LUKE SANFORD

⌂ sanford-lab.github.io ✉ luke.sanford@yale.edu ⌥ https://sanford-lab.github.io/ 🎓 Google Scholar 📍
New Haven, CT, USA

RESEARCH INTERESTS

Political Economy, Environment, Natural Resources, Causal Inference, Machine Learning, Remote Sensing, Text as Data

WORK

Yale School of the Environment   New Haven, CT, USA
Assistant Professor   July 2021 – Present

- Assistant Professor of Environmental Policy and Governance
- Secondary appointment: Political Science
- Faculty affiliate: Yale Institute for Biospheric Studies, Yale Institute for The Foundations of Data Science, Yale Center for Geospatial Solutions

EDUCATION

University of California San Diego   San Diego, CA, USA
Ph.D. in International Affairs   2021

University of California San Diego, School of Global Policy and Strategy   San Diego, CA, USA
M.A. in Political Science   2017

Whitman College   Walla Walla, WA, USA
B.A. in Politics   2009

PUBLICATIONS

* Equal contribution   † Corresponding author   § Student or postdoc coauthor

[1] Matt Gordon[*§], Megan Ayers[*§], Eliana Stone[*§], and **Luke Sanford**[*]. "Remote Control: Debiasing Remote Sensing Predictions for Causal Inference". In: *AEA Papers and Proceedings* (2026). **In Press.**

[2] Anna Behm Masozera[†§], Urmila Mallick[§], Fidele Ruzigandekwe, Christopher Koliba, Adrian Martin, Taye Teferi, and **Luke Sanford**. "International cooperation and conflict in a social–ecological system: A study of mountain gorillas as a common pool resource". In: *Conservation Science and Practice* (2026). **Conditionally accepted.**

[3] **Luke Sanford**, Matt Gordon[§], Megan Ayers[§], and Eliana Stone[§]. "Adversarial Debiasing for Parameter Recovery". In: *Proceedings of the International Conference on Artificial Intelligence and Statistics*. **Conditionally accepted.** 2026. URL: https://arxiv.org/abs/2502.12323.

[4] Emily Sigman[†], Roman Isaac, Marina Frietsch, Dula Wakassa Duguma, Felipe Benra, Jacqueline Loos, Joern Fischer, and **Luke Sanford**. "Ecosystem restoration across political regimes: Why are so many 'successes' located in undemocratic contexts?" In: *Global Environmental Politics* (2026). **Accepted.**

[5] Vincent Haller[†§], **Luke Sanford**, and Timothy Gregoire. "The importance of local calibration in biomass models for REDD+ − a case study in the Chiloe Island, Chile". In: *Remote Sensing Applications: Society and Environment* (2025), p. 101851. DOI: 10.1016/j.rsase.2025.101851.

[6] Xiaohan Wu[†], Margaret E. Roberts, Rachel E. Stern, Benjamin L. Liebman, Amarnath Gupta, and **Luke Sanford**. "Addressing Missingness in Serialized Bureaucratic Data: The Case of Chinese Courts". In: *Sociological Methods & Research* (June 2025), p. 00491241251340610. ISSN: 0049-1241. DOI: 10.1177/00491241251340610.

[7] **Luke Sanford**[*†], Megan Ayers[*§], Margaret Roberts, and Eddie Yang. "Discovering influential text using convolutional neural networks". In: *Findings of the Association for Computational Linguistics ACL 2024*. Ed. by Lun-Wei Ku, Andre Martins, and Vivek Srikumar. Bangkok, Thailand and virtual meeting: Association for Computational Linguistics, Aug. 2024, pp. 12002–12027. URL: https://aclanthology.org/2024.findings-acl.714.

[8] **Luke Sanford**. "Democratization, Elections, and Public Goods: The Evidence from Deforestation". In: *American Journal of Political Science* 67.3 (2023), pp. 748–763. ISSN: 1540-5907. DOI: 10.1111/ajps.12662.

[9] Richard Bluhm[*], Pascal Polonik[*], **Luke Sanford**[*], Kyle S. Hemes[*], Susanne A. Benz[*], Morgan C. Levy[*], Katharine L. Ricke, and Jennifer A. Burney[†]. "Disparate Air Pollution Reductions during California's COVID-19 Economic Shutdown". In: *Nature Sustainability* (Apr. 2022), pp. 1–9. ISSN: 2398-9629. DOI: 10.1038/s41893-022-00856-1.

[10] **Luke Sanford**[*†] and Jennifer Burney[*]. "Cookstoves illustrate the need for a comprehensive carbon market". en. In: *Environmental Research Letters* 10.8 (2015), pp. 1–13. ISSN: 1748-9326. DOI: 10.1088/1748-9326/10/8/084026. URL: http://stacks.iop.org/1748-9326/10/i=8/a=084026.

[11] Jonathan Lautze[*†], Sanjiv de Silva[*], Mark Giordano[*], and **Luke Sanford**[*]. "Water Governance". In: *Key concepts in water resource management: a review and critical evaluation*. Ed. by Jonathan Lautze. Earthscan water text. London ; New York: Routledge, Taylor & Francis Group, 2014. ISBN: 978-0-415-71172-2.

[12] Eline Boelee, Sithara Atapattu, Tilahun Amede, and **Luke Sanford**. *Ecosystems for water and food security*. English. OCLC: 771993931. Nairobi: UNEP, 2011. ISBN: 978-92-807-3170-5. URL: http://www.iwmi.cgiar.org/Topics/Ecosystems/PDF/Background_Document-Ecosystems_for_Water_and_Food_Security_2011_UNEP-IWMI.pdf.

[13] Jonathan Lautze[*†], Sanjiv de Silva[*], Mark Giordano[*], and **Luke Sanford**[*]. "Putting the cart before the horse: Water governance and IWRM". In: *Natural Resources Forum* 35.1 (Feb. 2011), pp. 1–8. ISSN: 01650203. DOI: 10.1111/j.1477-8947.2010.01339.x. URL: http://doi.wiley.com/10.1111/j.1477-8947.2010.01339.x.

[14] David Molden[†], Jonathan Lautze, Tushaar Shah, Dong Bin, Mark Giordano, and **Luke Sanford**. "Governing to Grow Enough Food without Enough Water—Second Best Solutions Show the Way". In: *International Journal of Water Resources Development* 26.2 (June 2010), pp. 249–263. ISSN: 0790-0627, 1360-0648. DOI: 10.1080/07900621003655643. URL: http://www.tandfonline.com/doi/abs/10.1080/07900621003655643.

WORKING PAPERS

APPLIED

- The Longitudinal Effects of a Land Tenure Formalization Across a Changing Political Landscape in Benin, ... [Under Review, Land Use Policy]

- Political instability as a key factor in Social–Ecological Restoration: Insights and implications, *With Emily Sigman[§], Roman Isaac, Marina Frietsch, Dula Wakassa Duguma, Felipe Benra, Jacqueline Loos, Joern Fischer* .... [Under Review, Ecosystems and People]

- Potential for strategic behavior in jurisdictional REDD+, *With Alberto Garcia[§]. Working paper* .. [Revise and Resubmit, PNAS]

- Causal impact of forest carbon offset projects in the California Carbon Market, *With Seung Min Kim[§]. Working paper* ....

- Comparing Climate and AI Anxiety in American Youth, *With Julia Leonard* ...... [Submitted, PNAS]

- When Elections Drive Deforestation: Distinguishing National and District–Level Incentives, *With Eliot Carlson[§]* ....

- The Political Economy of Conflict and Deforestation: Evidence from the Philippines, *With Dotain Haim and Nina McMurry.* .... [Environmental Politics and Governance 2025 best paper award]

- The Deforestation effects of railway infrastructure Expansion: Evidence from the Trèn Maya, *With Cesar Martinez Alvarez[§] and Sarah Castle[§]* ....

Methods

- Aligning Carbon Offsetting with Causal Inference: Baseline Estimation and Additionality within the Potential Outcomes Framework, *With Megan Ayers[§], Will Gardner[§], and Sara Kuebbing. Preprint* [Under Review at ERL]

- A Double Machine Learning Approach to Using Satellite Imagery for Causal Impact Evaluation, [R&R at Political Analysis]

- Quantifying impacts of policy and practice: interventions on biodiversity and climate, *With Mark Bradford, Eli Fenichel, Dean Hosgood, Emily Oldfield, Alexander Polussa, Eric Potash, Oswald Schmitz, and Sara Kuebbing. Preprint* .... [Submitted]

- A Double Machine Learning Approach to Spatio-Temporal Confounders, *With Yiqing Xu and Licheng Liu* ....

- Active learning for remote sensing data, *With Emmanuelle Brindamour[§] and Brian Macdonald* ....

- Geospatial foundation models for causal inference, *With Mike Zhang[§]* ....

Projects

- Estimating Additionality in High Forest Low Deforestation Jurisdictions, *With Alberto Garcia[§]* ....

- Ten million causal estimates: how much do model and data choices affect estimates of additionality in evaluations of carbon credits, *With Megan Ayers[§], Sarah Castle[§], and Jonathan Elkobi[§]* ....

- Seeing Like a Satellite: Remote Sensing Data in Political Science Research, ...

- Analyzing the drivers and consequences of Kenyan resettlement schemes, *With Richard Bluhm* ....

- Activists vs. Apathists: Understanding the psychological drivers of teenagers' pro-climate behavior, *With Julia Leonard and Mariam Gedenidze[§]* ....

- Do Democracies Deforest Differently?, *With Austin Beacham* ....

Grants & Awards

- Co-PI. Baselines in the Voluntary Carbon Market, *Meta* 2025 ($66,673)
- PI. Comparing Conventional and LLM-Generated Materials in Factorial Survey Experiments., *Institute for Social and Policy Studies* 2025 ($18,200)
- PI. Voluntary Carbon Markets and Payment for Ecosystem Services in India, *MacMillan Center and Institute for Social and Policy Studies* 2025 ($60,000)
- PI. Developing a toolkit for Remote Sensing and Causal Inference, *MacMillan Center and Institute for Social and Policy Studies* 2025 ($70,000)
- Co-PI. Baselines and Additionality in the Voluntary Carbon Market, *Emergent* 2025 ($40,000)
- Co-PI. Voluntary Carbon Markets and Payment for Ecosystem Services in India, *Planetary Solutions Seed Grant, with Rohini Pande* 2024 ($100,000)
- PI. Measuring the Policy Impacts of Jurisdictional REDD+, *MacMillan Center* 2024 ($15,000)
- PI. Building tools for active learning with remote sensing data, *YEDSI Small grant, with Brian Macdonald* 2023 ($5,000)
- Co-PI. Measuring carbon leakage and spillover effects in environmental impact evaluations, *Planetary Solutions Seed Grant, with Fredrik Savje* 2023 ($80,000)
- Co-PI. Assessing the scope and limitations of forest carbon credit methodological approach to 'baselines', *Childs Family Grant, with Sara Kuebbing* 2023 ($25,000)
- PI. Climate Change Social Science Network, *with Kathryn Baragwanath, Cesar Martinez Alvarez, Alice Xu* 2022 ($17,000)
- Co-PI. Character Lab Grant for pilot study on climate change motivation in youths, *with Julia Leonard* 2022
- Co-PI. Climate change motivation in youths, *Planetary Solutions Seed Grant, with Julia Leonard* .. 2022 ($80,000)
- Co-PI. Sequestering Carbon through Protection and Production: A Case Study of Industrial Reforestation in Mata Atlantica, Brazil, *YCNCC Grant, with Mark Ashton, Thomas Harris, Yuan Yao, Daniel Piotto* 2022 ($260,000)
- PI. Capacity to recover: Carbon storage and capture in the Sinharaja land use mosaic, *YCNCC Grant, with David Woodbury and Mark Ashton* 2022 ($46,000)
- Best Graduate Student Poster, *Political Methodology Annual Conference* 2019
- Herb York Dissertation Fellowship, *Institute of Global Conflict and Cooperation* 2019 ($25,000)
- Outstanding Student Presenter Award, *American Geophysical Union* 2018
- Boren Fellow, *China* 2014–2015
- Cross Examination Debate Association National Tournament: 5th place, ... 2008

Technical Skills

Languages: English (native), Mandarin Chinese (HSK6 – strong reading, writing and speaking competencies), Spanish (conversational)
Coding: R (expert), Git/GitHub (expert), ArcGIS (expert), Stata (intermediate), Python (intermediate), LaTeX (intermediate), JavaScript (intermediate)

Invited Talks

- Using satellite data for social science research, *CUNY Hunter College* 2025
- Using satellite data for social science research, *Columbia University* 2025

- Jurisdictional REDD+, *Yale Forest Forum* 2025
- A Double Machine Learning Approach to Using Satellite Imagery for Causal Impact Evaluation, *University of California San Diego* 2025
- Using satellite data for social science research, *University of Connecticut* 2025
- Using satellite data for social science research, *Florida State University* 2024
- Evaluating the effects of land titling in Benin using satellite imagery, *Indiana University Ostrom Workshop Junior Scholars Symposium* 2024
- Remote Control: Debiasing Remote Sensing Predictions for Causal Inference, *WUSTL Political Science Data Lab* 2024
- Remote Control: Debiasing Remote Sensing Predictions for Causal Inference, *Berkeley Political Methodology Seminar* 2024
- Remote Control: Debiasing Remote Sensing Predictions for Causal Inference, *UConn Microeconomics Seminar* 2023
- Remote Control: Debiasing Remote Sensing Predictions for Causal Inference, *Geo For Good Conference* 2023
- Machine Learning for Impact Evaluation: Environmental effects of land tenure formalization, *Conservation Impact Evaluation and Implementation Science* 2023
- Evaluating the effects of land titling in Benin using satellite imagery, *Princeton CEREAL Seminar* 2022
- A Double Machine Learning Approach to using Satellite Data for Causal Inference, *Yale ISPS Methods Seminar* 2022
- Evaluating the effects of land titling in Benin using satellite imagery, *Yale Institute for Biospheric Studies* 2022
- Using Satellite Data for Causal Inference, *UC Santa Barbara, Environmental Politics Seminar* 2021
- Using Satellite Data for Causal Inference, *American Geophysical Union, New Orleans, LA* 2021
- Geospatial synthetic controls for agricultural impact evaluation, *American Geophysical Union, Washington DC* 2019

Teaching

Yale School of the Environment

- Environmental Policymaking: From Local to Global, ... 2022–2025
- Envisioning Climate Solutions with "The Ministry for the Future", ... 2022, 2024
- Yale Forest Forum, ... 2022–2023

University of California San Diego

- Big Data, *with Ahlquist* 2021
- Poli 270: Mathematical & Statistical Foundations, *Instructor* 2019, 2020
- Math Skills for Graduate Students, *Instructor* 2015–2020
- Remote Sensing and Spatial Analysis, *with McCord* 2019
- Advanced GIS and Remote Sensing, *with Goldblatt* 2018
- Quantitative Methods 1: Statistics and Probability, *with Garg* 2016–2017
- Quantitative Methods 2: Regression Analysis, *with Burney* 2016–2017
- Quantitative Methods 3: Panel Data and Causal Inference, *with McIntosh* 2016–2017
- Economic and Social Development of China, *with Naughton* 2015–2016
- International Politics and Security, *with Walter* 2015–2016

MENTORING

PAST POSTDOCS

- Cesar B. Martinez-Alvarez, ... Faculty at UCSB
- Alberto Garcia, ... Faculty at University of Utah
- Owen Cortner, ... Consultant
- Sarah Castle, ... Faculty at University of Wisconsin–Madison

CURRENT PhD STUDENTS

- Lauren Oliver, ...
- Apurva Dudu, ...
- Gracia Hadiwidjaja, ...
- Eliana Stone, ...
- Maike Pfeiffer, ...

CURRENT MESc STUDENTS

- Mariam Gedenidze, ...

PhD COMMITTEE MEMBER

- Thomas Harris, ...
- Hanna Wang, ...
- Reid Lewis, ...
- Nadia Ahmad, ...

PAST PhD STUDENTS

- Megan Ayers, *2025* .... Faculty at Reed College

PAST MESc COMMITTEE MEMBER

- Gabe Snashall, *2022* .... Climate Investing Analyst
- Vincent Haller, *2025* .... Carbon Market Analyst

OTHER

- Ethan Addicott, *Dissertation Reader* 2022

SERVICE

CONFERENCE ORGANIZATION

- Political Economy of Climate and Environment conference, *Founder, Steering Committee* 2022 – Present

DEPARTMENTAL & UNIVERSITY SERVICE

- Masters Program Committee, ... 2025
- Faculty Search Committee, ... 2023
- Staff Search Committee, ... 2022

Professional Memberships

- American Political Science Association
- Society for Political Methodology
- American Economic Association
- American Geophysical Union
- Midwest Political Science Association
- Western Political Science Association
- AAAS
- AERE

Peer Review

- International Organization
- The American Journal of Political Science
- The American Political Science Review
- Journal of Politics
- Political Analysis
- Quarterly Journal of Economics
- Journal of Agricultural and Environmental Resource Economics
- Research and Politics
- Technometrics
- Global Environmental Change
- Conservation Letters
- Carbon Management