

# CURRICULUM VITAE

JESSIE K. PEARL

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POSITIONS THE NATURE CONSERVANCY Tucson, AZ  
**2021** – Freshwater Scientist

UNITED STATES GEOLOGICAL SURVEY Seattle, WA  
**2019 – 2021** Mendenhall Postdoctoral Research Fellow  
Earthquake Science Center

UNIVERSITY OF WASHINGTON COLLEGE OF THE ENVIRONMENT Tucson, AZ  
**2019** Future Park Leader of Emerging Change  
Saguaro National Park

UNIVERSITY OF ARIZONA Tucson, AZ  
**2015 – 2019** Graduate Research Assistant  
Department of Geosciences  
Laboratory of Tree Ring Research

UNIVERSITY OF ARIZONA SKY SCHOOL Tucson, AZ  
**2017 – 2019** Science Instructor for K-12 students

SAGUARO NATIONAL PARK Tucson, AZ  
**2018** Guest Scientist  
Geoscientists-in-the-Park program  
Geological Society of America

WOODS HOLE OCEANOGRAPHIC INSTITUTION Woods Hole, MA  
**2014 – 2019** Affiliated Joint Program Student

EDUCATION UNIVERSITY OF ARIZONA Tucson, AZ  
**2019** Ph.D., Geosciences (Paleoclimatology, Dendrochronology)  
PhD Minor Area: Global Change  
Primary Advisor: Kevin J. Anchukaitis  
Dissertation: *Reconstructing Late Holocene Climate and Coastal Evolution for the Northeastern United States*

TUFTS UNIVERSITY Somerville, MA  
**2013** B.S., (*cum Laude*) Geology & Environmental Science  
Foreign study at University of Canterbury (Christchurch, NZ), 2011-2012

PUBLICATIONS *Peer-Reviewed Papers*

[13] Angster, S. J., B. L. Sherrod, W. Johns, and **J.K. Pearl**, Field and Laboratory Data from a Trench Exposure across the West Blakely fault, South Bainbridge Island, Washington, 2020, *USGS Scientific Investigations Map*, in press.

- [12] **Pearl, J. K.**, and L. Staisch (2021), Swipe left on the “big one”: Better dates for Cascadia quakes, *Eos*, 102, doi:110.1029/2021EO162183, 2021.
- [11] Tucker, C. & **Pearl, J.K.**, Coastal tree-ring records for paleoclimate and paleoenvironmental applications in North America, *Quaternary Science Reviews*, 261, 107044, doi: 10.1016/j.quascirev.2021.107044, 2021.
- [10] Walton, M & Staisch, L, T. Dura, **J.K. Pearl**, B. Sherrod, J. Gomberg , S. Engelhart, A. Trehu, J. Watt, J. Perkins, N. Bartlow, C. Goldfinger, H. Kelsey, A. Morey, V. Sahakian, H. Tobin, R. Wells, E. Wirth, R. Witter, Towards an integrative geological and geophysical view of Cascadia subduction zone earthquakes, *Annual Review of Earth and Planetary Sciences*, 41, 1 doi:10.1146/annurev-earth-071620-065605, 2021.
- [9] Pederson, N., C. Leland, D. A. Bishop, **J. K. Pearl**, K. J. Anchukaitis, T. Mandral, M. Hopton-Ahmed, D. Martin-Benito, A framework for determining population-level vulnerability to climate: evidence for growth hysteresis in *Chamaecyparis thyoides* along its contiguous latitudinal distribution, 3, 39 *Frontiers In Forests And Global Change*, doi:10.3389/ffgc.2020.00039, 2020.
- [8] **Pearl, J.K.**, J.R. Keck, W. Tintor, L. Siekacz, H. M. Herrick, Matthew D. Meko, C.L. Pearson, New frontiers in tree-ring research, *The Holocene*, doi: 10.1177/0959683620902230, 2020.
- [7] **Pearl, J.K.**, K.J. Anchukaitis, J. Donnelly, C. Pearson, A. McNichol, N. Pederson, A.P. McNichol, M. L. Gaylord, E.R. Cook, G.L. Zimmerman, A late Holocene subfossil Atlantic white cedar tree ring record from the northeastern United States, *Quaternary Science Reviews*, 228, 106104, doi: 10.1016/j.quascirev.2019.106104, 2020.
- [6] **Pearl, J.K.**, K.J. Anchukaitis, N. Pederson, J. Donnelly, Multivariate climate field reconstructions using tree-rings for the northeastern United States, *Journal of Geophysical Research – Atmospheres*, 125, e2019JD031619 doi:10.1029/2019JD031619, 2019.
- [5] Anchukaitis, K.J., E.R. Cook, B.I. Cook, R. D’Arrigo, R., **J.K. Pearl**, R. Wilson, Coupled Modes of North Atlantic Ocean-Atmosphere Variability and the origin of the Little Ice Age, *Geophysical Research Letters*, doi:10.1029/2019GL084350, 2019.
- [4] Minor, J., **J.K. Pearl**, M.L. Barnes, T.R. Colella, P. Murphy, S. Mann, G.A. Barron-Gafford, Critical Zone Science in the Anthropocene: Opportunities for Biogeographic and Ecological Theory and Praxis to Drive Earth Science Integration, *Progress in Physical Geography*, 0309133319864268, doi:10.1177/0309133319864268, 2019.
- [3] Alexander, M. R., **J.K. Pearl**, D. A. Bishop, E.R. Cook, K.J. Anchukaitis, N. Pederson, The potential to strengthen temperature reconstructions in ecoregions with limited tree line using a multispecies approach, *Quaternary Research*, 1-15, doi: 10.1017/qua.2019.33, 2019.
- [2] Amoroso, M., Speer, J. Daniels, L. D., Villalba, R., Cook, E.R., Stahle, D., Srur, A., Tardif, J., Conciatori, F., Aciar, E., Arco, J., Bonada, A., Coulthard, B., Haney, J., Isaac-Rentron, M., Magalhães, J., Marcotti, E., Meglioli, P., Sol Montepeluso, M., Oelkers, R., **Pearl, J.**, Pompa Garcia, M., Robson, J., Rodriguez Catón, M., Soto, P., Young, A., South American Dendroecological Fieldweek 2016: Exploring Dendrochronological Research In Northern Patagonia, *Tree-Ring Research*, 74(1), doi:10.3959/1536-1098-74.1.120, 2018.
- [1] **Pearl, J.K.**, K. Anchukaitis, N. Pederson, J. Donnelly, Reconstructing Northeastern United States temperature using Atlantic white cedar tree-ring width, *Environmental Research Letters*, 12, 114012, doi: 10.1088/1748-9326/aa8f1b, 2017.

*In Revision, Submitted, or In Preparation*

† = student author

†Dye, Laura, **J.K. Pearl**, L. Smith, B. Coulthard, C. Butkiewicz, Z. Cooper, J. Degrand, J. Friedman, I. Homfeld, H. Howard, L. Ironcloud, S. Wray, Co-occurring Wyoming conifers have distinct climate-growth relationships, accepted at *Tree Ring Research*

**Pearl, J.K.**, C. King, D. Swann, C. Filippone, C. Eastoe, G. Davis, Structural Controls on Low Elevation Water Sources in the Sonoran Desert, under USGS internal review, *Journal of Hydrological Processes*

Atwater, Brian F., D. Yamaguchi, **J.K. Pearl**, Cascadia Earthquake Ecology in Nineteenth-Century Documents, under USGS internal review, *Northwest Science*

*Technical Reports*

- [3] **Pearl, J.K.**, D. Swann, C. Filippone, K. O'Brien, Contextualizing recent snowpack trends of a southern Arizona Mountain Range, 2019, *Internal Report, National Park Service*
- [2] **Pearl, J.K.**, C. King, D. Swann, C. Filippone, C. Eastoe, G. Davis, Geohydrology of perennial low elevation tinajas in the Saguaro National Park, 2018, *Internal Report, National Park Service*
- [1] King, C., **J.K. Pearl**, D. Swann, G. Davis, Structural and lithological controls on the hydrology at low elevation in the Rincon Mountain District of Saguaro National Park, Tucson, AZ, 2018, *Internal Report, National Park Service*

TEACHING	NORTH AMERICAN DENDROECOLOGICAL FIELD WEEK <b>Instructor</b> <i>Introduction to Dendrochronology</i> (Summer 2019)	Cody, WY
	UNIVERSITY OF ARIZONA <b>School of Geography and Development</b> <b>Lecturer</b> GEOG 170A1 <i>Introduction to Physical Geography</i> (Fall 2018)	Tucson, AZ
	UNIVERSITY OF ARIZONA <b>Laboratory of Tree Ring Research</b> <b>Co-Facilitator</b> 'PRO-grad' <i>Scientific and Professional Training</i> (Fall 2018)	Tucson, AZ
	UNIVERSITY OF ARIZONA SKY SCHOOL <b>Geology and Dendrochronology</b> K-12 inquiry based projects in the Catalina Sky Islands (Fall 2017, Spring 2018, Fall 2018, Spring 2019)	Tucson, AZ
	NATUREBRIDGE <b>Science Educator</b> K-12 inquiry based projects in Santa Monica Mountains National Recreation Area and Channel Islands National Park (Winter 2014, Spring 2014, Summer 2014)	Thousand Oaks, CA
HONORS	The Association for Tree-Ring Research Best Doctoral Thesis, 2020 University of Arizona Laboratory of Tree Ring Research A.E. Douglass Award, 2019 P.E.O. Scholar Award Recipient, 2018 University of Arizona Department of Geosciences Wilson Thompson Graduate Scholarship, 2018 University of Arizona College of Science, Laboratory of Tree Ring Research Scholarship Award, 2018 University of Arizona, Herbert E. Carter Travel Award, 2018 University of Arizona Graduate & Professional Student Council Travel Grant, 2017 & 2018 Arizona Geological Society M. Lee Allison Scholarship, 2017 Geologic Society of America Student Research Grant Award, 2017 University of Arizona, Department of Geosciences, Chernoff Family Scholarship, 2017 University of Arizona College of Science Galileo Circle Scholar, 2017 University of Arizona Global Change Travel Grant, 2017 American Geophysical Union fall meeting Student Travel Grant, 2016	

Southern Arizona Environmental Management Society Scholarship, 2016  
National Science Foundation Graduate Research Fellowship Honorable Mention, 2016  
Achievement Rewards for College Scientists, University of Arizona Department of Geosciences Nominee, 2016  
University of Arizona Institute for the Environment Travel Grant, 2016

#### FELLOWSHIPS

U.S. Geological Survey Mendenhall Postdoctoral Research Fellowship, 2019-2021  
University of Arizona Carson Scholar Fellowship, 2016  
M.I.T. Diversity Fellowship, 2014–2015  
Climate Change Youth Initiative, George Melendez Wright Fellowship for Climate Change Research, 2013

#### GRANTS

- “Integrating multiproxy records of Tropical Cyclone activity over the last millennia to contextualize 21st century events in the Northern Gulf of Mexico” coPIs/Advisors: E. Elliott, C. Tucker, **J.K.Pearl**, J. Bredgy. NSF FY21 P2C2 (2103115), 07/15/2021 – 6/30/2023, \$327,532

PRESENTATIONS *Invited or Recent (2016 to present)* † = student author

**Pearl, J.K.**, B. Black, P. Pringle, B. Sherrod, S. Angster, W. Johns, Establishing precise ages for past Cascadia region seismicity using multiproxy tree-ring records, Geologic Society of America Annual Meeting, October 10-13, 2021 \*\* *Invited Talk*

Staisch, L. ....**Pearl, J.K.**... *et al*, Paleoseismic Surf and Turf: Updates from the USGS Powell Center Cascadia Earthquake Working Group in Systematic Integration of Onshore and Offshore Records and Future Directions, Geologic Society of America Annual Meeting, October 10-13, 2021

**Pearl, J.K.**, Multiproxy reconstructions of coastal climate and extreme events in North America, Central Washington University Department of Geology, May 7, 2021 \*\* *Invited Talk*

**Pearl, J.K.**, Multiproxy reconstructions of late Holocene coastal climate and extreme events, University of Texas Institute for Geophysics, March 19, 2021 \*\* *Invited Talk*

**Pearl, J.K.**, Multiproxy reconstructions of Late Holocene coastal climate and extreme events in the United States, University of Tennessee, Knoxville Department of Geography Seminar, February 25, 2021 \*\* *Invited Talk*

**Pearl, J.K.**, Late Holocene coastal evolution and climate variability in the United States, Lamont-Doherty Earth Observatory Biology and Paleo-environment Seminar, February 8, 2021 \*\* *Invited Talk*

**Pearl, J.K.**, Multiproxy reconstructions of coastal climate and extreme events in the United States, University of Washington Earth and Space Sciences Seminar, January 14, 2021 \*\* *Invited Talk*

**Pearl, J.K.**, Black, B. A., Pringle, P., Sherrod, B. L., Multiproxy dendrochronological dating of coseismic land-level changes in the Puget lowlands, American Geophysical Union fall meeting, December 1–18, 2020

† Dye, L., C. Butkiewicz, Z. Cooper, J. DeGrand, J. Friedman, I. Homfeld, H. Howard, L. Ironcloud, **J. K. Pearl**, L. Smith, S. Wray, Climate sensitivity and growth response of two conifers on high elevation ridge at Wolf Knob, Shoshone Forest, WY, Geological Society of America Annual Meeting 2020

**Pearl, J.K.**, High Resolution Dating of Paleoseismic Events, presented at the Pacific Northwest Earthquake Science Workshop, November 4-6, 2019, Seattle, WA \*\* *Invited Talk*

**Pearl, J.K.**, From Pixels to Pines: Contextualizing Recent Snowpack Trends of Saguro National Park, presented at the Future Park Leaders Annual Symposium, August 6-8, 2019, Fort Collins, CO

**Pearl, J.K.**, Late Holocene coastal evolution and climate variability in the northeastern United States, Rice University Earth, Environmental and Planetary Sciences Seminar, January 22, 2019, Houston, TX\*\* *Invited Talk*

**Pearl, J.K.**, K. Anchukaitis, N. Pederson, and J. Donnelly, Multivariate climate field reconstructions for the Northeastern United States, presented at American Geophysical Union fall meeting, December 10–16, 2018, Washington D.C. \*\* *Outstanding Student Presenter Award*

King, C., **J.K. Pearl**, D.E. Swann, C. Eastoe, C. Filippone, G. Davis, Determining source water of critical springs and tinajas in Saguro National Park, presented at American Geophysical Union fall meeting, December 10–16, 2018, Washington D.C. \**Presenting Author*

**Pearl, J.K.**, K. Anchukaitis, N. Pederson, and J. Donnelly, High-resolution gridded paleoclimate reconstructions of the northeastern United States from tree-rings, presented at the Graduate Climate Conference, November 2–4, 2018, Pack Forest, WA

Anchukaitis, K., B. Coulthard, N. McKay, **J. Pearl**, G. Pederson, C. Routson, S. St. George, R. Wilson., Large-scale temperature reconstructions from tree rings in North America: challenges and opportunities, presented at Mountain Climate Conference, September 17–21 2018, Gothic, CO

Pederson, N., C. Leland, D. Bishop, **J. Pearl**, K. Anchukaitis, M. Hopton-Ahmed, D. Martin-Benito, Determining the climatic vulnerability of *Chamaecyparis thyoides* populations along its contiguous latitudinal distribution, presented at the Ecological Society of America Meeting, August 5–10, 2018, New Orleans, LA

**Pearl, J.K.**, K. Anchukaitis, N. Pederson, J. Donnelly, Paleoclimate reconstructions of the northeastern United States using Atlantic white cedar tree-rings, presented at the World Dendrochronology Conference, June 9–15, 2018, Thimphu, Bhutan

**Pearl, J.K.**, K. Anchukaitis, N. Pederson, J. Donnelly, Paleoclimate reconstructions of the northeastern United States using Atlantic white cedar tree-rings, presented at the University of Arizona “GeoDaze” Geosciences Symposium. April 12–13, 2018, Tucson, AZ\*\**Winner: Best Overall Graduate Student oral presentation*

**Pearl, J.K.**, K. Anchukaitis, J. Donnelly, N. Pederson., Ghost Forest Stories: how ancient coastal trees tell us about shoreline change and past hurricanes, presented at University of Arizona School of Earth and Environmental Sciences “EarthWeek”, April 10–13, 2018, Tucson, AZ \*\* *Invited Speaker*

**Pearl, J.K.**, K. Anchukaitis, J. Donnelly, N. Pederson., Dendroclimate evidence for extreme hydrologic events over the late Holocene in the Northeastern United States, presented at American Geophysical Union Fall Meeting, December 11–15 2017, New Orleans, LA

Alexander, R., N. Pederson, N., D. Bishop, **J. Pearl**, K. Anchukaitis, Hide and go seek with temperature signals of Northeastern US Tree Species, presented at American Geophysical Union Fall Meeting, December 11–15 2017, New Orleans, LA

**Pearl, J.K.**, K. Anchukaitis, N. Pederson, J. Donnelly, and D. Bishop, Common Era climate reconstructions from the northeastern United States, presented at Past Global Changes Open Science Meeting and Youth Science Meeting. May 7–13, 2017, Zaragoza, Spain **\*\*Winner: Nature Geoscience Peer Choice Poster Prize**

**Pearl, J.K.**, K. Anchukaitis, N. Pederson, J. Donnelly., Paleoclimate reconstructions from the northeastern United States using tree-rings, presented at University of Arizona “GeoDaze” Geosciences Symposium. March 30–April 1, 2017, Tucson, AZ **\*\*Winner: Paleoclimate Session Best Oral Presentation**

Minor, J., T. Colella, M. Barnes, S. Mann, P. Murphy, **J. Pearl**, and G. Barron-Gafford, Biogeography and Critical Zone Science in the Anthropocene, presented at the 8th Biennial Conference of the International Biogeography Society. January 9–13, 2017, Tucson, AZ.

**Pearl, J.K.**, K. Anchukaitis, N. Pederson, and J. Donnelly, Paleoclimate Signals and Temperature Reconstructions for the Northeastern United States using Atlantic White Cedar Tree-Rings, presented at American Geophysical Union Fall Meeting, December 12–16, 2016, San Francisco, CA.

**Pearl, J.K.**, K. Anchukaitis, N. Pederson, D. Bishop, and J. Donnelly., Climate controls on the annual growth rings in Atlantic White cedar, presented at Atlantic White Cedar Symposium, May 24-26, 2016, Plymouth, MA.

Colella, T., Mann, S., Murphy, P., Barron-Gafford, G., Minor, J., Pearl, J., and Barnes, M., Critical Zone Science in the Anthropocene, presented at the Annual Conference of the Association of American Geographers, March 29–April 2, 2016, San Francisco, CA.

**Pearl, J.K.**, K. Anchukaitis, N. Pederson, and J. Donnelly, Dendroclimatology of coastal Atlantic White cedar in the northeastern United States, presented at American Dendrochronology Conference, March 28–April 1, 2016, Mendoza, Argentina **\*\*Winner: Student Poster Honorable Mention**

#### PRESS/POPULAR SCIENCE

*Research featured in* “Northwest scientists use ancient trees (and an underwater chainsaw) to uncover our seismic history” <https://www.opb.org/article/2021/10/15/northwest-scientists-use-ancient-trees-underwater-chainsaw-study-seismic-history/>, October, 2021

Pearl, J. K., and L. Staisch (2021), Swipe left on the “big one”: Better dates for Cascadia quakes, *Eos*, 102, [doi:10.1029/2021EO162183](https://doi.org/10.1029/2021EO162183), Published on 20 August, 2021.

“Dendrochronological dating of co-seismic land-level changes along the Washington coast”, Association of Environmental & Engineering Geologists Nisqually Chapter, February, 2021

“A suite of evidence for past earthquakes on Bainbridge Island”, Bainbridge Island Day of Preparedness community presentation, September, 2020

*Research featured in* “A Massive Earthquake Is Coming to Cascadia- And It Can’t Be Stopped”, *Atlas Obscura*, August, 2020

DATA NUGGET, “A window into a tree’s world”, <http://datanuggets.org/tag/ecology/>, December, 2019

“Why is there water in the desert? A look at low elevation pools in Saguaro National Park”, Friends of Saguaro National Park public lecture, September, 2018

“Climate at the Core” Science Café: a Public Science Lecture Series, February, 2017

*Research featured in ‘Climate at the Core: Reconstructing the past to understand the future’, The Nature Conservancy Magazine, New Hampshire edition, October, 2016*

*Research featured in “Ghostly Findings On the Shores of Montauk Garner Attention”, 27east.com, October 27, 2015*

#### SERVICE AND PROFESSIONAL AFFILIATIONS

**Steering Committee Member** Past Global Changes (PAGES) Early Career Network Working Group (2020-present)

**Affiliate Member** of the University of Washington Quaternary Research Center (2020-2021)

**Member** of USGS Earthquake Science Center Diversity, Equity, and Inclusion Task Force (2020-2021)

**Professional reviewer** of journal manuscripts for *Science, Nature, Climate of the Past, Global and Planetary Change, The Holocene Dendrochronologia, Quaternary Science Reviews, Wetlands, Journal of Coastal Research, Natural Hazards and Earth System Sciences* and *PLOS One*.

**Professional reviewer** of National Science Foundation grant proposals.

**Outreach Volunteer** for the University of Arizona *Laboratory of Tree Ring Research* and *Department of Geosciences*

**Alumni Interviewer** for Tufts University Admissions

**Member** of *American Geophysical Union* and *Geological Society of America* and *American Institute of Professional Geologists* and *Tree Ring Society* and *Association for Tree-Ring Research* and *Arizona Geological Society* and *Association for Women Geoscientists*

#### PARTICIPATION AND TRAINING

- Unlearning Racism in Geoscience (URGE) course, 2021
- Invited Participant, World Dendro Field Week, Jakar, Bhutan, June 2018
- Invited Participant, Past Global Changes Youth Science Meeting, Zaragoza, Spain, May 2017
- Participant, MATLAB for Geosciences, formal training with Dr. M. Trauth, Tucson, Arizona, October 2016
- Invited Participant, Potsdam Summer School: ‘Climate Change Impacts’, Potsdam, Germany, September 2016
- Participant, N.C.A.R. CESM Tutorial, Boulder, CO, August 2016
- Participant, American Dendrochronology Field Week, El Bolson, Argentina, March 2016
- Participant, Wood Anatomy and Tree Ring Ecology course, Klöstere, Switzerland, December 2015
- Invited Participant, Central American Dendroecology Field Week, Guatemala, March 2015
- Wilderness First Responder Certified (Valid until May 2022)