehicle rebate project](#). *PLOS Climate* 2(5): e0000183. DOI:10.1371/journal.pclm.0000183.  
Coverage: [Denver Post](#), [New Scientist](#), [Gizmodo](#)

Reid, J.\*, **Hino, M.**, Thie, L., and Gray, K., 2023. [Insights from the Field: How North Carolina Local Government Climate Communications Compare to IPCC Guidelines](#). *Sustainability and Climate Change* 16(2), 162-174. DOI:10.1089/scc.2022.0131.

Gold, A.C., Anarde, K., Grimley, L.E.\*, Neve, R., Srebnik, E.R.\*, Thelen, T., Whipple, A., and **Hino, M.**, 2023. [Data from the drain: a sensor framework that captures multiple drivers of chronic floods](#). *Water Resources Research* 59, e2022WR032392. DOI:10.1029/2022WR032392.

**Hino, M.** and Field, C.B., 2023. [Fire frequency and vulnerability in California](#). *PLOS Climate*, 2(2): e0000087. DOI:10.1371/journal.pclm.0000087.

Coverage: [San Francisco Chronicle](#), [The Hill](#), [Capital Public Radio](#)

**Hino, M.**, BenDor, T., Branham, J., Kaza, N., Sebastian, A., and Sweeney, S., 2023. [Building safely or growing risk? Floodplain management in North Carolina](#). *Journal of the American Planning Association*. DOI:10.1080/01944363.2022.2141821.

Coverage: [News and Observer](#), [E&E News](#)

Mach, K.J., **Hino, M.**, Siders, A.R., Koller, S., Kraan, C., Sanders, B., 2022. [From flood control to flood adaptation: managing dynamic risks and promoting just well-being](#). *Oxford Research Encyclopedia of Environmental Science*. DOI:10.1093/acrefore/9780199389414.013.819.

Curran-Groome, W.\*, **Hino, M.**, BenDor, T., Salvesen, D., 2022. [Complexities and costs of floodplain buyout implementation](#). *Land Use Policy*, 118 (106128).

DOI:10.1016/j.landusepol.2022.106128.

Curran-Groome, W.\*, Haygood, H.\*, **Hino, M.**, BenDor, T.K., and Salvesen, D., 2021. [Assessing the full costs of floodplain buyouts](#). *Climatic Change*, 168(3). DOI:10.1007/s10584-021-03178-x.

Kraan, C.M., **Hino, M.**, Niemann, J., Siders, A.R., Mach, K.J., 2021. [Promoting equity in retreat through voluntary property buyout programs](#). *Journal of Environmental Studies and Sciences* 11, 481-492. DOI: 10.1007/s13412-021-00688-z.

**Hino, M.** and Burke, M., 2021. [The effect of information about climate risk on property values](#). *Proceedings of the National Academy of Sciences*, 118(17), e2003374118.

Coverage: [Bloomberg](#), [Popular Science](#), [E&E News](#), among others

Peterson, K.\*, Apadula, E.\*, Salvesen, D., **Hino, M.**, Kihslinger, R., and BenDor, T.K., 2020. [A review of funding mechanisms for US floodplain buyouts](#). *Sustainability* 12, 10112. DOI: 10.3390/su122310112.

Turek-Hankins, L.\*, **Hino, M.**, and Mach, K.J., 2020. [Risk screening methods for extreme heat: implications for equity-oriented adaptation](#). *PLoS ONE* 15(11): e0240841.

Mach, K.J., Kraan, C.M., **Hino, M.**, Siders, A.R., Johnston, E.M., and Field, C.B., 2019. [Managed retreat through voluntary buyouts of flood-prone properties](#). *Science Advances* 5(10), eaax8995. DOI: 10.1126/sciadv.aax8995.

Coverage: [NPR](#), [New York Times](#), [Bloomberg](#), among others

Siders, A.R., **Hino, M.**, and Mach, K.J., 2019. [The case for strategic and managed climate retreat](#). *Science* 365(6455), 761-763.

Coverage: [New York Times](#), [Boston Globe](#), [ABC News \(Australia\)](#), among others

**Hino, M.**, Belanger, S.T., Field, C.B., Davies, A.R., and Mach, K.J., 2019. [High-tide flooding disrupts local economic activity](#). *Science Advances* 5(2), eaau2736.

Coverage: [Bloomberg](#), [The Guardian](#), [Science Friday](#), among others

**Hino, M.**<sup>1</sup>, Benami, E.<sup>1</sup>, and Brooks, N., 2018. [Machine learning for environmental monitoring](#). *Nature Sustainability* 1, 583-588.

**Hino, M.**, Field, C.B., and Mach, K.J., 2017. [Managed retreat as a response to natural hazard risk](#). *Nature Climate Change*, 7, 364-370.

Coverage: [NPR's On Point](#), [The New Yorker](#), [Fast Company](#), among others

**Hino, M.** and Hall, J.W., 2017. [Real options analysis of adaptation to changing flood risk: analysis of structural and non-structural measures](#). *ASCE-ASME Journal of Risk and Uncertainty in Engineering Systems, Part A: Civil Engineering* 3(3), 04017005-1:12.

<sup>1</sup> denotes equal authorship.

\* denotes paper authored with an advised/supervised student

## UNREFEREED PUBLICATIONS

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[Five ways to ensure flood risk research reaches the most vulnerable](#),  
with Earthea Nance. (Article) 2021  
*Nature*

[What climate scientists want you to see in the floodwaters](#),  
with Katharine Mach (Article) 2017  
*New York Times*

[Abandon Florida? Not quite. But it's time for a retreat from flood zones](#),  
with Katharine Mach and Chris Field (Article) 2017  
*Vox*

[Adapting to climate change through managed retreat](#) (Article) 2017  
*Carbon Brief*

## INVITED TALKS

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The history of hazard mitigation in North Carolina (Panel) 2023  
*2023 Association of State Floodplain Managers Conference*

Advancing climate-resilient housing through strategic retreat (Presentation) 2023  
*Federal Housing Finance Agency*

Preparing for a changing climate: coastal adaptation (Discussant) <i>Stanford University</i>	2023
FEMA in a changing climate (Panel) <i>Duke Nicholas School of the Environment, Duke Nicholas Institute, UNC Department of City and Regional Planning</i>	2023
Federal Home Loan Bank System at 100: Climate Resilience (Panel) <i>Federal Housing Finance Agency</i>	2023
Flood risks and migration in the face of climate change (Presentation) <i>BlackRock Sustainability Speaker Series</i>	2023
Near-Term Monitoring and Data Needs for Assessing Sea Level Rise Impacts (Panel) <i>North Carolina Coastal Conference</i>	2022
Residential migration and exposure to extreme heat in North Carolina (Presentation) <i>University of Miami</i>	2022
Faith Communities and Climate Resilience Summit (Panel) <i>Creation Justice Ministries</i>	2022
Floodplain buyouts in the US: challenges and opportunities (Presentation) <i>Council of State Community Development Agencies (COSCDA) Annual Conference</i>	2022
Social equity in disaster risk management (Presentation) <i>FEMA National Advisory Council</i>	2022
The effect of information about climate risk on property values (Presentation) <i>Federal Reserve Board</i>	2022
Measuring the causes and impacts of sunny day flooding in coastal communities (Presentation + Panel) <i>North Carolina Beach, Inlet, and Waterways Association, Spring Meeting</i>	2022
Attribution of local economic disruption to sea level rise (Presentation) <i>Potsdam Institute for Climate Impact Research</i>	2022
Measuring the economic impacts of recurrent coastal flooding (Presentation) <i>UNC Department of Environmental Sciences and Engineering</i>	2022
The effect of information about climate risk on property values (Presentation) <i>University of Washington Center for Environmental Politics</i>	2022

In harm's way: characterizing exposure to flooding in North Carolina (Presentation) 2022  
*Carolina Population Center*

Floodplain development and the production of risk in North Carolina (Presentation) 2021  
*American Geophysical Union Annual Meeting*

Climate Change and U.S. Housing Markets (Panel) 2021  
*Wharton Risk Management and Decision Processes Center*

Dynamics of Extreme Events, People, and Places (Panel) 2021  
*UNC Research Week*

Measuring the social and economic impacts of recurrent coastal flooding 2021  
*UNC Institute of Marine Sciences*

Addressing Social Vulnerability and Equity in Climate Resilience (Panel) 2021  
*Council on Foreign Relations*

The effect of information about climate risk on property values (Presentation) 2021  
*University of Hawaii at Manoa, Workshop on Energy and Environmental Research*

Does information about climate risk affect property values? (Presentation) 2021  
*Bank of Japan, International Research Workshop on Climate-related Financial Risks*

How Climate Events Create Economic Shocks in Social Equity; a Solutions Discussion (Panel) 2021  
*UNC Institute for the Environment*

Economic impacts of climate change (Presentation) 2021  
*Collaboratory for Coastal Adaptation over Space and Time*

Economic risks of climate change: implications for financial regulators (Panel) 2020  
*Federal Reserve Bank of San Francisco and Climate Impact Lab*

The impacts of high-tide flooding on local economic activity (Presentation) 2020  
*Georgia Tech School of Civil and Environmental Engineering*

Does information about climate risk affect property values? (Presentation) 2020  
*Miami Climate Symposium*

Building flood and fire resilience for greater US Security (Panel) 2019  
*Woodrow Wilson International Center for Scholars, Woods Institute for the Environment*

Adapting to climate change: how sea level rise is reshaping the coast (Presentation) 2019

*Bechtel International Center*

Today's choices and tomorrow's coasts (Presentation) <i>Hard Earth Speaker Series</i>	2019
The impacts of high-tide flooding on local economic activity (Presentation) <i>Stanford Urban Resilience Initiative</i>	2018
Managed retreat as a response to natural hazard risk (Presentation) <i>California Coastal Commission</i>	2017
Managed retreat as a response to natural hazard risk (Presentation) <i>US Government Accountability Office</i>	2017
Building Coastal Resilience for Greater US Security (Panel) <i>Hoover Institution, Woods Institute for the Environment, and Woodrow Wilson International Center for Scholars</i>	2017
Managed retreat as a response to natural hazard risk (Presentation) <i>Consensus Building Institute</i>	2017
<a href="#">Taking Climate Change Seriously</a> (Panel) <i>World Affairs Council</i>	2017

**CONFERENCE PRESENTATIONS**

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Residential migration and exposure to extreme heat in North Carolina (Presentation) <i>Association of Collegiate Schools of Planning Annual Conference</i>	2022
Floodplain development and the production of risk in North Carolina (Presentation) <i>Association of Collegiate Schools of Planning Annual Conference</i>	2021
One step forward, two steps back: managing floodplain development in North Carolina (Presentation) <i>Carolinas Climate Resilience Conference</i>	2021
Where do buyout households go? Managed retreat and the geography of opportunity (Presentation) <i>Association for Public Policy Analysis and Management Fall Conference</i>	2020
One step forward, two steps back: managing floodplain development in North Carolina (Presentation) <i>Association of Collegiate Schools of Planning Annual Conference</i>	2020

Measuring floodplain management parcel-by-parcel in North Carolina (Presentation) 2020  
*Natural Hazards Research and Applications Workshop*

Measuring the impact of high-tide floods on local economic activity (Presentation) 2018  
*American Geophysical Union*

Early experiences with managed retreat (Panel) 2018  
*Adaptation Futures 2018*

Managed retreat as a response to natural hazard risk (Presentation) 2017  
*National Adaptation Forum*

Managed retreat as a response to natural hazard risk (Poster) 2016  
*American Geophysical Union*

## **TEACHING**

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### ***Courses***

PLAN 755/655 *Planning for Natural Hazards and Climate Change Adaptation*  
Spring 2022: 36 students, 4.4/5; Fall 2020: 30 students, 4.6/5

PLAN 656 *Climate Change Impacts and Adaptation*  
Fall 2021: 27 students, 4.7/5; Spring 2023: 38 students, 4.5/5

PLAN 647 *Coastal Management Policy*  
Fall 2021: 17 students, 4.9/5

ENEC 330/PLAN 330 *Principles of Sustainability*  
Spring 2021: 32 students, 4.5/5; Spring 2023: 29 students, 4.0/5

Completed Equity in Teaching Institute (UNC Center for Faculty Excellence), December 2020

### ***Advising***

Post-doctoral research associates: Jihoon Jung (2022-present)

Planning committee: Helena Garcia (2021), Chris Samoray (2021)

Comprehensive exam committee: Helena Garcia (2022), Leah Campbell (2020)

Dissertation committee: Hunter Quintal (2023), Lauren Grimley (2022-23), Tibor Vegh (2021), Nora Schwaller (2021), Jordan Branham (2021)

Masters Projects supervised: Christy Fierros (2023), Chloe Donohoe (2023), Fern Hickey (2022), Eunbi Ko (2022), Zuri Garcia (2022), Lucy Laird (2021)

Undergraduate honors thesis committee: Jessica Reid (2022)

**GRANTS** (UNC share noted if not the total)

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Evaluation of Capella SAR Data for mapping high-tide flooding inundation extent (I)  
NASA: \$99,279 2023-2024

Coastal flooding and the wellbeing of youth and young adults (PI) 2023-2024  
*Carolina Population Center*: \$30,000

The effects of chronic flooding on coastal migration (PI) 2022-2025  
*NSF Human-Environment and Geographic Sciences*: \$399,622

Identifying the drivers of chronic coastal flooding: a community-centric approach (co-PI)  
*North Carolina Sea Grant*: \$119,411 (UNC: \$31,888) 2022-2024

Buyouts, elevating, and floodproofing: understanding social equity of flood interventions for existing residential structures (co-PI) 2022-2023  
*Department of Homeland Security, Coastal Resilience Center*: \$298,612 (UNC: \$95,508)

Junior Faculty Development Award (PI)  
*University of North Carolina at Chapel Hill*: \$10,000 2022

A landscape study of social equity data needs and its access and availability to support the disaster resilience of marginalized communities (co-PI)  
*DHS Coastal Resilience Center*: \$694,546 2021-2023

Collaborative Research: Floodplain management in the United States: where, why, and how policies to limit or remove development have shaped exposure outcomes (PI)  
*NSF Humans, Disasters, and the Built Environment*: \$649,053 (UNC: \$148,962)  
2021-2024

Innovating a community-based resilience model on climate and health equity in the Carolinas (co-PI)  
*National Oceanic and Atmospheric Administration*: \$3,490,115 (UNC: \$771,244)  
2021-2026

Climate resilience in the coastal zone (co-I)  
*NSF - Growing Convergence Research*: \$1,149,999 2020-2022

Innovating floodplain buyouts: evaluating the buyout process and physical risk reduction



through buyout targeting (co-PI)  
*UNC Policy Collaboratory*: \$424,878 2020-2021

Mentoring Undergraduates in Research Program (as mentor)  
*Stanford Woods Institute for the Environment*: \$7,350 (0%, not UNC) 2018

Summer Undergraduate Research in Geoscience and Engineering Program (as mentor)  
*Stanford School of Earth, Energy and Environment*: \$11,000 (0%, not UNC) 2018

## PROFESSIONAL SERVICE

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Technical Contributor, US National Climate Assessment  
Economics chapter 2022-present

Organizing Committee Member, At What Point Managed Retreat? Resilience, Relocation, and Climate Justice 2020-present

Grant reviewer, NSF Strengthening American Infrastructure program 2022

Speaker, PBS North Carolina - State of Change panel 2022

Speaker, UNC World View - Understanding Climate Change program 2022

Speaker, Town of Carolina Beach Town Council Workshop 2022

Grant reviewer, EPA STAR 2022

Grant reviewer, NOAA Climate Program Office 2021

Fellowship reviewer, Switzer Foundation 2021

Manuscript reviewer: *Nature*, *Nature Water*, *Science Advances*, *Nature Communications*, *Global Environmental Change*, *Journal of Planning Literature*, *Water Economics and Policy*, *Ecological Economics*, *Climatic Change*, *Journal of Flood Risk Management*, *International Journal of Disaster Risk Reduction*, *Earth's Future*, *Natural Hazards*, *Land Economics*, *Nature Climate Change*, *Journal of Environmental Economics and Management*, *Journal of Real Estate Economics*

## SELECTED RECENT MEDIA

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2022:

PBS North Carolina, [Why 'sunny day flooding' is becoming a problem](#)

WRAL, [King tides this week may foreshadow norms of the future as sea level rises](#)

Associated Press, [Housing market slows retreat from rising seas, bigger storms](#)

Washington Post, [What climate change will mean for your home](#)

New York Times, [As federal disaster aid languishes, private lenders are filling the gap](#)  
[2021:](#)

News and Observer, [If you have flood insurance, the price is likely going up. What that means in NC](#)

Thomson Reuters Foundation, [Who wins, who loses from the boom in climate prediction startups](#)

NPR, [Is your home at risk from climate change? Here's how to know](#)

NPR, [California has a new idea for homes at risk from rising seas: buy, rent, retreat](#)