CURRICULUM VITAE

Beth Tellman
Assistant Professor, Nelson Institute of Environmental Studies, University of Wisconsin-Madison
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Chronology of Education

2019 **Ph.D, Geography, Arizona State University, Tempe, Arizona, United States**
Dissertation: Mapping and Modeling Illicit and Clandestine Drivers of Land Use Change: Urban Expansion in Mexico City and Deforestation in Central America
Advisors: Drs. B. L. Turner II & Hallie Eakin
Major Field: Geography

2014 **MS., Environmental Science, Yale School of Forestry and Environmental Studies, New Haven, Connecticut, United States**
Thesis: Quantifying the impacts of land use change on flooding in data-poor watersheds in El Salvador with community-based model calibration
Advisor: Dr. James E. Saiers
Major Fields: Hydrology, Remote Sensing

2009 **BSc., Individual Studies (Sustainable Globalization) & Environmental Studies, Santa Clara University, Santa Clara, California, United States**
Thesis: Not Fair Enough: Historic and Institutional Barriers to Fair Trade Coffee in El Salvador
Advisor: Dr. Leslie Gray
Major Fields: Geography, Environmental Studies

Chronology of Employment

2025- present Assistant Professor, Nelson Institute of Environmental Studies, University of Wisconsin-Madison

2021-2025 Assistant Professor, School of Geography, Development & Environment, University of Arizona.

2019-2021 Earth Institute Postdoctoral Fellow, Columbia University, with mentors Upmanu Lall and Dan Osgood.

2015-present Co-Founder and Chief Scientist at Floodbase, 2015-pres. *start up- tech company (Series A funding level) that sells flood monitoring systems from satellite data, supporting insurance companies and governments to build flood resilience* *http:/www.floodbase.com*

2014-2106 Project Manager, SNAP (Science for Nature and People). *Coordinated a $450,000 project of 30 people organized in working groups to prioritize investment in green infrastructure*

in Latin America for future urban water security based on hydrologic, ecologic, economic, and land use change sciences

2009-2014 Co-Founder and Director of CEIBA, 2009-2014. *Coordinated and funded projects including disaster risk reduction, violence prevention, political participation, and agriculture in Santiago Texacuangos, El Salvador*

2009 Scientist at The Nature Conservancy, 2009. *Wrote ecosystem service case studies for CCICED (China Council on International Cooperation for Environment and Development)*

Honors and Awards

2025 NCAR (National Center for Atmospheric Research) Early Career Faculty Innovation Program

2025 National Sustainability Society Emerging Scholar Award

2025 Early Career Scholar Award, University of Arizona

2023 Bloomberg New Economy Catalyst. For work with company Floodbase.

2023 Award for Excellence in Resilience Research for Global Development Challenges, Arizona Institutes for Resilience, $1000. for paper "Regional index insurance using satellite-based fractional flooded area"

2023 Udall Policy Fellowship, Udall Center, University of Arizona. Teaching relief for Fall 2023 semester to work on policy relevant research- "Understanding changing flood vulnerability and addressing injustice in the US borderlands with satellite data"

2022 Leading Woman in Machine Learning for Earth Observation. Radiant Earth Foundation.

2019 Land 2019 Travel Award. $800, attend Global Land Programme Open Science Meeting, Bern, Switzerland to present paper, "Illicit-clandestine land transactions - linking pattern to process in narcodeforestation"

2018 CLAG Travel Award, 2018. $500, Conference of Latin Americanist Geographers (CLAG) meeting in San Jose, Costa Rica to present paper "An empirical approach to quantify the effects of narcotrafficking on deforestation in Central America."

2017 NSF GROW (Graduate Research Opportunities Worldwide) Fellowship. Collaboration with LANCIS (National Laboratory of Sustainability Science) UNAM (National Autonomous University of Mexico) for project "Projecting the Influences of Political Incentives on Urban Land Conversion and Hydrologic Consequences in the Mexico City Metropolitan Area." $8,000

2017 Allianz Climate Risk Finalist (2nd place). 5000 Euros for research that advances insurance and reduces vulnerability titled "Detecting floods globally from public satellites and modeling social vulnerability to flood damage."

2017 ASU Faculty Women's Association Distinguished Graduate Student Award.

2016 Echoing Green Fellowship, 2016-2018. Social Entrepreneurship Fellowship to support Start up Company, Cloud to Street. $90,000

2014 Gilbert F. White Environment and Society Fellowship (ASU). Tuition plus stipend for first year of doctoral studies

2013 Best Graduate Student Paper Award, Dimensions of Political Ecology Conference. Community resilience in El Salvador.

2012 National Science Foundation Graduate Student Research Fellow, 2012- 2017. Tuition plus stipend to obtain Masters in Environmental Science at Yale University, and for one year of doctoral studies at Arizona State University.

2009 Fulbright US Student Fellow El Salvador, 2009-2010. Founded local community development NGO CEIBA and published research project "Community Resilience and Hurricane Ida: Marginalized Salvadorans Coping with Climate Shock."

2009 Phi Beta Kappa, 2009.

2009 Alpha Sigma Nu (Jesuit Honors Society), 2009.

2009 Presidential Scholarship, Santa Clara University, 2009. $2,500 tuition scholarship

2008 Hackworth Ethics Fellow at Santa Clara University, 2008-2009. $4,000 to study the ethics of food justice, instigate lively campus discussion, and plan provocative events

2005 Bannan Merit Scholarship, Santa Clara University, 2005-2009. $11,000 annual tuition scholarship for four years.

2007 Honorable Mention in AASHE: Association for the Advancement for Sustainability in Higher Education), for initiating food justice work on campus

2007 Donovan Fellowship, Santa Clara University. $1,500 to fund an internship with Catholic Relief Services, El Salvador

Service/Outreach (limited to time in rank)

National/international service/outreach

2025-present Scientific Advisory Board Member, Climate IQ

2025-present Scientific Advisor, Klarna AI for Climate Resilience Grant Program (2025–Present)

2024 Invited Expert, The White House Flood Technology Innovation Roundtable (December)

2024 Community Advisory Board, State of Imagery (Imago), United Kingdom (2024–Present). Contributing to the development of the UK national earth observation data catalogue (data.imago.ac.uk).

2023 Invited Expert, FEMA Workshop: Achieving Equity in the Use of Flood Risk Data by Disadvantaged Communities (November 8-9 and December 5, 2023).

2023- present Editorial board, Journal of Catastrophe and Risk Reduction

2023, 2024 Grant reviewer, Climate Change AI

2023 Grant Reviewer, NASA Disasters Program

2022-2023 Ad-hoc Grant Reviewer for NSF HEGS (Human Geography Geographical Sciences Program)

2022 Organizing Committee, EarthVision workshop at CVPR (Computer Vision and Pattern Recognition Conference)

2021- present Scientific Advisory, Population Environment Research Network,

2021- present Steering Committee, Global Flood Partnership

2021- present Scientific Advisory, Clearwater.io,

2021-present Journal Peer Reviewer, *Nature, Regional Environmental Change, People and Nature, Journal of Photogrammetry and Remote Sensing, Nature Sustainability, Conference on Computer Vision and Pattern Recognition*, *Geographical Analysis*, *Latin American Geography, Sustainability Science, Food Policy, PNAS, Water, The Social Science Journal, Frontiers in Sustainable Cities, International Journal for Disaster Risk Reduction, Hydrology and Earth System Sciences, City and Environment Interactions, World Development, Geoforum, Science of the Total Environment, Water Resources Research, Journal of Land Use Science, Sustainability, Bulletin of the American Meteorological Society, Nature Scientific Reports, Nature Communications, Cities, Remote Sensing of the Environment, Natural Hazards, Helyion, Water Security, Ecology and Society, Environmental Science and Policy*

2020-present Scientific Advisor and co-founder, Umbela Transformaciones Sostenibles (Mexican NGO)

Departmental service/outreach (Wisconsin)

2025 **Committee Member**, Nelson Institute Environmental Professional Programs

Departmental service/outreach (Arizona)

2024 (Fall) Diversity Equity and Inclusion Committee Chair

2022-2023 Colloquium Committee

2022 Graduate Admissions Committee

University service/outreach

2021- present Scientific Advisory, Center for Climate Adaptation Science and Solutions

2023 Research Committee Member, University of Arizona, Climate Action Plan

2022 Hiring Committee, Senior Coordinator for Inclusive Learning, Office of Diversity and Inclusion

Outreach events

2023 Flood Justice Symposium, co-lead with Phd Student Hannah Friedrich, with over 70 participants including non-profits, local, and national government. https://ccass.arizona.edu/news/symposium-brings-flood-justice-experts-uarizona-campus

Publications
 # indicates students or post-docs involved

Refereed Journal Articles

1. Cottier, F., Wrathall, D., Devine, J.A., Arellano-Thompson, E.#, Gustine, R., Leblang, D., Magliocca, N.R., Nakamura, J., **Tellman**, B., Sherbinin, A.. Heterogeneous Effects of Climate, Narco Trafficking, and Violence on Central American Migration to the United States. *Accepted- Proceedings of the national Academy of Sciences.*
2. **Tellman**, Jain, Eakin, Connor, De Alba. Electoral politics influence expansion and titling of informal urban Settlements. *In press- Proceedings of the National Academy of Sciences.*
3. #Friedrich, **Tellman,** Jurjevich, Kear, Bakkensen. Do battle with insurance": post-hurricane insurance litigation in Southwest Louisiana. *In press- RSF: The Russell Sage Foundation Journal of the Social Sciences.*
4. Magliocca, N.R., Devine, J.A, Fagan, M.E, Aguilar-González, B., McSweeney, K., Mukherjee, R*., Nielsen, E. A., Sesnie, S.E, **Tellman, B**. Narco-trafficking caused land-use change: The exceptional case of Costa Rica. *In Press. Journal of Land Use Science.* https://doi.org/10.1080/1747423X.2026.2668840
5. Kaushik, S.*, Maurya, L., **Tellman, B.,** and Zhang, Z.*. 2026. "Assessing Geo-Foundational Models for Flood Inundation Mapping: Benchmarking Models for Sentinel-1, Sentinel-2, and PlanetScope." *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 19: 1-19. https://doi.org/10.1109/JSTARS.2026.3656855
6. Kaushik, Saurabh#, Lalit Maurya, Elizabeth **Tellman,** Guoqing Zhang, and Jaydeo K. Dharpure. 2025. "Debris Covered Glacier Mapping Using Newly Annotated Multisource Remote Sensing Data and

Geo-Foundational Model." *Science of Remote Sensing*, October, 100319. https://doi.org/10.1016/j.srs.2025.100319.

7. Michler, Jeffrey D., Dewan Abdullah Al Rafi, #Jonathan Giezendanner, Anna Josephson, Valerien O. Pede, and Elizabeth **Tellman**. 2026. "Impact Evaluations in Data-Scarce Environments: The Case of Stress-Tolerant Rice Varieties in Bangladesh." *Journal of Development Economics* 179 (February): 103648. https://doi.org/10.1016/j.jdeveco.2025.103648.
8. # Saunders, A., **Tellman, B.** , Benami, E., Anchukaitis, K.J., Hossain. S., Bennett, A., Islam, AKM., Giezendanner, J.. Sensitivity to Data Choice for Index-Based Flood Insurance. 2025. *Earth's Future.* 13. Doi: 10.1029/2025EF005966
9. Zhang#, Mukherjee#, Giezendanner#, **Tellman,** Melancon, Purri, Gurung, Lall, Barnard, Molthan. 2025. ***Journal of Remote Sensing***. Assessing Inundation Semantic Segmentation Models Trained on High- versus Low-Resolution Labels using FloodPlanet, a Manually Labeled Multi-Sourced High-Resolution Flood Dataset. 5 (January 2025): 0575.https://doi.org/10.34133/remotesensing.0575
10. Devine, Jennifer A., Nicholas R. Magliocca, Kendra McSweeney, **Beth Tellman**, Matthew Fagan, Steven E. Sesnie, and Erik Nielsen. "A Convergence Research Approach to Resolving 'Wicked Problems': Lessons from an Interdisciplinary Research Team in Land Use Science." ***Applied Geography*** 177 (April 2025): 103538. https://doi.org/10.1016/j.apgeog.2025.103538.
11. Magliocca, N., C.D. Sink, J. Devine, M.E. Fagan, B. Aguilar-González, K. McSweeney; #R. Mukherjee, E. Nielsen, S. Sesnie, **B. Tellman**, #E. Arellano-Thompson. 2024. A data pedigree system to support geospatial analyses of human-environment interactions in data-poor contexts. *International* ***Journal of Geographical Information Science TGIS***. DOI: 10.1080/13658816.2024.2441415
12. Colby K. Fisher, Elinor Benami, Michaela Dolk, Jane W. Baldwin, Inbal Becker-Reshef, Rosa I. Cuppari, Tobias Dalhaus, Andrew Hobbs, Gregor C. Leckebusch, Peter Lacovara, Adam H. Sobel, and **Elizabeth Tellman**. 2024. Bridging Science and Practice to En(in)sure Resilience in a Changing Climate, ***Journal of Catastrophe Risk and Resilience*****,** 2024. 10.63024/dpc1-nhv2
13. Murillo-Sandoval, Paulo J, Steven E Sesnie, Manuel Eduardo Ordoñez Armas, Nicholas Magliocca, **Beth Tellman**, Jennifer A Devine, Erik Nielsen, and Kendra McSweeney. 2024. "Central America's Agro-Ecological Suitability for Cultivating Coca, Erythroxylum Spp." ***Environmental Research Letters*** 19, no. 10 (October 1, 2024): 104068. https://doi.org/10.1088/1748-9326/ad7276.
14. Frame, Nair, Sunkara, Popien, Chakrabarti, Anderson, Leach, Doyle, Thomas, **Tellman.** 2024. ***Geophysical Research Letters,*** 51,17. Rapid Inundation mapping using the US National Water Model, satellite observations, and a convolutional neural network. Doi: 10.1029/2024GL109424
15. #Mukherjee, Rohit, Frederick Policelli, #Ruixue Wang, #Elise Arellano-Thompson, **Beth Tellman,** #Prashanti Sharma, #Zhijie Zhang, and #Jonathan Giezendanner. "A Globally Sampled High-Resolution Hand-Labeled Validation Dataset for Evaluating Surface Water Extent Maps." ***Earth System Science Data*** 16, no. 9 (September 23, 2024): 4311–23. https://doi.org/10.5194/essd-16-4311-2024.
16. Sullivan, Friedrich#, **Tellman,** Saunders#, Belury#. 2024. ***Eos***. A Research Agenda for Addressing Flood Injustice. 105 (February 13, 2024). https://doi.org/10.1029/2024EO240068.
17. Friedrich, H. K.#, **B. Tellman,** J. A. Sullivan, A. Saunders, A. A. Zuniga-Teran, L. A. Bakkensen, M. Cawley, et al. "Earth Observation to Address Inequities in Post-Flood Recovery." ***Earth's Future*** 12, no. 2 (February 2024): e2023EF003606. https://doi.org/10.1029/2023EF003606.
18. Bennett, Gleason, **Tellman,** Alvarez Leon, Friedrich#, Ovenmhada, Mathews. 2024. ***Global Environmental Change Advances***. 2. Bringing satellites down to Earth: Six steps to more ethical remote sensing. Doi: 10.1016/j.gecadv.2023.100003
19. Crowley, M.A., Stuhlmacher, M., Trochim, E.D., Van Den Hoek, J., Pasquarella, V.J., Szeto, S.H., Howarth, J.T., Platt, R., Roy, S., **Tellman, E.,** Chakraborty, T.C., Ignatius, A., Cherrington, E., Markert, K., Wu, Q., Madhusudan, M.D., Mayer, T., Cardille, J.A., Erickson, T., Moore, R., Clinton, N.E., and

Saah, D.S. 2023. Pillars of cloud-based Earth observation science education. ***AGU Advances***. 4,4. DOI: 10.1029/2023AV000894

20. Giezendanner#, Mukherjee#, Purri, Thomas, Mauerman, Islam, and **Tellman**. 2023. Inferring the past: a combined CNN-LSTM deep learning framework to fuse satellites for historical inundation mapping. ***Earthvision. 2023 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshop****s. Pp 2154-2154. Doi: 10.1109/CVPRW59228.2023.00209*
21. Thomas, **Tellman**, Osgood, DeVries, Islam, Steckler, Goodman, Billah. 2023. ***Journal of Selected Topics in Applied Earth Observations and Remote Sensing.*** A framework to assess remote sensing algorithms for satellite-based flood index insurance. Doi: 10.1109/JSTARS.2023.3244098.
22. Murillo-Sandoval, Kilbride, **Tellman,** Wrathall, Van Den Hoek, Kennedy. 2023. ***Scientific Reports.*** The post-conflict expansion of coca farming and illicit cattle ranching in Colombia. 13, 1965. http://doi.org/10.1038/s41598-023-28918-0
23. Colosio, Paolo, Marco Tedesco, and Elizabeth **Tellman**. 2022. ***Remote Sensing.*** Flood Monitoring Using Enhanced Resolution Passive Microwave Data: A Test Case over Bangladesh. 14, no. 5 (February 27, 2022): 1180. https://doi.org/10.3390/rs14051180.
24. **Tellman**, Lall, Islam, Bhuyan. *2022.* ***Earth's Future****.* Regional Index Insurance using Satellite-based Fractional Flooded Area. https://doi.org/10.1029/2021EF002418
25. **Tellman**, Eakin, Turner. 2022. ***Journal of Land Use Science****.* Identifying, projecting, and evaluating informal urban expansion spatial patterns. 00, 1–13. https://doi.org/10.1080/1747423X.2021.2020919.
26. **Tellman**, McSweeney, Manak, Devine, Sesnie, Nielsen, Anayasi. 2021. ***Journal of Illicit Economies and Development****.* Narcotrafficking and Land Control in Guatemala and Honduras. 3(1), pp. 132–159 https://doi.org/10.31389/jied.83 *Version en español:* Narcotráfico y control de la tierra en Guatemala y Honduras" Journal of Illicit Economies and Development. https://jied.lse.ac.uk/articles/10.31389/jied.83/galley/213/download/
27. **Tellman**, B.*, J. A. Sullivan*, C. Kuhn, A. J. Kettner, C. S. Doyle, G. R. Brakenridge, T. A. Erickson, and D. A. Slayback. 2021. ***Nature.*** Satellite Imaging Reveals Increased Proportion of Population Exposed to Floods. 596, no. 7870 (August 5, 2021): 80–86. https://doi.org/10.1038/s41586-021-03695-w. *equal first authors
28. Magliocca, Torres, Marguiles, McSweeny, Arroyo-Quiroz, Carter, Curtain, Easter, Gore, Hubschle, Masse, Rege, **Tellman.** 2021. ***Journal of Illicit Economies and Development.*** Comparative Analysis of Illicit Supply Network Structure and Operations: Cocaine, Wildlife, and Sand. 3(1), pp.50–73 http://doi.org/10.31389/jied.76
29. Devine, Wrathall, Aguilar-Gonzalez, Benessaiah, **Tellman**, Ghaffari, Ponstingel. 2021. ***World Development.*** Narco-Degradation: Cocaine Trafficking's Environmental Impacts in Central America's Protected Areas. *144.* Doi: 10.1016/j.worlddev.2021.105474
30. **Tellman,** Eakin, Janssen, De Alba, and Turner. 2021. ***World Development.*** Institutional Entrepreneurs and Urban Land Transactions in Mexico City. *140*. Doi: https://doi.org/10.1016/j.worlddev.2020.105374
31. Hawker, L., Neal, H., **Tellman,B.,** Liang,J., Schumann, G., Doyle, C.S., Sullivan, J.A., Savage,A., and Tshimanga., R. 2020. Comparing Earth Observation and Inundation Models to Map Flood Hazards. ***Environmental Research Letters***. https://doi.org/10.1088/1748-9326/abc216.
32. **Tellman, B.,** Schank, C., Schwarz, B., Howe, P. D., & Sherbinin, A. De. 2020. Using Disaster Outcomes to Validate Components of Social Vulnerability to Floods: Flood Deaths and Property Damage across the USA. ***Sustainability***, *15*(12), 1–28. https://doi.org/10.3390/su12156006
33. **Tellman, B.,** Sesnie, S.E., Magliocca, N.R., Nielsen, E.A., Devine, J.A., McSweeney, K., Jain, M., Wrathall, D.J., Dávila, A., Benessaiah, K., Aguilar-Gonzalez, B., 2020. Illicit Drivers of Land Use

Change: Narcotrafficking and Forest Loss in Central America. ***Global Environmental Change***. 63. https://doi.org/10.1016/j.gloenvcha.2020.102092

34. Wrathall, D., Devine, J., Aguilar-Gonzalez, B., Benessaiah, K., **Tellman, E.,** Sesnie, S., Nielsen, E., Magliocca, N., McSweeney, K., Pearson, Z., Ponstingel, J., Sosa, A.R. 2020. The impacts of cocaine trafficking on conservation governance in Central America. ***Global Environmental Change***. 63 doi: 10.1016/j.gloenvcha.2020.102098.
35. Bonafilia, D., **Tellman, B.,** Anderson, T., Issenberg, E. 2020. Sen1Floods11: a georeferenced dataset to train and test deep learning flood algorithms for Sentinel-1. ***The IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) Workshop****s.* DOI: 10.1109/CVPRW50498.2020.00113
36. **Tellman, B**., Magliocca, N.R., Turner II, B.L., Verburg, P.H., 2020. Understanding the role of illicit transactions in land-change dynamics. *3*(3*)*,175-181. ***Nature Sustainability*****.** https://doi.org/10.1038/s41893-019-0457-1
37. Kugler, T., Grace, K. de Sherbinin, A., Wrathall, D., Van Riper, D., Adamo, S., Aubrecht, C., Cervone, G., Comer,D., Engstrom, R., Hultquist, C., Gaughan, A., Linard, C., Moran, E., Stevens,F. Tatem, A., **Tellman, B.** Van Den Hoek, Jamon. 2019. People & Pixels 20 years later: The current data landscape and research trends blending population and environmental data. ***Population & Environment.*** DOI: 10.1007/s11111-019-00326-5
38. Manuel-Navarrete, D., Morehart, C., **Tellman, B**., Eakin, H., Siqueiros-García, J. M., & Aguilar, B. H. 2019. Intentional disruption of path-dependencies in the Anthropocene: Gray versus green water infrastructure regimes in Mexico City, Mexico. ***Anthropocene***, *26*, 100209.
39. Magliocca, N., McSweeney, K., Sesnie, S., **Tellman**, E., Devine, J., Nielsen, E., Pearson, Z., Wrathall, D. 2019. NarcoLogic: Modeling cocaine traffickers and counterdrug interdiction forces as a complex adaptive system. ***Proceedings of the National Academy of Sciences.*** https://doi.org/10.1073/pnas.1812459116
40. Kettner, A. J., Schumann, G. J.-P, and **Tellman, B.** 2019. The push toward local flood risk assessment at a global scale, ***Eos****, 100,* https://doi.org/10.1029/2019EO113857.
41. **Tellman B.**, Goldstein J., McDonald R.I. , Shemie D., Vogl A., Dudley R., Petry P., Vigorstol K.l, Florke M., Dryden R., Lehner B., Veiga F. 2018*.* Opportunities for natural infrastructure to improve urban water security in Latin America. ***PLOS ONE****.* https://doi.org/10.1371/journal.pone.0209470
42. Lerner, A.M., Eakin, H., **Tellman**, B., Bausch, J., Hernández Aguilar, B. 2018. Governing the gaps in water governance and land-use planning in a megacity: The example of hydrological risk in Mexico City. ***Cities****.* https://doi.org/10.1016/j.cities.2018.06.009
43. Devine, J., Wrathall, D., Curritt, N., **Tellman**, B., Reygadas Langarica, W. 2018. Narco Cattle Ranching in Political Forests. ***Antipode****.* https://doi.org/10.1111/anti.12469
44. Goldblatt, R., M. F. Stuhlmacher, **B. Tellman**, N. Clinton, G. Hanson, M. Georgescu, C. Wang, F. Serrano-Candela, A. K. Khandelwal, W.-H. Cheng, and R. C. Balling. 2018. Using Landsat and nighttime lights for supervised pixel-based image classification of urban land cover. ***Remote Sensing of Environment*** 205(November 2017):253–275. https://doi.org/10.1016/j.rse.2017.11.026
45. **Tellman, B.**, Eakin, H., Bausch, J., Manuel-Navarette, D., Anderies, J.M., Redman, C. 2018. Adaptive Pathways and Coupled Infrastructure: adaptations to water risk, and the production of vulnerability in Mexico City since 1325. ***Ecology and Society*** *23 (1): 1* https://doi.org/10.5751/ES-09712-230101
46. Puritty, C., L. R. Strickland, E. Alia, B. Blonder, E. Klein, M. T. Kohl, E. McGee, M. Quintana, R. E. Ridley, **B. Tellman**, and L. R. Gerber. 2017. Without inclusion, diversity initiatives may not be enough. ***Science*** 357(6356):9–11.
47. Vogl, A. L, Goldstein, J., Daily G.C, Vira B., Bremer L., McDonald, R.I., Shemie, D., **Tellman, B.**, and Jan Cassin. 2017. Mainstreaming Investments in Watershed Services to Enhance Water Security:

Barriers and Opportunities. ***Environmental Science & Policy*** 75: 19–27. doi:https://doi.org/10.1016/j.envsci.2017.05.007.

48. Sesnie, S., **Tellman B.**, Wrathall D., McSweeney K., Nielsen E., Bennesaiah K., Wang O., and Ray, L. 2017. A Spatio-Temporal Analysis of Forest Cover Loss Related to Cocaine Trafficking in Central America. ***Environmental Research Letters*** 12. doi:https://doi.org/10.1088/1748-9326/aa6fff.
49. Eakin, H., Lerner, A.M., Manuel-Navarrete, D., Aguilar, B.H., Martínez-Canedo, A., **Tellman, B**., Charli-Joseph, L., Álvarez, R.F. and Bojórquez-Tapia, L. 2016. Adapting to risk and perpetuating poverty: Household's strategies for managing flood risk and water scarcity in Mexico City. ***Environmental Science & Policy*** 66: 324-333. DOI 10.1016/j.envsci.2016.06.006
50. Wentz, E. A., Rode S., Li X., **Tellman E.M**, and Turner II, B.L. 2016. Impact of Homeowner Association (HOA) landscaping guidelines on residential water use. ***Water Resources Research*** 52:2. Pp 3373-3386 DOI 10.1002/2015WR018238
51. **Tellman** B., Saiers J., and Ruiz O. 2015. Quantifying the impacts of land use change on flooding in data poor watersheds in El Salvador with community based model calibration. ***Regional Environmental Change*** 16 (4): 1183-1196. DOI: 10.1007/s10113-015-0841-y
52. **Tellman** B., Gray L.C. , and Bacon C.M. 2011. Not Fair Enough: Historic and Institutional Barriers to Fair Trade Coffee in El Salvador. ***Journal of Latin American Geography*** 10(2): 107-128. DOI: 10.1353/lag.2011.0037

Refereed Book Chapters

1. Ortiz-Moreno, **Tellman**, Rodríguez-Izquierdo, Morelos, Rodríguez-Bustos. 2024. Scaling-up rainwater harvesting in Mexico City: A socio-environmental review. In. *Rainwater harvesting for the 21st century.* Edited by Aisha Bello-Dambatta, Kemi Adeyeye, and Ilan Adler.
2. Bennett, M., Faxon, H., Alvarez Leon L., Gleason, C., Tellman, B. For Remote Sensing in Political Geography: Scalar Flexibility, the Ethics of Exposure, and Critiques of the State. In *Political Geography in Practice: Theories, Approaches, Methodologies*. Menga, Filippo, Caroline Nagel, Kevin Grove, and Kimberley Peters, eds. 1st ed. 2024. Cham: Springer International Publishing, 2024. https://doi.org/10.1007/978-3-031-69899-6. Pages 135-158.
3. Ho, J.C, Vu, W., **Tellman, B**., Dinga, J.B, N'diaye, P.I., Weber, S., Bauer, J.M., Schwarz, B., Doyle, C., Demuzere, M., Anderson, T., Glinskis, E. 2021. From cloud to refugee camp: a satellite-based flood analytics case-study in Congo-Brazzaville. In *Earth Observation for Flood Applications* edited by G. J-P. Schumann, 131–45. Cambridge, MA, USA: Elsevier, 2021.
4. **Tellman, B,** Sullivan, J. and Doyle C. 2021. "Global Flood Observation with Multiple Satellites: Applications in Rio Salado, Argentina, and the Eastern Nile Basin." In *Global Drought and Flood: Monitoring, Prediction, and Adaptation*, edited by Huan Yu, Dennis P. Lettenmaier, Teng Quihong, and Philip J Ward, 352. AGU Books. Wiley, 2021.
5. Schwarz, B., Pestre, G., **Tellman, B**., Sullivan, J., Kuhn, C., Mahtta, R., Pandey, B., Hammett, L., 2018. Mapping Floods and Assessing Flood Vulnerability for Disaster Decision-Making: A Case Study Remote Sensing Application in Senegal - Earth Observation Open Science and Innovation, in: Mathieu, P.-P., Aubrecht, C. (Eds.), . Springer International Publishing, Cham, pp. 293–300. https://doi.org/10.1007/978-3-319-65633-5_16
6. **Tellman**, B. 2018. Transferencia de riesgos sociohidrológicos y vulnerabilidad emergente en el Valle de México: un modelo conceptual basado en agentes. Las paradojas de la megalopolis: un debate actual a distintas voces. Ed. Felipe de Alba. https://agua.org.mx/biblioteca/las-paradojas-la-megalopolis-debate-actual-a-distintas-voces/

Other Scholarship

Invited Commentary

1. **Tellman**, Beth, and Hallie Eakin. 2022. "Risk Management Alone Fails to Limit Hazard Impact," *Nature.* News and Views. 608 (41-43). *doi: https://doi.org/10.1038/d41586-022-02031-0*

Peer Reviewed Conference Proceedings

1. Kaushik, S.*, Maurya, L., and **Tellman, B.** 2026. "Prithvi-Complimentary Adaptive Fusion Encoder (CAFE): unlocking full-potential for flood inundation mapping." *Proceedings of the 2026 IEEE Winter Conference on Applications of Computer Vision (WACV arXiv preprint arXiv:2601.02315*. https://doi.org/10.48550/arXiv.2601.02315.

2. Maurya, L., Kaushik, S.*, and **Tellman, B.** 2026. "GLACIA: Instance-Aware Positional Reasoning for Glacial Lake Segmentation via Multimodal Large Language Model." *Proceedings of the 2026 IEEE Winter Conference on Applications of Computer Vision (WACV arXiv preprint arXiv:2512.09251*. https://doi.org/10.48550/arXiv.2512.09251.

3. #Saunders, A., J. #Giezendanner**, B. Tellman,** A. Islam, A. Bhuyan, and A.K.M.S. Islam. "A Comparison Of Remote Sensing Approaches To Assess The Devastating May-June 2022 Flooding In Sylhet, Bangladesh." In ***IGARSS 2023 - 2023 IEEE International Geoscience and Remote Sensing Symposium*****,** 452–55. Pasadena, CA, USA: IEEE, 2023. https://doi.org/10.1109/IGARSS52108.2023.10283378.
4. Leach, Popien, Goodman, **Tellman**. 2022. ***IEEE International Geoscience and Remote Sensing Symposium IGARSS.*** Leveraging convolutional neural networks for semantic segmentation of global floods with PlanetScope imagery. Doi: 10.1109/IGARSS46834.2022.9884272
5. Mauerman, M., **Tellman, E.,** Lall, U., Tedesco, M., Colosio, P., Thomas, M., Osgood, D., Bhuyan, A., 2022. "High-Quality Historical Flood Data Reconstruction in Bangladesh Using Hidden Markov Models." *Water Mangement: A View from Multidiscpliary Perspectives. Dhaka, Bangladesh.* https://doi.org/10.1007/978-3-030-95722-3_10
6. Karimzadeh, Han, Tellman, and Nielsen. 2021. **Spatial Data Science Symposium.** Classifying Narcotrafficking Spatial Event Documents using Transformers. https://doi.org/10.25436/E2B88Q
7. Yague-Martinez, Nestor, Nicholas R Leach, Antara Dasgupta, **Elizabeth Tellman**, and Jason S Brown. 2021. **2021 IEEE International Geoscience and Remote Sensing Symposium IGARSS**. Towards Frequent Flood Mapping with the Capella SAR System. the 2021 Eastern Australia Floods Case. https://doi.org/10.1109/IGARSS47720.2021.9554825.
8. Akiva, P., Purri, M., Dana, K., **Tellman, B.,** & Anderson, T. 2021. H2O-Net: Self-Supervised Flood Segmentation via Adversarial Domain Adaptation and Label Refinement. ***Proceedings of the 2021 IEEE Winter Conference on Applications of Computer Vision (WACV)***. http://arxiv.org/abs/2010.05309

Working Papers or Professional Reports

1. Galaz, V., Schewenius, M., Donges, J. F., Purves, D., McPhearson, T., **Tellman, B.,** et al. (2025). *AI for a Planet Under Pressure*. Stockholm Resilience Centre and Potsdam Institute for Climate Impact Research. https://doi.org/10.48550/arXiv.2510.24373
2. Bausch, J.C., **Tellman, E.,** Acosta-Oakes, A., Lerner, Castelan-Crespo, E., Hernández, B., 2019. The Effects of Payments for Environmental Services on Peri-Urban Land Change in Mexico

City's Conservation Zone. *Lincoln Institute of Land Policy. WP22JB1.* https://www.lincolninst.edu/publications/working-papers/effects-payments-environmental-services-peri-urban-land-change-in-mexico

3. **Tellman**, B, and many others! 2019. Captación de Lluvia en la CDMX: Un analisis de las desigualdades espaciales. *Oxfam.* https://www.oxfammexico.org/sites/default/files/Captacion%20de%20agua%20en%20la%20CDMX.pdf
4. **Tellman, B**. 2019. May 2019. Mapping and Modeling Illicit and Clandestine Drivers of Land Use Change: Urban Expansion in Mexico City and Deforestation in Central America. *Doctoral Dissertation. Arizona State University, ProQuest Dissertations Publishing, 2019. 13862723.*
5. Schumann, G., Kettner, A., & **Tellman, B.** 2019. NASA Flood Risk Workshop 2018.
6. Schwarz, B., **Tellman, B**., Sullivan, J., Kuhn, C., Mahtta, R., Pantey, B., … Pestre, G. 2016. *Socio-physical Vulnerability to Flooding in Senegal: An Exploratory Analysis with New Data & Google Earth Engine* (p. 76). Cloud to Street and AFD. Retrieved from http://librairie.afd.fr/en/nt25-va-vunerability-flooding-senegal/
7. **Tellman**, B., J. Cazares, and E. R. Vivoni. 2016. *Quantifying the Role of Natural Infrastructure in Mitigating Flood Peaks by combining Google Earth Engine and Hydrologic Modeling Case Study of the Santa Catarina Watershed Upstream of Monterrey, Mexico*. SNAP, TNC, ASU.
8. **Tellman**, Schwarz, Burns, Adams. 2015. Big Data in the Disaster Cycle: Overview of use of big data and satellite imaging in monitoring risk and impact of disasters. Contribution to the report. Available at GSDR website: https://sustainabledevelopment.un.org/globalsdreport/2015.
9. **Tellman**, B. 2015. "Land Use Change and Ecosystem Service Sheds: Where does Deforestation Impact Flooding in El Salvador." *Yale Tropical Resources Bulletin. Vol 32-33.*
10. **Tellman**, B., Alaniz, R., Rivera, A., Contreras, D. 2014. Violence as an obstacle to livelihood resilience in the context of climate change. UNU-EHS Working Paper Series, No.3. Bonn: United Nations University Institute of Environment and Human Security (UNU-EHS). Available: https://www.ehs.unu.edu/file/get/11945
11. **Tellman**, E. 2011. "Community Resilience and Hurricane Ida: How Marginalized Salvadorans Lacking NGO and Governmental Support Cope with Climate Shock." Climate Change and Migration: Rethinking Policies for Adaptation and Disaster Risk Reduction. UNU-EHS (United Nations University Environment and Human Security). *SOURCE* issue 15. Pp. 32-46. Available: http://www.ehs.unu.edu/article/read/source-152011.

Other writing in Blogs or Magazines

1. **Tellman, B.** (2025). "The New Gerrymander: Flood Maps." *The Commons*, Nelson Institute for Environmental Studies, University of Wisconsin-Madison. https://nelson.wisc.edu/the-commons/the-new-gerrymander-flood-maps/
2. **Tellman, B.** (2025). "Flood risk is about more than rainfall." *Floodbase Blog*. https://www.floodbase.com/blog-posts/flood-risk-is-about-more-than-rainfall
3. Chief, K., R. Arnold, A. Curley, J. Hoover, M. Kacira, V. Karanikola, K. Simmons-Potter, **and E. Tellman.** 2021. Addressing food-energy-water insecurities of the Navajo Nation through university-community collaboration. Megdal, S. and L. Beutler (ed.) Wicked Water Problems. Water Resources IMPACT Magazine 23(1):31-33. https://online.flippingbook.com/view/167753/32/

4. Gonzalez, S., Charli-Joseph, L., and **Tellman, B**. April 25 2018. Mapping a transforming world in the Sierra Huichol, Mexico. *Steps Centre Blog.*https://steps-centre.org/blog/mapping-transforming-world-sierra-huichol-mexico/
5. **Tellman**, B. 2014. "Hotspots for People: A New Conservation Strategy." *SNAP Magazine.* http://www.snap.is/magazine/hotspots-for-people-new-conservation-strategy/
6. **Tellman**, B. 10 December 2013. "First United Nations Resilience Academy Held in Bangladesh. *Yale Climate and Energy Institute.* Available:/ /climate.yale.edu/news/first-united-nations-resilience-academy-held-bangladesh#sthash.JHDQRYSP.dpuf."

Work in Progress *(# student or post doc involved)*

Saunders, A.#, Giezendanner, J.#, Slayback, D., **Tellman, B.,** Policelli, F., Mukherjee, R.*, Zhang, R. et al. "Global Daily Fractional Water Detection with VIIRS Satellite Imagery and Deep Learning." In Review- Remote Sensing of the Environment, https://doi.org/10.5281/zenodo.19338745.

#Mukherjee, R., #Friedrich, H.K, **Tellman, B**., # Islam, A., #Zhang, Z., Lall, U., Lakshmi, V., # Giezendanner, J. Urban Flood Observations (UFO): A global high-resolution hand-labeled training and validation dataset. *In Revision- Scientific Data.*

Friedrich, Aggarwal, Buijs, Chakraborty, Hall, Hu, **Tellman.** Earth Observation for Recovery from Hydrometeorological Hazards. In Revision- *Water Security.*

Hernández, Lerner, **Tellman**. *In Press.* El costo de la informalidad: el acceso al agua en cinco asentamientos de la Ciudad de México.
Desigualdad en el acceso al agua potable entre los hogares en México. Eds. Dr. Daniel A. Revollo Fernández, Dra. Lilia Rodríguez Tapia, Dr. Jorge Morales Novelo. Universidad Autónoma Metropolitana, Unidad Azcapotzalco. Mexico City, Mexico.

Wang, Z., Heft-Neal, S., Jing, R., Clark-Ginsberg, A., Giezendanner, J., **Tellman, B.** Sullivan, J.A., Islam, A.K.M., Bendavis, E. Wagner, Z. Flooding exposure and infant mortality in Bangladesh: a geospatial analysis. *In Review- The Lancet Planetary Health*

Teaching

At Wisconsin-Madison

ENVIR ST 900 Seminar 004: Sustainability Science and AI (Spring 2026)

ENVIR ST 403 Seminar 002: Tackling Sustainability Conflicts (Fall 2025)

At Arizona, School of Geography, Environment, and Development

330: Intro to Remote Sensing (Undergraduate, Fall 2022)

304: Water Society and Environment (Undergraduate, Fall 2024, Spring 2023)

696: Political Ecology (Graduate Spring 2022)

Media

Expert Interviews

2026 **Canal UNO** Colombian President Gustavo Petro tweeted satellite analysis from co-authored paper (Murillo-Sandoval et al.) in meeting with President Trump on the US War on Drugs. January 17 https://x.com/petrogustavo/status/2012761763654098962

2025 **Climate Proof.** America's Flood Risk Draws a Global Crowd of Climate Startups. July 31. https://www.climateproof.news/p/america-s-flood-risk-draws-a-global-crowd-of-climate-startups

The New York Times. Floodwaters moved faster than Niagara Falls. Cover story on Texas floods and Floodbase mapping. July 10 https://www.nytimes.com/interactive/2025/07/07/us/texas-flooding-map-guadalupe-river.html

Governing Magazine. How AI Helped a California City Insure Against Flood Risk. August 22. https://www.governing.com/resilience/how-ai-helped-a-california-city-insure-against-flood-risk

The New York Times. The street-corner sensors that track flooding in real time. August 26. https://www.nytimes.com/2025/08/26/nyregion/flood-sensors-nyc.html

2024 **Bloomberg.** Google researchers use AI to predict floods where there's little data. March 20. https://www.bloomberg.com/news/articles/2024-03-21/in-india-google-researchers-use-ai-to-predict-floods-in-data-sparse-areas

University of Arizona News. Flood monitoring from space: A Q&A with flood expert Beth Tellman. June 27 https://news.arizona.edu/news/flood-monitoring-space-qa-flood-expert-beth-tellman

World Economic Forum. 5 technologies that are combatting flood risks around the world. October 17. https://www.weforum.org/stories/2024/10/flood-risk-initiatives-globally/

2023 **Bloomberg.** A Climate Startup Aims to Narrow the Flood-Protection Gap With Data. https://www.bloomberg.com/news/articles/2023-01-26/how-flood-insurance-is-evolving-thanks-to-new-climate-data#xj4y7vzkg

2022 **CNN.** The next extreme floods could be even worse, a new study shows. But there's a way to prevent that. August 3. https://www.cnn.com/2022/08/03/us/extreme-flooding-adaptation-climate/index.html

CNN. Two ultra-rare floods in a single week; a wildfire generating its own weather. Here's how it's connected. https://www.cnn.com/2022/08/01/us/kentucky-flooding-california-wildfires-drought-climate/index.html

CNN. Increasing flood costs over next three decades will mainly impact people of color, study shows. January 21. https://www.cnn.com/2022/01/31/us/future-flood-risk-increases-for-people-of-color-climate/index.html

Minds Behind Maps. Podcast by Maxime LeNormand. Ep 14 - Beth Tellman - Cloud2Street, Open Science within a For-Profit Company & The Role of Insurance in Actionable Flood

Analytics. https://podcasts.apple.com/fr/podcast/ep-14-beth-tellman-cloud2street-open-science-within/id1563147579?i=1000549642167

2021 **BBC.** Aug 4. Floods: Research shows millions more at risk of flooding. https://www.bbc.com/news/science-environment-58087479

Nature Podcast. August 4. Flood risk rises as people surge into vulnerable regions. https://www.nature.com/articles/d41586-021-02149-7

Washington Post. August 4. Tens of millions of people have been moving into flood zones, satellite imagery shows. https://www.washingtonpost.com/climate-environment/2021/08/04/tens-millions-people-have-been-moving-into-flood-zones-satellite-imagery-shows/

CNN. Floods are getting worse, and the number of people exposed is 10 times higher than previously thought, study finds. August 4. https://www.cnn.com/2021/08/04/weather/global-flood-risk-climate-change/index.html

MIT Technology Review. August 4. New global map shows populations are growing faster in flood-prone areas. https://www.washingtonpost.com/climate-environment/2021/08/04/tens-millions-people-have-been-moving-into-flood-zones-satellite-imagery-shows/

NASA Earth Observatory. Research Shows More People Living in Floodplains**.** https://earthobservatory.nasa.gov/images/148866/research-shows-more-people-living-in-floodplains

Down To Earth: A podcast for Geoscientists by Geoscientist. November 24. S2 EP2 Down to Earth: Combating Climate Change Through Data Presentation. https://grssieee.podbean.com/e/down-to-earth-combating-climate-change-through-data-presentation/

GIST Arizona Podcast: Episode 14-A Conversation with Dr. Beth Tellman, a current post-doctoral fellow at the Earth Institute at Columbia University and the co-founder of Cloud to Street.https://gis.arizona.edu/episode-14-conversation-dr-beth-tellman-current-post-doctoral-fellow-earth-institute-columbia

Podcast Startup Series: My Climate Journey. Cloud to Street. August 2. https://www.mcjcollective.com/my-climate-journey-podcast/cloud-to-street

Sustain What? Podcast by Andy Revkin. Risks and Choices as Populations Surge in Flood Zones, Rich and Poor. August 6, 2021. https://www.earth.columbia.edu/videos/view/risks-and-choices-as-populations-surge-in-flood-zones-rich-and-poor

2020 **Sustain What? Podcast by Andy Revkin.** Paths to Sustaining Forests and Communities in Guatemala's Maya Reserve. August 7, 2020. https://www.earth.columbia.edu/videos/view/paths-to-sustaining-forests-and-communities-in-guatemalas-maya-reserve-1

2017 **Invited participant on REDDIT Science "Ask Me Anything."** 2017. Live chat with 6,000 views to answer questions about our paper regarding narcotrafficking published in Environmental Research Letters.https://www.reddit.com/r/science/comments/6c3864/science_ama_series_were_steve_sesnie_us_fish_and/

2016 **Forbes.** Social Entrepreneurs Predict Flooding Risk In Vulnerable Communities. September 21. *https://www.forbes.com/sites/annefield/2016/09/21/social-enterpreneurs-predict-flooding-risk-in-vulnerable-communities/ - d4352b91d8de*

Work Cited in the Media

2021 Over 164 articles written about the Global Flood database paper (Tellman et al 2021). Full list available here- https://nature.altmetric.com/details/111124936/news.

2021 Over 27 news articles citing the Narcotrafficking/Media paper (Tellman et al 2021). Full list available here- https://plu.mx/plum/a/news?doi=10.1016/j.gloenvcha.2020.102092&theme=plum-sciencedirect-theme&hideUsage=true

2019 Over 21 news articles citing the Narcotrafficking modeled as a complex adaptive system paper (Magliocca et al 2019). https://pnas.altmetric.com/details/58287812/news

2017 Over 63 news stories citing the Narcotrafficking/forest loss paper (Sesnie et al 2017). Full list available here- https://iop.altmetric.com/details/20187660/news

Conferences/Scholarly Presentations (limited to time in rank)

Invited Keynotes

2023 AYA Research Institute. *Technology in a Just Transition Symposium.* "Understanding flood risk from space: opportunities to adapt to changing risk and catalyze climate justice", April 13.

Google Flood Forecasting Meets Machine Learning Workshop Invited Keynote "Understanding MORE Flood Risk from Space!" January 11.

SXSW, "Climate Data is Power- to the People." Arizona WonderHouse. March 12 https://www.youtube.com/watch?v=E2lrBK_Ai1Q.

Invited Seminars and Colloquia

2026 Wisconsin Department of Natural Resources, Waterways Program-wide Meeting. "Climate Change and Environmental Justice: Floodplain map change requests." February 2.

Rice University, Department of Civil and Environmental Engineering. "Flood Risk in an Urbanizing World: Using Satellites to Address Adaptation and Injustice." January 27

2025 Santa Clara University Digital Dignity Day. Understanding flood risk from with satellite data: digital tools to enable adaptation and address environmental injustice. May 2. https://www.scu.edu/ethics/events/digital-dignity-day/speakers/

Statistics and Data Science GIDP Colloquium Series, University of Arizona. Improving Inundation Estimates with Deep Learning and Satellite data. February 3
UW-Milwaukee Center for Water Policy. "Understanding Flood Risk with Satellite Data." October 28

Thomas Lovejoy Science for Nature Symposium, World Wildlife Fund. "The future of water: visionary approaches for building water resilience." December 4

University of Wisconsin-Madison, Global Health Institute. "AI's Potential to Address Global One Health Crises." November 18, 2025.

Global Flood Partnership (GFP) Fall Webinar. "Which AI methods make better flood maps with satellite images?" November 19, 2025.

Stimson Center. "Using AI to Understand Disaster Risks: New Tools, Shifting Frontiers, Chronic Challenges." August 20

Climate, People, and Environment Seminar, University of Wisconsin-Madison. "Flood Risk in an Urbanizing World: Using Satellites to Address Adaptation and Injustice." December 3,

2024 Big Data & Society colloquium (from the SAGE Open Access Journal). Online. November 21 2024. Political Economy of Remote Sensing Data. https://bigdatasoc.blogspot.com/2024/09/bd-2024-online-colloquium-politics.html?m=1

La Universidad Nacional Autónoma de México. SEMINARIO SUSMAI Inteligencia Artificial y sostenibilidad. “Inteligencia Artificial: mejorando el conocimiento de las inundaciónes con deep learning y las imágenes satelitales.” June 6. https://www.youtube.com/watch?v=OF4rFDXVtdU&t=2s

La Universidad Nacional Autónoma de México, El Centro de Investigaciones en Geografía Ambiental. Mesa Redonda- “Geografía y Sustentablidad” 11 June 2024. https://www.youtube.com/watch?v=zg7pvE5EP5M.

Beth Tellman. Udall Center, University of Arizona. Addressing flood injustice with satellite data in the US borderlands and across the US. April 22 2024/

2023 Colegio de la Frontera, Noglaes. Aproximaciones a la justicia Ambiental y a la resiliencia urbana a las inundaciones en la frontera México-Estados Unidos. Nov 17.

Department of Geographical Sciences and Urban Planning, Arizona State University. “Understanding flood risk from space: opportunities to adapt to changing risk and catalyze climate justice”, Oct 20.

Department of Geography, Dhaka University. “Socializing the Pixel: Leveraging Remote Sensing and Machine Learning to Study the Causes and Address the Consequences of Global Environmental Change” May 21.

Department of Geography and Geospatial Science, Oregon State University Marston, “Understanding flood risk from space: opportunities to adapt to changing risk and catalyze climate justice”, May 5.

Data Science Industry Career Speaker Series, University of Arizona: “How to get a job in climate tech: tips from a start-up founder!”, March 1.

Propeller Ocean MBA: “Building a Product: A Scientist's journey to creating and building products”, January 17.

2022 Forúm de Instituto de Geografia, UNAM Mexico. Mapeando motores ilícitos de cambio de uso de suelo: expansión urbana en la Ciudad de México, Virtual. Oct 28.

Department of Geography, Texas A and M colloquium: “Understanding flood risk from space: opportunities to adapt to changing risk and catalyze climate justice”, Nov 11.

Earth, Marine, and Environmental Sciences colloquium, University of North Carolina: “Understanding flood risk from space: opportunities to adapt to changing risk and catalyze climate justice”, Oct 12.

Latin American Studies weekly colloquium, University of Arizona: Narcotrafficking, Forest Loss, and Land Control on the Central American Frontier”, April 1.

Women in Data Science Conference, University of Arizona: “Mapping floods from space” April 22.

2021 Hydrology and Atmospheric Sciences weekly colloquium, University of Arizona: “Understanding flood risk from space: opportunities to adapt to changing risk with improved monitoring and index-based insurance”, Nov 18.

Geography Department weekly colloquium, University of Maryland: “Understanding flood risk from space: opportunities to adapt to changing risk with improved monitoring and index-based insurance”, Nov 18.

Conference Presentations, Invited

2026 American Meteorological Society. "Scaling Parametric Flood Insurance in the US and Globally with Deep Learning to Synthesize Satellite Observations, Hydrologic Models, and Stream Gauges." In session: *Forum on Climate-Linked Economics*. Houston, TX. January 27, 2026.

International Conference of Learning Representation, ML4RS (Machine Learning for Remote Sensing Workshop). “The Benchmark-Reality Chasm for Geospatial Foundation Models in Flood Applications.” Rio de Janiero, Brazil, April 27, 2026.

2025 American Meteorological Society. Catalyzing flood justice with satellite observations in Rio Grande Valley, Texas and across the US. In: Impacts of Hydrometeorological Extremes on Marginalized Communities. January 15 2025.

American Geophysics Union (AGU). "Deep learning to improve satellite-based flood mapping: a better VIIRS algorithm and insights using Geospatial Foundation Models on Planetscope, Sentinel-1, and Sentinel-2." In session: H122 *Recent Advances in Remote Sensing and Modeling of Flood Inundation I Oral*. December 16, 2025.

American Geophysics Union (AGU). " AI-Driven Global Parametric Flood Insurance: Synthesizing Satellite, Streamflow, and Rainfall Data with Hydrologic Models" In session: *NH005 - Applications at the Intersection of Science, Practice, and Policy to Proactively Address Natural Hazard Risk I Oral*. December 17, 2025.

2024 Constraints and possibilities informal urbanization poses for just and sustainable futures in Xochimilco's peri-urban wetland. 2024 Global Land Programme Conference in Oaxaca, Mexico. November 5 2024. In session: 103R-A Land Epistemologies in a Changing Climate: Method, Theory, Praxis.

Monitoring Road Expansion in Narco-Affected Protected Areas since 2001 using Landsat satellite imagery and Deep Learning." 2024 Global Land Programme Conference in Oaxaca, Mexico. November 6 2024. In: 121R-A Land-Cover/Land-Use Changes in Latin America: Actionable Science and Sustainability Implications.

HydroML. Morning Plenary. "Improving Inundation Estimates with Deep Learning: from satellite data fusion in Bangladesh, to the National Water Model-Satellite fusion in CONUS, to incorporating human experiences from flood injustice on the US-Mexico border in Texas." May 29. Virtual

2023 American Geophysics Union. Environmental Justice as a Verb- Working with Lawyers on Flood Justice in the Rio Grande Valley of Texas with AI and Satellite Imagery. GH33A-01: Geospatial Data Applications for Environmental Justice II Oral. 15 December.

American Geophysics Union. Addressing and understanding compound flood risk - from floodplain development to flood injustice- with satellites and machine learning. GC32A: Multisector Dynamics: Extreme Weather, Compound Hazards, and Impacts on Society I Oral. 15 December.

2022 American Geophysics Union. Understanding flood risk from space: opportunities to adapt to changing risk. Session: H33E – Remote Sensing of Rivers, Lakes, Reservoirs, and Wetlands. Invited talk 14 December.

AGU Frontiers in Hydrology, San Juan Puerto Rico. The consequences of adaptation: mitigating and producing vulnerability in Mexico City. Invited talk. June 17.

2021 American Geophysics Union. Leveraging historical and near-real-time satellite data to mitigate flood risk and build resilience. Oral Session- Analysis-ready data and analysis- in-place services

for weather and climate hazards research and applications in Earth Science. 14 December. Virtual

Conference Presentations, Submitted

2026 American Association of Geographers (AAG). "Urbanization and Engineered Transfers of Flood Risk: Using Satellite Data to Audit FEMA Letters of Map Change." In session: *The role of formal and informal power structures in shaping vulnerability and risk in cities from the Global North to the Global South.* San Francisco, CA*,* March 20, 2026

2025 American Geophysics Union (AGU) Fall Meeting. " 20 years of revising, amending, and reducing the U.S. Regulatory Floodplain-when, where, and why do these changes happen?." In session: *NH001 - Advances in Urban Flood Risk Assessment and Adaptation*. December 15, 2025

2024 American Association of Geographers. Challenging flood injustice in informal urban colonias in the Rio Grande Valley Texas with Flood Justice Utilizing Satellite Observation [FLUJOS]. Honolulu, HI, 20 April. Talk in session I co-organized on Sustainability and Informal Urbanization: Opportunities to Transform Urban Equity.

Computational Methods in Water Resources. Tucson, Arizona. Satellite based inundation mapping with deep learning. 3 October 2024.

2023 Conference of Latin Americanist Geographers, University of Arizona. Narcotrafficking and Land Control in Guatemala and Honduras. Talk in session I co-organized on Drug War Landscapes. 4 January.

2022 American Geophysics Union. Flooding in the desert: Assessing the value of satellite observations of inundation from the North American Monsoon with the Pima County Regional Flood Control District. Poster. SY12B – Advancing User and Institutional Skills to Use Earth Observations in Climate Services, Adaptation, and Mitigation. 12 December.

American Geophysics Union Fall Meeting. Earth observation to track flood recovery and adaptation: a survey of expert and practitioner insights and a systematic literature review. Oral Session: H52E – Global Floods: Forecasting, Monitoring, Risk Assessment, and Socioeconomic Response. 16 December.

American Association of Geographers, Identifying, projecting, and evaluating informal urban expansion spatial patterns in Mexico City. 28 February. Oral talk, Virtual.

2021 American Geophysics Union. High resolution imagery to train and validate deep learning models of inundation extent for multiple satellite sensors. Oral Session: IN017 - Commercial Earth Observation Data: Research and Applications. 14 December. Virtual.

Awarded Grants and Contracts (Limited to time in rank, %Effort indicates the percent of research FTE (55% in 2021-2022, 40% in 2022-2023, and 55% in 2023-2024 allocated, inclusive of the academic and fiscal year)

University Grants (Wisconsin)

2026 Principal Investigator. "Scoping Flood Resilience Partnerships in Wisconsin." Reilly Baldwin Wisconsin Idea Seed Grant University of Wisconsin-Madison. Co-Is, Jackson Parr, Daniel Wright, Eric Booth. Award Amount: $4,000. Nature of Review: Competitive Internal Program Manager Review.

Principal Investigator. "Addressing Flood Justice with Satellite Observations." Wisconsin Alumni Research Foundation (WARF) Fall Research Competition. Award Amount: $21,663. Nature of Review: Competitive Internal Peer Review.

2025 Principal Investigator. "Addressing Flood Justice with Satellite Observations." University of Wisconsin–Madison Brittingham Trust. Award Amount: $9,628. Nature of Review: Competitive Internal Program Manager Review.

Principal Investigator. "Flood Exposure, Vulnerability, and Adaptation." 2025. University of Wisconsin–Madison Morgridge Center for Public Service Community Based Learning Course Development Grant. Award Amount: $4,500. Nature of Review: Competitive Internal Program Manager Review.

University Grants (Arizona)

2023 **Principal Investigator.** "Flood Justice in the Rio Grande Valley." Research Institute for Innovation and Impact, Community Engagement Grant, University of Arizona**.** Award amount: $25,000. Effort: 20%. Co-Is Lucas Belury#, Ana Laurel (Texas Rio Grande Legal Aid), Carey Buxton (Texas Rio Grande Legal Aid).

Co-Principal Investigator. "Developing hydroclimate-adaptive management paradigms in energy and mining." Arizona Institutes for Resilience Working Group Grant, TRIF WEES Fund. Award amount: $100,000. Amount Effort: 5%. PI Chris Castro, Hsin-I Chang Co-Is Derek Lemoine, Zack Guido.

Working Group Member. "Mapping stories and data on migration as evidence of climate adaptation in Central and North America." Arizona Institutes for Resilience Grants for Working Groups on Climate Adaptation and Development Challenges in the Global South. Award amount $15,000. Amount Effort: 5% PI Alex Braithwaite.

2022 **Co-Principal Investigator.** International Working Group to Assess Flood Recovery, Adaptation, and Resilience from Space. Arizona Institutes for Resilience Working Group Grant**.** Award amount: $15,000. Amount Effort:7% Co-lead with Hannah Friedrich and Adriana Zuniga-Teran.

Federal, State, or County

2026 **Principal Investigator.** "AI-Driven Assessment of U.S. Inland Flood Inundation at High Resolution across the 21st Century." 2026–2028. NCAR EdEc Faculty Innovation Program Cohort 4. Award Amount: $250,000. Co-Is: Saurabh Kaushik, Seth Bryant, Dan Wright, Andy Wood, Andy Newman, Samar Minallah, D.J Gagne, James Done, Alex Saunders. Role: As PI, Dr. Tellman directs the overall scientific framework for U.S. flood assessment and supervises the multi-institution team of Co-Is. Nature of Review: Competitive External Peer Review.

Principal Investigator. "Tracking Global Glacial Lake Changes Annually Using Alpha Earth Embeddings." 2026. Google. Award Amount: $5,000. Nature of Review: Program manager/Google internal. Co-Is Saurabh Kaushik (post-doc in my lab, he wrote the grant)

2025 **Principal Investigator.** EAGER: Satellite-Based Evaluation of US Flood-Mitigation Infrastructure Performance. NSF. Award Amount: $300,000. Co-Is Saurabh Kaushik, Seth Bryant, Jon Sullivan.

2024 **Principal Investigator.** "Flood Justice Utilizing Satellite Observations; Social Vulnerability, Capacity Building, and Impact Assessment**.**" Future Investigators in NASA Earth and Space Science and Technology. Award Amount: $150,000. Amount Effort: 0% Future Investigator #Lucas Belury.

Principal Investigator. CAREER: Addressing flood justice and equity impacts of adaptation and urban expansion with satellite observations. NSF. Award Amount: $550,254. Direct amount: $397,645 Indirect Amount: $152,609 Percent Effort: 20%. Terminated 4/18/2025.

Co-Principal Investigator. CHIRRP: Catalyzing Flood Justice in the USA. NSF. Award amount $499,999. Direct amount: $20,002 Indirect Amount: $7,138 Percent Effort: 2% PI Aaron Flores (ASU), Co-Is Toni Sebastian (UNC), Eric Tate (Princeton), Marccus Hendricks (UMD). Terminated 4/25/2025.

2023 **Principal Investigator. "**Operationalizing VIIRS for water mapping, and river width evaluation for SWOT reaches with Planetscope and Sentinel-1." 2023-2024. NASA Hydrology Lab. Award Amount: $214,113 Direct Amount: $143,707 Indirect Amount: $70,406. Amount Effort: 5%

2022 **Principal Investigator. "**Monsoon Flood Monitoring, Pima County." 2022. Pima County Flood Control District. Award amount $28,303. Indirect amount: $9,865 Direct Amount: $18,438. Amount Effort: 5%

Principal Investigator. "Validation and machine learning approaches for surface water mapping." 2022-2024. NASA Hydrology Lab. Award number: 80NSSC22K0744. Award Amount: $120,000. Indirect amount: $35,495 Direct Amount: $84,505. Amount Effort: 5%

Principal Investigator. "Assessing BlackSky data for surface water detection." 2022. NASA Commercial SmallSat Data Analysis Augmentation. Award Number: 80NSSC21K1163. Award Amount: $100,000. Indirect amount: $16,604. Direct amount: $83,396. Amount Effort: 8% Co-Is Iskha Gurung (NASA), Andrew Molthan (NASA) and #Jonathan Giezendanner and #Rohit Mukherjee.

Principal Investigator. "Beyond Surface Water Mapping: Satellite-Based Estimates of Coastal Storm and Flood Exposure for the United States Gulf Coast."2022-2025 Future Investigators in NASA Earth and Space Science and Technology. Award number: 80NSSC22K1558. Award Amount: $150,000. Direct amount: $150,000 Indirect Amount: 0 Amount Effort: 2% Future Investigator #Hannah Friedrich, Co-I Friedrich Policelli.

2021 **Principal Investigator. "**High resolution imagery to train and validate deep learning models of inundation extent for multiple satellite sensors." 2021-2022. NASA Commercial SmallSat Data Analysis. Award number: 80NSSC21K1163. Award Amount: $199,861 Direct amount: $159,076

Indirect Amount. $40,785 Amount Effort: 15% Co-Is Iskha Gurung (NASA), Andrew Molthan (NASA) and Upmanu Lall (Columbia). $200,000.

Principal Investigator. "Understanding flood risk in human altered landscapes from cities to farms: inferences from satellites and machine learning**.**" 2021-2024. NASA New Early Career Investigators Program Earth Sciences. Award Number: 80NSSC21K1044. Award Amount: $377,733. Indirect amount: $123,331 Direct amount: $254,402 Amount Effort: 20% Collaborators: Upmanu Lall (Columbia), Saiful Islam (Bangladesh University of Engineering and Technology), Mohammed Bhuyan (Bangladesh Flood Forecasting and Warning Center), Mehadi Hasan (Bangladesh Flood Forecasting and Warning Center), and Sarder Raihan (Bangladesh Flood Forecasting and Warning Center).

Principal Investigator. "Mapping flood impacts using multi-sensor satellite data fusion in urban areas**.**" 2021-2024. NASA Terrestrial Hydrology. Award Number: 80NSSC21K1341. Award Amount: $ 658,975.00 Indirect amount: $165,021 Direct amount: $495,339 Amount Effort: 10% Co-Is Upmanu Lall (Columbia), Pierre Gentine (Columbia), and Venkat Lakshmi (Virginia). $660,360.

Co-Principal Investigator. "Making the Hidden Visible: Accelerated Land-Use Change and Degradation Caused by Narco-Trafficking In and Around Central America's Protected Areas." 2021-2024. NASA Land Cover Land Use Change. Award Number: 80NSSC21K0297. Award Amount: $696,112. Direct amount: $71,556 Indirect amount: $38,282. Effort: 10% PI Nick Magliocca (Alabama) and Matt Fagan (University of Maryland Baltimore).

Private Foundations

2023 **Principal Investigator. "**Flood Justice and Adaptation in the Rio Grande Valley of Texas with AI and satellite imagery" 2023-2024. Climate Change AI. Award Amount: $139,647. Direct amount: $125,684. Amount Effort: 20% Indirect amount: $13,963. Co-Is Lucas Belury, Zhijie Zhang, Ana Laurel (TRLA), Carey Buxton (TRLA).

2022 **Co-Principal Investigator. "**Flood Justice in the Rio Grande Valley." 2022-2024. Google Environmental Justice Data Fund. Co-I with Texas Rio Grande Legal Aide. $50,000. Direct and Indirect amount: 0. Amount effort: 5% PI Ana Laurel (TRLA), Co-Is Lucas Belury.

Co-Principal Investigator. "Evaluating the Impact of Stress-Tolerant Rice Varieties Through Remote Sensing and Econometric Methods: Phase 2". 2000-2022. Gates Foundation Standing Panel on Impact Assessment. PIs Jeff Michler (Arizona) and Val Pede (IRRI) with Co-Is Anna Josephson (Arizona) and Renaud Mathieu (IRRI). Award Amount $300,000. Direct amount: $30,000 (funding my post-doc for 6 months). Amount effort: 5%

International

2022 **Co-Principal Investigator. "**Water Transformation Pathways Planning**." 2022-2027. United National Water and Development Partnership Program (via UNESCO**).** Award Amount: 2,000,000 Euros total across 7 international nodes. Direct/Indirect amount: 0 Amount Effort 5%. PI for consortium Anamika Barua, IIT, Guwahati, India, with Co-Is Nzula Kitaka (Egerton University,

Kenya), Nguyen Minh Tu (Institute for Circular Economy, Vietnam), Fredrick Mugira (InfoNile), Leon Hermans (IHE Delft), Paty Belmont (Umbela), Lakshmi Charli-Joseph (UNAM).

Co-Principal Investigator." Enhancing the Evidence for Humanitarian Action (EEHA) in the Face of Climate Change." 2022-2024. Bureau of Humanitarian Affairs, USAID. Award Amount: $995,514. Direct amount: $117,595 Indirect Amount: $53,198 Amount Effort: 5% PI Zack Guido. Co-Is Corrie Hannah, Alex Braithwaite, Tim Finan, Anna Josephson, Jeff Michler.

Submitted Research Grants (Limited to time in Rank)

2024 **Co-Principal Investigator.** Project Title: Unquantified Impact of Earth's Debris Cover on Global glacier Ice Mass Loss Using Artificial Intelligence and Remote Sensing. Climate Change AI. Pending. Amount Requested: $134,367.03 Indirect Amount: $17,215.18 PI Saurabh Kaushik (Arizona).

Co-Principal Investigator. Satellites & AI to Investigate Flood-Induced Agricultural Losses in the USA. Climate Change AI. Pending. Amount Requested: $143,369 Indirect Amount: $14,377 PI Jonathan Sullivan (Arizona).

Principal Investigator. Flood Justice Utilizing Satellite Observation: Social Vulnerability, Capacity Building, and Impact Assessment with Community-Based Organizations in Texas' Rio Grande Valley. NASA. Unawarded. Amount Requested: $842,855 Indirect Amount: $224,205 Co-Is Amber Arriaga-Salinas (Proyecto Azteca); Anthony Boyd (Development Seed); Zhijie Zhang (Utah State University); Lucas Belury (Arizona).

Co-Principal Investigator. Water Mapping and River Discharge Estimation in Partnership with ESA. NASA. Pending. Amount Requested: $778,768 Indirect Amount: 61,283 PI Fritz Policelli (NASA). Co-Is Marco Lavalle (NASA): Karim Douch (NASA).

Co-Principal Investigator. Forecasting Water Inundation Extents and their Socioeconomic Impacts for Food Security Early Warning. NASA. Pending. Amount Requested: $1,117,875 Indirect Amount: 126,110 PI Albert Kettner (U Colorado). Co-Is Fritz Policelli (NASA): Amy McNally (USAID); James Verdin (USAID); Jon Sullivan (Arizona).

2023 **Principal Investigator.** Reducing climate risk with AI and satellite-based flood monitoring in the Rio Grande Valley of Texas. Amazon. Unawarded. Amount Requested: $100,253 Direct amount: $100,253 Indirect Amount: 0 Co-I Marla Perez-Lugo (UTRGV).

Co-Principal Investigator. Leveraging Earth Observation Data and AI for Flood Exposure Estimates in the Mississippi River Basin. Amazon. Unawarded. Amount Requested: $109,471 Indirect Amount: 0 PI Jonathan Sullivan (Arizona).

Principal Investigator. DISES-RCN: Catalyzing Flood Justice in the USA. NSF. Unawarded. Amount Requested: $500,420. Direct amount: $346,942 Indirect Amount: $153,478 Percent Effort: 5% Co-Is Aaron Flores (ASU), Toni Sebastian (UNC), Eric Tate (Princeton), Marccus Hendricks (UMD).

Co-Principal Investigator. H2O Connect: Bridging Communities and Water Providers via AI-driven Heterogeneous Information Networks to Enable Equitable Water Services. NSF.

Unawarded. Amount Requested: $750,000. Direct amount: $119,113 Indirect Amount: $ 41,515 Percent Effort: 5%. PI Khalid Osman (Stanford), Co-Is Xinyue Ye (Texas A&M), Yanjie Foo (ASU), Chris Tull (California Data Collective)

Co-Principal Investigator. "Assessing Capella SAR data for surface water detection" NASA Commercial Smallsat Data Acquisition New Vendor Onramp Evaluation. Unawarded. Award Amount: $111,509. Direct amount: $60,796 Indirect Amount: $6,421. Percent Effort: 5% PI #Rohit Mukherjee, Co-is #Jonathan Giezendanner, Andrew Molthan (NASA), Alexander Melancon (NASA).

Principal Investigator. "Lived Experience and Remotely Sensed Flood Data in the Rio Grande/Rio Bravo Delta**.**" Future Investigators in NASA Earth and Space Science and Technology. Unawarded. Award Amount: $150,000. Amount Effort: 2% Future Investigator #Lucas Belury.

2022 **Principal Investigator. "**Flood Justice in the Rio Grande Valley" NASA Environmental Justice. Unawarded. Award Amount $150,000. Direct amount: $127,935 Indirect Amount: $22,065. Perfect Effort: 10% Co-Is #Lucas Belury, Ana Laurel (TRLA), Carey Buxton (TRLA).

Co-Principal Investigator. "Mapping flood impacts in urban areas using transformer models by fusion of Maxar WorldView products, PlanetScope, and public sensors." Commercial Smallsat Data Scientific Analysis NASA. Unawarded. Award amount $387,248. Direct amount: 282,479 Indirect amount: $89,502. Percent Effort: 5%PI #Zhijie Zhang. Co-Is Alexander Melancon (NASA), Andrew Molthan (NASA), #Rohit Mukherjee.

Co-Principal Investigator. "DISES: Shifting Risk: Examining socio-environmental interactions of Public and Private Flood Risk Management Measures Amid Chronic and Acute Hazards in the US Gulf Coast." NSF DISES. Unawarded. Award Amount: $1,584,219. Direct $103,936 Indirect $159,542. Percent Effort: 5% PI Elliot White (Stanford) Co-Is Khalid Osman (Stanford), Maddie Foster-Martinez (University of New Orleans), Elinor Benami (Virginia Tech).