CURRICULUM VITAE
Beth Tellman
Assistant Professor, School of Geography, Development, and Environment
Affiliated faculty, Department of Hydrology & Atmospheric Sciences
Affiliated faculty, Latin American Studies
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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

2021-present   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-pre   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

2023	Bloomberg New Economy Catalyst. For work with company Floodbase.
2023	Udall Center Policy Fellowship, University of Arizona
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"
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

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

2022-present   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, * indicates completed in graduate school

Refereed Journal Articles
1. 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

2. 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) Workshops. Pp 2154-2154. Doi:* 10.1109/CVPRW59228.2023.00209

3. 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.

4. 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

5. 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.

6. **Tellman**, Lall, Islam, Bhuyan. *2022. Earth's Future.* Regional Index Insurance using Satellite-based Fractional Flooded Area. https://doi.org/10.1029/2021EF002418

7. **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.

8. **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/

9. **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

10. 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

11. 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

12. **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

13. 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.

14. **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

15. **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

16. 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.

17. 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) Workshops*. DOI: 10.1109/CVPRW50498.2020.00113

18. **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

19. 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

20. 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.

21. *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

22. *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.

23. ***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

24. *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

25. *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

26. *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

27. ***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

28. *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.

29. *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.
30. *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.
31. *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
32. *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
33. ***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
34. **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. 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.
2. **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.
3. *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
4. ***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. 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
2. Karimzadeh, Han, Tellman, and Nielsen. 2021. **Spatial Data Science Symposium.** Classifying Narcotrafficking Spatial Event Documents using Transformers. https://doi.org/10.25436/E2B88Q
3. 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.
4. 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. 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
2. ***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
3. ***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.*
4. *Schumann, G., Kettner, A., & **Tellman, B.** 2019. NASA Flood Risk Workshop 2018.
5. *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/
6. ***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.
7. ***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.
8. ***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.*
9. ***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

10. **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. 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/

2. 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/

3. **Tellman**, B. 2014. "Hotspots for People: A New Conservation Strategy." *SNAP Magazine.* http://www.snap.is/magazine/hotspots-for-people-new-conservation-strategy/

4. **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)*

Mukherjee#, Policelli, Wang#, **Tellman**, Sharma#, Zhang#, and Giezendanner#. *In review- Earth System Science Data.* A Globally Sampled High-Resolution Hand-Labeled Validation Dataset for Evaluating Surface Water Extent Maps. https://doi.org/10.5194/essd-2023-168.

Sullivan, Friedrich#, **Tellman,** Saunders#, Belury#, *Submitted- Eos.* A Research Agenda for Addressing Flood Injustice.

Friedrich#, **Tellman,** Sullivan, Saunders#, Zuniga-Teran, Bakkensen, Cawley, Dolk, Emberson, Forrest, Gupta, Gyawali, Hall, Kettner, Sanchez Lozano, Bola. *In Review- Earth's Future.* Earth Observation to Monitor and Redress Inequitable Post-Flood Recovery

Bennett, Gleason, **Tellman,** Alvarez Leon, Friedrich#, Ovenmhada, Mathews. *Submitted- Global Environmental Change Advances.* Bringing satellites down to Earth: Six steps to more ethical remote sensing.

Ortiz-Moreno, **Tellman**, Rodríguez-Izquierdo, Morelos, Rodríguez-Bustos. *In Press.* 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.

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.

Media

Expert Interviews

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.

2023   Google Flood Forecasting Meets Machine Learning Workshop Invited Keynote "Understanding MORE Flood Risk from Space!" January 11.

2023   SXSW, "Climate Data is Power- to the People." Arizona WonderHouse. March 12 https://www.youtube.com/watch?v=E2lrBK_Ai1Q.

Invited Seminars and Colloquia

2023   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   Computation Social Science Fall Gathering, University of Arizona. "Socializing the Pixel." Nov 4.

   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

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

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 salary covered by the grant, if not listed then amount is 0)

University Grants

2023   **Principal Investigator.** "Flood Justice in the Rio Grande Valley." Research Institute for Innovation and Impact, Community Engagement Grant, University of Arizona**.** UA Account #2109634 Award amount: $25,000. 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. UA Account # 5851073. 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. 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**.** UA Account #2252530. Award amount: $15,000. Co-lead with Hannah Friedrich and Adriana Zuniga-Teran.

Federal, State, or County

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: 8%

2022   **Principal Investigator. "**Monsoon Flood Monitoring, Pima County." 2022. Pima County Flood Control District. UA account# 4262640. Award amount $28,303. Indirect amount: $9,865 Direct Amount: $18,438. Amount Effort: 6%

   Principal Investigator. "Validation and machine learning approaches for surface water mapping." 2022-2024. NASA Hydrology Lab. Award number: 80NSSC22K0744. UA account# 3045260. Award Amount: $120,000. Indirect amount: $35,495 Direct Amount: $84,505. Amount Effort: 8%

   Principal Investigator. "Assessing BlackSky data for surface water detection." 2022. NASA Commercial SmallSat Data Analysis Augmentation. Award Number: 80NSSC21K1163. UA Account: 3042290 Award Amount: $100,000. Indirect amount: $16,604. Direct amount: $83,396. Amount Effort: 5% 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. UA account # 22080199. Award Amount: $150,000. Direct amount: $150,000 Indirect Amount: 0 Future Investigator #Hannah Friedrich, Co-I Friedrich Policelli.

Co-Principal Investigator." Enhancing the Evidence for Humanitarian Action (EEHA) in the Face of Climate Change." 2022-2024. Bureau of Humanitarian Affairs, USAID. UA Account: 3048824 Award Amount: $995,514. Direct amount: $117,595 Indirect Amount: $53,198 Amount Effort: 8% PI Zack Guido. Co-Is Corrie Hannah, Alex Braithwaite, Tim Finan, Anna Josephson, Jeff Michler.

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. UA account number: 3042290. Award Amount: $199,861 Direct amount: $159,076 Indirect Amount. $40,785 Amount Effort: 11% 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. UA Account number: Award Amount: $377,733. Indirect amount: $123,331 Direct amount: $254,402 Amount Effort: 11% 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. UA Account #: 3042930 Award Amount: $ 658,975.00 Indirect amount: $165,021 Direct amount: $495,339 Amount Effort: 11% 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. UA Account: 4035960. Award Amount: $696,112. Direct amount: $71,556 Indirect amount: $38,282. Effort: 8% 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: 6% 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. 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).

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 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).

Submitted Research Grants (Limited to time in Rank)

2023   **Co-Principal Investigator.** H2O Connect: Bridging Communities and Water Providers via AI-driven Heterogeneous Information Networks to Enable Equitable Water Services. NSF. Pending. 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)

Principal Investigator. CAREER: Addressing flood justice and equity impacts of adaptation and urban expansion with satellite observations. NSF. Pending. Amount Requested: $580,338. Direct amount: $416,974 Indirect Amount: $163,363 Percent Effort: 11%

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. 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: 5% 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).